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Zulma Sánchez Estrada

PRESENTATION

Education is a field of knowledge in which different disciplines intertwine to form a greater whole. **Knowledge Networks: Education as a Multidisciplinary Field - 2º Ed** is a work that expands this interconnection, bringing together 84 articles on various topics, written by experts from different areas of knowledge.

Developed by **Seven Publications**, this book presents a broad overview of the challenges, discoveries and advances in fields such as Brazilian legislation, digital media, teacher timetabling care and much more.

SUMMARY

BRAZILIAN LEGISLATION: GUIDELINES FOR EDUCATIONAL INCLUSION OF PEOPLE WITH DISABILITIES AND INCLUSION OF STUDENTS IN HIGHER EDUCATION

Giordano Muneiro Arantes, Luiz Cesar Martini.

  <https://doi.org/10.56238/sevened2025.038-001>

.....21-35

A DIALOGUE BETWEEN ETHNOMATHEMATICS AND PROBLEM-SOLVING IN ALGEBRA TEACHING

Geane de Souza Oliveira.

  <https://doi.org/10.56238/sevened2025.038-002>

.....36-49

DIGITAL MEDIA AND THE INCLUSION OF STUDENTS WITH DISABILITIES IN EDUCATION

William Conceição, Marcelo Morandini.

  <https://doi.org/10.56238/sevened2025.038-003>

.....50-58

MULTIMEDIA RESOURCES FOR EDUCATION

William Conceição, Marcelo Morandini.

  <https://doi.org/10.56238/sevened2025.038-004>

.....59-66

THE SILENT COMMITMENT: UNVEILING THE INVISIBLE WORK OF MANAUS MUNICIPAL EDUCATORS

Elka Maria Freitas do Nascimento, Elenilson de Sena Garcia, Francisco dos Santos Nogueira, Priscila Lima de Freitas, Silvângela da Silva Cunha, Stela Mary N. Braga, Welhington dos Santos Coelho.

  <https://doi.org/10.56238/sevened2025.038-005>

.....67-79

HIGHER EDUCATION IN BRAZIL: DIDACTIC AND PEDAGOGICAL CHALLENGES OF UNIVERSITY TEACHING

Carlos José de Melo Moreira, Verônica Lima Carneiro Moreira.

  <https://doi.org/10.56238/sevened2025.038-006>

.....80-98

THE CHALLENGES OF SCHOOL INCLUSION IN THE CLASSROOM CONTEXT

Mônica Cristina Camargo Ferreira, Paula Nayara Nunes Rosa, Erika Patrícia Lacerda Dias Souza, Marciléia Pereira do Carmo, Mireli Aparecida Santos Motta, Gilva Miranda Marinho.

  <https://doi.org/10.56238/sevened2025.038-007>

.....99-109

TEACHER TIMETABLING AND WORKLOAD ALLOCATION IN NEW SECONDARY EDUCATION SYSTEM

Paula Fernanda Gomes Vieira, Viviane Cristhyne Bini Conte, Paulo Henrique Siqueira, Andrea Sartori Jabur.

  <https://doi.org/10.56238/sevened2025.038-008>

.....110-128

PEDAGOGY OF COMPETENCIES AND TEACHING WORK: TENSIONS BETWEEN INSTRUMENTAL TRAINING AND THE EMANCIPATORY PERSPECTIVE

Francieli Aparecida Betiate, José Luis Derisso.

 <https://doi.org/10.56238/sevened2025.038-009>

.....129-144

PARADIGMATIC CHANGES IN THE PRONOMINAL SYSTEM: A SOCIOLINGUISTIC ANALYSIS OF THE THIRD PERSON PLURAL IN CAXIAS

Antônio Luiz Alencar Miranda, Rayane de Andrade Rodrigues, Shirlane Maria Batista da Silva Miranda.

 <https://doi.org/10.56238/sevened2025.038-010>

.....145-157

EVALUATION OF GRADUATE PROGRAMS IN BRAZIL: THE CASE OF THE FEDERAL UNIVERSITY OF RONDÔNIA (UNIR)

Lucas da Silva Souza.

 <https://doi.org/10.56238/sevened2025.038-011>

.....158-172

YOUTH AND ADULT EDUCATION IN BRAZIL: CRITICAL ANALYSIS OF POLICIES, RETENTION AND LEARNING IN CONTEXTS OF INEQUALITY

Patrícia Raasch Chiapani De Martin.

 <https://doi.org/10.56238/sevened2025.038-012>

.....173-187

BULLYING AND SOCIAL EXCLUSION OF STUDENTS WITH HIGH ABILITIES/GIFTEDNESS IN MIDDLE SCHOOL: A CRITICAL ANALYSIS OF SCHOOL INCLUSION STRATEGIES IN LIGHT OF LITERATURE AND PUBLIC POLICIES

Cíntia Batista Santos Perez, Bruno José Betti Galasso.

 <https://doi.org/10.56238/sevened2025.038-013>

.....188-207

THE INTEREST OF AUTISTIC SUBJECTS IN THE EDUCATIONAL CONTEXT: BREAKING PREJUDICES AND STIGMAS

Maycon Nogueira da Cruz Souza, Tainara Trindade de Carvalho, Kamila Aparecida Lima Lopes, Cleide Vitor Mussini Batista.

 <https://doi.org/10.56238/sevened2025.038-014>

.....208-224

UNIVERSITY EXTENSION AS A STRATEGY FOR PROMOTING THE MATERIALS ENGINEERING COURSE: RESULTS AND IMPACTS OF PROJEMAT

Luis Felipe Siqueira Figueiredo, Gabriel Fabricio Rocha de Carvalho Padua, Samuel Corrêa da Silva, Nalanda Said Rosas, Gabriela Silva da Rocha, Leslie Azevedo Estebanez, Julio Simonetti Martins Junior, Juciklécia da Silva Reinaldo.

 <https://doi.org/10.56238/sevened2025.038-015>

.....225-239

EMPOWERING THE EXACT SCIENCES: AN IMMERSIVE EXPERIENCE TO HIGHLIGHT THE LEADING ROLE OF WOMEN IN MATHEMATICS

José Gustavo Lima Ferreira, Kaike dos Santos Lopes, Silmara Mikaelly Souza Brito, Tiago Emanuel Melo Pereira.

 <https://doi.org/10.56238/sevened2025.038-016>

.....240-252

THE PEDAGOGY OF PERSONAL AND SOCIAL ORDER FOR GROWTH AND PROSPERITY: THEORETICAL BASIS AND FUNDAMENTAL CONCEPTS

Chamaida Inés Tabares Márquez.

 <https://doi.org/10.56238/sevened2025.038-017>

.....253-297

AFROCENTRIC PRINCIPLES AND THE MEMORY OF QUILOMBOS IN ANTÔNIO BISPO DOS SANTOS'S "THE LAND GIVES, THE LAND WANTS": A LEGACY OF POWER

Duília de Jesus Lopes Melo, Maria Cecília de Paula Silva.

 <https://doi.org/10.56238/sevened2025.038-018>

.....298-308

CRITICAL MATHEMATICS EDUCATION AND INSTRUMENTATION FOR THE TEACHING OF MATHEMATICS: A SYSTEMATIC LITERATURE REVIEW IN A BACHELOR'S DEGREE PROGRAM

Bianca Aparecida Holm de Oliveira, Juliana De Fátima Holm Brim, Nilcéia Aparecida Maciel Pinheiro, Guataçara dos Santos Junior.

 <https://doi.org/10.56238/sevened2025.038-019>

.....309-325

PEDAGOGICAL INNOVATIONS IN PHYSICAL EDUCATION: CURRICULAR INTEGRATION AND IMPACTS ON THE INTEGRAL DEVELOPMENT OF STUDENTS IN THE MODULAR ORGANIZATION TEACHING SYSTEM – SOME IN A QUILOMBOLA SCHOOL IN AMAPÁ

Olinda Rocha Alves, Maelio Cesar Freitas dos Santos, Sarah Medeiros Souto Gomes, Vânia Aparecida Santos da Silva, Evódia Simone Monteiro Soares, Simone Silva Simas, Daniela Alves dos Santos Lins, Cilene Santos, João Carlos Benício Dias, Ana Maria Picanço do Carmo, Edson Canuto de Sousa, Anselmo Accioly Francisco Ferreira, Angelina Oliveira da Silva, Geovana Barbosa Oggione, Delma Ferreira Alves.

 <https://doi.org/10.56238/sevened2025.038-020>

.....326-339

SCHOOL MANAGEMENT WITH A FOCUS ON RESULTS: REGULATION AND CONTROL ACTIONS IN PUBLIC SCHOOLS

Clayse Cardoso Fidalgo, Márcio Brito Cerveira, Shirley Maria Dias da Silva, Éder do Vale Palheta.

 <https://doi.org/10.56238/sevened2025.038-021>

.....340-350

FROM THE MINIMUM CURRICULUM TO THE PPC: THE TRAJECTORY OF THE LIBRARY SCIENCE COURSE AT UNB

Rita de Cássia do Vale Caribé, Marcílio de Brito.

 <https://doi.org/10.56238/sevened2025.038-022>

.....351-364

IDENTITY CHARACTERISTICS OF TEACHERS IN THE FINAL YEARS OF ELEMENTARY EDUCATION RELATED TO THE SCHOOL CONTEXT

Mirela Leão Freire, Maria Eliza Rosa Gama.

 <https://doi.org/10.56238/sevened2025.038-023>

.....365-386

PSYCHOPEDAGOGICAL INTERVENTION IN LEARNING DIFFICULTIES: A PRACTICAL ANALYSIS

Elisângela da Silva Fernandes, Shirley Martins de Oliveira Carvalho.

 <https://doi.org/10.56238/sevened2025.038-024>

.....387-399

11TH GRADE STUDENTS' PERCEPTION OF THE FACTORS AFFECTING THEIR ENGLISH LEARNING

Katherin Del Carmen Rodríguez Montero, Pastor Pablo Pérez Ramos.

  <https://doi.org/10.56238/sevened2025.038-025>

.....400-417

HISTORY AND IMPACTS OF THE PARINTINS MATHEMATICS OLYMPIAD (OPM): A JOURNEY OF LEARNING, CHALLENGES, AND ACHIEVEMENTS

Débora da Silva Nunes, Isabel do Socorro Lobato Beltrão, Júlio Cezar Marinho da Fonseca, Maildson Araújo Fonseca, Manoel Fernandes Braz Rendeiro, Pedro Silvio Coimbra Rodrigues, Paulo Sergio Ribeiro da Silva.

  <https://doi.org/10.56238/sevened2025.038-026>

.....418-434

DIGITAL INFORMATION AND COMMUNICATION TECHNOLOGIES IN LANGUAGE(S) TEACHING AND TEACHING PRACTICE

Viviane Riedner, Maria Elena Pires Santos, Cleylma Sousa Rodrigues Riker, Jairo dos Santos Rodrigues, Luciano Gonçalves da Silva, Ivanita Bentes Sousa, Lucivânia Pereira de Carvalho.

  <https://doi.org/10.56238/sevened2025.038-027>

.....435-455

THE STATUTE OF THE CHILD AND ADOLESCENT (ECA) AND THE EXERCISE OF THE RIGHT TO EDUCATION OF ADOLESCENTS IN CONFLICT WITH THE LAW

Fernando Henrique Rodrigues da Costa, Luísa Xavier de Oliveira, Maria da Conceição Rodrigues Martins, Alan Fonseca dos Santos.

  <https://doi.org/10.56238/sevened2025.038-028>

.....456-479

TRAINING OF EDUCATORS FROM THE PERSPECTIVE OF INCLUSIVE EDUCATION IN NON-FORMAL CONTEXTS

Talita Silva Perussi Vasconcellos, Relma Urel Carbone Carneiro.

  <https://doi.org/10.56238/sevened2025.038-029>

.....480-504

THE NARRATIVE OF A TEACHER AT THE NORMAL SCHOOL

Luis Antonio Rabadán Miranda.

  <https://doi.org/10.56238/sevened2025.038-030>

.....505-534

INTEGRATING ENVIRONMENTAL EDUCATION AND SOCIAL INCLUSION: CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE LEARNING

Yara Rosa Mattos Bento, Luis Felipe de Almeida Duarte.

  <https://doi.org/10.56238/sevened2025.038-031>

.....535-545

THE IMPLEMENTATION OF THE SCHOOL UNITS MANAGEMENT AUTONOMY PROGRAM – PAGUE – IN THE REGIONAL EDUCATION COORDINATION OF TEFÉ

Iberson Mendes da Costa, Ana Eugenia Gonzalez Chena.

  <https://doi.org/10.56238/sevened2025.038-032>

.....546-561

RIGHT TO EDUCATION AND AGE CUT-OFF IN LIGHT OF THE JURISPRUDENCE OF THE COURT OF JUSTICE OF MINAS GERAIS

Laura Mauro Feitoza Fogatti, Osvaldo de Freitas Fogatti.

 <https://doi.org/10.56238/sevened2025.038-033>

.....562-574

THE POWER GAME IN SPECIAL EDUCATIONAL POLICIES IN RECENT DECADES

Antonio Francisco Jacaúna Neto, Amanda Patriarca, Cícero Batista dos Santos Lima, Cleide Pires Machado, Giselle Alves Dias de Sousa, Luiza Helena Barreira Machado.

 <https://doi.org/10.56238/sevened2025.038-034>

.....575-593

PEER TUTORING: A RESOURCE TO ENHANCE COLLABORATIVE LEARNING

Lucas Andrey Rodrigues, Jonatas Cavalcante Ribeiro, Thaize Soares Oliveira.

 <https://doi.org/10.56238/sevened2025.038-035>

.....594-600

THE ROLE OF THE EDUCATIONAL MODALITY YOUTH AND ADULT EDUCATION – HIGH SCHOOL LEVEL

Marcos Roberto Fernandes Filho, Edna Maria de Jesus.

 <https://doi.org/10.56238/sevened2025.038-036>

.....601-620

STRENGTH TRAINING WITH ADOLESCENTS IN COMPULSORY SECONDARY EDUCATION: AN EVIDENCE-BASED TEACHING AND METHODOLOGICAL GUIDE

Javier González, Iker Sáez, Xabier Río.

 <https://doi.org/10.56238/sevened2025.038-037>

.....621-650

COGNITIVE DEVELOPMENT THEORY AND CONTRIBUTIONS TO PEDAGOGICAL PRACTICE IN EARLY ELEMENTARY EDUCATION

Lidiana da Cruz Pereira, Glória de Lourdes Silva de Oliveira Melo, Ivoneide Silva de Melo Machado.

 <https://doi.org/10.56238/sevened2025.038-038>

.....651-668

ORAL REPORTS OF TEACHERS ON THE IMPLEMENTATION OF DIGITAL TECHNOLOGIES IN PUBLIC HIGH SCHOOLS IN COLINAS DO TOCANTINS

Clarice Borges da Silva Oliveira, Heliana Portilho Pereira Fuhr, Hérica de Oliveira Fernandes, Marcelo Alessandro Honorato de Souza, Jocyleia Santana dos Santos.

 <https://doi.org/10.56238/sevened2025.038-039>

.....669-686

INCLUSIVE TEACHING PRACTICES: CHALLENGES AND POSSIBILITIES FOR ACHIEVING EDUCATION FOR ALL

Rosângela Gomes Vaillant, Phelipe Austríaco-Teixeira, Ana Maria Cunha da Silva, Ana Célia Santana Moraes, Thais Albertina Pereira dos Santos, Rogers Paul da Silva Costa, Telmo Rosa Nogueira, Stephanie Cunha Araujo dos Santos.

 <https://doi.org/10.56238/sevened2025.038-040>

.....687-703

THE (RE)INVENTION OF MATHEMATICS TEACHING IN DIGITAL CULTURE: PERSPECTIVES FOR TEACHER EDUCATION

André Gomes dos Santos, Juliano Schimiguel.

 <https://doi.org/10.56238/sevened2025.038-041>

.....704-713

INCLUSIVE EDUCATION IN BRAZIL: REFLECTIONS ON THE INCLUSION OF YOUTH AND ADULTS IN THE REGULAR EDUCATION SYSTEM

Maria Perpétua Socorro Freitas Jacques Waldick, Francisco dos Santos Nogueira, Guilherme Pascoal Garavito, Leonildo Garcia de Castro, Lidiane Andrade Colares, Márcio da Silva Vasconcelos, Michele Cordeiro Moreira, Ana Clara Brasil da Silva, Paulo Roberto Pontes da Silva.

 <https://doi.org/10.56238/sevened2025.038-042>

.....714-727

THE PRESENT TIME, THE SAMBA-ENREDO, AND THE TEACHING OF HISTORY

Fabio Henrique Monteiro Silva.

 <https://doi.org/10.56238/sevened2025.038-043>

.....728-744

THE IMPORTANCE OF INTEGRATING THEORY AND PRACTICE IN NURSING EDUCATION: A REPORT OF AN INTERNSHIP IN PRIMARY HEALTH CARE

Maria Clara Oliveira Melo, Ana Laura Teodoro Azevedo, Maria Júlia Mendes de Melo, Thainá Mendes Faria, Carla Denari Giuliani.

 <https://doi.org/10.56238/sevened2025.038-044>

.....745-752

WEB CURRICULUM AND DISTANCE EDUCATION: CURRICULAR PATHWAYS MEDIATED BY DIGITAL TECHNOLOGIES

Anderson Fonseca Junior, Diego Ricardo Lima Soares, Kayõ de Luna Fonseca.

 <https://doi.org/10.56238/sevened2025.038-045>

.....753-765

APPLICATIONS OF ACTIVE METHODOLOGIES IN SPECIAL EDUCATION FOR THE PROMOTION OF AUTONOMY AND SCHOOL INCLUSION

Adele Emília Schlukat Pimentel, Fabiane Regina Geraldles Moreira Marques, Hosana de Queiroz Mariano, Iraneide Targino Bastos, Líbia Raquel Gomes Vicente Ribeiro, Lucilda Alves Moraes Moreira, Rita de Cássia da Costa Sousa Almeida, Wedna Lima de Ataides.

 <https://doi.org/10.56238/sevened2025.038-046>

.....766-786

FROM TERRITORY TO CURRICULUM: BUILDING IDENTITY AND BELONGING THROUGH HERITAGE EDUCATION

Fabiano Madeira Lacerda, Daniel Costa de Paiva.

 <https://doi.org/10.56238/sevened2025.038-047>

.....787-801

ANALYSIS OF FINANCIAL AND TECHNOLOGICAL MECHANISMS IN THE GREEN ECONOMIC TRANSITION

Marco Antonio Piña Sandoval, Rubén Andrade Vela, Saida Areli Hernández Martínez.

 <https://doi.org/10.56238/sevened2025.038-048>

.....802-820

NEUROSCIENCE AS A TOOL FOR SELF-KNOWLEDGE AND DEVELOPMENT OF COGNITIVE POTENTIAL FOR PEOPLE IN VULNERABLE SITUATIONS

Renata Godis da Silva.

 <https://doi.org/10.56238/sevened2025.038-049>

.....821-825

EDUCATIONAL PROGRAMS IN ENGINEERING: A PERSPECTIVE FROM THE NEW MEXICAN SCHOOL AND GENDER EQUITY

José Ángel García Reyes, Luz María Hernández Cruz, Julio Antonio Gutiérrez González, Diana Concepción Mex Álvarez, Heribé Felipe Uribe Santiago, José Ramón Cab Chan.

 <https://doi.org/10.56238/sevened2025.038-050>

.....826-835

CONTRIBUTIONS OF REXLAB/UFSC TO THE PROMOTION OF MAKER CULTURE IN BASIC EDUCATION: A CASE STUDY ON THE TECHNOLOGY INTEGRATION IN EDUCATION PROGRAM (INTECEDU)

Fabiana Regina da Silva, Francisco Rogério de Carvalho, Gertrudes Aparecida Dandolini, João Artur de Souza, Zeina Rebouças Correa Thomé.

 <https://doi.org/10.56238/sevened2025.038-051>

.....836-861

HIGHER EDUCATION IN NURSING IN THE FACE OF THE COVID-19 PANDEMIC

Matheus Vinicius de Sene.

 <https://doi.org/10.56238/sevened2025.038-052>

.....862-870

THE INCLUSION OF STUDENTS WITH AUTISM SPECTRUM DISORDER IN MATHEMATICS EDUCATION: CHALLENGES AND POSSIBILITIES IN MIDDLE SCHOOL

Nilson Santos Costa, Adriana Moraes Gomes, Jessica Martins de Oliveira, Hercília Maria de Moura Vituriano, Jacy Pires dos Santos, Walter Reis Cabral.

 <https://doi.org/10.56238/sevened2025.038-053>

.....871-886

HISTORY TEACHING AND WOMEN'S HISTORY (1930–1945): A PROPOSAL FOR HISTORICAL-DIGITAL LITERACY WITH THIRD-YEAR HIGH SCHOOL STUDENTS

Ronilson Oliveira Paulino.

 <https://doi.org/10.56238/sevened2025.038-054>

.....887-896

CONTINUOUS TRAINING OF PUBLIC SCHOOL TEACHERS

Larrey Setimi de Castro, Marilena Fernandes Ribeiro.

 <https://doi.org/10.56238/sevened2025.038-055>

.....897-906

MATHEMATICS EDUCATION AND DIGITAL TECHNOLOGIES: REFLECTING ON THE POTENTIAL FOR MATHEMATICS EDUCATIONAL PROCESSES

Danton de Oliveira Freitas, Emily Fabiane Silva Costa.

 <https://doi.org/10.56238/sevened2025.038-056>

.....907-922

MATHEMATICAL MODELING AND SCENARIOS FOR INVESTIGATION: THE DEVELOPMENT OF A CRITICAL STANCE TOWARDS THE SOCIAL REALITIES OF STUDENTS

Joelma Iamac Nomura.

 <https://doi.org/10.56238/sevened2025.038-057>

.....923-945

ARTICULATION BETWEEN CURRICULUM, METHODOLOGIES AND DIGITAL TECHNOLOGIES: PATHWAYS TO PEDAGOGICAL INNOVATION

Juciane Salgueiro de Mello Teske.

 <https://doi.org/10.56238/sevened2025.038-058>

.....946-951

THE PODCAST IN YOUTH AND ADULT EDUCATION

Benedito Braz Sobrinho, Benedito Braz Sobrinho, Flavia Azevedo Albuquerque Fontenele, Francisca Antonia Araujo de Vasconcelos, Francisca de Fátima Lemos Braz, Manoel Flávio Coutinho, Maria de Lourdes Rocha da Silva, Maria José Coutinho de Melo, Mayra Aparecida Mendes Ribeiro, Raimunda Maria da Silva, Thamylles França Moita Brasil.

 <https://doi.org/10.56238/sevened2025.038-059>

.....952-959

ENVIRONMENTAL EDUCATION, STUDENT PROTAGONISM AND COOPERATION: A PROPOSAL FOR CREATING AN ECO-SCHOOL

Anelise Kologeski, Luciano Andreatta Carvalho da Costa, Jose Vicente Lima Robaina.

 <https://doi.org/10.56238/sevened2025.038-060>

.....960-977

EDUCATION AND ECOLOGICAL CITIZENSHIP: TEACHING PRACTICES FOR QUILOMBOLA AND SERTANEJO SCHOOLS

Manoel Messias da Silva.

 <https://doi.org/10.56238/sevened2025.038-061>

.....978-1012

CURRICULAR POLICIES IN THE TEACHING OF HISTORY IN BASIC EDUCATION BASED ON ICT

Kauan Pessanha Soares, Stella Maria Peixoto de Azevedo Pedrosa.

 <https://doi.org/10.56238/sevened2025.038-062>

.....1013-1043

YOUTH AND ADULT EDUCATION (EJA) AND CURRICULUM IN BRAZILIAN STRICTO SENSU RESEARCH: A SYSTEMATIC REVIEW IN THE BDTD (2000-2024)

Marcelo Penteado de Toledo, Carmem Lúcia Costa Amaral, Margareth Polido Pire.

 <https://doi.org/10.56238/sevened2025.038-063>

.....1044-1065

THE USE OF SCALE MODELS AS AN ACTIVE METHODOLOGY IN ADDRESSING THE TOPIC OF WATER RESOURCES FOR ELEMENTARY SCHOOL STUDENTS AT A PRIVATE SCHOOL IN THE MUNICIPALITY OF BREVES, MARAJÓ ARCHIPELAGO

Kildery Gomes de Matos, Vitória Maigda Magno Gomes, Benedita da Costa Gonçalves, Marcelo Almeida de Paulo, Eduardo Antonio Abreu Pinheiro, Rayane Pereira Barreiros, Maria Emília de Oliveira Higino.

 <https://doi.org/10.56238/sevened2025.038-064>

.....1066-1081

TEACHING AND LEARNING HISTORY THROUGH GAMES AND PLAYFULNESS IN BASIC EDUCATION FOR YOUNG PEOPLE, ADULTS, AND THE ELDERLY

Kauan Pessanha Soares, Stella Maria Peixoto de Azevedo Pedrosa.

 <https://doi.org/10.56238/sevened2025.038-065>

.....1082-1103

MASS COMMUNICATION AND ENVIRONMENTAL EDUCATION: THE ROLE OF SOCIAL NETWORKS IN SOCIO-ENVIRONMENTAL MOBILIZATION

João Felipe Fleury, Cinthya Amaral Santos.

 <https://doi.org/10.56238/sevened2025.038-066>

.....1104-1123

AUGMENTATIVE AND ALTERNATIVE COMMUNICATION IN THE SCHOOL CONTEXT: POTENTIALITIES, DILEMMAS, AND TEACHER MEDIATION IN THE INCLUSION OF A NONVERBAL AUTISTIC CHILD

Lisiane Fagundes Pozzobon, Oldair José Pozzobon, Paola Fagundes Pozzobon, Lorena Inês Peterini Marquezan, Helenise Sangoi Antunes.

 <https://doi.org/10.56238/sevened2025.038-067>

.....1124-1138

CHALLENGES OF THE INCLUSION OF STUDENTS WITH DISABILITIES IN REGULAR SCHOOLS

Stephanie Cunha Araujo dos Santos, Francisco Roberto de Sousa, Márcia da Luz Leal, Joseilton Amaral de Oliveira, Telmo Rosa Nogueira, Josué Vicente de Carvalho, Bruno de Avila Cavalheiro, Francisco Narthagnan Chaves da Silva.

 <https://doi.org/10.56238/sevened2025.038-068>

.....1139-1157

DISINFORMATION AND ARTIFICIAL INTELLIGENCE: HALLUCINATIONS IMPACTS IN THE USE OF CHATGPT IN THE ACADEMIC FIELD

Lívia Inglesis Barcellos, João Pedro Albino.

 <https://doi.org/10.56238/sevened2025.038-069>

.....1158-1179

CONTRIBUTIONS OF THE NEURODIVERSITY PARADIGM TO THE LEARNING AND INCLUSION OF NEURODIVERGENT STUDENTS

Rosiane Ferreira Gonçalves, Elayne de Nazaré Almeida dos Santos, Ana Paula Barros Lima, Natália de Fátima Silva Dourado, Walderney Pinheiro da Cruz, Carlos Adriano Leite Barbosa, Yasmini Tuany Abdon Pinto.

 <https://doi.org/10.56238/sevened2025.038-070>

.....1180-1191

WHAT DOES A TEACHER ACTUALLY DO IN THE CLASSROOM? ANALYSIS OF RESEARCH ON TEACHING ACTION

Daniele Bremm, Sergio de Mello Arruda, Marinez Meneghello Passos.

 <https://doi.org/10.56238/sevened2025.038-071>

.....1192-1218

THE USE OF CRYPTOGRAPHY AS AN EDUCATIONAL TOOL

Valéria C. Brum, Igor Godoy Borges.

 <https://doi.org/10.56238/sevened2025.038-072>

.....1219-1240

LITERACY AND ALPHABETIZATION AS EMANCIPATORY PRAXIS: KNOWLEDGE MEDIATION, SOCIAL JUSTICE, AND INCLUSION IN THE CONTEMPORARY SCHOOL CONTEXT

Renato Rodrigues.

  <https://doi.org/10.56238/sevened2025.038-073>

.....1241-1249

EDUCATION 4.0: TECHNOLOGICAL REVOLUTION OR DISGUISED THREAT?

João Fernando Costa Júnior, Waldir Giese, Marcelo Queiroz Schmidt, Norberto Huber, Jonas Bezerra da Costa, Simone Feliciano de Abreu, Maria José de Barros, Mariana Santos de Mendonça, Inailma Elisa da Silva, Alline Paula Santos de Oliveira, Ivete Bispo dos Santos, Anselmo Accioly Francisco Ferreira, Luciano Ribeiro Ferreira Garcia, Rosimary da Mata Ribeiro, Cássia Luciane Cangussu Narciso de Souza.

  <https://doi.org/10.56238/sevened2025.038-074>

.....1250-1264

TRADITIONAL GAMES AS A PEDAGOGICAL STRATEGY IN MIDDLE SCHOOL

Teresina Funez Garbossa, Emanuelli Renosto, Neivair Funez, Ilone Cristina Bellini, José Amauri Siqueira da Silva, Franci Rodrigues Guia Nyamien.

  <https://doi.org/10.56238/sevened2025.038-075>

.....1265-1276

DYSLEXIA AND THE CHALLENGES IN LITERACY: AN INTEGRATIVE LITERATURE REVIEW

Caroline Alvarenga de Assis Santana, Ana Clara da Silva Oliveira, Aline Miriam Cunha Alves.

  <https://doi.org/10.56238/sevened2025.038-076>

.....1277-1293

DEVELOPMENT OF SOCIO-EMOTIONAL SKILLS IN THE BASIC EDUCATION SCHOOL ENVIRONMENT: A RELEVANT REFLECTION

Yêda Sá Malta, Juliana Malta Soares.

  <https://doi.org/10.56238/sevened2025.038-077>

.....1294-1314

PEDAGOGY OF ENCOUNTER: BUILDING RELATIONSHIPS BETWEEN SCIENCE EDUCATION AND CLOWNING

Ely Maués, Carla Maline, Eliane Ferreira de Sá.

  <https://doi.org/10.56238/sevened2025.038-078>

.....1315-1334

THE RIGHT TO EDUCATION AND HOMELESSNESS IN BRAZIL AND MARANHÃO: AN ANALYSIS OF LAYERS OF VULNERABILITY BASED ON FLORENCIA LUNA

Jose Antonio Nunes Aguiar.

  <https://doi.org/10.56238/sevened2025.038-079>

.....1335-1348

PEDAGOGICAL COORDINATION AND DIVERSITY: A LITERATURE REVIEW ON COMBATING BULLYING IN SCHOOLS

Silvio Gentil Jacinto Junior, Eliseu Marlônio Pereira de Lucena, Lucas Farias Pinheiro, Vitória Bezerra Ramos, Silvio Roberto Araújo Giffoni, Gleidiane Damasceno Barros, Paulo Ernesto Lima Ferreira, Adélia Vitória Domingos Pontes.

  <https://doi.org/10.56238/sevened2025.038-080>

.....1349-1364

HISTORIOFIGURE Y OF INDIGENOUS EDUCATION PUBLIC POLICIES: A CUT FROM THE 1988 FEDERAL CONSTITUTION TO CONTEMPORANEITY

Cristiane Teixeira Bazilio Marchetti, Nelson Russo de Moraes, Alonso Bezerra de Carvalho.

  <https://doi.org/10.56238/sevened2025.038-081>

.....1365-1397

SOCIAL ANXIETY AS A BARRIER TO ADAPTATION TO HIGHER EDUCATION

Zulma Sánchez Estrada, Jorge Noriega Zenteno, Elizabeth Sánchez Vazquez, Diego García Jara, Diana Huitrón Alpizar.

  <https://doi.org/10.56238/sevened2025.038-082>

.....1398-1419

TEACHING ARCHITECTURE, LEARNING TEACHING: A CRITICAL EXPERIENCE IN BRAZILIAN GRADUATE EDUCATION

Ana Paula Campos Gurgel.

  <https://doi.org/10.56238/sevened2025.038-083>

.....1420-1442

TEACHING THE PHOTOELECTRIC EFFECT IN HIGH SCHOOL: AN INQUIRY-BASED APPROACH GROUNDED IN THE HISTORY AND PHILOSOPHY OF SCIENCE

Tiago Martins Moura, Cristiane de Carvalho Ferreira Lima Moura, Maria Goretti Silva, Natália Rocha Celedonio, Lidiane Martins Moura Ferreira.

  <https://doi.org/10.56238/sevened2025.038-084>

.....1443-1459

BRAZILIAN LEGISLATION: GUIDELINES FOR EDUCATIONAL INCLUSION OF PEOPLE WITH DISABILITIES AND INCLUSION OF STUDENTS IN HIGHER EDUCATION

LEGISLAÇÃO BRASILEIRA: DIRETRIZES PARA INCLUSÃO EDUCACIONAL DE PESSOAS COM DEFICIÊNCIA E INCLUSÃO DE DISCENTES NO ENSINO SUPERIOR

LEGISLACIÓN BRASILEÑA: DIRECTRICES PARA LA INCLUSIÓN EDUCATIVA DE LAS PERSONAS CON DISCAPACIDAD Y LA INCLUSIÓN DE ESTUDIANTES EN LA EDUCACIÓN SUPERIOR

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ABSTRACT

In this article, we analyze how Brazilian legislation guides the educational inclusion of Persons with Disabilities (PwD), with a focus on Higher Education. Starting from a historical-conceptual approach and international inclusion milestones, we analyze the 1988 Constitution, LDB/1996 (and updates), Brazilian Inclusion Law (Law 13.146/2015), Quota Law (Laws 12.711/2012 and 13.409/2016), Accessibility Law (10.098/2000), and Decree 10.094/2019 (Assistive Technology) and their implications for policies, management, and pedagogical practices. We found that even with the support of laws and public policies, there is still a divergence between norms and practices, evidenced by lower-than-desirable enrollment and retention rates for students with disabilities and by programmatic, attitudinal, methodological, and instrumental barriers. We analyzed the need for continuing teacher training with a focus on accessibility; provision of accessible materials, platforms, and spaces; monitoring indicators of access, retention, and learning; and encouraging the production and adoption of assistive technology. True inclusion requires a transition from legal compliance to consistent and emancipatory implementation in university life, ensuring participation, autonomy, and academic success for all.

Keywords: Educational Inclusion. People with Disabilities. Brazilian Legislation. Accessibility. Assistive Technology. Public Policies.

RESUMO

Neste artigo analisamos como a legislação brasileira orienta a inclusão educacional de Pessoas com Deficiência (PcD), com foco no Ensino Superior. Partindo de uma abordagem histórico-conceitual e dos marcos internacionais da inclusão, analisando a Constituição de 1988, LDB/1996 (e atualizações), Lei Brasileira de Inclusão (Lei 13.146/2015), Lei de Cotas (Leis 12.711/2012 e 13.409/2016), Lei de Acessibilidade (10.098/2000) e Decreto 10.094/2019 (Tecnologia Assistiva) e suas implicações para políticas, gestão e práticas pedagógicas. Verificando que mesmo com o respaldo de leis e políticas públicas ainda sim

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é observado a divergência entre norma e prática, evidenciado por taxas aquém do desejável de ingresso e permanência de estudantes com deficiência e por barreiras programáticas, atitudinais, metodológicas e instrumentais. Analisamos a necessidade da formação continuada docente com foco em acessibilidade; provisão de materiais, plataformas e espaços acessíveis; monitoramento de indicadores de acesso, permanência e aprendizagem; e estímulo à produção e adoção de tecnologia assistiva. Para a verdadeira inclusão exige transitar da conformidade legal para a implementação consistente e emancipatória no cotidiano universitário, assegurando participação, autonomia e sucesso acadêmico de todos.

Palavras-chave: Inclusão Educacional. Pessoas com Deficiência. Legislação Brasileira. Acessibilidade. Tecnologia Assistiva. Políticas Públicas.

RESUMEN

En este artículo, analizamos cómo la legislación brasileña orienta la inclusión educativa de las Personas con Discapacidad (PcD), con foco en la Educación Superior. Partiendo de un enfoque histórico-conceptual y de los hitos internacionales de inclusión, analizamos la Constitución de 1988, la LDB/1996 (y actualizaciones), la Ley de Inclusión Brasileña (Ley 13.146/2015), la Ley de Cuotas (Leyes 12.711/2012 y 13.409/2016), la Ley de Accesibilidad (10.098/2000) y el Decreto 10.094/2019 (Tecnología de Asistencia) y sus implicaciones para las políticas, la gestión y las prácticas pedagógicas. Encontramos que incluso con el apoyo de leyes y políticas públicas, todavía existe una divergencia entre normas y prácticas, evidenciada por tasas de matriculación y retención inferiores a las deseables para estudiantes con discapacidad y por barreras programáticas, actitudinales, metodológicas e instrumentales. Analizamos la necesidad de formación docente continua, con especial atención a la accesibilidad; la provisión de materiales, plataformas y espacios accesibles; el seguimiento de indicadores de acceso, retención y aprendizaje; y el fomento de la producción y adopción de tecnología de apoyo. La verdadera inclusión requiere una transición del cumplimiento legal a una implementación coherente y emancipadora en la vida universitaria, garantizando la participación, la autonomía y el éxito académico de todos.

Palabras clave: Inclusión Educativa. Personas con Discapacidad. Legislación Brasileña. Accesibilidad. Tecnología de Apoyo. Políticas Públicas.

1 INTRODUCTION

Educational inclusion in recent decades has presented itself as a global movement to guarantee rights, driven by international frameworks and normative advances that reposition people with disabilities as subjects of rights. In Brazil, this process redefines educational purposes, reorganizes environments and methodologies, and promotes the call to intuitions and faculty to transform practices to ensure access, participation, and learning with equity, especially in higher education.

In this article, we will continue with the coordinates of Brazilian legislation, believing that "inclusive education is a democratic, community education that proposes to the teacher the breaking of paradigms, in which educators and students define themselves as contextualized subjects ... in a strong commitment to emancipatory practice" (Fróes et al., 2003, p. 344), which leads us to think about the existence of the search for social and educational justice and equity.

We adopt a perspective that articulates rights, public policies and pedagogical practices. On the one hand, the legal frameworks (constitutional and infra-constitutional) that underlie inclusion; on the other, the institutional arrangements and didactic mediations that give effect to these rights in everyday life.

We organize the article into three axes, starting with the historical evolution, terminology and international milestones of inclusion, then we analyze the Brazilian legal and political frameworks, with emphasis on the implications for the educational system and we end by verifying the implementation, accessibility and contemporary challenges, addressing accessibility dimensions, ongoing programs and the role of the public sector and society. By verifying normative foundations with practical propositions, we seek to support pedagogical and management decisions that promote active participation, permanence, and academic success of people with disabilities.

2 INCLUSION: HISTORICAL EVOLUTION, TERMINOLOGY AND INTERNATIONAL MILESTONES

To begin this reflection on national legislation and educational inclusion, it should be clarified that the term "inclusion" is characterized as a worldwide movement fighting to guarantee the rights of people with disabilities. Its objective is to equalize the treatments provided, so that people with disabilities can participate in life in society and act in the labor market. It was in the midst of the process of formation of social movements in favor of new

rights, intensified in the post-World War II period, that people with disabilities, including people with visual impairments, also began to be recognized as subjects of rights (Brumer *et al.*, 2004).

Over the years, the terms that define disability have adapted to the evolution of science and society. Currently, the correct term to be used is Person with Disabilities (PwD), a designation that is part of the text approved by the International Convention for the Protection and Promotion of the Rights and Dignities of Persons with Disabilities, approved by the UN General Assembly in 2006, and ratified in Brazil in July 2008, originating from the World Program of Action for Persons with Disabilities, of the UN (1982), which aimed, according to Brumer *et al.* (2004), promote measures "for the prevention of disability... rehabilitation and achievement of the objectives of 'equality' and 'full participation' of disabled persons in social life and development" (UN, 1982). This means seeking equal opportunities for the entire population and an equitable participation in the improvement of living conditions resulting from social and economic development.

These authors present an interesting reflection on this 1982 UN measure, stating that experience has shown that, to a large extent, it is the environment that determines the effect of a disability or disability on the person's daily life. In the sense that the person accommodates disability when he is denied rights and opportunities. These, Brumer *et al.* tell us. (2004), are generally necessary for life, such as living in equal conditions in the family space, attending school, becoming professional, working and obtaining economic conditions to acquire housing, personal security, health, as well as actively participating in their community, relating affectively, attending educational, religious, and public institutions, among others.

Therefore, Brumer *et al.* (2004), the relevance of the perspectives established by the UN in 1982: people with disabilities should be considered citizens with rights and obligations, participants and builders of society. Below, the citation of some of the rights contained in the Declaration of the Rights of Disabled Persons, proclaimed by the UN in 1975, which provided theoretical support for the 1982 measures.

The right to respect for one's human dignity, the right to enjoy the same fundamental rights as one's fellow citizens of the same age, with a view to having a decent, as normal and full life as possible;
Civil and political rights equal to other human beings;
Rights to training aimed at achieving self-confidence;

The right to medical, psychological and functional treatment, to medical and social rehabilitation, to education, to vocational training and rehabilitation, to assistance, to counselling and other services that enable the development of their capacities and skills to the maximum, accelerating the process of social integration; The right to economic and social security, obtained through the development of useful, productive and remunerated activities carried out according to their capacities, in addition to participation in trade unions;

The right to have their special needs taken into account at all stages of the nation's economic and social planning;

The right to live with their families and to participate in all social, creative and recreational activities, if it is essential to stay in specialized establishments, they must approximate the reality of the normal life of people of their age.

The right to protection from all exploitation and discrimination.

Right to qualified legal assistance and legal measures according to their physical and mental conditions.

The right of organizations of disabled people to be consulted in all matters relating to the rights of disabled people.

Right to information about the rights contained in this Statement.

3 LEGAL FRAMEWORKS AND INCLUSION POLICIES IN BRAZIL

In Brazil, according to Pinheiro (1997), the struggles in favor of the rights of people with disabilities, or in favor of the condition of subjects with different wills and of various other organized social movements, go back less than three decades. During this period, there were significant advances in social visibility. However, there are still obstacles that maintain the exclusion of people with disabilities in terms of an independent, self-sustaining and fulfilling life.

It is important to note that Brazilian legislation until the 1980s had a basically welfare and paternalistic character. In the case of visually impaired people, these policies focused on the organization of teaching and setting up classes in Braille and on social adaptation and rehabilitation. Thus, it was up to the person to adapt to the environment in which he lived (Pinheiro, 1997).

The main laws formulated in Brazil that proposed to broaden the perspectives of inclusion of people with visual impairment occurred after the 1990s, involving cultural aspects such as the identification of prejudice and the terminologies used to refer to People with Disabilities and the stigmas associated with them, including through language, as it is expressed, voluntarily or involuntarily, respect or discrimination in relation to people with disabilities, as well as in social and economic aspects, involving education, vocational training and access to the labor market.

In the 2000s, the National Policy for Persons with Disabilities in Brazil followed the initiatives carried out at the international level organized by the Human Rights Movements and the UN, adopting Law 10.048, which prioritized the care of people with disabilities. "Inclusion" began to involve the cultural, educational, socioeconomic, and political spheres. It was hoped that societies and their institutions would adapt to receive people with disabilities, in the belief that the construction of a true inclusive society involves this preparation.

In this sense, at least three International Declarations, belonging to the United Nations (UN), represent legal frameworks for inclusive education: starting with the Declaration of Human Rights promulgated by the UN in 1948, which established rights to freedom, equality, education and dignity for every human being. It was this 1948 Declaration that served as the theoretical basis for the World Declaration on Education for All (1990) and the Plan of Action to Meet Basic Learning Needs in Jomtien, Thailand. Then, another document entitled "World Conference on Special Education" was prepared, which took place in Salamanca, Spain (1994). This dealt with the principles, policies and practices in the area of special educational needs, in which Brazil established commitments to expand the concept of special educational needs.

It is worth remembering that it was in 1961 that the Brazilian Legislation established its first commitment to Special Education. The Law of Guidelines and Bases of National Education n. 4.024/1961 (LDB, 1961) suggested an organization in private institutions of a welfare nature and made some public classes available to serve this population. The second Law of Guidelines and Bases of National Education n. 5.692/1971 (LDB, 1971) began to replace the previous one, with the objective of making official the care of this population in the special school. The inclusion of students with special needs in regular schools was not on the agenda. The special school was intended to receive children with disabilities (Pineiro, 1997).

In the 1980s, in Brazil, the first discussions on the theme of "educational integration" began: the idea was that the teaching of children and young people with special difficulties should be carried out within the regular school. Allied to this idea, the Brazilian Constitution of 1988 began to state that it is the duty of the State to guarantee specialized educational care to people with disabilities, preferably in the regular school system. This proposal was solidified by the Declaration of Salamanca, in Spain, in 1994, as one of the main world documents in defense of the school and social inclusion of students with special educational

needs. At the national level, Law No. 6,949, of August 25, 2009, enacted the International Convention on the Rights of Persons with Disabilities, with the objective of safeguarding the rights of this population (Brasil, 2009).

The following are some guidelines defined in the Brazilian Legislation to ensure the inclusion of people with disabilities in the educational space: the Federal Constitution (1988), the Law of Guidelines and Bases of National Education (LDBN, 1996), the Accessibility Law (2011), the Law of Quotas for Higher Education (Law No. 12,711/2012 and Law No. 13,409/2016), the Brazilian Law of Inclusion (Law No. 13,146/2015) and the Brazilian Legislation on Assistive Technology, Decree No. 10,094 of 2019.

The Federal Constitution of 1988 guarantees, in article 205 and following, the right to education for all citizens. This right aims at the full development of the person, his preparation for citizenship, his qualification for work and dignity for the human person, including those with disabilities (art. 1, items II and III). In article 3, item IV, it makes it clear that one of its fundamental objectives is the promotion of the good of all, without prejudice of origin, race, sex, color, age and any other forms of discrimination. In addition, the Constitution elects as one of the principles for education "equal conditions of access and permanence in school" (art. 206, item II), adding that the State's duty with education will be fulfilled through the guarantee of access to the highest levels of teaching, research and artistic creation, according to the capacity of each one (art. 208, V)" (Mantoan, 2003, p. 34).

The Law of Guidelines and Bases of Education (1996) represents the set of guidelines that regulates Brazilian education, as well as establishes and specifies that schools must guarantee the service to students with special needs and that teachers must be trained to meet these needs. It defines the obligation of educational institutions to ensure access and permanence of people with disabilities in elementary and secondary education. This obligation is also included in the National Common Curriculum Base (BNCC), not only to highlight the rights of people with visual impairment, but to contribute to reflection and awareness in society that people with disabilities are citizens, participants in society, in all sectors and spaces, and their rights must be respected.

Several updates were inserted in the LDB of 1996. To briefly mention the latest: the 2021 LDBN improves the rules for offering Bilingual Education for the Deaf. The 2022 LDBN provides for the guarantee of furniture, equipment and pedagogical materials appropriate to the age and needs of each student; and the 2023 LDBN brings technological skills to the

The National Policy on Special Education (PNEE): Equitable, Inclusive and with Lifelong Learning, of the Secretariat of Specialized Modalities of Education of 1994, aimed to ensure that people with disabilities, including those with visual impairment, have access to quality inclusive education. This Policy included the provision of Special Education in regular teaching settings, as well as resources and support for teachers and students with special needs. The National Education Plan (PNE, 2014-2024) also defined the objective of ensuring the inclusion of people with disabilities in elementary, secondary, and higher education (MEC/SEMESP, 2020).

In general terms, the Accessibility Law No. 10,098, of 2000 (MEC), establishes the standards for accessibility of buildings, means of transport, services and urban equipment for people with disabilities. Ordinance No. 3,298, of December 20, 1999, establishes the rules for the accessibility and inclusion of people with disabilities in Educational Institutions. This norm also establishes the obligation to create an accessibility plan for each institution, in addition to measures to ensure the inclusion of people with visual impairment, including the provision of specialized educational services (Brasil, 1999).

About the Quota Law for Higher Education Institutions (HEI), sanctioned in 2012 under No. 12,711:

it imputes normative, administrative, and academic responsibilities to HEIs linked to the federal education system, making it mandatory to reserve vacancies for candidates who self-declare themselves black, brown, indigenous, and/or disabled, in the case of state public HEIs (Jeffrey, 2023).

And it also provides for the reservation of vacancies for low-income groups (up to 1.5 minimum wages of monthly family income per person) and people who studied in public schools. In 2016, there was the inclusion of people with disabilities (PwD), under Law No. 13,409. There are also quotas for people with visual impairment in universities and federal educational institutes, which have been a reality since 2017. In general, this quota system aims to guarantee the right to enter the Higher Education System. The Quota Law 13.409, of December 28, 2016, reserves a number of vacancies for people with disabilities in the technical courses of secondary and higher education levels of the Federal Educational Institutions.

Law No. 13,146, of July 6, 2015, specifically deals with the inclusion of people with disabilities, better known as the Statute of Persons with Disabilities, which came into force in

January 2016. This Law provides for access to guarantees and rights for people with disabilities in all areas (Brasil, 2016).

Within the context of inclusion in the educational area, the Brazilian Legislation on Assistive Technology, Decree No. 10,094 of 2019, stands out especially, where government actions point to the right of citizens with disabilities to the granting of the Assistive Technology resources they need. Regarding the National Legislation of TA, in the context of the inclusion in the educational area of Decree No. 10,094 of 2019, it is important to remember the enactment of Decree 3,298 of 1999, in article 19, which speaks of the right of Brazilian citizens with disabilities to Technical Aids.

Sole paragraph: I. Technical aids: Hearing aids, visual and physical...

For the purposes of this Decree, technical aids are considered to be those elements that make it possible to compensate for one or more motor, sensory or mental functional limitations of the person with a disability, with the objective of allowing him to overcome communication and mobility barriers and to enable his full social inclusion.

Article 4: General obligations: To carry out or promote research and development, as well as the availability and use of new technologies, including information and communication technologies, technical aids for locomotion, devices and assistive technology suitable for persons with disabilities, giving priority to affordable technologies; Provide accessible information for persons with disabilities regarding technical aids for locomotion, assistive devices and technology, including new technologies as well as other forms of assistance, services and support and facilities; (BRAZIL, SDHPR – National Secretariat for the Promotion of the Rights of Persons with Disabilities – SNPD, 2012. In: BERSCH, 2017 p. 15 and p.16).

Also, the Brazilian Law of Inclusion Law No. 13,146, of July 2015, already mentioned above, in its article 74 says: "People with disabilities are guaranteed access to products, resources, strategies, practices, processes, methods and services of assistive technology that maximize their autonomy, personal mobility and quality of life".

4 IMPLEMENTATION, ACCESSIBILITY AND CHALLENGES: DIMENSIONS, PROGRAMS AND SOCIAL ACTORS

Sassaki (2019), considering the relevance of the Laws presented in the previous section and states that they represent efforts to improve the quality of life of people with disabilities in Brazil. The government has implemented policies and programs to promote inclusion and accessibility, Sassaki (2019) tells us, especially the Law for the Inclusion of People with Disabilities and the National Accessibility Program. Accessibility, as indicated by

Sassaki (2019), represents a guideline that leads people with disabilities to the right to feel like a citizen in the broad sense of the term, to recognize and be recognized by society, to be able to act and react, in the manifestation of attitudes, rights and social duties, for what the author calls true inclusion.

To present the breadth of Accessibility, Sassaki (2019) lists seven complementary dimensions, which involve architectural, communicational, methodological, instrumental, natural, pragmatic, and attitudinal. Based on Sassaki (2019), Amorim (2021, p. 73), presents a synthesis of the dimensions of accessibility and their specifications as follows:

1. Architectural accessibility: access without physical barriers built inside and around buildings and urban spaces;
2. Attitudinal access: access without barriers resulting from prejudice, stigma, stereotypes and discrimination;
3. Communication accessibility: barrier-free access to communication, which can be: interpersonal or face-to-face, spoken, written or at a distance;
4. Instrumental accessibility: barrier-free access to instruments, tools, utensils and technologies used in the execution of activities in any field;
5. Methodological accessibility: barrier-free access to the methods, theories and techniques used in the execution of activities in any field;
6. Natural accessibility: barrier-free access to spaces created by nature and existing on land and waters of public or private property;
7. Programmatic accessibility: access without invisible barriers embedded in normative texts such as: laws, service standards, notices, news, organization policies, operational manuals, internal regulations, etc.

According to the coordinates offered by Sassaki (2019), it is possible to understand that the Brazilian Inclusion Law, n. 13.146/2015, or the Statute of Persons with Disabilities, understands disability as a situation of reorganization of physical and social spaces that are not ready to receive them. Therefore, in the educational area, in the face of the inclusion movement, it is believed that it is necessary to see inclusive education not as special, but as a reorganization of both teaching and learning methodologies, physical spaces and materials, as well as in the qualification of professionals who must be able to serve everyone, regardless of physical conditions, intellectual or sensory.

There are other policies and programs underway in Brazil to improve the education of people with disabilities, such as the Digital Inclusion Program, which provides access to Assistive Technology and training for people with disabilities. The National Program for Access to Technical Education and Employment (PRONATEC) offers technical and vocational courses for people with disabilities. Published in the Official Gazette of the Union,

Law 14,417/2022, which originates from Law 3,144/2015, authorizes the participation of technical assistance and rural extension providers in the National Program for Access to Technical Education and Employment.

As for the advances identified for people with visual impairments, in the context of the Special Education Policies of the Secretariat of Continuing Education, Literacy, Diversity and Inclusion (SECADI) of the MEC, there is the Accessible Book program in partnership with the Benjamin Constant Institute, which offers textbooks and paradidactic books in Braille for students with visual impairment, enrolled in basic education. This program is part of the National Textbook Program (PNLD) and aims to provide in Braille the same books used by other students. In 2016 and 2017, around 3,000 works were distributed. It is worth remembering that, in 2000, Law 10.098 made the government responsible for the implementation of the training of Braille script interpreters and interpreter guides to favor direct communication (Brasil, 2000).

The Brazilian Braille Commission (CBB) of the Ministry of Education monitors and updates the use and application of the Braille System in Brazil in all areas of knowledge. It is recalled that the CBB/MEC published the Braille Chemical Spelling for use in Brazil, which will serve students and professionals in basic and higher education. The goal is to achieve more autonomy. Thus, the individual when entering the university must find an inclusive and citizen environment with accessibility. It is up to the government to guarantee not only their vacancy, but also their inclusion and permanence. This means following classes in real time, having easy and instant access to all printed or digital school supplies.

For the record, there are other bodies responsible for the inspection and implementation of laws and guidelines for the inclusion of people with disabilities, linked to the Federal Public Prosecutor's Office, together with the Secretariats of Persons with Disabilities, which are spread throughout Brazil, and believe that continuous verification work is important to ensure that these guidelines are implemented and effective.

There are also non-governmental organizations and groups that defend the rights of people with disabilities that work to improve the awareness and inclusion of these people in society, such as the Association of the Visually Impaired of the Paraíba Paulista Valley (NGO ADV-VALE), in the state of São Paulo, founded in 2000. It is a statutory non-profit civil association that aims at the inclusion and integration of people with visual impairment in society. "Through partnerships, it develops actions aimed at education, sports, employability,

improvement of the quality of life and health of people with visual impairment". Currently, it has one hundred visually impaired members (Roma, 2020, p. 23).

Based on this Brazilian scenario, laws and guidelines aim to safeguard the guarantee of social and school inclusion of people with visual impairment in Brazil. However, it is important to point out that there are still barriers that need to be overcome in order to improve the effectiveness of accessibility, inclusion and permanence of people with visual impairment in Higher Education. This need is registered in the low rates of visually impaired students enrolled in Higher Education. This is because, according to researchers in the area, Education, especially Higher Education, represents the vanguard of learning and equality in democratic societies.

5 FINAL CONSIDERATIONS

The historical, normative and operational reading that we made shows that Brazil already has laws and rights for the educational inclusion of People with Disabilities (PwD). The focus on removing barriers (physical, communicational, methodological and attitudinal) and the incorporation of specific policies from the 1988 Constitution to the LDB/1996 (and its updates), from the Brazilian Inclusion Law (Law No. 13,146/2015) to Decree No. 10,094/2019 (Assistive Technology) converge to a paradigm of rights, in which full participation, permanence and learning become explicit purposes of the educational system.

Even so, the distance between norm and practice persists. The enrollment and permanence rates of visually impaired students in higher education continue to fall short of what is desirable, signaling that there are still barriers such as programmatic (internal rules and institutional flows), attitudinal (stigma, low expectations), methodological (didactics that are not very accessible) and instrumental (scarcity of assistive technology and inclusive materials) that continue to limit inclusion. In this sense, inclusion ceases to be a "set of laws" and becomes a continuous organizational process, which requires planning, budgeting, training and evaluation.

We can observe practical implications such as the need for educational institutions to provide for the different needs of people with disabilities, acquiring materials and building accessible environments: with books, virtual platforms and physical spaces without forgetting the continuing education of teachers in the use of assertive technologies and pedagogical accessibility; maintain a verification of indicators and monitoring of access, permanence,

learning and satisfaction of people with disabilities; and also to stimulate the production of assistive technology, and studies that promote inclusion.

For inclusion to get off the ground, the system needs to move from legal compliance to consistent implementation in daily school and university life. Reaffirming the horizon of Fróes et al. (2003), we speak of an inclusive, democratic and community education, committed to emancipatory practice, which transforms the norm into a concrete experience of teaching and learning, ensuring active participation, with autonomy and academic success, achieving justice, social and educational equity for all.

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**A DIALOGUE BETWEEN ETHNOMATHEMATICS AND PROBLEM-SOLVING IN
ALGEBRA TEACHING**

**UM DIÁLOGO ENTRE A ETNOMATEMÁTICA E A RESOLUÇÃO DE
SITUAÇÕES PROBLEMAS NO ENSINO DE ÁLGEBRA**

**UN DIÁLOGO ENTRE LA ETNOMATEMÁTICA Y LA RESOLUCIÓN DE
PROBLEMAS EN LA ENSEÑANZA DEL ÁLGEBRA**

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ABSTRACT

This article presents an experience in the Fundamentals of Algebra course of the Graduate Program in Science and Mathematics Education (PPGCEM). A dialogue is established between Problem Solving and Ethnomathematics as a methodological approach for teaching Algebra. The article begins with a brief contextualization, establishing a dialogue between Problem Solving and Ethnomathematics. This is followed by a brief historical review of Ethnomathematics and Problem Solving in Mathematics Teaching. Continuing with the work, an experience is presented in the Fundamentals of Algebra course, in which mathematical challenges were proposed with the aim of fostering cooperative learning in the classroom between Problem Solving and Ethnomathematics, in order to guide students toward meaningful learning.

Keywords: Ethnomathematics. Problem Solving. Algebra Teaching.

RESUMO

Este trabalho tem como objetivo, relatar uma vivência ocorrida na disciplina de Fundamentos da álgebra, ofertada no Programa de Pós-graduação no Ensino de Ciências e Educação Matemática (PPGCEM). Fazendo um diálogo entre o uso da Resolução de Problemas e a Etnomatemática como uma proposta metodológica para o Ensino de Álgebra. O trabalho se apresenta inicialmente com uma breve contextualização realizando um diálogo entre a Resolução de Problemas e a Etnomatemática, em seguida apresentaremos um breve recorte histórico sobre a Etnomatemática e a Resolução de Situação Problemas no Ensino de Matemática. Em continuidade ao trabalho, segue com um relato de uma vivência ocorrida na disciplina de Fundamentos da Álgebra, em que foi proposto desafios matemáticos com o objetivo de se trabalhar em sala de aula uma aprendizagem cooperativa entre a Resolução de Problemas e a Etnomatemática, objetivando levar ao aluno a uma aprendizagem significativa.

Palavras-chave: Etnomatemática. Resolução de Problemas. Ensino da Álgebra.

RESUMEN

Este artículo presenta una experiencia en el curso Fundamentos de Álgebra del Programa de Posgrado en Enseñanza de las Ciencias y la Educación Matemática (PPGCEM). Se

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establece un diálogo entre la Resolución de Problemas y la Etnomatemática como enfoque metodológico para la enseñanza del Álgebra. El artículo comienza con una breve contextualización, estableciendo un diálogo entre la Resolución de Problemas y la Etnomatemática. A continuación, se presenta una breve reseña histórica de la Etnomatemática y la Resolución de Problemas en la Enseñanza de las Matemáticas. Continuando con el trabajo, se presenta una experiencia en el curso Fundamentos de Álgebra, en la que se propusieron desafíos matemáticos con el objetivo de fomentar el aprendizaje cooperativo en el aula entre la Resolución de Problemas y la Etnomatemática, con el fin de guiar a los estudiantes hacia un aprendizaje significativo.

Palabras clave: Etnomatemáticas. Resolución de Problemas. Enseñanza del Álgebra.

1 INTRODUCTION

When we talk about Mathematics Education, it is difficult not to remember great Brazilian researchers such as Lourdes Onuchic and Ubiratan de Ambrósio who focus on research in Mathematics Education. These researchers, as well as so many others, have been raising discussions over the years about pedagogical practices that can offer the student their insertion as a protagonist in the construction of their own knowledge.

Starting with a mathematics education, based on problem solving, as Onuchic suggests, is not easy, "it is a challenging task for mathematics teachers who seek strategies based on Problem Solving as a support to improve their teaching practice, leading to student learning in a meaningful way" (HUANCA, SILVA, 2022, p.02). Thus, we believe that, "the teaching of Mathematics should take place in an atmosphere of research oriented to Problem Solving" making a correlation with the student's ethnomathematic knowledge.

Because, according to D'Ambrósio, "the pedagogical proposal of Ethnomathematics is to make mathematics something alive, dealing with real situations in time (now) and in Space (here), and through criticism to question the here and now" (D'AMBRÓSIO, 2011, p., 46,47). Because the student will only show interest in investigation, in investigating what has a correlation with his daily life and real situations in the environment in which he lives.

In this perspective, Ethnomatics associated with Problem Solving can be seen as a possibility for a better understanding of the student, in the resolution of problem situations offered in the classroom, preparing them to better deal with problem situations of their daily lives. Because ethnomathematics is directly linked to Problem Solving because

Mathematics is almost as old as the human species. Well before the invention of numbers, early men had to develop methods to solve everyday problems, such as locating themselves in time and space, and to try to describe and explain the physical world. They created ways to compare, classify and order, measure, quantify, infer fundamental elements that the Western cultural tradition names mathematics (D'AMBRÓSIO, 2010, p. 6).

Thus, ethnomathematics arises from the needs of human beings to solve problem situations of their daily lives, for means of survival. Because according to Dante (2009),

Solving problems is human nature itself. We can characterize man as the 'problem-solving animal', his days are filled with aspirations not immediately attainable. Most of our conscious thinking is about problems (DANTE, 2009, p. 14).

Thus, when we are faced with the teaching of mathematics it is no different. We always find a problem to be solved, a new challenge to be solved. Problem Solving as a methodology, in recent years has been increasingly present in the classroom, especially in the curricular component of mathematics. According to Allevato (2005),

(...) when the teacher adopts this methodology, students can learn both about problem solving, and learn mathematics to solve new problems, while learning mathematics through problem solving (Allevato, 2005, p. 61).

Thus, D'Ambrósio (2004) highlights that:

The access to a greater number of instruments and intellectual techniques gives, when properly contextualized, much greater capacity to face new situations and problems, to adequately model a real situation in order to arrive at a possible situation or course of action with these instruments (D'AMBRÓSIO, 2004, p. 51)

In this sense, the teacher must seek to correlate the student's teaching-learning with the social environment in which he lives, adopting the educational dimensions of ethnomathematics associated with Problem Solving, since this allows the teacher to contextualize the most diverse situations of the student's daily life with academic knowledge, in this way Onuchic and Allevato (2011) suggested that, This contextualization, these problems, are proposed to the student before a formalization of the content, aiming to lead the student to an investigation for means of resolution, thus using a collaborative learning between ethnomatics and problem solving.

2 ETHNOMATHEMATICS AND PROBLEM SOLVING

2.1 HISTORICAL OVERVIEW OF ETHNOMATHEMATICS

Ethnomathematics emerged around 1960, with research professor Ubirantan D'Ambrósio, shortly after World War II, in a Mathematics work for black minorities at the *State University of New York at Buffalo*. However, it was only around 1975 to 1985 that the researcher presented the term Ethnomathematics at the Fifth International Congress of Mathematics Education (ICME-5), having the word as the etymology of the word

[...] **ethno** is now accepted as something very broad, referring to the cultural context, and therefore includes considerations such as language, jargon, codes of behavior, myths, and symbols; **Matema** is a difficult root, which goes in the direction of

explaining, of knowing, of understanding; and tica undoubtedly comes from techne, which is the same root of art as technique. Thus, we could say that Ethnomathematics is the art or technique of explaining, of knowing, of understanding in different cultural contexts. In this conception, we approach a theorization of knowledge or, as it is modernly called, a theory of cognition (D'AMBRÓSIO, 1998, p. 5).

Thus, ethnomathematics according to the researcher would be practical mathematics in the daily life of various social groups and cultures. In which the focus of ethnomatics would be to seek to understand the mathematical knowledge/doing of a certain group, which are the result of knowledge passed down from generation to generation. According to Oliveira (2022), "Ethnomathematics is a program that seeks to explore the mathematical knowledge of a certain social group, correlating the knowledge of the past with the present in which it seeks to bring Mathematics to the classroom within a cultural system" (OLIVEIRA, 2022, p.21).

The definitions for the term Ethnomathematica differ according to the researchers. According to Monteiro (1998), ethnomathematics could never be understood as a methodological model of teaching, since it is a work to be carried out exclusively, with the researched group. Since each cultural and social group has its own specific needs and values of that group.

Gomes (2019), in turn, states that ethnomathematics is a very broad field, in which one can work with this mathematical trend associated with the most diverse areas of teaching such as philosophy, sociology, history, geography and not just mathematics (GOMES, 2019, p.20). According to Schwares (2019), taking ethnomathematics to the classroom is to offer new generations to learn mathematics from the mathematics practiced by cultural groups, with situations linked to their daily lives in a much more cultural way.

Because according to the National Curriculum Parameters (PCN), "To live democratically in a plural society, it is necessary to respect the different groups and cultures that constitute it. Brazilian society is formed not only by different ethnicities, but also by immigrants from different countries" (BRASIL, 1997, p.32). And the ethnomathematics program comes precisely to address the importance of valuing these cultural differences in the classroom, but addressing these flavors in the teaching of mathematics as well as in other disciplines.

2.2 PROBLEM SOLVING IN MATHEMATICS TEACHING

The teaching of mathematics through Problem Solving according to Huanca and Silva (2022) "is important, as it offers us an in-depth experience, an opportunity to know and outline the difficulties, to have access to the capacities and limitations of mathematical knowledge that students have" (ONUCHIC; ALLEVO, 2005, p. 04). Highlighting the advances of students in the process of acquiring knowledge that will be rooted in them from the moment students go in search of this knowledge.

For, according to Polya (1997) "a problem is a situation, quantitative or not, which requires a solution for which the individuals involved do not know evident means or ways to obtain it" (POLYA, 1997). From this perspective, we have a problem situation when we do not have already delimited means to solve them, as is the case with fixation exercises. Thus, we highlight that

"A problem is defined here as any task or activities in which the students do not have any method or rule already prescribed or memorized and there is no perception on the part of the students that there is a specific "correct" method of solution" (VAN DE WALLE, 2009, p.57).

Thus, Walle points out that there are three specific characteristics to use Problem Solving as a Methodology in Mathematics Teaching.

The first is that the problem presented has to be associated with the student's daily life, that is, it is interconnected to the environment in which he lives so that it has meaning for the student, and can seek means of solutions for it. From this perspective, we can suggest the use of ethnomathematics.

The second, the author suggests that the problem is correlated with the content that is intended to be addressed in the classroom, presenting them in a dynamic and attractive way for the student, awakening their investigative sense.

The third activity addressed in the classroom must require the student to develop his arguments, that is, the student must be able to justify and explain each step by step achieved when solving the problem.

Thus, Onuchic and Allevo (2005) say that "the more conditions given to students to think and test an emerging idea, the greater the chance that it will be formed correctly and integrated into a rich web of ideas and relational understanding" (ONUCHIC; ALLEVO, 2005, p. 41). When the teacher enables the student to solve a problem situation, he offers his

student the chance of learning by investigation, that is, it offers the student to make use of investigative processes in his learning, as well as the use of deductive logical reasoning.

In addition to enabling the student to make a connection between the areas of algebra, arithmetic and geometry.

3 DESCRIPTION OF THE LEARNING

Our research is based on the context of classes held in the discipline of Fundamentals of Algebra offered in the Graduate Program in Science Teaching and Mathematics Education (PPGECM), at the State University of Paraíba (UEPB), Campus – I, Campina Grande. In which the discipline has as a photo to offer the student an "analysis of learning from a collaborative perspective" (HUANCA, SILVA, 2022, p. 11).

Thus, at the beginning of each class, the teacher always offered the students situations problems to be solved. Seeking to awaken in his students the investigative sense, making the investigation of the problem situation start to a resolution through reflective and interactive means among the students.

Based on this assumption, all classes of the discipline of Fundamentals of Algebra always started with new challenges contextualized mostly with everyday situations, and then texts on algebras and problem solving were chosen to be discussed in class after the long tasks, in order to offer the student a deepening of theoretical concepts and history of algebra and Problem Solving.

Preparing the student with a greater theoretical and practical foundation to achieve possible successes in the classroom, by applying the teaching of algebra through the Resolution of Problem Situations. Professor Huanca presents to his graduate students the teaching of algebra in a dynamic, interactive way, taking teachers of physics, mathematics and pedagogy out of their comfort zone, showing that the teaching of algebra is much more than concepts, formulas and repetitions.

In which paths are offered that can enable our students to have a teaching-learning in which the student becomes the protagonist of the formation of his knowledge, in an environment "rich in authentic and spontaneous intersubjective relationships" becoming "conducive to the investigation of strategies for sharing knowledge, beyond the conceptual development itself" (HUANCA, SILVA, 2022, p. 11). Following this perspective, we will narrate below an experience in this context, which occurred in the class of Fundamentals of Algebra taught by Professor Huanca.

At first, the teacher, when entering the classroom, distributes the class in pairs to work together in the development of the first challenge presented in the classroom through slides. The challenge was as follows:

CHALLENGE 1: Salary Problem

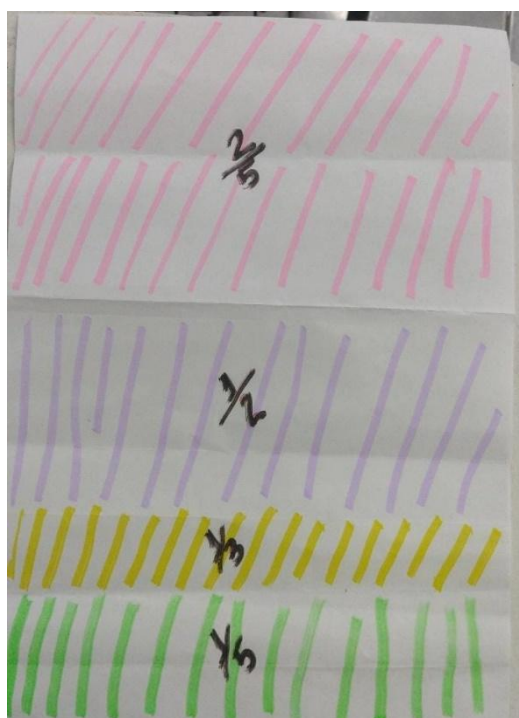
Of my salary I spent $\frac{2}{5}$ on rent. Of what was left I spent half on food. Of the second leftover, I put $\frac{1}{3}$ in savings. I was left with R\$ 300.00. What is the value of my salary?

To solve this problem, the teacher distributes blank A4 sheets to all students, and asked us to try to solve the situation initially by means of folding, to be carried out with the use of the sheet of paper, as shown in the following figure.

Resolution 1:

Figure 1

Folds



Source: Elaborated by the author

After following the step-by-step information offered by the problem situation, by performing the folding, we easily obtain the result equal to R\$ 1,500.00 as an answer to the salary presented in the problem earlier.

Thus, we made a connection between algebra and geometry to solve the problem situation, allowing us to explore the concepts of fractions and the use of arithmetic

calculations in understanding the composition of how many parts qualify in the whole in the Salary situation.

Then the teacher asked us to carry out the same problem situation, but now with an algebraic representation. It was a real challenge, because most of the class felt great difficulty in performing this representation, evidencing our lag, in the understanding of concepts and algebraic representations when we left the comfort zone, the ready-made formulas and the mechanized application of teaching.

Noticing this difficulty of the students, the teacher begins to give guidelines, so that we can achieve the objectives proposed by him. Later we will present the algebraic demonstration for the resolution of problem 1 situation.

Resolution 2:

We will represent by x , the value of the salary. Soon

We have $X = \text{Salary amount}$

The problem presents $2/3$ of the salary was allocated to rent, so we have to

$$\text{Step 1: } x - = = \frac{2x}{5} \frac{5x-2x}{5} \frac{3x}{5}$$

Then, of what was left of the salary, $1/2$ was spent on food, so we have

$$\text{Step 2: } = . = \frac{\frac{3x}{5}}{2} \frac{3x}{5} \frac{1}{2} \frac{3x}{10}$$

After payment was made with food, $1/3$ of the surplus was placed in savings

$$\text{Step 3: } . = \frac{\frac{3x}{10} \frac{1}{3} \frac{x}{10}}$$

Having found the three expressions to represent each situation of the statement, we then have that the salary will be

$$\frac{3x}{5} - = 300 \frac{3x}{10} \frac{x}{10}$$

Thus, solving the equation we have to

$$\frac{6x-3x-x}{10} = 300$$

$$2x = 300 \cdot 10$$

$$X = = 1,500 \frac{3000}{2}$$

After the presentation of the first step demonstrated by the teacher, the class together, carrying out informal exchanges with each other. Managed to achieve the full demo as previously presented. By promoting this type of activity in the classroom, the teacher enables the student to investigate means of resolution based on his already internalized knowledge and opens the possibility of investigative and collaborative learning, developing in the student skills such as logical reasoning, argumentation and critical sense.

Continuing the class, the teacher presents a second challenge, namely:

CHALLENGE 2: Sandwich Problem

One person came to a diner and asked: I want half of the sandwiches you have, plus $\frac{1}{2}$ sandwich. A second buyer came in and asked, I want half the sandwiches you have, plus $\frac{1}{2}$ sandwich. A third person came and asked: I want half the sandwiches you have, plus $\frac{1}{2}$ sandwich. The owner of the snack bar saw that there was only one sandwich left. How many sandwiches did he initially have?

The challenge initially could not be completely solved by any student, using algebraic representation. Paths were reached, which was a proposal to be completed at home, and posted on Google Classroom, which was used by teachers for notices, sending activities and a Meet link when it was necessary to use online classes.

Thus, aiming at the students' difficulty in being able to solve the problem, the teacher performs a demonstration using other methods, so that it would not interfere or coincide with the method that was being developed by the students. Later I will present the method of resolution presented by the teacher and the method of resolution developed by the author of this work.

Teacher's Resolution: End to Start

Step 3: $\frac{x}{2} + \text{Left } (+) 1 \cdot \frac{1}{2}$

Thus, it has to

$$\frac{x}{2} = + 1 \frac{1}{2}$$

$$\frac{x}{2} = \frac{1+2}{2}$$

$$\frac{x}{2} = \text{therefore we have } x = 2 \frac{3}{2}$$

Step 2: $\frac{x}{2} + \frac{1}{2} 3$ left

$$\frac{x}{2} = \frac{1+6}{2}$$

$$\frac{x}{2} = \text{logo } x = 7 \frac{7}{2}$$

Step 1: $\frac{x}{2} + \frac{1}{2} 7$ left

$$\frac{x}{2} = \frac{1+14}{2}$$

$$\text{Logo } x = 15$$

Thus, it is concluded that initially in the cafeteria there were 15 sandwiches in all.

The problem when placed in the classroom, in a graduate course, makes us reflect on the importance of algebra in the student's teaching-learning process, and especially in the continuing education of teachers, because even though we are teachers working in the classroom, we face difficulties in interpreting the rigors required by mathematics to achieve a result consistent with the situation presented.

Thus, during the situation presented. I came across problems of interpretation to solve the problem. The first mistake was not subtracting the whole. Soon I obtained it as an initial resolution

1st step (wrong): $(+) = \frac{x}{2} \frac{1}{2} \frac{x+1}{2}$

Step 2: $+ = . + + = + = \frac{\frac{x+1}{2}}{2} \frac{1}{2} \frac{x+1}{2} \frac{1}{2} \frac{1}{2} = \frac{x+1}{4} \frac{1}{2} \frac{x+1}{4} \frac{2}{4} \frac{x+3}{4}$

Step 3: $\frac{\frac{x+3}{2}}{2} + = . + = + = + = \frac{1}{2} \frac{x+3}{2} \frac{1}{2} \frac{1}{2} \frac{x+3}{8} \frac{1}{2} \frac{x+3}{8} \frac{4}{8} \frac{x+7}{8}$

The second mistake was subtracting all three expressions and equaling 1. In this way, always arriving at an inconclusive result.

So we are left with the expression:

Resolution Failed: $\frac{x+1}{2} - \frac{x+3}{4} = 1 \frac{x+7}{8}$

Trying to solve the expression both by adding and subtracting, it was never possible to reach a resolution of 15 sandwiches. Simply for an initial misinterpretation, and another misinterpretation at the end of the resolution. Below I will present the correct resolution of the problem situation, which I can achieve with the guidance of Professor Huanca.

Author's Resolution: From start to finish

First step: make the correction by subtracting now the existing "x" sandwiches that were initially in the cafeteria, arriving at the following expression

1º passo: $x - \left(\frac{x}{2} + \frac{1}{2}\right) = \frac{x-1}{2}$

In the second step, we subtract from what was left of sandwiches in the cafeteria the second order, keeping the expression

2º passo: $\frac{x-1}{2} - \left(\frac{\frac{x-1}{2}}{2} + \frac{1}{2}\right) = \frac{x-1}{2} - \frac{x-1}{4} - \frac{1}{2} = \frac{2x-2-x+1-2}{4} = \frac{x-3}{4}$

Finally, in the third step, following the same logic as the previous one, we subtract the third order, based on the expression that now represents all the remaining sandwiches in the cafeteria, thus, we reach the following expression

3º passo: $\frac{x-3}{4} - \left(\frac{\frac{x-3}{4}}{2} + \frac{1}{2}\right) = \frac{x-3}{4} - \frac{x-3}{8} - \frac{1}{2} = \frac{x-3}{8} - \frac{x-3}{8} - \frac{1}{2} = \frac{2x-6-x+3-4}{8} = \frac{x-7}{8}$

Notice that the owner of the snack bar observed that there will be only one sandwich left, so the last expression represents the whole left, so we have that

$$\frac{x - 7}{8} = 1$$

$$x - 7 = 1 \cdot 8$$

$$x = 8 + 7$$

$$x = 15 \text{ sandwiches}$$

The problem situation presented by Professor Huanca was a real challenge that as a teacher and student made me leave my comfort zone, stretching myself to algebraic and investigative thinking, which made it possible after numerous attempts to achieve an algebraic demonstration of the problem situation. Giving not only a theoretical but also a practical basis for my performance as a teacher of Mathematics Education to work in the classroom with Ethnomathematics and problem solving in the teaching of algebra with a detailed investigative look, in order to play a role as a teacher, aiming more carefully at the difficulties and gaps found in the classroom, when it comes to the algebraic and mathematical thinking in general of my student.

4 FINAL CONSIDERATIONS

This work seeks to highlight the importance of working on the algebraic development of the student in an investigation environment with the use of Problem Solving in dialogue with Ethnomathematics, leading the student to make use of already internalized knowledge that is developed throughout experiences in his family and complemented at school.

In addition to providing them with the opportunity to go in search of new alternatives, thus making the student become the builder of their own knowledge. When a problem situation is offered in the classroom, based on the possible resolutions presented by the students, it allows the teacher not only to visualize the advances, but also to visualize the problems encountered in this process of evolution. For example, the concept of fractions, the notions of geometric representations and arithmetic representations as previously exposed in the described experience.

Thus, we realize that "the notion of practice involved in solving problems through the construction, (re)construction and interpretation of problems" together with ethnomathematics, is more than a simple problem solving. Because it enables the student to search for new knowledge, developing in the same critical, investigative, argumentative

sense, preparing them not only for problem situations in contracts in the classroom, but mainly to know how to deal with the problem situations experienced in the midst of a society.

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DIGITAL MEDIA AND THE INCLUSION OF STUDENTS WITH DISABILITIES IN EDUCATION

AS MÍDIAS DIGITAS E A INCLUSÃO DE ESTUDANTES COM DEFICIÊNCIA NA EDUCAÇÃO

MEDIOS DIGITALES Y LA INCLUSIÓN DE ESTUDIANTES CON DISCAPACIDAD EN LA EDUCACIÓN

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ABSTRACT

This paper explores the importance of integrating Information and Communication Technologies (ICT) in the inclusion of students with low vision and blind people in schools. The increased use of visual resources in digital technologies represents a challenge for these students, but the appropriate use of tools such as Audio Description (AD) and assistive technology can transform the educational experience, promoting more equitable access to content. AD, by converting visual information into verbal descriptions, allows students with visual impairments to access materials that would otherwise be inaccessible. By adopting these inclusive technologies and practices, schools can overcome visual barriers and create a collaborative and accessible environment for all students. School plays a fundamental role in promoting inclusion and respect for differences, being a privileged space for discussing human rights and diversity. The integration of ICT and adaptive resources not only meets legal inclusion guidelines, but also contributes to fairer and more effective education. Commitment to innovation and adaptation of pedagogical practices is essential to ensure that all students can fully participate in the educational process and develop their potential. With a strategic and inclusive approach, educational institutions can move forward in creating a more accessible and equitable future, reflecting the value of diversity and promoting equal opportunities for all students.

Keywords: Inclusion. Digital Media. Vision. Deficiency.

RESUMO

Este paper explora a importância da integração das Tecnologias da Informação e Comunicação (TIC) na inclusão de alunos com baixa visão e cegos no âmbito escolar. O aumento da utilização dos recursos visuais nas tecnologias digitais representa um desafio para esses alunos, mas a utilização adequada de ferramentas como a Audiodescrição (AD) e tecnologia assistiva pode transformar a experiência educacional, promovendo um acesso mais equitativo ao conteúdo. AAD, ao converter informações visuais em descrições verbais, permite que os discentes com deficiência visual acessem materiais que de outra forma seriam inacessíveis. Ao adotar essas tecnologias e práticas inclusivas, a escola pode superar barreiras visuais e criar um ambiente colaborativo e acessível para todos os estudantes. A escola desempenha um papel fundamental na promoção da inclusão e no

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respeito às diferenças, sendo um espaço privilegiado para a discussão de direitos humanos e diversidade. A integração das TIC e de recursos adaptativos não apenas atende às diretrizes legais de inclusão, mas também contribui para uma educação mais justa e eficaz. O compromisso com a inovação e a adaptação das práticas pedagógicas é essencial para garantir que todos os discentes possam participar plenamente do processo educativo e desenvolver seu potencial. Com uma abordagem estratégica e inclusiva, as instituições de ensino podem avançar na criação de um futuro mais acessível e igualitário, refletindo o valor da diversidade e promovendo oportunidades iguais para todos os estudantes.

Palavras-chave: Inclusão. Mídias Digitais. Visão. Deficiência.

RESUMEN

Este artículo explora la importancia de integrar las Tecnologías de la Información y la Comunicación (TIC) en la inclusión del alumnado con baja visión y ceguera en las escuelas. El aumento del uso de recursos visuales en las tecnologías digitales supone un reto para este alumnado, pero el uso adecuado de herramientas como la Audiodescripción (AD) y la tecnología de asistencia puede transformar la experiencia educativa, promoviendo un acceso más equitativo a los contenidos. La AD, al convertir la información visual en descripciones verbales, permite al alumnado con discapacidad visual acceder a materiales que de otro modo serían inaccesibles. Mediante la adopción de estas tecnologías y prácticas inclusivas, las escuelas pueden superar las barreras visuales y crear un entorno colaborativo y accesible para todo el alumnado. Las escuelas desempeñan un papel fundamental en la promoción de la inclusión y el respeto a las diferencias, sirviendo como un espacio privilegiado para el debate sobre los derechos humanos y la diversidad. La integración de las TIC y los recursos adaptativos no solo cumple con las directrices legales de inclusión, sino que también contribuye a una educación más equitativa y eficaz. El compromiso con la innovación y la adaptación de las prácticas pedagógicas es esencial para garantizar que todo el alumnado pueda participar plenamente en el proceso educativo y desarrollar su potencial. Con un enfoque estratégico e inclusivo, las instituciones educativas pueden impulsar la creación de un futuro más accesible y equitativo, que refleje el valor de la diversidad y promueva la igualdad de oportunidades para todo el alumnado.

Palabras clave: Inclusión. Medios Digitales. Visión. Discapacidad.

1 INTRODUCTION

The inclusion of blind and visually impaired people in the school environment is a topic of increasing relevance in contemporary education, especially with the advancement of Information and Communication Technologies (ICT). These technologies, which are often associated with a large volume of images and visual content, can present significant challenges for visually impaired students. However, when used appropriately and accompanied by assistive technology resources and practices such as Audio Description (AD), ICT has the potential to transform the educational experience of these students. The judicious integration of these tools can not only facilitate access to the content of the curriculum base, but also promote access and opportunity for more collaborative and inclusive learning. The combination of ICT and AD can overcome visual barriers, allowing all students to actively participate in the educational process, building knowledge in an interactive and accessible way.

The school plays a crucial role in promoting an inclusive and fairer community, functioning as a prominent space for reflection on respect for differences and human rights. By integrating ICT in an innovative way and adapted to the needs of visually impaired students, the educational institution not only contributes to the academic training of these students, but also prepares them to act effectively in an increasingly technological social environment. The school's responsibility goes beyond simply complying with legal inclusion standards, it involves building an environment that values diversity and promotes equity in access to knowledge. Therefore, the strategic use of ICT, combined with inclusive practices, is essential to ensure that all students, regardless of their visual abilities, can enjoy a rich and complete education.

2 INTEGRATING THE FUTURE: THE IMPORTANCE OF DIGITAL MEDIA IN CONTEMPORARY EDUCATION

Digital media is a type of communication that uses the internet as a means of distribution and is formed completely by digital codes or binary numbers. Unlike analog media, which relies on physical devices to record and reproduce information, digital media allows for immediate user interaction. Key examples of digital media include online communication tools such as websites, blogs, and social media platforms. In this way, it covers any content or communication channel available on the network. Education, as a field of study and practice, has been transformed over the years and, with the advent of digital

media, this change has accelerated. The development of education and the introduction of digital media have aroused great interest among researchers and educators, since the inclusion of these technologies in teaching has changed the way students absorb knowledge and how teachers transmit their classes, bringing new opportunities and also challenges to be faced (SILVA, ESCOBAR, SILVA, MEROTO NARCISO, 2023).

Still for the authors cited, The current scenario of digital media is quite varied, especially if we consider that the society of the twenty-first century is in constant transformation; we have entered the information age or the so-called interconnected society. Thus, it can be seen that these media have a role that is becoming increasingly important in education, collaborating for the design of pedagogical materials in the school environment and providing students with different experiences, by offering new ways of teaching and learning, in addition to allowing greater interaction and cooperation between students and teachers. Among the analog media used in the teaching-learning process, printed materials, television/video and radio stand out. However, with rapid technological progress, interesting alternatives emerge to streamline teaching in schools. In addition, there has been a major change with regard to the physical space, as previously the classroom was limited to a closed environment, and now it integrates new multimedia elements, which reflects the transformation caused by digital in education. Schools need to innovate to keep up with this technological evolution.

Different languages are necessary to expand literacy practices, as Rojo (2019) argues. Digital media, due to their versatility, allow the use of various languages, including visual, which is crucial for digital learning, promoting interaction and connection with technologies.

Considering the fundamental role of the school in the formation of visual readers, capable of interpreting the visual messages that surround them, digital technologies are configured as indispensable tools in the teaching-learning process. The predominant visual language in virtual social networks, for example, directly influences the textual production of high school students.

3 NEW TECHNOLOGIES AND EDUCATION: THE EVOLUTION OF THE TEACHING AND LEARNING PROCESS IN CONTEMPORARY SOCIETY

According to Silva and Correa (2014), it is indisputable that human beings are in a continuous process of evolution, and this constant movement has raised many questions, especially with regard to "information" and its connection with progress. In fact, this vast and

growing amount of information emerged during the Industrial Revolution, when access to books and knowledge was limited, but suddenly it became possible to share and acquire intellectual productions from different regions for various people. In the 1980s, with the rapid advance of industrialization, post-industrial capitalism emerged, popularizing the term "information society", which came to be widely used. Technology has allowed human beings to control information, since it is a fundamental component of any human activity, whether individual or collective. Today, it is not possible to imagine development without the presence of technology.

It is essential to highlight that, in a social environment flooded with information from everywhere, it is common for young people, often unprepared to deal with the challenges of this era, to end up becoming alienated. According to Silveira and Bazzo, "it is essential to carry out a critical analysis of technology, considering its historical formation and its social function, in order not only to understand the meaning of technology, but also to reassess and redefine its role in society" (2009, p.183).

Also for Silva and Correa (2014), several conceptions about technologies as educational tools were in fact materialized. Examples of this are distance education, e-books, videoconferences, ATMs, and electronic mail, among others. However, it is crucial to recognize that technological advancement has also brought a number of social problems. Today's society needs to be aware of the challenges it faces, which encompass economic, cultural, social, political and ethical dimensions. Among these issues are poverty, the exposure of privacy on social networks, unemployment, the violation of privacy, the lack of identity and visual pollution, among other aspects that add complexity to contemporary reality. These challenges lead us to reflect on how technologies are used and their effectiveness in the field of education, guidance and exploration of knowledge.

If, before the advent of technologies, education already aimed to enrich the knowledge transmitted and discussed in the classroom, the introduction of technologies offered a qualitative contribution that would not only boost the economic growth of a nation, but also promote the critical and participatory development of human capacities. According to França (2010), transformations are taking place more and more rapidly, fueled by the continuous evolution and expansion of information and knowledge. These changes directly affect our contemporary reality, shaping and adjusting the way we communicate and interact with the media and the world. They arouse curiosity and the desire to create new habits, adapt and follow this progress.

4 DIGITAL TECHNOLOGIES AND VISUAL IMPAIRMENT: THE CONTRIBUTION OF ICT TO PEDAGOGICAL PRACTICE IN THE CONTEXT OF THE BRAZILIAN INCLUSION LAW

Bonilla, Silva and Machado (2018) point out that, for several decades, the movement in defense of the rights of people with disabilities has driven the formulation of public policies in Brazil. However, it was only in 2015 that the country was awarded legislation specifically aimed at inclusion in all its spheres. The Brazilian Inclusion Law (LBI), also called the Statute of Persons with Disabilities (Law No. 13,146/2015), was enacted on July 6, 2015, entering into force on January 2, 2016. With regard to school inclusion, the LBI ensures the right of people with disabilities to access conventional education. However, the LBI is not limited to the educational field, but also covers issues such as the right to habilitation and rehabilitation, as well as rights related to culture, sports, tourism, and leisure. It is especially significant to highlight that, in the current scenario of Information and Communication Technologies (ICT) development, the LBI covers sections dedicated to assistive technology, accessibility, and the right to communication and information.

According to the authors, the inclusion of these topics in the legislation highlights the importance of Information and Communication Technologies (ICT) in the daily lives of people with disabilities and demonstrates their usefulness for those who seek to implement inclusion actions in the school environment. ICT has the ability to naturally introduce issues related to disability, accessibility and human rights into classroom activities; stimulate collaboration among students; and to ensure the effective participation of a group of historically marginalized students: those with visual impairments.

According to Piletti (2014), it is essential to exercise sensitivity and commitment when working with students who have visual impairment. It should be considered that the progress of technologies, such as photography, cinema, television, videos and digital platforms, has resulted in an expansion in the use of visual elements. Currently, most materials (whether written or oral) are accompanied by some kind of visual resource (graphs, diagrams, figures, videos, etc.) or are transmitted exclusively by visual means. However, for students who are blind or have low vision, these representations can constitute a barrier to the full assimilation of information. Furthermore, even if part of the content is presented verbally, if it is only projected or displayed on screens, it will remain inaccessible to this audience. Thus, for the inclusion of these people to be effective, it is crucial to ensure their rights, not only through legislation, but also through concrete practices in the daily life of society.

According to the legislation, educational systems need to "[...] ensure conditions for access, continuity, participation and learning, through the provision of accessibility services and resources that remove obstacles and promote complete inclusion" (BRASIL, Law No. 13,146, 2015, art. 28). This implies that they must be offered "[...] appropriate services and adjustments to meet the needs of students with disabilities and ensure their full access to the curriculum in equivalent conditions, encouraging the achievement and exercise of their autonomy" (BRASIL, Law No. 13,146, 2015, art. 28). Thus, when planning their classes, the teacher who wants to use or ask students to use slides, videos, internet access, blogs, among others, must develop dynamics and activities that ensure the full participation of all students, without exception. Otherwise, a "communication and information barrier" will arise, which refers to an "impediment, obstacle, attitude or behavior that hinders or makes impossible the transmission or reception of messages and information through communication systems and information technology" (BRASIL, Law No. 13,146, 2015, art. 3).

Leme (2003) describes that vision is the result of the integration of several functions, including visual acuity, visual field, binocular coordination, contrast sensitivity, light adaptation, dark adaptation, and color perception. This combination allows you to distinguish shades, sizes, distances, shapes, arrangements, and movements within a field of approximately 180°. In addition, the author points out that the difference between blindness and low vision is more functional than medical. People with low vision are those who, despite being officially classified as blind, are able to use residual vision to carry out daily activities, especially at school. In summary, even if an individual's residual vision is within the parameters of low vision, if they are unable to use this vision and need guidance in braille, they will be considered blind.

Vygotsky [...] highlighted that the challenge of blindness is basically instrumental and, by providing the blind with alternative methods of access to cultural elements that are inaccessible due to lack of vision, the problem can be overcome, as occurs with the braille system, which allows the blind to access writing (VYGOTSKY, 1997 apud LEME, 2003, p.20).

An effective practice to sensitize both teachers and colleagues of visually impaired students is to use the computer (or smartphone) with screen reading software and browse various websites on the internet. These activities can be used to introduce the issue of disability and human rights, as well as foster productive discussion in the classroom. Another very useful activity for this purpose is the exhibition of film excerpts without the presentation of the images, that is, only with the audio. What is the level of understanding of the content

of the film by students in this way? This practice is especially useful for introducing an assistive technology that deals with information that cannot be accessed by screen readers, such as images. This feature is called Audio Description (AD). Audio description makes visual content such as photographs, paintings, sculptures, textbook illustrations, classroom posters and slide presentations accessible, as well as audiovisual content such as films, plays and television programmes, for people who are blind or have low vision. It consists of converting images into words to ensure that crucial information, transmitted predominantly in a visual way, is not lost (BONILLA, SILVA, MACHADO, 2018).

According to the authors, Information and Communication Technologies (ICTs) can play a crucial role in the inclusion of blind and low-vision people in the school environment. While the use of digital technologies often involves a large amount of images, and the inappropriate use of these technologies can create challenges for these students, the application of these tools can have substantial benefits for the classroom. By integrating assistive technology resources with the principles of Audio Description (AD), and employing ICT in a way that goes beyond conventional teaching methods, it is possible to facilitate collaborative work between students with and without visual impairment. This promotes the construction of knowledge in an inclusive, interactive, autonomous, and creative way. The school, being an essential environment for social coexistence, offers a privileged space to address topics such as human rights and respect for differences. It is essential that the school helps students understand the importance of developing a fairer and more inclusive society, while preparing them for an increasingly technological world.

5 FINAL CONSIDERATIONS

In summary, the proper implementation of ICTs in the school environment can be decisive for the inclusion of blind and low-vision students. Effective use of tools such as AD and assistive technology resources provides a valuable opportunity to overcome visual barriers, providing more equitable access to educational content. When these technologies are applied in a thoughtful and strategic way, they not only facilitate the full participation of these students in school activities, but also enrich the learning experience for all. In this way, ICT becomes essential allies to promote a more inclusive and collaborative teaching environment, ensuring that all students can develop their academic and personal potential.

In addition, the school, as the fundamental nucleus of educational and social formation, plays a crucial role in the construction of a more just and inclusive society. By

adopting educational practices that integrate adaptive technologies and promote accessibility, educational institutions not only meet legal requirements but also move towards equity and respect for diversity. The effort to adapt education to the needs of all students is significant, but the gains in terms of inclusion and opportunities are immeasurable. With a firm commitment and an innovative approach, schools have the potential to be transformative agents in creating a more equitable and accessible future for all.

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MULTIMEDIA RESOURCES FOR EDUCATION
RECURSOS MULTIMÍDIAS PARA A EDUCAÇÃO
RECURSOS MULTIMEDIA PARA LA EDUCACIÓN

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ABSTRACT

This work analyzes the relevance of Storytelling and Podcast as multimedia resources in contemporary education, highlighting their importance for promoting engagement and interaction between educators and students. In light of sociocultural theories, especially Vygotsky's concept of Zone of Proximal Development (ZPD), the research emphasized how personalized narratives can facilitate the construction of knowledge by connecting academic content with students' real experiences, arousing their interest and making learning easier. most significant for your personal and professional development. Furthermore, the study highlighted the need for ongoing training for educators in order to effectively integrate these approaches into their teaching practices. The proposed guidelines aim to encourage teaching that values creativity, collaboration and empathy, preparing students for the challenges of the 21st century. In short, implementing narrative and multimedia-based strategies not only enriches the learning experience, but also contributes to a more inclusive and adaptable education to the demands of today's society.

Keywords: Multimedia. Education. Storytelling. Podcast.

RESUMO

Este trabalho analisou a relevância do Storytelling e Podcast como recursos multimídia na educação contemporânea, destacando sua importância para promover o engajamento e a interação entre educadores e alunos. À luz das teorias socioculturais, especialmente o conceito de Zona de Desenvolvimento Proximal (ZDP) de Vygotsky, a pesquisa enfatizou como as narrativas personalizadas podem facilitar a construção de conhecimento ao conectar conteúdos acadêmicos com experiências reais dos estudantes, despertando seu interesse e tornando o aprendizado mais significativo para sua formação pessoal e profissional. Além disso, o estudo ressaltou a necessidade de capacitação contínua para educadores, a fim de integrar eficazmente essas abordagens em suas práticas pedagógicas. As diretrizes propostas visam fomentar um ensino que valorize a criatividade, a colaboração e a empatia, preparando os alunos para os desafios do século XXI. Em suma, a implementação de estratégias baseadas em narrativas e multimídia não apenas enriquece a experiência de aprendizado, mas também contribui para uma educação mais inclusiva e adaptável às demandas da sociedade atual.

Palavras-chave: Multimídia. Educação. Storytelling. Podcast.

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RESUMEN

Este estudio analizó la relevancia de la narración y los podcasts como recursos multimedia en la educación contemporánea, destacando su importancia para promover la participación y la interacción entre educadores y estudiantes. A la luz de las teorías socioculturales, especialmente el concepto de la Zona de Desarrollo Próximo (ZDP) de Vygotsky, la investigación enfatizó cómo las narrativas personalizadas pueden facilitar la construcción del conocimiento al conectar el contenido académico con las experiencias de la vida real de los estudiantes, despertando su interés y haciendo que el aprendizaje sea más significativo para su desarrollo personal y profesional. Además, el estudio destacó la necesidad de formación continua para educadores que integren eficazmente estos enfoques en sus prácticas pedagógicas. Las directrices propuestas buscan fomentar una enseñanza que valore la creatividad, la colaboración y la empatía, preparando al alumnado para los retos del siglo XXI. En resumen, la implementación de estrategias basadas en la narrativa y el multimedia no solo enriquece la experiencia de aprendizaje, sino que también contribuye a una educación más inclusiva que se adapta a las exigencias de la sociedad actual.

Palabras clave: Multimedia. Educación. Narrativa. Podcast.

1 INTRODUCTION

We are experiencing a technological transformation that brings various impacts to society, one of these impacts being new technologies that interconnect different cultures. In this context, the internet, as one of the fruits of this evolution, has consolidated itself as the symbol of this new era, offering the user the ability to access and choose information at the time and place of their preference.

Undoubtedly, the level of interconnectivity achieved by the internet far exceeds what was experienced a hundred or fifty years ago with the use of the telegraph, radio or telephone. However, we still use the internet only to accomplish what we want, within the options it provides. If our desires remain the same, nothing really changes, as we continue to operate within the same framework of actions and emotions that we are used to experiencing. (MATURANA, p. 199, apud ANDRADE, p. 7, 2011).

The main purpose of this research is to promote an analysis of multimedia resources aimed at education, considering contemporary educational trends, especially with regard to the use of the virtual learning environment in the distance learning modality. In addition, it seeks to reflect on the various possibilities of applying multimedia resources in the preparation of didactic materials and their usefulness in the inclusive educational context, evaluating the types of digital media currently used. From this perspective, the study is based on research that has discussed the integration of digital technologies in learning environments and in the daily lives of students who are digital natives.

2 DISTANCE HIGHER EDUCATION AND MULTIMEDIA RESOURCES

Currently, multimedia resources have played a crucial role in the transformation of education. They offer access to a wide range of educational materials, enable personalization of the learning process, and promote interaction and collaboration among students. However, it is important to note that the effectiveness of digital technologies in education is directly linked to their implementation based on robust pedagogical methodologies, as well as ensuring that all students have equitable access to these tools. Thus, multimedia resources are powerful instruments, but they need to be used with caution and responsibility to ensure quality education in the digital age. With constant technological advancement, it is essential that distance learning institutions continue to explore and improve the use of these resources, always seeking to improve the quality of distance higher education (Santos, 2023).

Today's students, who grew up completely immersed in digital technologies since childhood, exhibit significant differences compared to past generations. They no longer fit the traditional profile of students for which the educational system was originally structured. These students, influenced by a highly technological environment, have new demands and expectations in relation to learning, challenging conventional teaching methods and requiring a more flexible and interactive approach (Prensky (2001).

The concept of student autonomy refers to the ability of students to make independent decisions about their own learning process. This involves each student's ability to develop a personalized syllabus, identify and access learning resources available in their community or workplace setting, and autonomously make decisions about what and how to learn. These skills vary among students, reflecting their individual competencies in managing their own educational path and in the search for relevant information for their academic and professional growth (Kearslev, 2008).

3 PODCAST IN EDUCATION

We are going through a phase of technological evolution that has generated a wide variety of impacts on society. One of these effects is the emergence of new technologies that promote the connection between different cultures. In this scenario, the internet – the result of this technological transformation – has emerged as the central symbol of this new era, providing users with the ability to access and select information according to their preferences, anytime and anywhere, in an instant and personalized way (JESUS, 2014).

Also for the author, contemporary technologies enable the creation of informal networks and learning communities that develop from common interests in a virtual environment. Likewise, these affinities, whether preexisting or formed over time, can foster the construction of networks, as the convergence of similar interests encourages the search for appropriate means of communication (or technological tools) for their interaction. Thus, it can be seen that the Network Society arises from the interconnection between these affinities and technologies, facilitating or maintaining real-time communication between people and groups, regardless of their geographic location, time or other characteristics that connect them.

According to Brito (2008), human beings constantly develop new ways of transmitting knowledge, values, rules, norms and procedures in order to ensure coexistence among people and promote the dissemination of their culture. Among the various dynamics that

involve this process, Education stands out as one of the main ways of transmitting and perpetuating these cultural and social elements, playing a central role in the integration and formation of individuals within society.

The term Podcast results from the combination of the words iPod (a mobile device for audio and video playback) and broadcast (a method of distributing or transmitting data). Podcast is a form of media that publishes audio, video, and images on the internet, and can be played on any device capable of reading audio files. Although it is a relatively recent technology, the Podcast has been used in several contexts, both in the corporate sphere, as a way to make available the content of meetings, news programs and entertainment, as well as in programs of a scientific nature. In education, this new media is beginning to be used with increasing success for the dissemination of information and teaching materials in classes, especially in distance education in European countries (JESUS, 2014).

This functionality of the Podcast is in line with the central ideas of Piaget (1976), which states that all human beings have intelligence, which is used to seek, organize and adapt to new structures in a world in constant transformation. Intelligence, through the mechanisms of assimilation and accommodation, enables the most diverse interactions to occur. Such interactions are becoming increasingly common in society, especially with technological advancements.

As Gatti (2005, p. 606) points out, Education is deeply rooted in culture and is not limited only to the sciences, which have been considered in modernity as the only legitimate sources of training and which have the capacity to provide technologies. It employs processes that create collective and shared meanings, which influence its way of inserting itself into the environment. Given that this dynamic is in continuous transformation, the Podcast emerges as a tool that offers both educational opportunities and challenges, which demand the attention of educators and researchers.

4 STORYTELLING AS A TEACHING STRATEGY IN THE CONTEXT OF PROFESSIONAL AND TECHNOLOGICAL EDUCATION

The social, economic, political and cultural transformations that have occurred in recent years have generated substantial changes in the work environment. Technological advancement and the dissemination of communication devices have overcome the barriers of time and space, giving rise to new models and work practices. Organizations have begun to prioritize interpersonal skills, requiring professionals with qualified profiles, in order to

ensure their survival in an unstable and competitive context. In addition, socio-emotional skills have come to occupy a prominent place among the selection criteria (OLIVEIRA, 2020).

Also for the author, in this way, in addition to technical performance, the ability to relate, collaboration, creativity, leadership skills and the demonstration of empathy have become aspects valued by institutions that seek individuals capable of solving problems and responding quickly to the challenges of contemporary society. Thus, the success of productive and innovative processes depends on professionals who are creative, critical and adaptable. This scenario, which requires a variety of skills in the training path of new professionals, raises questions about some aspects related to teaching methods in Professional and Technological Education (EPT).

Storytelling is an expression from the English language that, etymologically, refers to the combination of "story" and "telling" or "telling". The word "story" represents information, while "telling" refers to the way that information is presented or expressed. For Palacios and Terenzio (2006), Story and telling are two elements that must coexist in a harmonious way: the information you want to communicate and the emotional approach you choose to use to make an impact. Telling is the moment when the story ceases to be just a mental idea and starts to occupy a place in the tangible world.

In the light of sociocultural theories and the concept of Zone of Proximal Development (ZDP), elaborated by Vygotsky, it was possible to recognize the relevance of Storytelling as a strategy to promote interaction between educator, student and context, through personalization and problematization of concrete situations in the classroom. By establishing links between knowledge and reality, narratives hold attention and arouse interest, becoming a creative and effective response to the great challenges faced in contemporary education. In addition, it makes learning more meaningful, since students begin to understand the logic of the content and its importance for their personal and professional development (OLIVEIRA, 2020).

5 FINAL CONSIDERATIONS

In the final considerations of this work, it is evident that the use of multimedia resources, especially Storytelling, plays a crucial role in contemporary education, particularly with regard to the engagement and interaction between educators and students. As society advances at a rapid pace, driven by technology and digitalization, it becomes critical for educational practices to adapt to these changes. Research has demonstrated that applying

engaging and personalized storytelling not only makes it easier to understand complex concepts but also fosters a more inclusive and dynamic learning environment. Through Storytelling, students are able to establish meaningful connections between academic content and their own life experiences, which, in turn, enriches their personal and professional training. This innovative approach becomes, therefore, a valuable tool to meet the needs of today's students, who demand more interactive and adaptable teaching methods.

In addition, the research highlighted the importance of continuous training of educators so that they can effectively integrate these new approaches into their pedagogical practices. Understanding sociocultural theories, such as Vygotsky's Zone of Proximal Development, provides a robust theoretical foundation for the implementation of Storytelling and other multimedia strategies. However, it is essential that educational institutions invest in training and professional development, providing educators with the necessary tools to adapt to this new educational scenario. The future of education depends on the ability of teachers to become learning facilitators, using resources that make the teaching-learning process more meaningful and effective. Thus, the guidelines established in this work not only contribute to the improvement of educational practices, but also aim to foster an education that values creativity, empathy and collaboration, preparing students for the challenges of the contemporary world.

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**THE SILENT COMMITMENT: UNVEILING THE INVISIBLE WORK OF MANAUS
MUNICIPAL EDUCATORS**

**OS PILARES INVISÍVEIS DA EDUCAÇÃO: A DEDICAÇÃO SILENCIOSA DOS
PROFESSORES MUNICIPAIS DE MANAUS**

**LOS PILARES INVISIBLES DE LA EDUCACIÓN: LA DEDICACIÓN SILENCIOSA DE
LOS MAESTROS MUNICIPALES DE MANAUS**

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ABSTRACT

This article unveils the paradox of institutional invisibility faced by municipal teachers in Manaus. Analyzing the tireless dedication of these professionals in contrast with the lack of effective recognition from managers, the study argues that chronic devaluation manifests through the overload of functions (social supplance) and grave health consequences. The research quantifies teacher illness—especially the high rates of burnout—and critically discusses the underreporting of medical leaves, which masks the real extent of suffering. It is concluded that valuation is not an act of courtesy, but a strategic imperative for the sustainability of public education, whose pillars are invisibly supported by the efforts of these educators.

Keywords: Institutional Invisibility. Municipal Teacher. Teacher Illness. Burnout.

RESUMO

Este artigo desvenda o paradoxo da invisibilidade institucional que recai sobre os professores da rede municipal de Manaus. Analisando a dedicação incansável desses profissionais em contraste com a ausência de reconhecimento efetivo de gestores, o estudo argumenta que a desvalorização crônica se manifesta na sobrecarga de funções (suplência social) e em graves consequências para a saúde. A pesquisa quantifica o adoecimento docente – especialmente os altos índices de burnout – e critica a subnotificação de licenças, que mascara o sofrimento real. Conclui-se que a valorização não é um ato de cortesia, mas

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um imperativo estratégico para a sustentabilidade da educação pública, cujos pilares são invisivelmente sustentados pelo esforço desses educadores.

Palavras-chave: Invisibilidade Institucional. Professor Municipal. Adoecimento Docente.

RESUMEN

Este artículo desentraña la paradoja de la invisibilidad institucional que afecta al profesorado del sistema escolar municipal de Manaus. Al analizar la incansable dedicación de estos profesionales en contraste con la falta de reconocimiento efectivo por parte de la administración, el estudio argumenta que la devaluación crónica se manifiesta en roles sobrecargados (sustitución social) y graves consecuencias para la salud. La investigación cuantifica las enfermedades del profesorado —especialmente las altas tasas de agotamiento— y critica la falta de notificación de las licencias, lo que enmascara un sufrimiento real. Concluye que el reconocimiento no es un acto de cortesía, sino un imperativo estratégico para la sostenibilidad de la educación pública, cuyos pilares se sustentan invisiblemente en el esfuerzo de estos educadores.

Palabras clave: Invisibilidad Institucional. Maestro Municipal. Enfermedad Docente.

1 INTRODUCTION

The month of October, marked by the celebration of Teacher's Day, invites a deep reflection on the role and working conditions of teachers, who are unquestionably the pillars of public education. However, in Manaus, as in several Brazilian metropolises, a specific category of professionals, the teachers of the municipal network, plays an essential role marked by a tireless dedication that, paradoxically, goes hand in hand with institutional invisibility.

This article proposes to analyze the reality of these professionals in the capital of Amazonas, whose work is fundamental for the maintenance of the educational system, but which rarely receives due recognition from managers, secretaries and mayors. The focus is to discuss how the absence of effective appreciation directly impacts teachers' motivation, emotional health, and career permanence, revealing a structural gap in public educational policies.

The relevance of this study lies in the urgency of moving the debate on teacher valorization from the sphere of discourse to that of action. By illuminating the reality of municipal teaching, the article seeks to contribute to the construction of a more dignified and sustainable work environment. The text is organized into sections that address: (i) the profile and challenges of the municipal teacher; (ii) the analysis of teacher illness as a consequence of invisibility; and (iii) paths to effective institutional valorization.

Teaching is, unquestionably, one of the pillars of public education. However, in Manaus, as in several Brazilian metropolises, the central role of teachers in the municipal network is marked by a **tireless dedication that coexists with a profound institutional invisibility**. This scenario creates a structural contradiction that affects career health and the quality of education: the most essential professional is the least recognized in terms of concrete public policies.

This article proposes **to critically analyze the reality of these educators in the capital of Amazonas**, discussing how the absence of effective appreciation impacts the well-being and sustainability of the career. The focus is on illuminating the gap between the discourse of recognition and the practical actions of managers, secretaries and mayors. The relevance of this study lies in the urgency of moving the debate on teacher valuation from the symbolic sphere to that of **strategic action**, since chronic devaluation and overload of functions culminate in **the physical and mental illness** of the category.

To this end, the study adopts a qualitative and exploratory approach, using a robust literature review and the analysis of statistical data (Chart 1) that demonstrate the correlation between invisibility and *burnout indicators* in the municipal network

Figure 1

Invisible Pillars of Public Education

Figura 1. Pilares Invisíveis da Educação Pública



2 THEORETICAL BASIS

2.1 TEACHER VALORIZATION AND THE RISKS OF INVISIBILITY: THEORETICAL PERSPECTIVE

The debate on teacher appreciation transcends the discussion of mere salary, encompassing institutional recognition, the dignity of working conditions and the health of the career itself. The invisibility to which municipal teachers are subjected, which is the central object of this study, reflects a structural gap in public policies.

From this perspective, the devaluation of teaching should be understood as a systemic problem with direct consequences on the quality of education. Freitas (2012) is emphatic in pointing out that chronic devaluation, manifested in low salaries and precarious conditions, does not only result in the discouragement of careers, but mainly in the "social disqualification of the teacher" (FREITAS, 2012, p. 122). This understanding reinforces that the tireless dedication of teachers, such as those in Manaus, occurs despite the absence of adequate institutional support, and not because of it.

This lack of support is aggravated by the extrapolation of teaching functions. Teachers, in contexts of high social vulnerability, are forced to assume responsibilities that go beyond their curricular attributions. The school becomes a "space of social substitution", as Gatti (2013) argues, where the educator accumulates roles of emotional and social support for students and families (GATTI, 2013, p. 30). This overload of responsibilities, which fills gaps left by other public policies, is a constant risk factor.

The end result of this cycle of devaluation, overload and invisibility is teacher illness. To reverse this situation, effective recognition must be a systemic construction, which dialogues with daily practice. The evaluation process and the management of the career itself, in this sense, should promote well-being and dignity. As Luckesi (2011) points out, the evaluation of school learning and, by extension, institutional evaluation, requires an ethical and democratic posture that values the teacher, promoting active listening and ensuring conditions for the teacher to actually fulfill his or her transformative function...

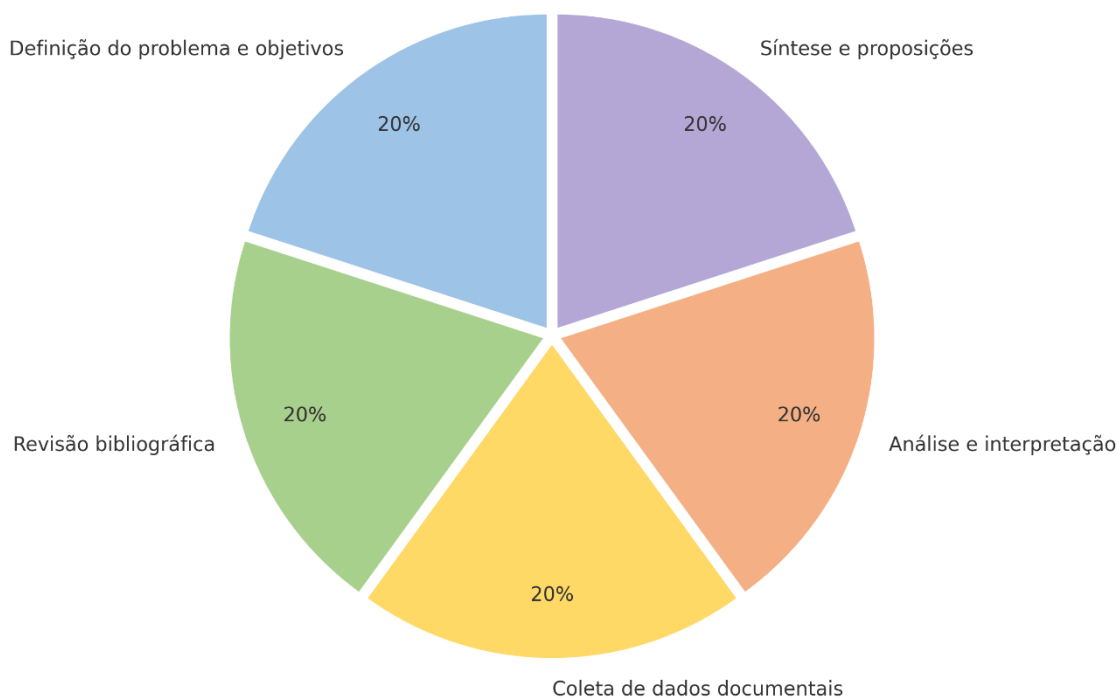
To this end, the performance of the municipal teacher in contexts of high social vulnerability imposes an overload of responsibilities that goes far beyond the pedagogical attributions. **Gatti (2013)** addresses this problem by arguing that, in the face of failures in other spheres of public policy, the school is forced to transform itself into a **"space of social substitution"** (GATTI, 2013, p. 67). In this scenario, the educator becomes a multifunctional agent, accumulating administrative, emotional and community support roles, without due financial or structural recognition. This overload, which fills gaps in the State, is a risk factor.

The direct result of devaluation and overload is **teacher illness**. The lack of institutional recognition and the requirement to act in adverse conditions culminate in a situation of exhaustion and *burnout*. Effective recognition, therefore, cannot be limited to speeches on commemorative dates, and must, as **Luckesi (2011) argues**, be integrated with an ethical and professional posture that promotes the well-being and active listening of teachers in the formulation of educational policies.

Figure 2

Methodological Research Flow (Pie Model)

Figura 3. Fluxograma Metodológico da Pesquisa (Modelo Pizza)
Figure 3. Methodological Research Flow (Pie Model)



3 PROFILE AND CHALLENGES OF THE MUNICIPAL TEACHER OF MANAUS

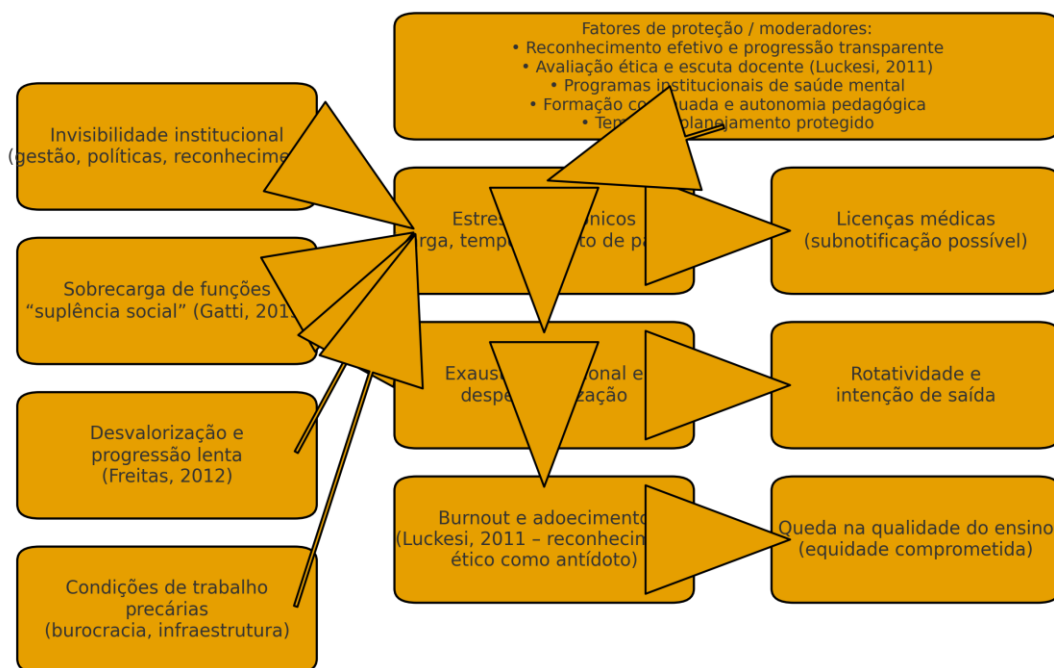
Teachers in the municipal network work in contexts often marked by limited infrastructure, high social demand and high workload. This professional profile is highly qualified, with many having higher education and postgraduate degrees, a clear indication of their personal investment in their career. However, they face chronic difficulties to exercise their profession with the dignity they deserve.

In many peripheral neighborhoods, the teacher becomes a community reference that accumulates not only pedagogical functions, but also administrative, social and, sometimes, emotional support for students and families. This reality of extrapolation of functions is widely debated in academia. Gatti (2013, p. X) argues that, in the face of failures in other spheres of public policies, the school ends up being transformed into a "space of social substitution", where the educator assumes responsibilities that go beyond his original formative attributions. This overload of responsibilities, which often fills gaps left by other public policies, occurs without due financial or structural recognition.

Figure 3

Conceptual model: invisibility - overload - chronic stress - burnout - with outcomes and protective factors (Gatti, 2013; Freitas, 2012; Luckesi, 2011)

Figura 1. Modelo conceitual: invisibilidade → sobrecarga → estresse crônico → burnout com desfechos e fatores de proteção (Gatti, 2013; Freitas, 2012; Luckesi, 2011)

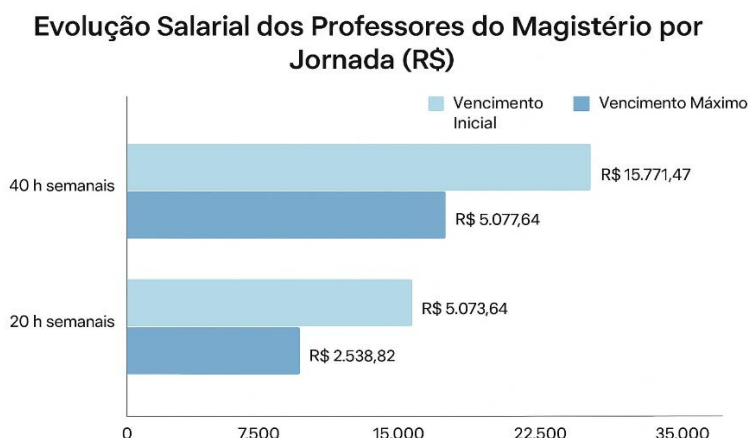


4 THE ABSENCE OF INSTITUTIONAL RECOGNITION

The lack of appreciation on the part of secretaries, mayors and managers is a recurring factor that compromises the health of the teaching career. Institutional recognition cannot be limited to speeches on commemorative dates, but must involve concrete actions that reinforce the importance and respect for the category. Let's look at the table below

Figure 4

Salary evolution of teaching staff by working day (R\$)



Source: Official Gazette of the Municipality of Manaus (DOM), 2025 adjustments

The absence of public policies focused on appreciation affects the motivation and permanence of these professionals. Effective recognition goes through: clear and agile functional progression, real incentives for continuing education, improvement of working conditions and, essentially, active listening to the demands of the category in the formulation of educational policies.

5 THE ABSENCE OF RECOGNITION AND SILENT RESISTANCE

The lack of appreciation on the part of managers is not only manifested in the absence of speeches or support; It is palpable in the remuneration structure and in the rigidity of the career. Institutional recognition cannot be limited to punctual salary peaks, but must involve concrete actions that reinforce the importance of the category. The devaluation is evident when analyzing the initial remuneration in the municipal network of Manaus, which, in turn, establishes the initial basic salary for teachers of 20 hours, a value that, although nominally higher than the National Floor, is disproportionate to the high qualification required of the professional (many with postgraduate degrees) and the complexity of the social and pedagogical challenges faced in the capital of Amazonas.

Although the Positions, Career and Remuneration Plan (PCCR) provides for high maximum salaries (above 31 thousand for the end of the career with a doctorate), access to progression by length of service and by tenure is often bureaucratic, slow and delayed; This absence of effective and continuous appreciation is a factor that disqualifies the profession.

As stated by Luiz Carlos de Freitas (2012), the chronic devaluation of teaching, materialized in low salaries and precarious working conditions, results not only in the evasion of talents in the area, but mainly in the "social disqualification of the teacher" (FREITAS, 2012, p. 64). The author argues that the quality of education is intrinsically linked to professional dignity; Therefore, institutional invisibility compromises the health of the educator and, consequently, the effectiveness of teaching.

a chronic problem that discourages teachers from remaining in the network. The absence of public policies that guarantee clear and agile functional progression, as criticized by Freitas (2012), signals that financial recognition is not a strategic priority, directly contributing to invisibility and work overload.

Despite this neglect and the challenges posed by invisibility, municipal teachers in Manaus demonstrate remarkable quiet resistance. They continue to innovate and transform lives in the classroom.

Despite the neglect and challenges posed by invisibility, municipal teachers in Manaus demonstrate remarkable silent resistance. They continue to innovate and transform lives in the classroom. Many develop projects with their own resources, adapt teaching methodologies to adverse realities and, above all, create deep bonds with students, acting as true agents of social change.

This dedication, an act of courage and commitment to education, reveals the core of the teaching vocation. By facing situations of social vulnerability with empathy and professionalism, and by promoting cultural actions and continuous learning, these educators reaffirm that the quality of teaching depends, above all, on human passion and effort, and not only on available resources.

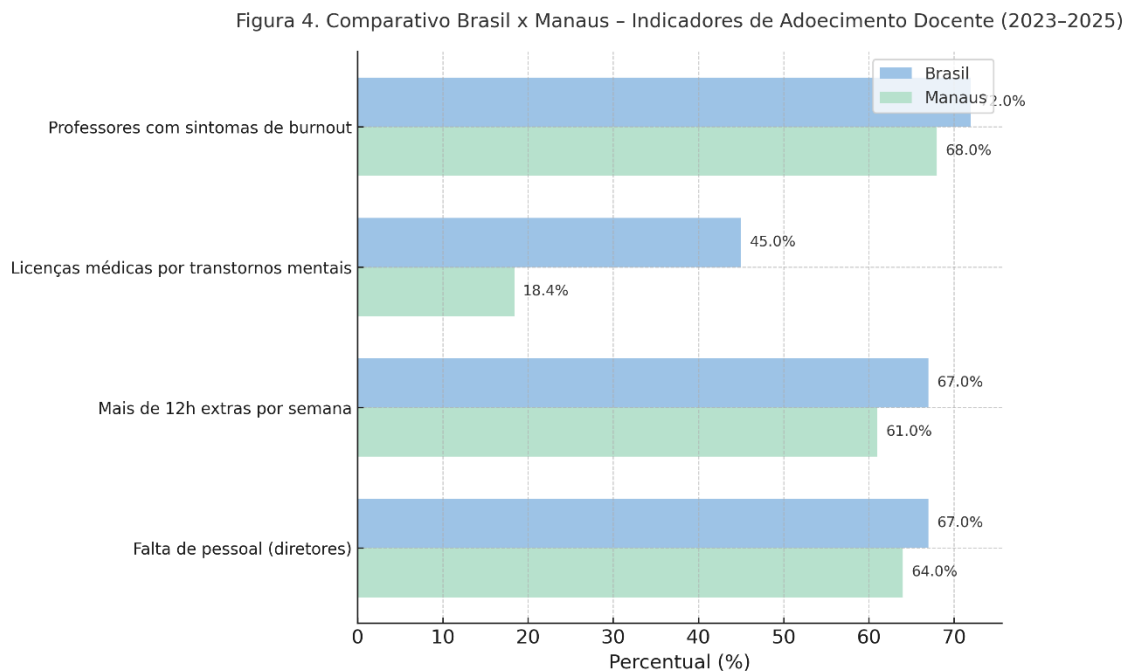
6 METHODOLOGY AND CONSEQUENCES OF INVISIBILITY

This study adopts a qualitative and exploratory approach to understand the impacts of institutional invisibility on teachers in the municipal network of Manaus. The analysis was based on a literature review on teacher valuation and mental health in teaching, complemented by the analysis of data and documents that illustrate occupational illness as a direct consequence of overload and non-recognition.

6.1 CONSEQUENCES OF INVISIBILITY: TEACHER ILLNESS

Figure 5

Brazil vs. Manaus Comparison – Teacher Illness Indicators (2023-2025)



Invisibility generates concrete negative impacts on the physical and mental health of teachers, compromising the quality of teaching. The high rate of leaves and the situation of stress and *burnout* (exhaustion) are alarming indicators of the urgency to promote the well-being of the category.

6.2 PATHS TO EFFECTIVE VALORIZATION

Valuing teachers requires a systemic approach that goes beyond one-off salary peaks. It is essential that municipal authorities make a commitment to actions that guarantee dignity and sustainability to the career:

The restructuring of the article aims, firstly, **to strengthen the theoretical foundation**, essential to anchor the conclusions about teacher invisibility and illness. To this end, the initial sections were reorganized. The old Sections 3 and 4, which dealt with recognition and resistance, were integrated into a new, more cohesive Section 4. The point of greatest impact in the review is the insertion of a new **Section 3**, dedicated to the **Theoretical Perspective**, which establishes the conceptual basis of the study.

This new theoretical section incorporates and applies crucial references. To support the criticism of professional devaluation, the work of **Freitas (2012)** was included. The discussion about the overload of teacher functions in Manaus, interpreted as "social substitution" of the school, was supported by **Gatti (2013)**. Both works were duly added to the References section, following the ABNT standard, ensuring the academic solidity of the central arguments.

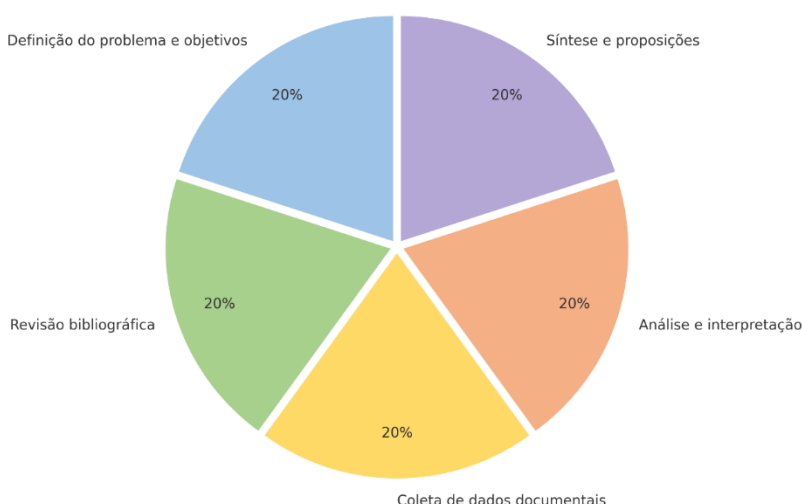
Finally, **statistical analysis** received a critical improvement needed. Section 5.1 has been revised to include a more cautious interpretation of Table 1. Specifically, the discrepancy between the low rate of sick leave due to mental disorders in Manaus and the high national rate was debated as a possible indication of **underreporting** or institutional pressure, which, instead of reflecting well-being, **masks the real suffering** and perpetuates the invisibility of teachers.

The construction of effective public policies must necessarily involve listening to education professionals and incorporating their experiences into the formulation of strategies.

Figure 6

Methodological Research Flow (Pie Model)

Figura 3. Fluxograma Metodológico da Pesquisa (Modelo Pizza)
Figure 3. Methodological Research Flow (Pie Model)



7 FINAL CONSIDERATIONS

The analysis developed throughout this article shows that teachers in the municipal network of Manaus play an irreplaceable role in sustaining public education, even in the face

of a scenario marked by institutional negligence. The invisibility that falls on these professionals is not only symbolic, it directly compromises the quality of teaching, the health of teachers and the continuity of transformative pedagogical projects.

The data on physical and mental illness, especially the significant number of teachers on sick leave, reinforce the urgency of measures that promote well-being and professional dignity. The lack of recognition by managers and authorities reveals a structural gap in educational policies, which still do not incorporate teacher appreciation as a strategic axis of success.

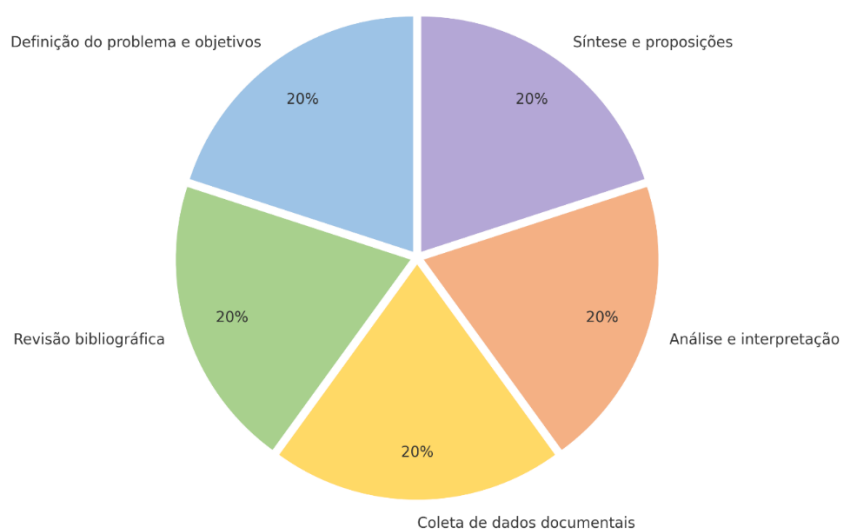
It is necessary to understand that valorization is a systemic construction. Without active listening, without adequate working conditions, and without public recognition of practices, municipal education runs the risk of becoming a space of exhausted resistance, rather than an environment of social transformation.

Therefore, the conclusion that is imposed is clear: without teachers, there is no education; Without appreciation, there is no future. May this article serve as a call to action, so that managers, legislators and civil society recognize, respect and strengthen those who, even if invisible, are the true pillars of public education.

Figure 7

Methodological Research Flow (Pie Model)

Figura 3. Fluxograma Metodológico da Pesquisa (Modelo Pizza)
Figure 3. Methodological Research Flow (Pie Model)



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**HIGHER EDUCATION IN BRAZIL: DIDACTIC AND PEDAGOGICAL
CHALLENGES OF UNIVERSITY TEACHING**

**O ENSINO SUPERIOR NO BRASIL: DESAFIOS DIDÁTICOS E PEDAGÓGICOS
DA DOCÊNCIA UNIVERSITÁRIA**

**LA EDUCACIÓN SUPERIOR EN BRASIL: DESAFÍOS DIDÁCTICOS Y
PEDAGÓGICOS DE LA DOCENCIA UNIVERSITARIA**

 <https://doi.org/10.56238/sevened2025.038-006>

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ABSTRACT

Contemporaneously, Brazilian higher education has faced multiple challenges involving political, didactic, and methodological dimensions. Democratization has expanded access, but inequalities, the precarization of the teaching career, and pressures of marketization still persist. The aim of this research is to analyze how these challenges impact university teaching practice, discussing limits and possibilities for consolidating a critical and innovative university pedagogy. The methodology adopted was qualitative and bibliographic, grounded in classical and contemporary authors of university pedagogy as well as official documents of public policies for higher education. As results, the study showed that university teaching has been reconfigured in the context of institutional expansion, inclusion policies, the need for pedagogical innovation, and the growing use of digital technologies and artificial intelligence. It was found that gaps remain in the pedagogical training of professors, which still lacks institutionalization. At the same time, methodological experiences and proposals capable of enhancing more critical, dialogical, and socially committed practices were identified. It is concluded that strengthening university pedagogy depends on faculty appreciation, investment in institutional conditions, and the critical integration of digital technologies. The research indicates that, despite the difficulties, there are concrete possibilities for transformation that may consolidate a more inclusive, innovative, and socially grounded university.

Keywords: Higher Education. University Teaching. Methodology. Didactics. Technologies.

RESUMO

Contemporaneamente o ensino superior brasileiro tem enfrentado múltiplos desafios que envolvem dimensões políticas, didáticas e metodológicas. A democratização ampliou o acesso, mas ainda convive com desigualdades, precarização da carreira docente e pressões de mercantilização do ensino. O objetivo desta pesquisa é analisar de que forma esses desafios impactam a prática docente universitária, discutindo limites e possibilidades para a consolidação de uma pedagogia universitária crítica e inovadora. A metodologia utilizada foi qualitativa e bibliográfica, fundamentada em autores clássicos e contemporâneos da pedagogia universitária e em documentos oficiais de políticas públicas para o ensino

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superior. Como resultados, a pesquisa evidenciou que a docência universitária tem se reconfigurado diante da expansão institucional, das políticas de inclusão, da necessidade de inovação pedagógica e do uso crescente das tecnologias digitais e da inteligência artificial. Constatou-se que persistem lacunas na formação pedagógica dos docentes, que ainda carece de institucionalização. Ao mesmo tempo, identificaram-se experiências e propostas metodológicas capazes de potencializar práticas mais críticas, dialógicas e socialmente comprometidas. Conclui-se que o fortalecimento da pedagogia universitária depende da valorização docente, do investimento em condições institucionais e da integração crítica das tecnologias digitais. A pesquisa aponta que, apesar das dificuldades, existem possibilidades concretas de transformação que podem consolidar uma universidade mais inclusiva, inovadora e socialmente referenciada.

Palavras-chave: Ensino Superior. Docência Universitária. Metodologia. Didática. Tecnologias.

RESUMEN

Contemporáneamente, la educación superior brasileña ha enfrentado múltiples desafíos que abarcan dimensiones políticas, didácticas y metodológicas. La democratización amplió el acceso, pero aún convive con desigualdades, precarización de la carrera docente y presiones de mercantilización de la enseñanza. El objetivo de esta investigación es analizar de qué manera estos desafíos impactan en la práctica docente universitaria, discutiendo límites y posibilidades para la consolidación de una pedagogía universitaria crítica e innovadora. La metodología utilizada fue cualitativa y bibliográfica, fundamentada en autores clásicos y contemporáneos de la pedagogía universitaria, así como en documentos oficiales de políticas públicas para la educación superior. Como resultados, la investigación evidenció que la docencia universitaria se ha reconfigurado frente a la expansión institucional, las políticas de inclusión, la necesidad de innovación pedagógica y el uso creciente de tecnologías digitales e inteligencia artificial. Se constató que persisten lagunas en la formación pedagógica de los docentes, la cual aún carece de institucionalización. Al mismo tiempo, se identificaron experiencias y propuestas metodológicas capaces de potenciar prácticas más críticas, dialógicas y socialmente comprometidas. Se concluye que el fortalecimiento de la pedagogía universitaria depende de la valorización docente, de la inversión en condiciones institucionales y de la integración crítica de las tecnologías digitales. La investigación señala que, a pesar de las dificultades, existen posibilidades concretas de transformación que pueden consolidar una universidad más inclusiva, innovadora y socialmente referenciada.

Palabras clave: Educación Superior. Docencia Universitaria. Metodología. Didáctica. Tecnologías.

1 INTRODUCTION

Brazilian higher education has historically been marked by late education, accelerated expansion, and tensions between democratization and quality. In the twenty-first century, this scenario becomes even more complex in the face of the demands for social inclusion, the pressures for internationalization, the need for pedagogical innovation, and the growing incorporation of digital technologies and artificial intelligence (AI) in the educational process. The contemporary university is called upon to reconcile multiple functions: to train professionals, to produce science, to contribute to social development and to sustain the critical and civic education of students.

These challenges are expressed in different dimensions. On the historical and political level, the expansion of access and affirmative policies stand out, which, although fundamental, did not eliminate inequalities in permanence and quality. On the didactic and methodological level, university teaching faces the need to consolidate its own pedagogy, which goes beyond the mere transmission of content and reproductive logic. On the technological level, possibilities and risks arise associated with the digitalization of teaching and the application of AI, which require critical, ethical and innovative skills from teachers for pedagogical mediation.

The research adopts a qualitative, bibliographic and documentary approach, based on the analysis of reference works and institutional documents. The material was examined in the light of the content analysis proposed by Bardin (2016), which allowed the identification of categories and recurrences linked to historical, political, didactic, methodological and technological challenges. In this way, the methodology articulates theoretical and documentary review with critical reflections on teaching practice in higher education.

The relevance of the study is expressed in two dimensions. On the scientific level, the article contributes to the deepening of studies on university pedagogy, integrating dimensions that are often analyzed in isolation. On the social level, it responds to the need to critically reflect on the social function of the university, on the conditions of teaching work and on the quality of the training of the thousands of students who enter the Brazilian higher education system each year.

The article is organized into three sections, in addition to this introduction and final considerations. The first discusses the foundations and challenges of higher education in contemporary Brazil, articulating the historical-political, didactic-methodological and technological dimensions. The second analyzes the contributions of the philosophy of

education and the psychology of education to the practice of university teaching, based on classical and contemporary authors. The third examines the methodological challenges of teaching in dialogue with digital technologies and artificial intelligence, also bringing a subsection dedicated to public policies for teacher training in the federal government in the period from 2023 to 2025.

2 FOUNDATIONS AND CHALLENGES OF HIGHER EDUCATION IN CONTEMPORARY BRAZIL

Brazilian higher education bears marks of a unique historical trajectory. Unlike neighboring countries in Latin America, which since the colonial period already had universities, in Brazil the university model was only consolidated in the twentieth century, as a result of a late and fragmented education. This heritage, added to the elitist character of its first institutions, meant that higher education developed unevenly and with little attention to broader social demands. Over the last few decades, especially since the Federal Constitution of 1988, there has been a movement towards the democratization of access, accompanied by policies to expand vacancies and the internalization of public universities. This process, however, did not eliminate the tensions between inclusion and quality, between massification and commitment to critical education.

On the political level, experiences such as the Support Program for Restructuring and Expansion Plans of Federal Universities (REUNI), implemented in 2007, and the policies of racial and social quotas are concrete examples of measures that have increased enrollment in higher education. The research by Santos, Guzmán, and Bianchini (2023), when analyzing the regional bonus policy at the Federal University of Maranhão, shows that such initiatives not only ensured greater diversity of student profiles, but also pressured institutions to rethink pedagogical practices and permanence mechanisms. However, the democratization of access has not yet been accompanied by an equally solid process of valuing university teaching and investing in adequate teaching conditions. Chauí (2003) warns that the Brazilian university, under managerial and market pressures, runs the risk of losing its critical function, becoming a mere provider of educational services. Morosini (2014) reinforces this point by stating that internationalization and institutional expansion will only make sense if they are accompanied by pedagogical quality and social commitment.

This historical-political framework refers directly to the role of the university professor. The expansion of the number of students and the cultural and social diversity within the

classrooms require more flexible methodologies, attentive to the heterogeneous trajectories and the conditions of permanence of students. In this sense, the teaching practice cannot be limited to the expository transmission of content, but must be configured as a mediating, dialogical and inclusive action. The challenge of university education, therefore, shifts from a teacher-centered model to one oriented to meaningful student learning.

The didactic-methodological dimension of higher education, in this context, gains centrality. For a long time, university teaching was seen as a natural extension of the academic career, without the requirement of specific pedagogical preparation. Almeida (2012) observes that even today many institutions prioritize research as a criterion of prestige and functional progression, relegating teaching to the background. This devaluation contributes to the precariousness of the teaching activity, often reduced to a mere fulfillment of a workload. Almeida and Pimenta (2014), in turn, defend the consolidation of university pedagogy as a field of reflection, responsible for discussing theories, methods and practices specific to higher education. For the authors, valuing teaching means recognizing teaching as a legitimate space for the production of knowledge.

In this sense, Veiga (2011; 2021) proposes the construction of a didactic of higher education, highlighting that teaching practice must be based on careful planning, formative evaluation, and the selection of methodologies that favor student autonomy. Instead of conceiving the classroom as a space of simple transmission, it is necessary to understand it as an environment for the collective construction of knowledge, in which learning takes place through problematization, dialogue and integration between teaching, research and extension. This paradigm shift also implies recognizing that university teaching demands its own competencies, including the ability to mobilize active methodologies, to plan formative experiences and to evaluate in a continuous and procedural way.

The university pedagogical practice, in this scenario, cannot do without the use of Digital Technologies. Kenski (2012) states that technological resources are not mere auxiliary instruments, but elements that transform the forms of communication, reorganize times and spaces and reconfigure the very logic of the teaching-learning process. Moran (2015) reinforces this argument by arguing that active methodologies, when associated with digital resources, stimulate greater student protagonism, foster meaningful learning and enable work with real and contextualized situations.

In recent years, this debate has been intensified by the emergence of artificial intelligence, especially generative AI tools, which pose new dilemmas for the university.

Selwyn (2022) draws attention to the risk of AI reinforcing uncritical automation practices, reducing education to mechanical and standardized processes. For the author, the central question is not to decide whether technologies should be used, but how they can be integrated with clear pedagogical objectives and solid ethical principles. At the same time, the potential of AI to support activities of personalization of teaching, analysis of learning data, and expansion of pedagogical resources opens up new possibilities for teaching practice. The challenge lies in balancing innovation and criticality, taking advantage of technological potential without abdicating the irreplaceable role of the teacher as mediator, advisor and critical trainer.

It is at this point that the three dimensions discussed converge — historical, methodological and technological. Contemporary Brazilian higher education needs professors capable of understanding the historical and political constraints of the university, of designing innovative and inclusive pedagogical practices, and of dealing critically with digital technologies and AI. The practical methodology of the university professor, therefore, must articulate intentional planning, active methodologies, procedural evaluation and critical integration of technology. This set of competencies can contribute to overcoming the tensions between democratization and quality, between massification and critical education, which mark the Brazilian university in the twenty-first century.

Thus, the foundations and challenges of higher education in contemporary Brazil point to the need for university teaching that is, at the same time, scientific, pedagogical and technological. More than specialists in specific areas, university professors are called upon to constitute themselves as education professionals, capable of forming autonomous, critical and creative subjects. University pedagogy, in this context, consolidates itself as a scientific field and as a fundamental social practice to face the demands and contradictions of Brazilian higher education.

3 CONTRIBUTIONS OF THE PHILOSOPHY OF EDUCATION AND THE PSYCHOLOGY OF EDUCATION TO THE PRACTICE OF UNIVERSITY TEACHING

University teaching, when thought of beyond technicality, requires foundations that guide purposes, criteria and ways of pedagogical action. In this horizon, the philosophy of education questions **why** and **for what to** teach, while the psychology of education illuminates **how** subjects learn and develop. The articulation of these fields allows the university professor to define principles of action, select coherent methodologies and

evaluate processes with a formative sense, especially in a scenario of democratization of access and technological reconfigurations.

3.1 CONTRIBUTIONS OF THE PHILOSOPHY OF EDUCATION

From the beginning of Christian thought, **Augustine (389)** conceives the act of teaching as inner mediation: the external teacher provokes, but it is the **"inner master"** who illuminates learning. Transposed to higher education, this perspective shifts the teacher from the place of "giver of truths" to that of **ethical and intellectual mediator**, who raises questions and helps the student to elaborate meanings proper to knowledge. In practical terms, it means planning classes that stimulate **listening, concentration and reflection** (moments of guided study, productive silence, personal syntheses), recognizing that learning is also built on interiority.

John Dewey (1916) redefines education as an investigative experience and **democratic life**. In addition to "teaching content", training in higher education involves **organizing experiences** that connect theory, practice and real problems. This results in a didactic design that privileges **authentic questions, projects, case studies and guided research**, with cycles of action-reflection-action. The teacher becomes **a designer of experiences** and curator of situations that activate thought, collaboration and prudential judgment.

Paulo Freire (1968) radicalizes the dialogical principle: "no one educates anyone, no one educates himself, men educate themselves in communion" (1968, p. 47). The university pedagogical relationship is not **banking**, but problematizing; it incorporates the student's prior knowledge and historical condition. The methodological consequence is clear: **generative questions**, critical reading of the world, collective production of knowledge and evaluation as **a practice of freedom** (reasoned self-evaluations, formative feedback and shared rubrics).

The interlocution with difference, dear to mass and plural teaching, is the theme of **Silvio Gallo (2000)**, for whom a **pedagogy of difference** shifts the class from a homogeneous pattern to an ecology of voices, rhythms and repertoires. In didactic terms, it presupposes **flexible training itineraries**, multiple ways of evidencing learning (portfolios, projects, prototypes, multimodal trials) and **learning contracts** that negotiate challenging and achievable goals.

In terms of the creation of the new, **Gilles Deleuze (1968)** proposes to think of learning as an **encounter with problems** and the **production of difference**, not as mere repetition.

For university teaching, this implies replacing mechanical exercises with **open**, ambiguous problems with multiple defensible solutions; valuing **processes** (trajectories, attempts, revisions) as much as final **products**; and promoting **criteria of originality** and argumentative consistency in evaluations.

Michel Foucault's (1975) **institutional critique** shows how devices of power and discipline constitute **normalized subjects**. The warning is direct: the university can reproduce practices of surveillance and docilization (rigid standards of attendance, only punitive evaluation, bureaucratic control), suffocating intellectual autonomy. The pedagogical response involves **transparency of criteria, student participation** in the construction of standards, **formative assessment** (which accompanies and transforms) and **less prescriptive curricula**, with spaces for choice and authorship.

In an acute way, **Marilena Chauí (2003)** denounces the **commodification** of the university under the logic of productivity and the customer. Teaching, in this context, tends to be precarious and instrumentalized. Defending the **public function** of the university puts teaching back at the center: institutional time for planning, **pedagogical training** as a policy and recognition of **teaching as a production of knowledge**.

In philosophical synthesis: - the teacher is an **ethical mediator** (Augustine, 389); - organizes **democratic experiences** (DEWEY, 1916); - acts as a **dialogical** and politically situated subject (FREIRE, 1968); - composes **ecologies of difference** (GALLO, 2000); - cultivates **creative problems** (DELEUZE, 1968); - resists normalizing devices (FOUCAULT, 1975); and - affirms the **public** dimension of teaching (CHAUÍ, 2003). Each thesis is translated into **concrete didactic decisions**: from the type of task to the headings, from the pedagogical contract to the form of participation.

3.2 CONTRIBUTIONS OF EDUCATIONAL PSYCHOLOGY

On the side of processes, **Jean Piaget (1945; 1975)** shows that knowledge is constructed by **assimilation** and **accommodation**. In didactic terms, this requires **challenging situations** that produce cognitive imbalances, followed by time for reorganization: **graded problems**, sequences with **progression of complexity**, **scaffolding**, temporary supports, and **guided reviews**. Evaluation follows the development of thought structures, not just the final hit.

Lev Vygotsky (1934) introduces the **Zone of Proximal Development** and sociocultural mediation. Learning, at the university, is participating in **communities of**

practice: seminars with rotating papers, **peer tutoring**, *feedback* between groups, guided writing workshops, **collaborative reading** protocols. The teacher acts as a **cultural mediator**, offering instruments (concepts, models, languages) and **scaffolding** that is progressively withdrawn, giving autonomy to the student.

From a **humanistic perspective**, **Carl Rogers (1969)** argues that learning is both **cognitive** and **affective**: personal meaning, **empathy**, and authenticity of the teacher favor engagement and self-regulation. Practical implications: **climate of trust**, feedback that recognizes efforts and processes, **negotiated goals**, spaces for **authorship** and student **voice**. In different classes, the student-centered approach enhances belonging and persistence.

Sigmund **Freud's** psychoanalysis (**1905; 1930**) introduces the dimension of the **unconscious**, of **desires** and **resistances**. In higher education, this guides the teacher to read **pedagogical symptoms** (silences, procrastination, copies) as signs to be interpreted, and not just to punish. Coherent teaching procedures include **clear contracts**, **stable routines**, class start/end **rituals**, **procedural tasks** (portfolios, learning diaries), as well as listening and referral channels when necessary. Recognizing affections and conflicts does not "psychologize" the class, but humanizes mediation and favors **high standards with high support**.

Highlighting the psychological contributions presented: - **design of progression** and productive imbalance (PIAGET, 1945; 1975); - **social mediation** and collaboration (VYGOTSKY, 1934); - **relational climate** and personal meaning (ROGERS, 1969); - **attention to resistances** and non-conscious processes (FREUD, 1905; 1930). Such ideas converge to **active methodologies with support**, **formative assessment** and **management of the room** as a space of safety and demand.

Integrated practical developments (philosophy + psychology): a) **Planning by understanding**: formulating **observable objectives** that express capacities to **analyze**, **argue**, **create** (DELEUZE, 1968; FREIRE, 1968); align tasks and rubrics to these goals; predict **supports** and **revisions** (PIAGET, 1975; VYGOTSKY, 1934). b) **Authentic problems and difference**: proposing **open situations** with imperfect data, assuming **multiple plausible answers**; ensuring **flexible itineraries** and different ways of evidencing learning (GALLO, 2000; DEWEY, 1916). c) **Evaluation as a process**: combining **diagnostic** (mapping repertoires), **formative** (*feedbacks* and resubmissions) and **summative** (synthesis), with **agreed transparent criteria** (FOUCAULT, 1975; CHAUI, 2003). Evaluate

product and path (drafts, versions, meta-reflections). d) **Relational environment**: institute **clear pedagogical contracts**, opening rituals (guide questions) and closing (paper minutes, **exit tickets**), **empathetic listening** and references for support (ROGERS, 1969; FREUD, 1930). e) **Critical use of technologies**: selecting tools **at the service** of objectives (and not the other way around), with **transparency** and a policy of **integrity**; preferring **non-automatable tasks** and **co-authorship** with process registration (FREIRE, 1968; FOUCAULT, 1975; SELWYN, 2022).

Thus, the philosophy of education offers **ends** and **principles** (ethical formation, dialogue, difference, creation, resistance to normalization and defense of the public), while the psychology of education provides **means** and **processes** (active construction, social mediation, relational climate, attention to the unconscious). The meeting of these fields sustains a **demanding and hospitable university teaching**, which combines **intellectual rigor** and **care, autonomy** and **support, freedom** and **responsibility**. It is from this arrangement that practices capable of responding consistently to the contemporary challenges of Brazilian higher education emerge.

4 METHODOLOGICAL CHALLENGES OF THE TEACHER IN HIGHER EDUCATION IN DIALOGUE WITH DIGITAL TECHNOLOGIES AND ARTIFICIAL INTELLIGENCE

The contemporary university professor works in a field tensioned by massification of access, student heterogeneity and accelerated digitalization of academic work. This scenario increases the demand for consistent methodological choices and for a clear definition of what is meant by formative quality. The guiding question remains: - how to sustain a practice that preserves the public and critical function of the university, simultaneously facing inequalities of origin, precariousness of teaching work and the ubiquitous presence of digital technologies and artificial intelligence?

Almeida (2012) observes that the pedagogical training of university professors is still fragile and little institutionalized. In practice, this results in curricula planned from content rather than learning, assessments centered on memorization, and a peripheral or instrumental use of technologies. The methodological response requires institutional policy and continuous professional development, but also classroom decisions that reorient the focus of teaching towards learning, with planning by explicit formative objectives, alignment between objectives, activities and assessment, and study times that combine conceptual deepening and contextualized application.

Almeida and Pimenta (2014) defend university pedagogy as a field that gives academic status to teaching. From the methodological point of view, this implies treating teaching as a production of knowledge and not as a mere transmission. In concrete terms: to explain the formative problem of each subject; select content as a means to solve problems and not as an end in itself; and make evaluation a process of learning investigation, with *feedback* that guides improvements.

Veiga (2011; 2021) proposes the construction of a specific didactic for higher education. This presupposes a course architecture that distributes the work in short cycles of study, investigation and synthesis; that uses active methodologies with gradual levels of complexity; and that adopts continuous formative evaluation. In different classes, it is decisive to foresee different paths to evidence learning: written and oral case studies, group projects with defined and rotating roles, prototypes, analytical essays, and research diaries. The diversity of end products expands authorship opportunities and reduces the reliance on high-stakes evidence as the sole criterion.

The presence of digital technologies reorganizes times, spaces and mediations. Kenski (2012) highlights that it is not just about tools, but about new forms of communication and circulation of information. This requires teacher curatorship and the design of activities that make technology a means to expand reading, writing, and argumentation, and not a shortcut. Moran (2015) shows that active methodologies mediated by digital resources strengthen student protagonism when the student faces real situations, with incomplete data, diverse sources and the need to justify decisions. The use of virtual environments, forums evaluated by criteria of argumentative quality and writing workshops with successive versions reintroduces elaboration time and allows *for more accurate* feedback.

With AI, Selwyn (2022) warns of the risk of uncritical automation. The answer is not to prohibit, but to make explicit pedagogical purposes and ethical limits. On the methodological level, this involves: designing tasks that require conceptual reconstruction, use of field-specific references and process traces; request commented intermediate versions; ask for meta-reflections on the decisions made; and incorporate critical analysis of AI outputs, requiring students to identify biases, gaps, and errors and propose reasoned reviews. When AI is used as support, the student must declare the tool, the purpose, and the impacted excerpt, and answer for the validity and originality of the work.

Student heterogeneity, intensified by inclusion policies, reinforces the need for teaching plans that combine academic demand and support. Santos, Guzmán, and Bianchini

(2023) show that the diversity of trajectories challenges methodological uniformity. Faculty mediation can include initial diagnoses, differentiated study paths, peer tutoring, and transparent evaluation criteria, agreed upon and communicated in advance. Transparency reduces asymmetries and favors students to plan effort and time.

A coherent methodological architecture can be synthesized in four chained movements. First, formulation of learning objectives that describe observable capacities to analyze, argue, solve problems and create. Second, organization of content into authentic problems and cases, with activities that require searching and evaluating sources, comparing models, and decision-making. Third, procedural evaluation with intermediate milestones and careful feedback, allowing reviews and new attempts. Fourth, public syntheses of learning, such as seminars, technical reports, digital posters or commented portfolios, which make visible the trajectory of knowledge construction.

Academic integrity and equity need to be addressed in a pedagogical way. Clear criteria on authorship, citation, and permitted use of digital and AI tools, accompanied by tasks that value process, reduce difficulties and create shortcuts. At the same time, inclusive practices must provide for accessibility of materials, multiple formats of participation, monitoring, and service hours, without giving up rigor. The requirement becomes effective when it is accompanied by support and understandable criteria.

Finally, the management of the teacher's working time is a critical variable. Planning, formative evaluation and monitoring processes takes hours. The institution that values teaching guarantees a workload for planning, continuing education and teamwork. Without this, methodological innovation tends to be episodic and invisible, as Almeida (2012) and Almeida and Pimenta (2014) warn. In summary, the methodological quality results from the intertwining of pedagogical design, lucid technological curatorship and working conditions.

4.1 PUBLIC POLICIES FOR TEACHER TRAINING IN HIGHER EDUCATION IN THE CONTEXT OF THE FEDERAL GOVERNMENT (2023–2025)

The methodological analysis of university teaching gains density when connected to public policy measures that focus on financing, physical expansion, student assistance, curriculum regulation, and the incorporation of digital technologies and artificial intelligence. Between 2023 and 2025, fronts that reconfigure working conditions, curriculum design, and classroom practices stand out: budget recompositions and expansion of the federal network; readjustments of scholarships and induction to research and graduate studies;

institutionalization of student assistance; consultations and public hearings of the National Council of Education (CNE) that update course guidelines; and the opening of a public agenda for AI in education. These measures do not replace pedagogical planning, but create or restrict the possibilities of its daily realization.

In the area of physical expansion and infrastructure, the announcement of 100 new campuses of the Federal Institutes, in March 2024, with an investment of 3.9 billion reais via the New PAC and the expectation of 140 thousand new vacancies, directly impacts the demand for teachers, the territorial distribution of offers, and methodologies in interiorization contexts. For teaching practice, internalization tends to increase the heterogeneity of student trajectories and requires competency-based planning, active methodologies, and formative assessment in environments with infrastructure being implemented. Official data confirm the scale of the measure and its federative capillarity.

In the same package, the federal government announced, in June 2024, investments of 5.5 billion reais for federal universities in the New PAC, providing for the installation of ten new campuses (with 60 million reais per campus) and a block of resources for university hospitals. The expansion of the network of teaching hospitals and university campuses has immediate curricular effects on health, engineering and professional areas, by multiplying practice scenarios, internships, integrative projects and teaching articulated with research and extension. The Chief of Staff explained the composition of resources and the regional distribution, reinforced by press coverage of the creation of eight new university hospitals. For the professor, this translates into greater demand for supervision of practices, evaluation in context and theory-practice integration.

In current financing, there were relevant budget recompositions: in 2023, 1.7 billion reais were supplemented for universities and federal institutes; in 2024, 747.3 million; and, in 2025, a new additional recomposition was announced. These reinforcements partially correct accumulated gaps and contribute to the cost, maintenance, and support of academic activities, which directly affects the ability of laboratories to operate, libraries to update collections, campuses to maintain connectivity, and courses to sustain practical experiences. Documents and official communiqués from MEC and Secom consolidate the amounts and their purpose of recomposing the LOA and inflation correction.

The training of teaching staff was also impacted by the readjustment of Capes and CNPq scholarships, announced in February 2023 after a decade without correction: master's degrees from 1,500 to 2,100 reais, doctorates from 2,200 to 3,100 reais, and postdoctoral

degrees from 4,100 to 5,200 reais. The ordinances and official communications record the new values. Although research-oriented, these scholarships integrate the formative ecology of undergraduate studies through monitoring, teaching internships and research groups, strengthening the pedagogical environment in universities.

In the field of student permanence, the institutionalization of the National Student Assistance Program in law (Law 14.914/2024) is a legal framework that gives normative stability to actions of housing, food, transportation, health, digital inclusion, and pedagogical support. Legislative formalization reduces the risk of discontinuity by infralegal act and provides a basis for multi-year planning. Reports and audit by the TCU on the policy indicate, however, historical budget insufficiencies and the need to improve criteria and monitoring, showing that pedagogical effectiveness depends on the binomial academic requirement and material support. The MEC portal details the objectives and scope of the program.

From a regulatory point of view, 2023 and 2024 were years of consultations and public hearings at the CNE on guidelines for initial teacher training and guidelines for undergraduate courses, especially in the areas of health, fashion, and others. This movement revisits competencies, internships, theory-practice integration and evaluation, with a direct impact on the didactic design of the courses and on teaching practice. The official pages bring together public notices and reference texts, and academic entities have registered public hearings, such as the revision of the medical guidelines. For the teacher, these changes require curriculum replanning, items consistent with competencies and expansion of learning scenarios.

The agenda of digital technologies and artificial intelligence began to take public shape at MEC with the holding of seminars and spaces for debate on educational use and ethical principles of AI. Although some of the initiatives focus on basic education, they point to guidelines that tend to have repercussions on higher education: responsible integration of tools, alignment with pedagogical objectives, teacher training and review of evaluation practices. For university teaching, this translates into the need for clear institutional policies on the use of AI, transparency in the declaration of tools, and the design of tasks that privilege conceptual reconstruction, critical analysis of sources, process traces, and public defense of works.

These fronts make up a mixed picture of advances and tensions. The expansion of campuses and hospitals expands opportunities for situated practices, integrative projects and articulation between teaching, research and extension, but requires teaching teams prepared

to operate curricula by competencies, supervise internships and evaluate processes in contexts of interiorization. Budget recompositions relieve pressures and allow the resumption of laboratory and librarianship routines, but their sustainability depends on fiscal predictability and multi-year planning. The transformation of the PNAES into law stabilizes the policy, but the TCU's findings reinforce the historical insufficiency of resources and the need for consistent criteria and monitoring, without which equality of academic opportunity is compromised. The CNE consultations reorient training and demand in-service teacher development. The AI agenda pushes for methodological reconfigurations with academic integrity, avoiding both decontextualized prohibition and uncritical adherence.

From the point of view of teaching practice, some implications are immediate. First, internalization and expansion require intentional didactic planning with active methodologies, differentiated learning paths, peer tutoring, and formative assessment, given the increase in student heterogeneity. Second, the budget recomposition and the readjustments of scholarships must be converted into concrete teaching conditions: operating laboratories, updated libraries, adequate connectivity and institutional workload for planning and *feedback*. Third, the institutionalization of PNAES needs to be integrated with the pedagogical project of the course and academic management, articulating student assistance with strategies for permanence and success. Fourth, the updating of the guidelines by the CNE requires alignment of objectives, contents, internships and evaluation with the competencies of graduates, with transparent rubrics and real practice scenarios. Fifth, AI demands explicit institutional policies and continuous teacher training to design non-automatable tasks, demand transparency in the use of tools, and value authorship, originality, and process.

In summary, between 2023 and 2025 there is a movement to reactivate investments and update regulations that can create more favorable conditions for university teaching, as long as it is accompanied by structuring programs for teacher development, strengthening student assistance, and clear guidelines for digital technologies and AI. The task of institutions is to transform these inputs into effective curricular improvements, with competency-based planning, procedural evaluation, and learning ecologies that favor student authorship, academic integrity, and public commitment of Brazilian higher education.

5 FINAL CONSIDERATIONS

The present study started from the guiding question: - what are the main historical, political, didactic, methodological and technological challenges of higher education in Brazil

in the twenty-first century and how do they impact university education and teaching practice? The analysis of theoretical, documental and conceptual sources allowed us to understand that these dimensions cannot be treated in isolation, as they are articulated in a web of conditioning factors that shape the daily life of university teaching.

By revisiting the historical path, it was evident that higher education in Brazil has always been tensioned between the elitist character of its origin and the attempts at democratization, especially intensified in recent decades with the policies of expansion, interiorization and inclusion. However, as demonstrated, expanded access did not guarantee, by itself, student permanence, pedagogical quality or the appreciation of teaching. The central problem identified – the precariousness of the teaching career in a scenario of massification and commodification – remains one of the greatest obstacles to the consolidation of a public and socially referenced university project.

From the didactic and methodological point of view, the research confirmed the diagnosis that there are still significant gaps in the institutionalization of the pedagogical training of university professors. Remnants of a conception that reduces teaching to the mere transmission of contents, subordinated to research as a criterion of prestige, persist. However, the authors analyzed point out ways to overcome this scenario: university pedagogy must be affirmed as a scientific and practical field of its own, capable of offering foundations and methodologies that sustain a critical, creative and socially committed teaching. In this horizon, the valorization of intentional planning, active methodologies, procedural evaluation and dialogical mediation emerges as a structuring axis of teaching practice.

On the technological level, the reflections showed that the integration of digital resources and artificial intelligence cannot be uncritical or instrumental. As Kenski (2012), Moran (2015) and Selwyn (2022) argue, it is a matter of pedagogical design: it is necessary to select technologies at the service of learning, articulating them with clear objectives, ethical criteria and training requirements. When used responsibly, digital technologies expand opportunities for authorship, collaboration, and innovation; When applied uncritically, they reinforce processes of automation and pedagogical impoverishment. The role of the teacher, therefore, is irreplaceable as a reflective mediator, curator of information, and trainer of critical subjects in the face of digital culture and AI devices.

The objectives of the research were achieved by: - contextualizing the Brazilian higher education in its historical, political and social dimensions. - discussing the philosophical and

psychological foundations of university pedagogy, evidencing its relevance to teacher training. - examining the methodological challenges of pedagogical practice in dialogue with digital technologies and artificial intelligence. - analyzing the most recent public policies and their implications for the teaching work. – And by proposing methodological and pedagogical guidelines that articulate social inclusion, teacher appreciation and technological innovation.

Thus, it can be said that the investigation not only diagnosed limits and contradictions, but also pointed out real possibilities for transformation. The research contributes to the strengthening of university pedagogy by showing that teaching practice needs to be understood as a production of knowledge, and not as a mere technical application. It is a field that articulates science, ethics and public commitment, capable of sustaining the social function of the university in a country still marked by deep inequalities.

In addition, the analysis of recent policies (2023–2025) allowed us to identify that, although there have been advances in terms of expansion, budget recomposition, and regulations, the structural challenge of valuing teaching work remains. University teaching continues to demand adequate institutional conditions – time for planning, continuing education, pedagogical support, professional stability, without which any methodological innovation tends to be episodic and fragmented. This is a central point: without investment in careers and concrete working conditions, the university runs the risk of compromising its mission of training qualified professionals and critical citizens.

The research also reinforces that university teaching cannot be thought of only in technical terms, but as a social and political practice. The teacher is called to assume a critical stance in the face of the pressures of commodification and instrumentalization of teaching, defending the public and emancipatory character of the university. In this sense, it is essential that institutions assume teaching as a priority and not just as a bureaucratic obligation.

However, the challenges of Brazilian higher education, whether historical, political, didactic, methodological or technological, are great, but not insurmountable. On the contrary, they constitute opportunities to reinvent teaching practice and to consolidate a university pedagogy capable of dialoguing with student diversity, with the demands of contemporary society and with the potential of digital technologies.

It is necessary to register an optimistic perspective. Despite the difficulties, university professors from the federal, state and private networks have demonstrated resilience, creativity and social commitment. Recent experience shows that, even in the face of precariousness and accelerated transformations, teachers continue to seek didactic,

methodological and technological alternatives that favor meaningful learning and critical training of students. This movement signals that, with the support of consistent public policies, adequate institutional conditions and an academic culture that values teaching, research and extension, university teaching can consolidate itself as a transforming force.

Thus, the present-future time of higher education in Brazil depends, to a large extent, on the collective capacity to articulate scientific rigor, pedagogical innovation and ethical-social commitment. The challenge is real and the possibility of moving towards a more inclusive, critical and emancipatory university can also be. The university professor, in any network, remains the central subject of this transformation, a mediator who, at the same time as facing historical, cultural, social and structural obstacles, also inaugurates new possibilities of teaching, learning and forming citizens for a democratic and solidary society.

DECLARATION OF CONFLICT OF INTEREST

The authors declare that they have no financial, commercial, professional, academic or personal conflicts of interest that could have influenced the research and preparation of this article.

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THE CHALLENGES OF SCHOOL INCLUSION IN THE CLASSROOM CONTEXT
OS DESAFIOS DA INCLUSÃO ESCOLAR NO CONTEXTO DA SALA DE AULA
LOS RETOS DE LA INCLUSIÓN ESCOLAR EN EL CONTEXTO DEL AULA

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ABSTRACT

School inclusion has become a central topic in educational discussions in recent decades, driven by legislation and public policies that ensure the universal right to education. However, implementing this process faces significant challenges, especially in the classroom. This article analyzes the main obstacles related to teacher training, school infrastructure, and social attitudes, as well as successful practices that promote inclusion. It concludes that building an inclusive school culture requires collective effort, pedagogical planning, and ethical commitment from the entire school community.

Keywords: School Inclusion. Diversity. Teacher Training. Classroom. Inclusive Education.

RESUMO

A inclusão escolar tornou-se um tema central nas discussões educacionais nas últimas décadas, impulsionada por legislações e políticas públicas que asseguram o direito universal à educação. No entanto, a efetivação desse processo enfrenta desafios significativos, especialmente no cotidiano da sala de aula. Este artigo analisa os principais obstáculos relacionados à formação docente, à infraestrutura escolar e às atitudes sociais, bem como as práticas exitosas que promovem a inclusão. Conclui-se que a construção de uma cultura escolar inclusiva exige esforço coletivo, planejamento pedagógico e comprometimento ético de toda a comunidade escolar.

Palavras-chave: Inclusão Escolar. Diversidade. Formação Docente. Sala de Aula. Educação Inclusiva.

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RESUMEN

La inclusión escolar gira en torno a un tema central en las discusiones educativas de las últimas décadas, impulsado por legislaciones y políticas públicas que aseguran el derecho universal a la educación. Sin embargo, la eficacia de este proceso enfrenta desafíos significativos, especialmente no cotidiano da sala de aula. Este artículo analiza los principales obstáculos relacionados con la formación docente, la infraestructura escolar y las actitudes sociales, como prácticas exitosas que promueven la inclusión. En conclusión, la construcción de una cultura escolar inclusiva exige un esfuerzo colectivo, un planeamiento pedagógico y un compromiso ético de toda la comunidad escolar.

Palabras-clave: Inclusión Escolar. Diversidad. Formación Docente. Sala de Aula. Educación Inclusiva.

1 INTRODUCTION

School inclusion has been consolidated, in recent decades, as one of the most relevant themes in the educational field, reflecting social, political and legal changes that seek to ensure the right to education in a universal way (De Souza, 2015). It is a process that goes beyond simple access to school, encompassing the permanence, participation and learning of all students, regardless of their physical, cognitive, social or cultural conditions (Mantoan, 2003).

Historically, the education of people with disabilities in Brazil was marked by segregation. Until the 1990s, these children and adolescents attended specialized institutions, separate from regular education, which limited their opportunities for social interaction and academic development (Garcia; David; Martins, 2016). With the Salamanca Declaration (1994) and the advancement of public policies, inclusion came to be considered a fundamental principle, guiding educational practices that seek to ensure equal opportunities and respect for diversity (Sassaki, 2005).

In the Brazilian legal context, the Federal Constitution of 1988 (Brasil, 1988) establishes education as a right of all and a duty of the State, guaranteeing equal conditions for access and permanence in school. The Law of Guidelines and Bases of National Education – LDB, Law No. 9,394/1996 (Brazil, 1996) and the Brazilian Law for the Inclusion of Persons with Disabilities, Law No. 13,146/2015, (Brazil, 2015) reinforce the obligation to offer inclusive education in regular schools, highlighting the need for curricular adaptation, pedagogical resources and specialized support (Dias, 2024; Zanata, 2016).

These legal frameworks constitute essential bases for the construction of more equitable educational policies, but, by themselves, they do not guarantee the effectiveness of inclusion. The practical implementation of school inclusion faces complex and multifaceted challenges. Many teachers report difficulties in adapting content and pedagogical strategies to serve students with different educational needs, in addition to the lack of adequate didactic and technological resources (Narciso *et al.*, 2024; Mendes, 2010).

Initial teacher training is still insufficient to deal with diversity, making it essential to offer continuing education programs that provide theoretical and practical support to face the challenges of daily school life (Glat & Fernandes, 2005; Rosin-Pinola & Del Prette, 2014).

In addition to pedagogical issues, inclusion also depends on cultural and social transformations within the school. Valuing diversity, overcoming prejudiced attitudes and

engaging managers, teachers, students and families are fundamental for the inclusive process to be genuine and not just formal (Sassaki, 2005; De Avelar & de Melo, 2015).

The absence of this collective commitment can generate symbolic exclusion, harming the academic performance and socio-emotional development of students. In this context, the problem that guides the present study is: what are the main challenges of school inclusion experienced in the daily life of the classroom and how do they impact the learning and development of students? The relevance of this research is due to the need to understand not only the existing barriers, but also the strategies that allow the promotion of a truly inclusive education, capable of meeting the singularities of each student and contributing to the construction of a more just and equitable society.

Therefore, this article aims to analyze the challenges faced by schools in the inclusion process, with emphasis on the classroom environment, considering pedagogical, structural and attitudinal factors. It also seeks to reflect on the importance of teacher training, the adequacy of school infrastructure and the construction of an institutional culture that values diversity, promoting inclusive, equitable and transformative educational practices (Zanata, 2016; Mantoan, 2003).

2 METHODOLOGY

The present study is characterized as a qualitative research, exploratory and descriptive in nature, centered on the analysis of specialized literature on school inclusion. The choice of this design is justified by the need to understand, in depth, the challenges faced by schools in the context of the classroom and the strategies adopted to promote inclusive education (Glat & Fernandes, 2005; Mantoan, 2003).

The research was conducted from a bibliographic review, with consultation of books, scientific articles, periodicals and legal documents that address school inclusion, teacher training, infrastructure and inclusive pedagogical practices.

Recent national publications were selected, ensuring the updating and relevance of the information analyzed. The analysis procedure consisted of the critical reading and systematization of the sources, organizing the main contents into thematic categories: (i) teacher training, (ii) infrastructure and pedagogical resources, (iii) school attitudes and culture, and (iv) successful inclusion practices.

This categorization allowed the identification of the main challenges, as well as effective strategies for effective inclusion in everyday school life (Dias, 2024; Zanata, 2016).

In addition, laws, decrees and public policies were considered as instruments to understand the legal and normative context of inclusion in Brazil, relating them to educational practices and the barriers faced by teachers and students (Brasil, 1988; 1996; 2015).

As this is a research based on a literature review, there was no collection of empirical data with participants. However, the critical analysis of the sources allowed the construction of a detailed overview of the challenges of school inclusion, evidencing the need for pedagogical, structural and cultural strategies that promote an equitable and accessible education for all students.

3 THEORETICAL FRAMEWORK

3.1 HISTORY AND FOUNDATIONS OF SCHOOL INCLUSION

School inclusion is a relatively recent process in the Brazilian educational context, marked by significant historical and social transformations. Traditionally, the education of people with disabilities was carried out in specialized institutions, segregated from regular education, which limited access to learning and social interaction (Garcia, Diniz & Martins, 2016). From the 1990s onwards, with the influence of the Salamanca Declaration (1994), the concept of inclusion began to be defended as a guiding principle of public policies, emphasizing the need to guarantee equal opportunities to all students (Sassaki, 2005).

According to Mantoan (2003), inclusion is not restricted to the student's enrollment in regular school; It involves the transformation of pedagogical practices, school management and institutional culture to meet the needs of all. This means that inclusion requires profound changes in curriculum organization, teaching strategies, and the way diversity is understood within the school (Mantoan, 2003).

3.2 TEACHER TRAINING

Teacher training is one of the greatest challenges for the effectiveness of school inclusion. Many teachers report difficulty in planning and developing activities that contemplate students with different educational needs (Narciso *et al.*, 2024). Initial training, although it addresses concepts of inclusive education, often does not offer sufficient practical experiences, leaving professionals unprepared to deal with diversity in the classroom (Glat & Fernandes, 2005).

The implementation of continuing education programs has proven to be essential to offer theoretical and practical support, allowing teachers to develop pedagogical skills

adapted to the singularities of each student (Rosin-Pinola & Del Prette, 2014). In addition, the exchange of experiences between teachers and collaborative work are effective strategies to face the challenges of daily school life (Dias, 2024).

3.3 INFRASTRUCTURE AND PEDAGOGICAL RESOURCES

School infrastructure plays a fundamental role in the effectiveness of inclusion. Physical barriers, such as lack of ramps, adapted bathrooms, accessible pedagogical materials and assistive technologies, compromise the full participation of students with disabilities (Mendes, 2010). The absence of these resources transforms inclusion into a partial process, reinforcing inequalities and limiting the academic and social development of students (Matos & Mendes, 2015). In addition, the use of assistive technologies and diversified pedagogical materials contributes to the autonomy of students and to effective access to the school curriculum (De Souza, 2015). The adaptation of content and pedagogical strategies must be planned considering the individual and collective needs of the class, ensuring equity in the learning process (Fernandes & Schlesener, 2011).

3.4 SCHOOL ATTITUDES AND CULTURE

School inclusion is not limited to pedagogical and structural issues; It also depends on building a school culture that values diversity. The perception of difference as wealth, and not as a limitation, is fundamental for inclusion to be effective (Sassaki, 2005). Prejudiced or stigmatizing attitudes, even if subtle, can generate symbolic exclusion, affecting students' self-esteem and performance (Zanata, 2016). The engagement of managers, teachers, students, and families is essential for the promotion of inclusive practices. Collective participation in the construction of internal policies and in the implementation of pedagogical strategies contributes to the formation of a fairer and more welcoming school environment (Renovato *et al.*, 2025).

3.5 SUCCESSFUL PRACTICES AND PROSPECTS

Despite the challenges, it is possible to observe significant advances in several schools. Education networks have invested in the presence of support professionals, Libras interpreters and caregivers, as well as in specialized pedagogical projects (Renovato *et al.*, 2025). Such initiatives demonstrate that inclusion benefits not only students with disabilities,

but the entire school community, by stimulating values such as empathy, cooperation and solidarity (Zanata, 2016).

The literature highlights that inclusion is a continuous process, which requires reflection, planning and constant adaptation. There are no ready-made templates or immediate solutions; success depends on the ethical and collaborative commitment of all the actors in the school (Mantoan, 2003; Sassaki, 2005).

4 RESULTS AND DISCUSSION

The analysis of the literature and legal documents reveals that, despite being supported by a solid normative base, school inclusion faces significant challenges that impact the daily life of the classroom. Among the main obstacles identified are insufficient teacher training, inadequate infrastructure, and cultural attitudes that make it difficult to value diversity (Dias, 2024; Mantoan, 2003).

Many teachers report difficulty in planning and developing activities that contemplate students with different educational needs, reflecting gaps in initial training, which often does not offer enough practical experiences to deal with diversity in the classroom (Narciso *et al.*, 2024; Glat & Fernandes, 2005).

In this sense, the implementation of continuing education programs, combined with pedagogical supervision and the exchange of experiences among teachers, is fundamental for the development of effective inclusive practices (Rosin-Pinola & Del Prette, 2014). School infrastructure also represents a major challenge. Architectural barriers, such as the absence of ramps and adapted bathrooms, associated with the scarcity of accessible teaching materials and assistive technologies, compromise the autonomy and engagement of students, making inclusion partial and reinforcing inequalities (Mendes, 2010; Matos & Mendes, 2015).

The literature points out that the adoption of diversified didactic resources and the use of assistive technologies favor the full participation of students, ensuring access to the curriculum and promoting equity in learning (De Souza, 2015; Fernandes & Schlesener, 2011). In addition to pedagogical and structural issues, the attitudes of teachers, managers, students and families play a decisive role in the effectiveness of inclusion.

The construction of a school culture that values diversity and recognizes the potential of each student is essential, as prejudiced or stereotyped attitudes can generate symbolic exclusion, affecting self-esteem and academic performance (Sassaki, 2005; Zanata, 2016).

Awareness programs, socio-emotional training, and family engagement contribute to transforming school culture, promoting values such as empathy, solidarity, and cooperation, essential for the consolidation of inclusion (Renovato *et al.*, 2025).

Despite the difficulties, there are successful experiences that demonstrate the feasibility of inclusion. Education networks have invested in the presence of support professionals, Libras interpreters, caregivers and specialized pedagogical projects, offering individualized support and strengthening pedagogical strategies adapted to diversity (Renovato *et al.*, 2025).

Such practices show that, when there is collective engagement, adequate planning and effective policies, inclusion benefits all those involved, promoting academic and socio-emotional development and contributing to the construction of a fairer and more equitable school environment (Mantoan, 2003; Zanata, 2016).

The results indicate that school inclusion should be understood as a continuous, dynamic and multifaceted process, which requires simultaneous efforts in the pedagogical, structural and cultural dimensions. The mere enrollment of the student in a regular school does not guarantee inclusion; it is necessary to ensure real conditions for participation, learning and integral development, promoting equity and respect for diversity (Glat & Fernandes, 2005; Sassaki, 2005; Dias, 2024).

5 FINAL CONSIDERATIONS

The analysis shows that school inclusion, although it is a right guaranteed by legislation and public policies, still faces significant challenges in the daily life of the classroom. Among the main obstacles are insufficient teacher training, inadequate infrastructure, and cultural attitudes that often make it difficult to value diversity.

These factors compromise not only learning, but also the full participation and integral development of students, making inclusion partial in many situations. However, it is possible to identify ways to overcome these difficulties.

Investing in continuing education for teachers, promoting the use of accessible pedagogical resources, implementing assistive technologies, and adapting school infrastructure are fundamental measures to ensure equity in learning.

In addition, transforming school culture, through awareness-raising actions, family engagement, and building an environment that values diversity, is essential to make inclusion meaningful. School inclusion should be understood as a continuous and dynamic process,

which requires permanent reflection, strategic planning and ethical commitment from all actors in the school community.

The biggest challenge is not only in the enrollment of the student in a regular school, but in ensuring real conditions of learning, participation and integral development, promoting a truly equitable education. Successful practices, such as the presence of support professionals, the implementation of specialized pedagogical projects, and the promotion of partnerships with families and the community, demonstrate that inclusion benefits not only students with disabilities, but strengthens the entire school community, promoting values such as empathy, solidarity, and cooperation.

Therefore, it is recommended that schools assume inclusion as a collective and continuous commitment, articulating policies, pedagogical practices and awareness strategies that contemplate diversity in an integral way. The construction of an inclusive education is a permanent task, which requires engagement, creativity and ethical commitment to ensure that all students have full access to knowledge, personal development and citizenship.

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**TEACHER TIMETABLING AND WORKLOAD ALLOCATION IN NEW
SECONDARY EDUCATION SYSTEM****ALOCÇÃO DE HORÁRIOS E CARGA HORÁRIA DE PROFESSORES NO
NOVO ENSINO MÉDIO****ASIGNACIÓN DE HORARIOS Y CARGA HORARIA DOCENTE EN EL NUEVO
SISTEMA DE BACHILLERATO** <https://doi.org/10.56238/sevened2025.038-008>

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ABSTRACT

The Brazilian new secondary education reform (Law No. 13,415/2017) introduced curricular and structural transformations that significantly increased the complexity of teacher workload allocation. School administrators now confront interdependent challenges, including teacher availability, balanced distribution of operational workloads, commuting constraints, and limited physical infrastructure (e.g., “classrooms,” “laboratories,” “IT infrastructure”) within a more flexible curriculum. Teacher timetabling is a classical NP-hard problem in Operations Research, and Mixed-Integer Linear Programming (MILP) provides a rigorous framework to model such interdependent constraints. This study proposes and implements an MILP optimization model for teacher workload allocation in a large public secondary education in São José dos Pinhais, Paraná, Brazil. The real-world instance included 49 teachers and 19 classes, totaling 745 weekly hours. The formulation explicitly incorporates institutional constraints—such as daily workload limits, asynchronous class integration, and the shared-resource restriction for Physical Education—as well as teacher preferences regarding paired lessons and activity hours (HA) grouping. The model, implemented in Julia (JuMP) and solved with the Gurobi Optimizer, achieved an exact optimal solution in approximately 35 seconds. The optimization resulted in reducing one teacher’s weekly presence by a full day while maintaining the same number of working days for others. Furthermore, it eliminated the need for manual scheduling adjustments, automatically ensuring consistent allocation of asynchronous lessons and the non-overlapping use of the school’s sports court. By combining operational efficiency with adherence to teacher preferences, the proposed MILP formulation proved to be computationally tractable and applicable to real educational contexts. The model serves as a decision-support tool that enhances school organization and improves the overall management of teaching schedules.

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Keywords: Timetabling. Mixed-Integer Linear Programming. Optimization. Brazilian New Secondary Education.

RESUMO

A reforma do Novo Ensino Médio no Brasil (Lei n.º 13.415/2017) introduziu mudanças curriculares e estruturais que aumentaram significativamente a complexidade da alocação da carga horária docente. Os gestores escolares passaram a enfrentar desafios como disponibilidade de professores, equilíbrio da carga de trabalho, restrições de deslocamento e limitações de infraestrutura em um currículo mais flexível e diversificado. A alocação de horários constitui um problema clássico e NP-difícil em Pesquisa Operacional, sendo a Programação Linear Inteira Mista (MILP) uma formulação matemática adequada para representar restrições interdependentes. Este estudo propõe e implementa um modelo MILP para otimizar a alocação da carga horária em uma escola pública de Ensino Médio em São José dos Pinhais, cidade do estado do Paraná, Brasil. O problema real envolveu 49 professores e 19 turmas, totalizando 745 horas semanais. A formulação incorpora restrições institucionais como limites diários de jornada, integração de aulas assíncronas e uso compartilhado de recursos para Educação Física, além de preferências docentes quanto à geminação de aulas e agrupamento das Horas de atividades (HA). O modelo, desenvolvido em Julia (JuMP) e resolvido com o Gurobi Optimizer, alcançou solução ótima exata em cerca de 35 segundos. A otimização reduziu um dia presencial na instituição para um docente e suprimiu a necessidade ajustes manuais de horário, uma vez que o cronograma gerado passou a satisfazer automaticamente a todas as restrições institucionais e operacionais. A formulação proposta mostrou-se computacionalmente eficiente e aplicável em contextos educacionais reais, funcionando como ferramenta de apoio à decisão para aprimorar a gestão da jornada docente e a organização escolar.

Palavras-chave: Dimensionamento de Horários. Programação Linear Inteira Mista. Otimização. Novo Ensino Médio.

RESUMEN

La reforma del Nuevo Bachillerato en Brasil (Ley N.º 13.415/2017) introdujo cambios curriculares y estructurales que aumentaron significativamente la complejidad en la asignación de la carga horaria docente. Los gestores escolares enfrentan desafíos como la disponibilidad de profesores, el equilibrio de la carga de trabajo, las restricciones de desplazamiento y las limitaciones de infraestructura dentro de un currículo más flexible y diversificado. La asignación de horarios constituye un problema clásico y NP-difícil en la Investigación Operativa, siendo la Programación Lineal Entera Mixta (MILP) una formulación matemática adecuada para representar restricciones interdependientes. Este estudio propone e implementa un modelo MILP para optimizar la asignación de la carga horaria en una escuela pública de educación media en São José dos Pinhais (PR), Brasil. La instancia real involucró 49 docentes y 19 clases, totalizando 745 horas semanales. La formulación incorpora restricciones institucionales como los límites diarios de jornada, la integración de clases asincrónicas y el uso compartido de recursos para Educación Física, además de las preferencias docentes relacionadas con la geminación de clases y el agrupamiento de Horas de Actividad. El modelo, desarrollado en Julia (JuMP) y resuelto con el Gurobi Optimizer, alcanzó una solución óptima exacta en aproximadamente 35 segundos. La optimización redujo un día completo de presencia semanal para un docente y eliminó la necesidad de ajustes manuales en la programación. Así, la formulación propuesta demostró ser computacionalmente eficiente y aplicable en contextos educativos reales, funcionando como una herramienta de apoyo a la decisión para mejorar la gestión del trabajo docente y la organización escolar.

Palabras clave: Asignación de Horários. Programación Lineal Entera Mixta. Optimización.



Nuevo Bachillerato em Brasil.

1 INTRODUCTION

The Brazilian educational system has undergone multiple transformations throughout the 20th century, induced by political, social, and economic vectors (Codes, Fonseca and Araújo, 2021). For an extensive period, secondary education maintained a rigid structure, characterized by standardized curricula and limited flexibility to accommodate the diversity of student interests and abilities. This model proved insufficient in the face of contemporary demands, notably technological advancement, globalization, and the new requirements of the labor market.

The Federal Constitution of 1988 established education as a fundamental right and a State duty, constituting a milestone for the democratization of access. Nonetheless, the persistence of structural challenges—such as educational inequality, the unsatisfactory quality of learning, and high dropout rates—made restructuring imperative. The National Education Plan (PNE), instituted in 2001 and revised in 2014, outlined goals for the expansion and improvement of basic education. However, the secondary education reform only gained centrality in 2017 with the enactment of Law No. 13,415 (Brasil, 2017), which established the new secondary education.

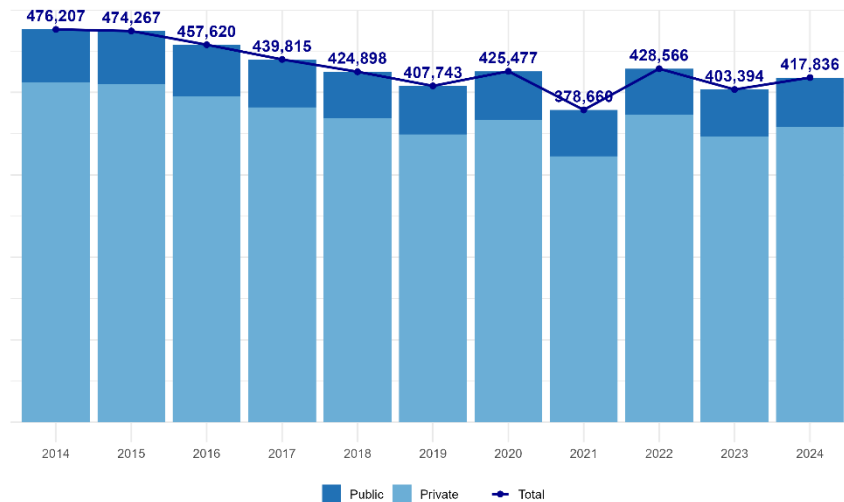
This reform introduced substantial modifications, increasing curricular flexibility and organizing secondary education into two complementary axes: the General Basic Education (FGB), comprising 1,800 hours, and the Formative Itineraries, totaling 1,200 hours. The implementation of this new architecture in the state of Paraná, Brazil was initiated in 2019, culminating in the development of the curricular reference for secondary education, with support from the Program to Support the Implementation of the National Common Curricular Base (ProBNCC). The ProBNCC, a collaborative initiative led by the Department of Education of Brazil, known nationally as the Ministry of Education (MEC), the National Council of Education Secretaries (CONSED), and the National Union of Municipal Education Directors (UNDIME), aims to provide technical, pedagogical, and financial support to federative entities in the process of curricular alignment with the BNCC.

According to the 2024 School Census (INEP, 2024), the state of Paraná, Brazil recorded 417,836 secondary education enrollments, of which 85.7% corresponded to the public network (358,012 students) and 14.3% to the private network (59,824 students). The teaching staff remained predominantly concentrated in the state system, and night-shift education continued to play a significant role, especially in serving students who balance study and work. This scenario intensifies the challenges of educational management,

particularly in large public schools, where the organization of teacher workload becomes a critical factor for ensuring both operational efficiency and the quality of the teaching–learning process.

Figure 1

Evolution of secondary education enrollments in Paraná (2014–2024)



Source: Prepared by the authors themselves.

The efficient allocation of teachers—conceptualized in the literature as teacher workload allocation or teacher timetabling—is recognized as a classic problem in Operations Research, frequently modeled as an NP-hard combinatorial optimization task due to its multi-constraint nature (Schaerf, 1999). This task involves addressing multiple constraints, including teacher availability, maximum daily class limits, individual preferences, curricular requirements, and, in certain instances, commute costs. Numerous studies demonstrate the effectiveness of Mixed-Integer Linear Programming (MILP) models. Gu et al. (2025) conducted a systematic review of optimization approaches for academic timetabling, highlighting the predominance of MILP techniques and discussing their practical implementation challenges in real-world educational settings.

However, a gap persists in applications focused specifically on the context of the Brazilian new secondary education, considering its curricular and organizational specificities.

The analysis of the evolution of the public secondary education teaching staff in Paraná, presented in Figure 2, reveals significant fluctuations in the number of teachers over the last decade. In 2014, the state had 32,849 teachers, a figure that gradually declined until reaching 27,936 in 2021. From 2022 onwards, a recovery is observed, with the number

increasing to 30,682 in 2023 and stabilizing at 29,949 in 2024. This dynamic reflects both the impact of management and hiring policies and the need for constant adjustments in teacher allocation to keep pace with changes in student demand.

Figure 2

Total teaching staff in Paraná's public schools (2014–2024)



Source: Prepared by the authors themselves.

In addition to the pre-existing structural challenges, the geographic characteristics of São José dos Pinhais, a city located in the state of Paraná, southern Brazil, impose further complexities upon teacher allocation. The municipality exhibits a considerable territorial extension, with peripheral areas situated at significant distances from the urban center and from one another. Figure 3 illustrates this spatial dispersion via a geospatial map. The map's central blue marker denotes the location of the school unit, clearly evidencing the substantial distances from various other neighborhoods given the city's overall territorial spread. A substantial fraction of the teaching staff does not reside within the same administrative region as their assigned educational unit, which consequently elevates both commuting time and associated costs. Within this framework, the implementation of an optimized allocation strategy aimed at minimizing the number of physical presence days at the school unit acquires elevated relevance, as it promotes a direct reduction in the workload burden on educators while ensuring strict compliance with institutional requirements for minimum mandatory hours.

Figure 3

Geospatial map of São José dos Pinhais



Source: São José Dos Pinhais, 2025

Addressing these challenges, the present study proposes and implements a Mixed-Integer Linear Programming mathematical model for the optimization of teacher workload allocation within a large-scale public school system unit located in São José dos Pinhais, a city located in the state of Paraná, Brazil. The model is designed to maximize operational efficiency in class distribution by strictly enforcing the predefined workloads of each faculty member. Concurrently, the formulation seeks the minimization of the number of teacher physical presence days and the accommodation of the specific operational demands of the evening shift.

2 MATERIAL AND METHODS

This study adopts an applied and descriptive design grounded in mathematical modeling via Mixed-Integer Linear Programming. The primary objective was to propose and implement an optimization model for teacher workload allocation in a large public state educational unit located in the municipality of São José dos Pinhais, Paraná. The model was conceptualized to incorporate the institutional, pedagogical, and logistical constraints inherent to the context of implementing the New Brazilian Secondary Education curriculum. In the current operational scenario, the administrative staff utilizes dedicated software to

allocate synchronous lessons and activity hours (HA)—the legally mandated portion of a teacher's workload dedicated to extraclass pedagogical activities—while the distribution of asynchronous lessons is performed manually. This hybrid process underscores the practical necessity for a fully integrated optimization model.

The research was conducted at School A, the municipality has a population of 329,628 inhabitants, according to the 2022 population census conducted by the Brazilian Institute of Geography and Statistics (IBGE, 2024). School A primarily serves a student population residing in peripheral neighborhoods, characterized by a reliance on public transportation. This logistical factor reinforces the relevance of optimizing class allocation, particularly for the evening shift.

Furthermore, School A possesses only one sports court, a resource shared among all Physical Education classes. Under the current allocation process, this constraint is not automatically managed by the scheduling software. Instead, adjustments are performed manually by the administrative staff to prevent the simultaneous assignment of more than two Physical Education teachers. While the simultaneous allocation of up to two teachers is considered tolerable, the presence of three or more classes at the same time generates logistical difficulties. This challenge is particularly relevant as the school employs four Physical Education teachers. Although manual corrections are intended to respect the resource limitation, they require considerable effort and increase the likelihood of inconsistencies. Embedding this constraint directly into the MILP model eliminates the need for repetitive manual interventions during the optimization process.

The study encompassed 49 teachers and 19 classes, totaling 69 curricular components distributed throughout the school week. Each class maintained a fixed workload of 30 weekly lessons, corresponding to six lessons per day. In accordance with School A's operational guidelines, five daily lessons were conducted synchronously, while the sixth lesson of the evening shift was designated to occur asynchronously.

The study population consists of all 49 faculty members at School A who taught the evening shift during 2024, and a census method was used, meaning the entire population was included in the study, not just a sample. This approach is also referred to as a census because it surveys every member of the group under study.

It is pertinent to note that each teacher enters the allocation process with a predefined workload, specifying the number of lessons and the classes they are assigned to teach. This initial designation establishes a fundamental pedagogical condition: the same teacher must

not instruct more than one subject within a single class.

For each teacher, detailed availability information was collected, specified both by days of the week and by individual time slots (lesson level), based on two criteria: logistical constraints and personal preferences. The teacher was allowed to designate time slots as unavailable due to logistical reasons (e.g., external commitments, multiple school assignments) or personal preference, reflecting days when they would prefer not to teach.

This level of detail is essential, as it ensures that critical constraints, such as the inability to be assigned to the first lesson of the day due to commuting distance and traffic conditions, can be strictly adhered to. Furthermore, the inclusion of individual preferences in the modeling process grants greater professional value to the educators, aligning institutional planning with the teachers' needs and well-being.

The MILP model is designed to accommodate the practice of a single teacher instructing multiple distinct subjects across different classes (e.g., Mathematics, Financial Education, and Physics). However, the model incorporates the operational condition that the teacher must not be allocated to instruct different subjects within the same class. By modeling availability at the lesson level, the system thus guarantees a realistic and consistent allocation with the faculty's actual working conditions and expectations.

2.1 LINEAR PROGRAMMING (LP)

Linear Programming is a mathematical optimization technique in which both the objective function and the constraints are expressed as linear relationships. It is widely applied in various fields such as economics, engineering, logistics, and education. LP problems are characterized by the proportionality, additivity, and divisibility of resources, which allows solutions to be represented in continuous domains (Taha, 2017). A typical LP model seeks to maximize or minimize an objective function subject to a set of linear constraints, ensuring that all decision variables satisfy feasibility conditions such as non-negativity.

The classical Linear Programming (LP) problem consists of optimizing (maximizing or minimizing) a linear objective function subject to a set of linear constraints. In general, the model can be represented as follows:

$$\text{Maximize (or Minimize) } Z = \sum_{j=1}^n c_j x_j \quad (1)$$

subject to:

$$\sum_{j=1}^n a_{ij}x_j \leq b_i \quad (i = 1, 2, \dots, m) \quad (2)$$

$$x_j \geq 0 \quad (j = 1, 2, \dots, n) \quad (3)$$

- Z is the objective function, representing the value to be optimized (such as cost or profit);
- c_j are the coefficients of the objective function;
- x_j are the decision variables;
- a_{ij} are the technological coefficients of the constraints;
- b_i are the available amounts of resources;

2.2 MIXED-INTEGER LINEAR PROGRAMMING (MILP)

MILP extends LP by allowing some or all of the decision variables to take only integer values, while others may remain continuous. This formulation is particularly useful for real-world problems where decisions are discrete by nature, such as assigning teachers to classes or scheduling events in time slots. Although MILP increases the computational complexity of the problem, it offers more realistic and applicable solutions in scenarios where fractional allocations are not feasible.

It should be noted that the MILP model preserves the same structure as the classical LP model, with the addition of the integrality constraint (Equation 7).

$$\text{Maximize (or Minimize)} \quad Z = \sum_{j=1}^n c_j x_j \quad (4)$$

subject to:

$$\sum_{j=1}^n a_{ij}x_j \leq b_i \quad (i = 1, 2, \dots, m) \quad (5)$$

$$x_j \geq 0 \quad (j = 1, 2, \dots, n) \quad (6)$$

$$x_j \in Z \quad (7)$$

2.3 MATHEMATICAL MODEL FOR WORKLOAD ALLOCATION

The following mathematical model was developed to optimize teacher workload allocation, considering institutional, operational, and preference constraints. The formulation uses Mixed-Integer Linear Programming and defines the decision variables, objective function, and main constraints of the problem.

2.3.1 Parameters

P : set of Professors ($p = 1 \dots P$), $P = 49$.

T : set of Classes ($t = 1 \dots T$), $T = 19$.

D : number of days in a week ($d = 1 \dots D$), $D = 5$.

H : number of time slots per day ($h = 1 \dots H$), $H = 5$.

$CH_{p,t}^{sync}$: synchronous workload of teacher p for class t .

$CH_{p,t}^{async}$: asynchronous workload of teacher p for class t .

HA_p : activity hours for teacher p .

$Disp_{p,d,h} \in \{0,1\}$: availability of teacher p on day d and time slot h . (1 available, 0 unavailable).

$PF_p^{gem} \in \{-1,0,1\}$: synchronous pairing preference of teacher p . (-1 avoid, 0 neutral, 1 prefer).

$PF_p^{HA} \in \{-1,0,1\}$: concentrated HA preference of teacher p . (-1 spread, 0 neutral, 1 group).

$PE \subseteq P$: subset of physical education professors (shared gymnasium).

2.3.2 Decision Variables

$x_{p,t,d,h} \in \{0,1\}$: 1 if teacher p teaches synchronous class t on day d and slot h , 0 otherwise.

$a_{p,t,d} \geq 0$: number of asynchronous lessons of teacher p for class t on day d .

$y_{p,d,h} \in \{0,1\}$: 1 if teacher p has HA in slot (d, h) .

$v_{p,d} \in \{0,1\}$: daily assignment, 1 if teacher p works on day d .

$s_{p,t,d,h}, z_{p,t,d,h} \in \{0,1\}$: auxiliary variables for synchronous pairing (s single lesson, z block start).

$a_slot_{p,d,h} \in \{0,1\}$: marks slots occupied by asynchronous lessons.

$r_{p,d,h} \in \{0,1\}$: marks the start of concentrated HA blocks.

2.3.3 Constraints

Teacher can only be assigned to slots where $Disp_{\{p,d,h\}} = 1$.

$$\sum_t x_{p,t,d,h} + y_{p,d,h} + a_{slot_{p,d,h}} \leq Disp_{\{p,d,h\}}, \quad \forall p, d, h \quad (8)$$

Synchronous workload per teacher: Each teacher must meet their total synchronous workload.

$$\sum_d \sum_h x_{p,t,d,h} = \sum_t CH_{p,t}^{sync}, \quad \forall p, t \quad (9)$$

Asynchronous workload per teacher: Ensures all asynchronous lessons are assigned for each teacher.

$$\sum_t a_{p,t,d} = CH_{p,d}^{async}, \quad \forall p, d \quad (10)$$

Exact HA allocation per teacher: Activity hours are assigned according to the total required.

$$\sum_d \sum_h y_{p,d,h} = HA_p, \quad \forall p \quad (11)$$

Slot conflict per teacher: No teacher can have more than one activity in the same slot.

$$\sum_t x_{p,t,d,h} + y_{p,d,h} + a_{slot_{p,d,h}} \leq 1, \quad \forall p, d, h \quad (12)$$

Single classroom per class: Each class can have at most one teacher per time slot.

$$\sum_p x_{p,t,d,h} \leq 1, \quad \forall t, d, h \quad (13)$$

Daily workload limit per teacher: Ensures teachers do not exceed the daily maximum of lessons and HA.

$$\sum_t \sum_h x_{p,t,d,h} + \sum_h a_{slot_{p,d,h}} + \sum_h y_{p,d,h} \leq \text{maxDaily}, \quad \forall p, d \quad (14)$$

Synchronous pairing: Models paired lesson blocks for synchronous classes.¹

$$x_{p,t,d,h} = s_{p,t,d,h} + z_{p,t,d,h} + z_{p,t,d,h-1}, \quad \forall p, t, d, 2 \leq h \leq H - 1 \quad (15)$$

Concentrated HA blocks: Marks the start of concentrated HA blocks according to preferences.

$$\begin{aligned} r_{p,d,1} &= y_{p,d,1} \\ r_{p,d,h} &\geq y_{p,d,h} - y_{p,d,h-1}, \quad h \geq 2 \end{aligned} \quad (16)$$

Physical Education (PE) Classes Constraint: This constraint ensures that no more than two PE teachers are assigned to the same time slot simultaneously, reflecting the reality that the school has only one sports court that can accommodate at most two classes at once. The restriction applies exclusively to synchronous PE classes and does not affect asynchronous classes or HA.

$$\sum_{p \in PE} x_{p,t,d,h} \leq 2, \quad \forall d, h \quad (17)$$

Daily assignment: Defines whether a teacher is working on a given day based on assigned activities.

$$\sum_t \sum_h x_{p,t,d,h} + \sum_h a_{slot_{p,d,h}} + \sum_h y_{p,d,h} \leq M \cdot v_{p,d} \quad (18)$$

2.3.4 Objective Function

The central objective of the workload allocation model is the minimization of the total scheduling cost, which is defined by the weighted combination of operational efficiency and teacher preference satisfaction. The efficiency term aims to minimize the total number of physical presence days required from the entire staff at the educational unit, quantified by penalizing each day a teacher is scheduled, as represented by the binary variable $v_{p,d} = 1$. Additionally, the objective function integrates the preference satisfaction cost, applying penalties ($\lambda=1.0$) for any deviation from the declared scheduling preferences. In this study, all preference-related penalty weights (λ) were assigned the value of 1.0 for baseline implementation. This choice was made to maintain a neutral balance between operational efficiency and teacher preference satisfaction. However, these weights are not fixed: they can be adjusted according to institutional priorities or managerial strategies. Future research may explore the impact of varying λ values to calibrate trade-offs between reducing teacher presence days and maximizing adherence to individual scheduling preferences. These deviations include the allocation of synchronous lessons as isolated slots (single) when the teacher prefers double blocks (geminated), or vice-versa; and the allocation of HA in long blocks when the preference is for distribution throughout the day, or in short/distributed blocks when the preference is for concentration. Consequently, the model seeks the optimal trade-off that enables the reduction of overall daily presence while maximizing adherence to the personal scheduling preferences of the teaching staff.

$$\begin{aligned}
 \min Z = & \sum_p \sum_d v_{p,d} + \lambda_1 \sum_{p:PF_{p=1}^{gem}} \sum_t \sum_d \sum_h s_{p,t,d,h} + \lambda_2 \sum_{p:PF_{p=-1}^{gem}} \sum_t \sum_d \sum_h z_{p,t,d,h} + \\
 & + \lambda_3 \sum_{p:PF_{p=1}^{HA}} \sum_d \sum_h r_{p,d,h} + \lambda_4 \sum_{p:PF_{p=-1}^{HA}} \sum_d \left(\sum_h y_{p,d,h} - \sum_h r_{p,d,h} \right)
 \end{aligned} \tag{19}$$

The mathematical formulation is formally defined in Equation (19), subject to constraints described in Equations (8)–(18).

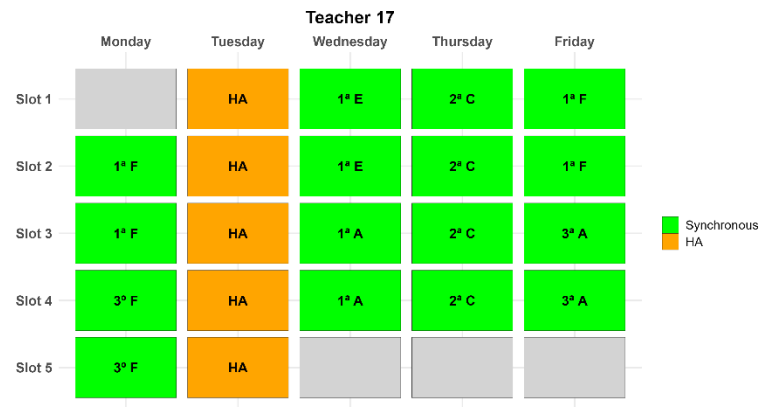
3 RESULT

The proposed Mixed-Integer Linear Programming (MILP) model was implemented in Julia using the JuMP package and solved with the Gurobi Optimizer (version 12.0.2). Computational experiments were executed on a machine equipped with an Intel® Core™ i5-1035G1 processor (1.00 GHz, 8 logical cores) running Windows 10. The test instance comprised 49 teachers and 19 classes, resulting in a total weekly workload of 745 hours, subdivided into 475 synchronous, 95 asynchronous, and 175 activity hours (HA). The model formulation included 27,447 constraints, 73,843 integer variables (69,090 of which were binary), and 277,770 non-zero coefficients. After presolve, the model was significantly reduced to 10,886 constraints and 30,806 binary variables, improving computational efficiency. Gurobi employed deterministic concurrent optimization with primal and dual simplex methods, applying several classes of cutting planes (Gomory, Cover, Clique, and Relax-and-Lift). The solver achieved the optimal solution after exploring a single branch-and-bound node and 81,824 simplex iterations, obtaining an objective value of ($Z = -21.0$) with a 0.0000 % optimality gap in approximately 35 seconds. These results confirm that the proposed formulation is computationally tractable and capable of reaching global optimality efficiently even in realistic large-scale instances of the teacher allocation problem.

Figure 4 presents the allocation for Teacher 17. This teacher expressed a preference for distributing non-HA across the week and avoiding geminated lessons. The resulting timetable clearly reflects these preferences: HA periods are spread throughout multiple days, and synchronous lessons are arranged in single, non-consecutive slots. Such an outcome highlights the model's flexibility in accommodating individual scheduling tendencies while maintaining overall workload balance and institutional feasibility.

Figure 4

Optimized timetable allocation for Teacher 17

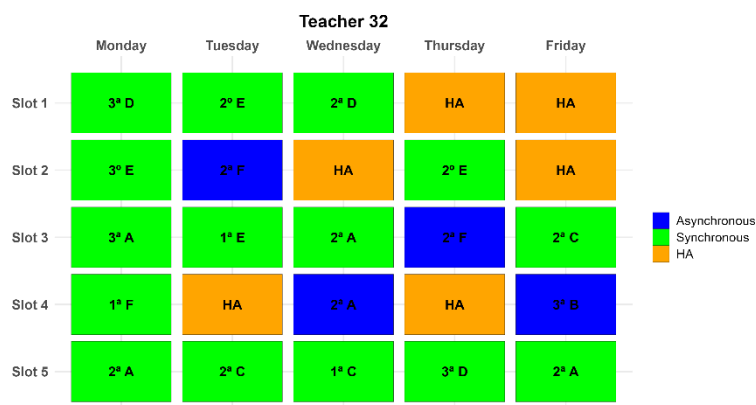


Source: Prepared by the authors themselves.

Figure 5 presents an example of a weekly schedule for a teacher 32 who prefers to distribute her non-teaching hours throughout the week rather than concentrating them in consecutive blocks. The timetable also avoids paired or geminated synchronous classes, resulting in a more balanced and diversified distribution of activities across the available time slots.

Figure 5

Optimized timetable allocation for Teacher 32



Source: Prepared by the authors themselves.

In comparison with the previous model, in which asynchronous lessons were manually distributed, the new MILP formulation fully automates the allocation process, eliminating the need for manual adjustments by the staff responsible for timetable construction. In the earlier version, asynchronous hours required post-processing corrections, often leading to

discrepancies between the planned and assigned workloads. The updated model explicitly incorporates these activities, ensuring consistency between each teacher's total workload and declared availability. Furthermore, it accounts for individual teacher preferences—such as the concentration of classes on specific days and the grouping of HA—thereby improving alignment with both personal and institutional needs. As a result, one teacher's weekly workload was reduced by one day, while the others retained the same number of teaching days, reflecting a more balanced and preference-aware allocation. This new approach not only enhances operational efficiency but also fosters teacher satisfaction and well-being.

4 DISCUSSION

The results obtained in this study demonstrate that the Mixed-Integer Linear Programming model is capable of addressing the complexity of teacher workload allocation under the Brazilian new secondary education reform, while balancing operational efficiency and teacher preferences. The reduction in the number of presence days required from teachers and the automatic enforcement of the Physical Education court constraint illustrate significant managerial improvements.

Consistent with the literature (Fonseca et al., 2017; Góes, Costa, Steiner, 2010), the findings substantiate the robustness of exact approaches based on MILP, while also underscoring scalability challenges when applied to larger educational systems or multiple schools. Beyond the classical contributions, recent applications within the Brazilian New Secondary Education framework further attest to the practical relevance of exact optimization models (Vieira, Conte and Siqueira, 2024).

Despite these advances, some limitations must be acknowledged. The application was restricted to a single institution, which limits the generalization of results. Moreover, the reliance on specialized software (Julia/JuMP + Gurobi) may hinder immediate adoption by educational authorities. Another relevant point concerns solution time: while acceptable in the studied case, computational performance may become a bottleneck in larger-scale scenarios.

Future research should explore the adoption of techniques to accelerate model solving, such as:

- Problem decomposition methods (e.g., Benders, Dantzig-Wolfe), splitting the formulation into smaller subproblems;

- Hybrid algorithms combining MILP with heuristics or metaheuristics (e.g., GRASP, Genetic Algorithms, Simulated Annealing) to generate high-quality initial solutions;
- Enhanced preprocessing and cutting-plane strategies to reduce the search space;
- Use of parallelized solvers in cloud or high-performance computing environments, leveraging greater processing power.

The incorporation of these approaches could significantly reduce solution times, making the model more attractive for large-scale deployment across school networks.

5 CONCLUSION

This study demonstrated that Mixed-Integer Linear Programming can be effectively applied to teacher workload allocation under the Brazilian new secondary education reform. The proposed model successfully balanced operational efficiency with the satisfaction of individual teacher preferences, leading to a significant reduction in required presence days and the elimination of operational conflicts, such as the shared use of the Physical Education court.

The main contribution of this research lies in providing a decision-support tool for school managers that aligns institutional requirements with teacher well-being. However, it is acknowledged that the application to a single school limits the generalization of results, and that computational time may become a challenge when scaling up to larger school networks.

Future research should explore the adoption of techniques to accelerate model solving, such as decomposition methods and hybrid algorithms combining MILP with heuristics. These directions may enable the model to evolve into a more scalable and widely applicable solution for the Brazilian educational system.

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**PEDAGOGY OF COMPETENCIES AND TEACHING WORK: TENSIONS
BETWEEN INSTRUMENTAL TRAINING AND THE EMANCIPATORY
PERSPECTIVE**

**PEDAGOGIA DAS COMPETÊNCIAS E TRABALHO DOCENTE: TENSÕES
ENTRE A FORMAÇÃO INSTRUMENTAL E A PERSPECTIVA EMANCIPATÓRIA**

**PEDAGOGÍA DE LAS COMPETENCIAS Y TRABAJO DOCENTE: TENSIONES
ENTRE LA FORMACIÓN INSTRUMENTAL Y LA PERSPECTIVA
EMANCIPATORIA**

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ABSTRACT

This article analyzes the influence of the Pedagogy of Competencies on the reconfiguration of teaching work and contemporary conceptions of human development, highlighting how educational policies, marked by administrative logic and adaptation to market demands, subordinate pedagogical practices to a productivist bias. The article discusses the impact of this model on the intensification of teachers' tasks, the precariousness of their autonomy, and the dissemination of pragmatic perspectives that promote individual blame for academic failure. It also highlights the tension between technical training and critical development, clarifying that the pursuit of immediate results neglects structural conditions and impedes the consolidation of an emancipatory perspective. To this end, an analysis is conducted, based on a literature review, which allows us to understand the effects of the Pedagogy of Competencies on pedagogical practices and teacher development. Finally, the importance of objective working conditions is highlighted, linked to the valorization of a critical pedagogy that supports a democratic and humanizing educational project.

Keywords: Pedagogy of Competences. Teaching Work. Human Formation.

RESUMO

Este artigo analisa a influência da Pedagogia das Competências na reconfiguração do trabalho docente e nas concepções contemporâneas de formação humana, evidenciando o modo como políticas educacionais, marcadas pela lógica administrativa e pela adaptação às demandas do mercado, subordinam as práticas pedagógicas a um viés produtivista. Discute-se o impacto desse modelo na intensificação das tarefas do professor, na precarização de sua autonomia e na difusão de perspectivas pragmáticas que promovem a culpabilização individual pelo fracasso escolar. Ressalta-se, ainda, a tensão entre a formação técnica e o desenvolvimento crítico, esclarecendo que a busca de resultados imediatos negligencia as condições estruturais e impede a consolidação de uma perspectiva emancipatória. Para tanto, procede-se a uma análise, baseada em revisão bibliográfica, que permite compreender os efeitos da Pedagogia das Competências sobre as práticas pedagógicas e

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a formação docente. Ao final, aponta-se para a importância de condições objetivas de trabalho, articuladas à valorização de uma pedagogia crítica que sustente um projeto democrático e humanizador de educação.

Palavras-chave: Pedagogia das Competências. Trabalho Docente. Formação Humana.

RESUMEN

Este artículo analiza la influencia de la Pedagogía de las Competencias en la reconfiguración del trabajo docente y las concepciones contemporáneas del desarrollo humano, destacando cómo las políticas educativas, marcadas por la lógica administrativa y la adaptación a las demandas del mercado, subordinan las prácticas pedagógicas a un sesgo productivista. El artículo discute el impacto de este modelo en la intensificación de las tareas docentes, la precariedad de su autonomía y la difusión de perspectivas pragmáticas que promueven la culpabilización individual por el fracaso académico. También destaca la tensión entre la formación técnica y el desarrollo crítico, aclarando que la búsqueda de resultados inmediatos descuida las condiciones estructurales e impide la consolidación de una perspectiva emancipadora. Para ello, se realiza un análisis, basado en una revisión bibliográfica, que permite comprender los efectos de la Pedagogía de las Competencias en las prácticas pedagógicas y el desarrollo docente. Finalmente, se destaca la importancia de las condiciones objetivas de trabajo, vinculadas a la valorización de una pedagogía crítica que sustente un proyecto educativo democrático y humanizador.

Palabras clave: Pedagogía de Competencias. Trabajo Docente. Desarrollo Humano.

1 INTRODUCTION

The contemporary emphasis on the formation of skills, widely disseminated in public policies and in continuing education programs for teachers, translates into a redirection of the teaching work that goes beyond purely technical boundaries and invites us to reflect on the very meaning of education, especially when inserted in a context of transformations in the world of work. As the flexible accumulation regime (Harvey, 1992) reconfigures the notion of productivity, pedagogy becomes the target of the same logics that govern the market, which requires teachers not only to master school content, but also to adhere to models of rationalities typical of the productive sector, aligned with the hegemony of financial capital (Chesnais, 1996).

From this perspective, the Pedagogy of Competencies reaches the core of the teaching activity, directing the development of skills considered functional to the market, directly impacting the autonomy of the teacher, to the extent that it imposes that he responds to the demands of flexibility and employability. The neoliberal scenario, as highlighted by Antunes (2005), signals the wide dissemination of Toyotism beyond the factories, consolidating itself as a social strategy that aims to reconcile the achievement of consensus and the achievement of productive goals. To this logic, the Pedagogy of Competencies responds positively, as it introduces continuous training and systematic evaluations of teacher and student performance in the school, compromising the essential critical and formative dimensions.

It is no coincidence, therefore, that the introduction of this logic in schooling impacts the conception of human formation, shifting the teacher from a creative and political role to a condition of executing proposals whose objectives are linked to the increase of social productivity indices (Frigotto, 2010). Under the aegis of capital, increasingly subordinated to the interests of speculative rentism (Chesnais, 1996), education tends to consolidate the status of a mechanism of functional formation for the market, which often weakens the project of social emancipation and the full development of human potentialities.

The Pedagogy of Competences, in this context, is not limited to changes in teaching methods, but significantly alters the role of the teacher and the educational process itself. Based on this observation, this article analyzes how this pedagogy can transform teaching practice and redefine the conceptions of education, inserting them in a context of intense managerial rationalization. In this context, the critical dimension of pedagogical work faces constant pressures, either by the control exercised by public policies or by cultural hegemony

that, in school spaces, simultaneously promotes consent and coercion (Harvey, 2013; Mészáros, 2009).

Questioning the Pedagogy of Competencies implies questioning the supposed neutrality of discourses on teacher qualification, in a context of crisis of capital that strives to strengthen its ideological control over school education. The objective is to understand how the changes brought about by the Pedagogy of Competencies affect identity, teaching praxis and perspective of omnilateral human formation.

2 THE REPERCUSSION OF THE PEDAGOGY OF COMPETENCIES IN THE TEACHING WORK

Based on the logic of flexibility, adaptability, and efficiency, this pedagogical perspective shifts the focus from the teaching of content to the development of competencies and skills applicable to the demands of the labor market. In Brazil, its adoption gained strength from the 1990s onwards, especially as a result of educational reforms inspired by international organizations and the neoliberal agenda, which began to guide public policies for teacher training and curriculum organization.

Such changes are not limited to the sphere of educational policies, but have a decisive impact on the teaching work, redefining the role of the teacher in the face of the new demands for training imposed by the logic of flexible accumulation.

The Fordist requirement of mastery of expository techniques and "skill in eloquence", accompanied by "a good textbook" (Kuenzer, 1999, p. 168), is no longer enough for the teacher; It is necessary to adapt to new axes that emphasize the ability to manage plural didactic situations and incorporate the precepts of flexibility, productivity and continuous evaluation, according to the ideals of flexible accumulation. Consequently, since the 1990s, the World Bank, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organization for Economic Cooperation and Development (OECD) have advised that teacher training prioritizes the development of functional competencies and skills, with the school as the main space for preparing the workforce (Lima Filho, 2010).

As a result, at the same time that the model of the teacher "executor of pre-established programs" (Maués, 2003, p. 91) is overcome, policies are supported whose focus makes the teacher responsible for the students' learning results. Thus, under the justification of methodological deficiencies and the "mismatch" between school practice and the transformations in the world of work (Maués, 2003), the belief is disseminated that "in-service

training" would solve the gaps of a theoretical pedagogical nature. Such initiatives turn a blind eye to the "unsatisfactory preparation" of teachers and reinforce the thesis that, in order to overcome the "poor performance of students", it would be essential to act according to standards of flexibility and adherence to goals, as occurs in business management (Brasil, 2001).

Thus, pedagogical practices begin to incorporate elements of Toyot's organizational culture, such as the encouragement of a "new professional profile" based on the performance of multiple functions and constant willingness to meet the demands of the market. The 2017 Brazilian High School Reform itself, by welcoming into schools professionals without specific training in their areas, evidences the valorization of practical skills and specific competencies to the detriment of robust academic and scientific training. Such flexibility of the requirements for teaching is supported by the thesis that theory would be an obstacle to renewal, camouflaging a posture that tends to make the teaching work more precarious and to detract from pedagogical knowledge essential to the critical understanding of schooling itself.

Under these conditions, the understanding that the classroom should be an environment of "permanent learning of its agents" (Brasil, 2001, p. 99) is consolidated, attributing to the teacher responsibility for conducting contents, but also constant self-reflection that positions him as a "subject of his knowledge" (Brasil, 2001, p. 232). Accompanying this apparent autonomy is the intensification of demands for results, as the competential logic emphasizes the individual and his or her abilities, generally ignoring the structural problems that affect the school. In other words, pedagogical flexibility, which requires planning, executing, evaluating and managing conflicts in the classroom, hides the existence of external control – supported by international reports and centralized policies – and guides what should be taught and how teaching work should be evaluated (Contreras, 2012).

The reorganization of pedagogical practices based on the logic of competencies goes beyond a simple didactic reorganization, by encouraging the adoption of a proactive, entrepreneurial posture that is psychologically aligned with the institution's objectives; impacts the way the teacher perceives himself. At the same time, the responsibility for school failure is often attributed to their performance, consolidating the idea that the "re-education of educators" would constitute a solution to the challenges of education (Giannotti, 2013). This view, however, disregards the economic and political factors that influence the entire training process.

The position taken in this article is that the orientation described above tends to reduce the school to a training space, weakening the critical and transformative potential of the act of teaching. This position is corroborated by the following passage from Duarte (2001), who quotes Perrenoud (1999):

Perrenoud states that "the formation of competencies requires a small 'cultural revolution' to move from a logic of teaching to a logic of training (coaching), based on a relatively simple postulate: competencies are built by exercising themselves in complex situations" [...] (Perrenoud, 1999, p. 54 *apud* Duarte, 2001, p. 35).

If, on the one hand, teaching practices have been assimilating new methodological and technological resources, on the other hand, the core of pedagogical autonomy is subordinated to norms of efficiency and immediate results, imposing on the teacher the adaptation to the demands of an unstable and competitive world of work.

Thus, the thesis of the "reflective teacher" thrives, conceived as one who, by dialoguing with reality, would be able to "learn to learn" (Duarte, 2008, p. 5), who adapts almost automatically to the changes required by the productive restructuring. This, however, rarely exposes the historical roots of such changes, as if the teaching profession should simply follow in a pragmatic way "the productive logic operated by the Toyota production system" (Martins, 2015, p. 11).

The valorization of self-reflection, conceived as a cycle of "action-reflection-action", often maintains that improvement in education is exclusively linked to the supposed lack of skills of the teaching staff. From this presumed individual deficiency, "practical solutions based on the fetishism of technological innovation and the ideology of professionalism" emerge (Silva; Heloani; Piolli, 2012, p. 376). These alternatives reinforce the "constant search for improvements" while aligning with the people management processes of the business model, how to do it (Kaizen³). Such ideas are linked to the premise that historical or theoretical reflection is secondary, because, according to this premise, the school daily life requires quick responses to the multiple conflicts that emerge within it. In this context, there is a resistance to recognizing in the teacher the ability to construct syntheses that transcend the fragmentation of the "estranged daily life" (Duarte, 2008), as the mastery of techniques and repertoires is prioritized to respond quickly to the challenges of the classroom.

This process becomes even more evident in the face of the lack of concrete conditions

³ Japanese philosophy that emphasizes continuous improvement in all aspects of personal and professional life.

for what Heller (1972) calls the "exit from everyday life", understood, according to Guimarães (2002, p. 19), as "the human awareness of the unity between being particular and being generic". Under the logic of productivity, the teacher faces an overload of administrative and pedagogical responsibilities, from which he is constantly pressured to develop collaborative work strategies, engage in projects and master systematic evaluation methods.

In a similar way, the demands for "continuous improvement" are transformed into almost uncontested mandates, diverting the focus from a critical analysis of the alienating conditions of the teaching work. Material precariousness, as well as the lack or lack of quality of public policies for teacher training, induces the treatment of structural issues as individual deficiencies, whose overcoming is attributed exclusively to the teacher's personal effort.

To this extent, the so-called reflexivity is supported by references that, according to Martins (2015), privilege the development of "self-training strategies", reinforcing the thesis of the egocentric individual who adapts immediately to the circumstances, without questioning the bases that generate such flexibility requirements. The unfolding of this perspective accentuates the submission of the school to the dictates of the market, while hiding the context of the structural crisis of capital, implicit in the productive restructuring (Alves, 2011). Thus, if the socioeconomic system requires "polyoperators" within the factories (Alves, 2011, p. 50), the school institution starts to produce "polyteachers", who not only teach, but are also responsible for multiple attributions, from the dissemination of social values to the development of methodologies and conflict management.

As a result, the fundamental values of education, linked to integrated and critical human formation, are overshadowed by the insistence on shaping "entrepreneurial" individuals and prone to uncritical adaptation. The very idea of the "reflective teacher" often disguises the business direction that permeates the school routine, reducing "the ability to handle concrete situations" (Martins, 2015, p. 11) to the ability to solve immediate problems, without considering the complexity of the historical mediations involved.

It is, therefore, a redirection of pedagogical forces towards the elaboration of short-term solutions, to the detriment of formative projects that could effectively break with the alienation of teaching work.

At this point in the exposition, it includes a clarification of the theoretical framework that sustains the analysis contained herein, the conception of the educational act by Dermeval Saviani (2013, p. 13): "educational work is the act of producing, directly and intentionally, in each singular individual, the humanity that is historically and collectively

produced by the set of men". Roteski and Derisso (2021) interpret Saviani's quote as follows:

We learn from this passage that the intentional educational act concerns the role of the educator in the broad sense, but also refers us to the reflection of school education in capitalist society, whose intentionality tends to be determined by the bourgeois educational project that denies the historically produced humanity and stimulates the ideological reproduction of the system. And as an intentional act, it is necessary to consider the effects not only of the official teaching programs elaborated by state agents, but also the individual action of the teacher or of a group of teachers who are guided by building a counter-hegemonic alternative within the state school, in the sense of facing the character of ideological reproduction that it tends to assume due to the pressures of capitalism (Roteski; Derisso, 2021, p. 1199).

The demands of the market, in this scheme, are consolidated as the ultimate parameter of the proposals for teacher training and evaluation, deepening the mismatch between the socio-political mission of the school and the instrumentalization of its practices at the service of the reproduction of social relations marked by precariousness and competitiveness.

In addition, in the midst of Toyot's productive restructuring, from which "knowledge became potentially more important for the productive process than it was before the 1970s" (Marcelino, 2004, p. 81), the idea was established that teachers should shape their practice to develop "linguistic skills and abilities" (Brasil, 1998, p. 23), at the same time that the transmission of structured scientific knowledge is expected. This tension significantly affects the organization of the teaching work, because reconciling the demand for immediate pragmatic results, based on the "fetishism" of competencies, with the formative responsibility of transmitting historical and systematized contents, places the teacher in a permanent state of overload and redefinition of priorities.

Beyond a simple alternation between theoretical content and practical skills, we are faced with a phenomenon in which the precariousness of the teaching career and the absence of public policies for educational financing remove the possibility of maintaining a teaching committed both to the apprehension of scientific knowledge and to the development of skills aimed at democratic participation and the critical exercise of citizenship. Thus, it is a fundamental requirement to ensure adequate time and working conditions so that the teacher can plan and execute tasks that are not just "simulations" of situations, but formative experiences that ensure reflective thinking and the effective appropriation of historically accumulated knowledge.

3 HUMAN FORMATION FROM THE PERSPECTIVE OF THE PEDAGOGY OF COMPETENCIES

The adoption of the Pedagogy of Competencies as a structuring axis of curricula and public policies induces the issue of human formation, as it indicates the risk of prioritizing instrumental dimensions to the detriment of the integral formation of the subject. From this perspective, we found that the emphasis on "acting effectively" (Perrenoud, 1999, p. 7), supported by knowledge, but not limited to it, promotes a redistribution of educational objectives, as the ability to solve practical problems becomes central, while the notion of education aimed at the emancipation of the individual tends to be reconfigured in terms of social utility and employability. In this sense, when, "[...] instead of starting from a body of existing disciplinary contents, [...] one starts from concrete situations" (Ramos, 2002, p. 221), there is the risk of emptying the value of knowledge considered fundamental to the historical and cultural understanding of the subjects, reducing training to punctual and immediate aspects.

We cannot ignore that human education, as developed by the Pedagogy of Competences, dialogues with the demands of a market that demands "efficient human capital" (Dias; Lopes, 2003, p. 1156) and individuals capable of quickly adjusting to fluctuations in the economic scenario. The international and national guidelines that foster this perspective reinforce the idea that education should guarantee skills compatible with productivity, shifting the responsibility for the so-called "social failure" to the school (Santomé, 2011). When this failure occurs, the supposed inability of the school to engender the profile of the flexible worker required by the new productive dynamics is blamed, contributing to what Flickinger (2010, p. 179) calls "growing alienation in relation to the experiences of the world of life".

However, if the articulation between practice and broader knowledge is not thought of critically, there is a risk of "educating the citizen to adapt flexibly to the new conditions of occupation" (Brasil, 1998), emptying the possibility of a formative project that contemplates the totality of the being, the ethical, aesthetic and political values indispensable to a citizen consciousness. At this point, the critique of instrumental rationality outlined by Frigotto (1996, p. 93) reinforces the perception that, in societies that are "strongly unequal and subordinated to the exclusionary global market", education by competencies can easily become an apparatus for legitimizing competitive and individualistic logics. Therefore, the tension persists between the contribution of a pedagogical proposal that values learning by doing and

the limitations imposed by the hegemony of a social project that centralizes training on the horizon of performance, "know-how" and productivity.

We highlight, however, a greater challenge: to reconcile the development of practical skills required by the new times with the construction of a human education that does not renounce the reflective and critical dimension. Such conciliation would necessarily involve a review of teacher training policies, in the sense that the teacher is not limited to being the executor of didactic techniques, but that he or she is the subject of reflections on the purposes of education. Only in this way will it be possible to oppose the reduction of man to a simple "human resource" and rescue, in its multiple possibilities, the "maximum education" (Flickinger, 2010, p. 177) that refers to the very essence of educating: that of a process committed to constituting full subjects, capable of critically understanding their historical time and of intervening by transforming it.

In this scenario, we observe a constant tension between technical training and critical development. In the Pedagogy of Competencies, this tension is evident in a clear way, since the emphasis on the mastery of practical skills can leave aside formative aspects with an emancipatory character, which are fundamental for teachers and students to understand and reflect on the social world. In addition, in a context in which the teaching work is subordinated to the capitalist logic and faces processes of fragmentation, training tends to acquire a technicist character, reducing pedagogical practice to the simple application of methods, as if it were possible to detach it from theoretical foundations and a broader view of reality.

This approach is supported by several mechanisms – curriculum policies, continuing education programs anchored in efficiency goals or even the valorization of short-term practices – that sustain a notion of "competence" linked to rapid and adaptive results, as if the teaching profession were equivalent to assembly line work. However, educational activity is characterized by aspects that go beyond material production, because "in immaterial production, there is a 'production that is inseparable from the act of producing'" (Marx, 1980, p. 404). Thus, the teacher not only elaborates a "product" that can be separated from its production process; it acts directly on subjects in formation, intermediating knowledge and values that imply the social and historical dimension of these students.

The separation between technical training and critical development often appears in the debate on the "valorization of practical knowledge" to the detriment of "systematized knowledge" that would enable a more comprehensive reading of the contradictions that cross the school (Enguita, 1991). If, on the one hand, the technical emphasis meets the demands

of the market for workers capable of operationalizing methods and "solving immediate problems" (Schön, 2000), on the other hand, it can empty the intellectual autonomy of the teacher, inserting a conception of practice as an instrumental application of techniques. In this logic, teacher education is converted into training for specific competencies and is diluted in a properly reflective dimension, which weakens the possibility of the teacher assuming the role of "transformative intellectual" (Giroux, 1997, p. 71).

The perspective of an emancipatory education presupposes conceiving the school as a contradictory space, in which the teacher can assume postures of resistance and collective action (Enguita, 1991), despite the mechanisms of control and rationalization. In this scenario, research and theoretical reflection must occupy a central place: research is not spoken of as a mere subjective observation of one's own practice, but as the production of knowledge that goes beyond common sense and approaches methodologically rigorous analyses, capable of revealing the contradictions that underlie the appearance. By restricting oneself to the instrumental dimension of work, one runs the risk of falling back into a "new technicality" disguised by reflective language, but based on the uncritical objective of developing competencies and skills.

Teacher training that integrates theory and practice as praxis requires a conception of school work that values both the specificity of the act of teaching and its insertion in social, political and economic relations. Thus, the teacher is not only an "autonomous professional" who applies neutral techniques, but is inserted in class dynamics, with the power to combat alienation. To advance in this direction, the teacher needs a solid theoretical basis that makes it possible to critically analyze society and his own activity, and to offer spaces for collective organization that go beyond isolated actions (Enguita, 1991).

The logic according to which school success depends on the combination of individual merits and test results transfers to teachers the responsibility for achieving a "high Basic Education Development Index (IDEB)", while neglecting the working conditions and continuing education of teachers. Under the argument of effectiveness, conceptions such as "training and product education" (Fernandes, 2015, p. 402) emerge, which promote the "taskmaster teacher" and the "student marks x", reducing teaching and learning to a technical and repetitive practice.

In this context, it is foreseeable that standardized evaluations, designed as instruments of "comparison, classification and selection" (Sousa, 2003, p. 188), will intensify the exclusion of groups already affected by the insufficiency of public policies. The meritocratic logic, by

ignoring "economic and social factors" (Sousa, 2003, p. 182), maintains that "everyone can compete on equal terms", reinforces the responsibility of teachers and students for school failure, without facing the problem of existing inequalities. Thus, curricular content is reduced and measurable results are prioritized, configuring a "game of winners and losers very much to the taste of business logic" (Freitas, 2013, p. 123).

This logic, often referred to as accountability, seeks to give legitimacy to supposedly objective diagnostic policies and ends up normalizing "inter-institutional competition" as a catalyst for a supposed "creative motivation" (Brooke, 2013, p. 111). From this orientation, the worsening of inequalities and internal tensions in schools is made invisible, as well as the growing precariousness and devaluation of teaching work, since such dimensions do not fit into the technical parameters of evaluation and control proposed by this rationality. In this way, meritocratic rhetoric and large-scale evaluation devices, presented as neutral instruments for quality improvement, produce inverse effects, deepening inequalities and mechanisms of control over the teaching work.

In reality, the application of standardized tests and the awarding of the "best" tend to reinforce a dynamic that intensifies social segregation and deepens the processes of blaming teachers. At the same time, the adoption of socio-emotional competencies in the list of supposed "solutions" to the ills of public education (Santos, 2018; Silva, 2015) illustrates the manipulation of the subjectivity of teachers and students as the target of interventions that prioritize adaptability, resilience, and behavioral control.

In this context, the pedagogical implications are profoundly significant: the proposal of a "lean" curriculum (Fernandes, 2015, p. 402) limits the capacity to develop criticality, intellectual autonomy and cultural diversity; the prioritization of "quantifiable skills" restricts scientific, historical, and artistic knowledge; the emphasis on extrinsic motivation – through bonuses, awards and rankings – reinforces distortions, privileges the logic of performance and creates an environment in which "evaluation is seen as the possibility of measuring knowledge that, in turn, can be measured, devoid of any complexity and subjectivity" (Fernandes, 2015, p. 402), compromising the principles of an emancipatory education, widely defended in the context of public schools.

Finally, it is important to highlight that the ideological effects of the Pedagogy of Competencies go beyond the discourse: by being linked to teacher accountability policies, this approach consolidates a vision in which the school must meet the demands of the market, transferring to teachers and students the responsibility for presenting increasingly effective

"performances". In this model, structural contradictions – such as poverty, job insecurity, and urban segregation – are hidden by narratives that emphasize "individual capacity." The result is the validation of a project that, while promising quality, often extends the exclusion of the less fortunate. As Sousa (2003, p. 188) warns, "educational policies when contemplating [...] comparison, classification and selection" promote exclusion, which is in direct conflict with the principle of "everyone's right to education". If the objective is to build an inclusive and critical public school, it is essential to recover the collective and democratic character of pedagogical practice, highlighting the emancipatory function of knowledge. This requires moving away from metrics and rewards that, rather than promoting equality, perpetuate social inequalities.

4 CONCLUSION

In this article, we argue that the Pedagogy of Competencies has introduced practices and assumptions that challenge the essence of education, especially with regard to the teaching work and the conception of human formation. By focusing on flexibility, efficiency and adaptation to market demands, this approach tends to reduce the political-critical nature of teaching, treating the teacher as an "executing agent" of productive objectives, which limits their opportunities for autonomous and reflective action. As a result, essential elements of integral education, such as democratic participation, the capacity for historical questioning, and the critical analysis of the contradictions of the system, are relegated to the background.

The dissemination of managerial goals and mechanisms of teacher accountability, supported by large-scale evaluations, reinforces this logic, subjugating pedagogical activity to productivity parameters that ignore the various economic and sociocultural influences present in the daily life of schools. This scenario is aggravated when the rhetoric of innovation and "learning to learn" becomes an instrument of individual blame, treating educational problems as the exclusive responsibility of teachers or their supposed lack of competence. The overvaluation of pragmatism, in turn, creates a sense of urgency that, disguised as technical neutrality, masks the transformations in the curriculum and in the teacher's identity, making it more difficult to criticize the precariousness of work and the strong influence of capitalist interests in the formulation of educational policies.

In this context, reaffirming an emancipatory and critical perspective requires, on the one hand, the strengthening of policies that guarantee objective conditions for the exercise of teaching – such as quality initial and continuing education, fair remuneration and adequate

school infrastructure – and, on the other hand, the promotion of a pedagogical practice that values, in fact, collective involvement, consistent theoretical reflection and articulation with social movements. In this way, the school space can recover its public and democratic dimension, becoming an environment of integral education for all. Facing this challenge means, therefore, questioning the bases of the competentialist discourse, rejecting the logic that naturalizes unbridled competition and the instrumentalization of knowledge for almost strictly professional purposes. Only in this way will the school be able to reaffirm its commitment to an education that goes beyond the immediate demands of the market, cultivating ethical, political and aesthetic values capable of boosting social transformation and human development from the opening of real possibilities of access to the most developed knowledge.

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**PARADIGMATIC CHANGES IN THE PRONOMINAL SYSTEM: A
SOCIOLINGUISTIC ANALYSIS OF THE THIRD PERSON PLURAL IN CAXIAS**

**MUDANÇAS PARADIGMÁTICAS NO SISTEMA PRONOMINAL: UMA ANÁLISE
SOCIOLINGÜÍSTICA DA TERCEIRA PESSOA DO PLURAL EM CAXIAS**

**CAMBIOS PARADIGMÁTICOS EN EL SISTEMA PRONOMINAL: UN ANÁLISIS
SOCIOLINGÜÍSTICO DE LA TERCERA PERSONA DEL PLURAL EN CAXIAS**

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ABSTRACT

The completion of the pronominal subject is a recurring phenomenon in Brazilian Portuguese (BP), especially in structures that employ the third-person plural. The alternation between the completed subject (they/them/the personal) and the null subject ($\emptyset$) constitutes a syntactic variable that has attracted the attention of several language scholars due to reflective processes of change and variation in BP grammar. This article, based on Variationist Sociolinguistics, investigates the completion of the pronominal subject in the third-person plural in the speech of the Caxias community, located in the interior of Maranhão. The main objective is to describe the linguistic and social factors that condition the realization of the completed forms (they/them/the personal) as opposed to the null subject ($\emptyset$). To this end, interviews with 72 informants, stratified by sex, age group, and education, were tested based on the parameters of Variation Theory. Quantitative data analysis was performed using the GoldVarb X program. The results demonstrate that the subject's completion occurs with a frequency of 61.2%, favored primarily by the presence of elements between subject and verb, gerund verb tense, disyllabic verbs, interrogative sentences, and a higher level of elementary education. The study reinforces the hypothesis of an ongoing change in Brazilian Portuguese, in which the third-person plural tends to be completed.

Keywords: Variationist Sociolinguistics. Pronominal Subject. Linguistic Variation. Brazilian Portuguese.

RESUMO

O preenchimento do sujeito pronominal é um fenômeno recorrente no português brasileiro (PB), especialmente nas estruturas em que se emprega a terceira pessoa do plural. A alternância entre o sujeito preenchido (eles/elas/o pessoal) e o sujeito nulo ($\emptyset$) constitui uma

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variável sintática que tem atraído a atenção de diversos estudiosos da linguagem por refletir processos de mudança e variação na gramática do PB. Este artigo, fundamentado na Sociolinguística Variacionista, investiga o preenchimento do sujeito pronominal na terceira pessoa do plural na fala da comunidade caxiense, localizada no interior do Maranhão. O objetivo principal é descrever os fatores linguísticos e sociais que condicionam a realização das formas preenchidas (eles/elas/o pessoal) em oposição ao sujeito nulo (Ø). Para tanto, foram analisadas entrevistas de 72 informantes, estratificados por sexo, faixa etária e escolaridade, com base nos parâmetros da Teoria da Variação. A análise quantitativa dos dados foi realizada por meio do programa GoldVarb X. Os resultados demonstram que o preenchimento do sujeito ocorre com frequência de 61,2%, sendo favorecido, sobretudo, pela presença de elementos entre sujeito e verbo, tempo verbal no gerúndio, verbos dissílabos, sentenças interrogativas e nível de escolaridade fundamental maior. O estudo reforça a hipótese de mudança em curso no português brasileiro, no qual a terceira pessoa do plural tende ao preenchimento.

Palavras-chave: Sociolinguística Variacionista. Sujeito Pronominal. Variação Linguística. Português Brasileiro.

RESUMEN

El llenado del sujeto pronominal es un fenómeno recurrente en el portugués brasileño (PB), especialmente en las estructuras en las que se emplea la tercera persona del plural. La alternancia entre el sujeto explícito (ellos/ellas/el personal) y el sujeto nulo (Ø) constituye una variable sintáctica que ha atraído la atención de diversos estudiosos del lenguaje por reflejar procesos de cambio y variación en la gramática del PB. Este artículo, basado en la Sociolingüística Variacionista, investiga el llenado del sujeto pronominal en la tercera persona del plural en el habla de la comunidad de Caxias, ubicada en el interior de Maranhão. El objetivo principal es describir los factores lingüísticos y sociales que condicionan la realización de las formas explícitas (ellos/ellas/el personal) en oposición al sujeto nulo (Ø). Para ello, se analizaron entrevistas a 72 informantes, estratificados por sexo, grupo etario y nivel educativo, tomando como base los parámetros de la Teoría de la Variación. El análisis cuantitativo de los datos se realizó mediante el programa GoldVarb X. Los resultados demuestran que el uso explícito del sujeto ocurre con una frecuencia del 61,2%, siendo favorecido principalmente por la presencia de elementos entre el sujeto y el verbo, el tiempo verbal en gerundio, verbos bisílabos, oraciones interrogativas y un nivel de educación primaria más alto. El estudio refuerza la hipótesis de un cambio en curso en el portugués brasileño, en el cual la tercera persona del plural tiende a aparecer explícita.

Palabras clave: Sociolingüística Variacionista. Pronombre Sujeto. Variación Lingüística. Portugués Brasileño.

1 INTRODUCTION

Language, as a social phenomenon, is characterized by its dynamic nature, subject to variations that reflect the heterogeneity of speech communities. In this context, Variationist Sociolinguistics offers a theoretical and methodological framework to understand the processes of linguistic variation and change in natural languages.

This study focuses on filling in the pronominal subject in the third person plural in the speech of the urban community of Caxias (MA), observing the forms *they/them* and *the personal*, in contrast to the null subject.

Lucchesi (2009) starts from an empirical and variationist perspective, centered on the observation of the natural speech of Afro-Brazilian communities that preserve historical linguistic traits. This methodological choice is fundamental because it allows us to analyze the phenomenon of the pronominal subject in contexts marked by African influence and irregular linguistic transmission, factors that may have played a relevant role in the configuration of popular Portuguese. Thus, the author seeks to understand how the use or erasure of the subject pronoun manifests itself in varieties with a strong Afro-descendant sociocultural heritage.

The author also shows that the erasure of the subject does not occur randomly, but is conditioned by linguistic factors. When the referent has already been mentioned or is easily retrievable in the discourse, the omission of the pronoun becomes more likely. This observation reinforces the principle of linguistic economy and demonstrates that pragmatic and syntactic rules interact in the structure of Afro-Brazilian Portuguese, bringing it closer to other null subject languages and highlighting the internal and systematic functioning of these varieties.

Based on the hypothesis that Brazilian Portuguese has been going through a process of change from a language of null subject to a language of full subject (Duarte, 1993; Mollica, 2007), this research seeks to answer the following questions: (i) is there a greater frequency of filling in the subject in the third person plural? and (ii) what linguistic and social factors contribute to this achievement?

Based on data from interviews with 72 informants, stratified according to sex, age group and education, and statistically analyzed through the *GoldVarb X program*, this article aims to contribute to the understanding of the conditioning factors that govern the use of the completed subject and, consequently, to the consolidation of the hypothesis of an ongoing change in Brazilian Portuguese.

2 VARIATIONIST SOCIOLINGUISTICS

Variationist Sociolinguistics, developed by William Labov (2008), is based on the principle that linguistic variation is systematic and conditioned by factors internal and external to the language. Language is understood as a social phenomenon, whose variable forms reveal regular patterns when statistically analyzed. Labov proposes that languages vary because they are constantly changing, and this change is motivated by the role of speakers in specific social contexts.

Linguistic heterogeneity is therefore an inherent characteristic of linguistic systems. According to Mollica (2003), variation and change must be understood within a set of multiple, simultaneous and predictable conditionings. For Santos (2008), the existence of more than one way to express the same content does not compromise the functionality of the language, but reinforces its flexibility in the face of the communicative demands of society.

This approach breaks with the traditional view of structuralist linguistics, especially that proposed by Saussure (2006), which treated language as a homogeneous and stable system. Labov, on the contrary, argues that heterogeneity is not noise, but a constitutive part of the linguistic system – and more: that it is precisely variation that sustains linguistic change.

In the Brazilian context, scholars such as Bortoni-Ricardo (2004), Tarallo (1997), Lucchesi *et al.* (2012) and Scherre (2005) were fundamental to adapt and consolidate the assumptions of Variationist Sociolinguistics to the linguistic realities of the country. Bortoni-Ricardo (2004), for example, highlights the importance of considering the social and historical contexts of speech communities, understanding language as a social practice permeated by identities, power relations and social mobility.

Scherre and Naro (1991), in their studies on verbal agreement, demonstrated how linguistic and social factors — such as class, education and age group — influence the realization or omission of morphosyntactic traits in Brazilian speech, which evidences the regularity of variation and contributes to the elaboration of probabilistic rules.

In addition, the statistical methodology adopted by Variationist Sociolinguistics — through programs such as *GoldVarb X* — allows quantifying and interpreting the influence of conditioners on the choice between variants. This approach enables the researcher to identify patterns of use, relationships between competing forms and, above all, to map signs of linguistic changes in progress.

Finally, Variationist Sociolinguistics is also intertwined with other dimensions, such as linguistic attitudes, the social prestige attributed to certain variants, and the perception of the

"error" or the "norm". Thus, the need to understand variation not only as a descriptive phenomenon, but as an expression of social identities, discourses about language, and symbolic disputes around linguistic legitimacy is reaffirmed.

3 FILLING IN THE SUBJECT IN BRAZILIAN PORTUGUESE

From the variationist perspective, several studies have pointed to an ongoing process of change in Brazilian Portuguese (BP), which progressively distances it from European Portuguese (EP), especially with regard to the completion of the pronominal subject. According to Duarte (1993, 1995), BP, traditionally classified as a null subject language (*pro-drop*), has been assuming characteristics of a full subject language, with increasing use of explicit pronouns even when the context already offers sufficient clues for their omission.

This change has been attributed to the loss of strength of the verbal inflectional paradigm in BP, which makes the subject less recoverable only by verbal endings. Studies such as those by Galves (1987), Kato (1993, 1994), Nunes de Souza *et al.* (2010) and Lucchesi (2009) reinforce this hypothesis, observing a higher frequency in the use of completed subjects in oral and written productions.

Lucchesi (2009) starts from the notion of "null subject parameter" (*pro-drop*) within the theory of generative grammar (i.e.: in some languages the pronominal subject may not appear if it is retrievable by the verb or context). He applies this notion to the Afro-Brazilian rural varieties (communities in Bahia: Helvécia, Cinza, Barra/Bananal) to see to what extent the subject can or cannot appear ("be realized") or remain erased ("zero subject") in these speeches. One of the relevant findings: of the 4,599 occurrences of pronominal subject in these communities, in 1,255 of them the subject was erased, which corresponds to about 27% of null subject realization.

According to the researcher, the level of null subject in these communities is not so far from what is found in cultured urban varieties of Brazilian Portuguese, which contradicts initially more extreme expectations for these Afro-Brazilian-speaking communities. He points out factors that favor the null subject in this variety: for example, when there is a co-reference with an antecedent or when the verb has an inflectional ending capable of recovering the subject. Also the discursive context (for example: if the subject was already "implicit" in the previous sentence) favors the cancellation of the subject pronoun. In addition, the author distinguishes two types of "fitting": linguistic (i.e., factors internal to grammar and speech)

and social (social variables such as age group, education, stay outside the community) to explain variation in the realization of the pronominal subject.

This phenomenon is also often related to processes of syntactic and pragmatic restructuring of the language, influenced by internal factors (such as the erosion of inflectional marks) and external factors (such as the pressure of the cultured norm and the school). Kato (1999), for example, points out that the increase in the use of personal pronouns is linked to the need for greater communicative clarity, especially in contexts where there is greater referential ambiguity. Galves and Farinheira (2000) indicate that the tendency to fill in the subject is more pronounced in urban varieties of Brazilian Portuguese, especially among speakers with less formal schooling.

In addition, authors such as Lopes and Cyrino (2005) point out that the change underway in BP does not occur homogeneously in all varieties of Portuguese spoken in Brazil. In some communities, especially in the North and Northeast regions, there is a more accentuated coexistence between null and fulfilled subjects, which highlights the complexity and diversity of the process of change.

From a sociolinguistic point of view, the variation in the use of the pronominal subject also reflects patterns of prestige and linguistic stigmatization. As observed by Duarte (2004), the use of the filled subject, even when grammatically unnecessary, tends to be associated with a more "correct" speech on the part of speakers, especially in the school environment. This shows that the phenomenon cannot be understood only at the grammatical level, but also at the level of representations and linguistic attitudes.

In summary, the completion of the subject in Brazilian Portuguese reveals an ongoing syntactic change that dialogues with morphosyntactic, pragmatic and sociocultural factors. Such a change not only brings BP closer to non-pro-drop languages, such as English and French, but also points to the reconfiguration of the relations between orality and cultured norm in the Brazilian scenario.

4 METHODOLOGY

The research was developed based on the theoretical-methodological assumptions of Variationist Sociolinguistics (Labov, 2008), prioritizing the observation of the language in use in real contexts of interaction. The corpus consists of 72 interviews conducted with speakers from the urban area of Caxias, Maranhão, participants in the project "Linguistic Attitudes of

Speakers of Maranhão" (ALFMA), under the coordination of Prof. Dr. Antônio Luiz Alencar Miranda.

The informants were stratified according to three social variables: sex (male and female), age group (18–30, 31–49, 50 years or older), and education (lower elementary, higher elementary, high school, and higher education). The sampling followed the triple cross model (2 x 3 x 4), resulting in 24 combinatorial profiles, with three individuals per profile, totaling 72 participants.

The interviews, of a semi-structured nature, addressed various topics and were conducted spontaneously, with an average duration of one hour. The data were transcribed and organized according to the "envelope of variation" method, including:

- **Dependent variable:** filling in the subject in the 3rd person plural (they/them ~ the personal ~ Ø).
- **Linguistic independent variables:** subject-verb proximity, verb tense, number of verb syllables, sentence type.
- **Independent social variables:** age group, education and gender.

The quantitative analysis was carried out with the aid of the *GoldVarb X program*, which calculates the relative weights of the variables to determine the conditioning factors for the application of the variant. The data were coded according to the criteria established for statistical processing, in order to identify patterns and trends in the realization of the pronominal subject in the investigated community.

5 RESULTS AND DISCUSSIONS

This study revealed that filling in the subject in the third person plural is the predominant form in Caxias speech, with a frequency of 61.2% of the occurrences, compared to 38.8% of null subjects. These data reinforce the hypothesis of an ongoing change in Brazilian Portuguese, as proposed by Duarte (1993), suggesting a tendency towards the increasing use of explicit pronominal subjects.

Table 1

Frequency of completion of the subject they, they and the staff

Pronoun	Application	Total Occurrences	Frequency
Filled	563	920	61,2%
Not Filled	357	920	38,8%

Source: The authors.

The statistical analysis of the data, conducted using the *GoldVarb X program*, identified five variables as significant for the choice of the subject filled in the third person plural: the presence of an element between subject and verb, the verb tense, the number of syllables of the verb, the type of sentence and the speaker's education. Next, these variables are discussed in the light of the foundations of Variationist Sociolinguistics.

Regarding the subject-verb proximity variable, completion was favored when there was an element between the subject and the verb, with a relative weight of .63. This data indicates that the syntactic distance between the constituents contributes to the explanation of the subject, possibly by facilitating the processing of information by the listener.

The insertion of elements between the subject and the verb, such as adverbial adjuncts or objects, was one of the conditions that most favored the use of the completed subject. This finding is in line with the principles of economics and information processing. According to Givón (1983), when there is a distance between the central constituents of the sentence, the filling of the subject becomes a strategy to maintain referential cohesion and avoid ambiguity. On the syntactic-discursive level, it is a resource that favors the anchoring of the referent in the flow of speech, ensuring its cognitive salience (Duarte, 1995).

Table 2

Filling in the subject in the 3rd person plural and Proximity of the subject to the verb

Proximity of the subject to the verb	Application	Total Occurrences	%	Relative Weight
Subject linked to the verb	404	705	57,3	.45
Element between the subject and the verb	159	215	74	.63
Total	563	919		Input. 629

Source: The authors.

In the variable verb tense, the use of the filled subject was more frequent with verbs in the gerund with .82 of relative weight and in the infinitive .67, followed by the present .54 of

relative weight. This result suggests that more marked verb forms favor completion, reinforcing the search for communicative clarity.

Table 3

The completion of the subject in the 3rd person plural and the verb tense

Verb Tense	Application	Total Occurrences	%	Relative Weight
Past	158	287	55,1	.38
Present	376	594	63,3	.54
Future	15	23	65,2	.49
Infinitive	5	6	83,3	.67
Gerund	9	10	90,0	.82
Total	563	920		Input. 629

Source: The authors.

Verbs in the gerund and infinitive showed higher rates of pronominal completion. These verb forms, due to their non-finitive form, carry less inflectional load and, therefore, make it difficult to clearly identify the subject through verbal morphology. This data reinforces the hypothesis that the loss of inflectional marks in BP has a direct impact on the subject's recovery (Galves & Farinheira, 2000; Kato, 1999). In finite tenses, such as the present and the past tense, a certain recovery is still observed through verbal ending, but the use of the pronoun is maintained as a form of referential reinforcement.

Regarding the variable number of verb syllables, disyllabic verbs had the highest .65 completion rate of relative weight, followed by .55 polysyllables. This data contradicts the expectation that longer verbs would require more explicit subjects, pointing to a complex interplay between prosody and syntax.

Table 4

The completion of the subject in the 3rd person plural and the number of syllables of the verb

Number of Verb Syllables	Application	Total Occurrences	%	Relative Weight
Monosyllable	146	297	49,2	.32
Disyllabic	225	295	76,3	.65
Trisyllable	118	210	56,2	.49
Polysyllabic	74	118	62,7	.55
Total	563	920		Input .629

Source: The authors.

Completion was favored by disyllabic verbs and, to a lesser extent, by polysyllabic verbs. This variable may be associated with prosodic and rhythmic speech issues. The results found in this research reinforce the observations of Scherre and Naro (1991) by showing that

prosodic and rhythmic aspects play a relevant role in the organization of speech and, consequently, in the choice between variants. The tendency to fill the subject in shorter verbs indicates that the speaker seeks to maintain a balanced and natural cadence in enunciation, which confirms the hypothesis that linguistic variation is not limited to morphosyntactic conditioning, but also reflects phonological principles of economy and rhythm. Thus, the data presented here contribute to the broadening of the discussion proposed by the authors, demonstrating that the prosodic pattern can influence not only verbal and nominal agreement phenomena, but also the realization of the pronominal subject in Brazilian Portuguese.

In the variable type of sentences, the interrogative sentences favored the completion of the subject with .76 of relative weight, suggesting that the intonation and the interrogative structure intensify the need for explicitness. Declarative sentences had .49, while exclamatory sentences were not statistically significant.

Table 5

The completion of the subject in the 3rd person plural and the type of sentence

Type of sentence	Application	Total Occurrences	%	Relative Weight
Declarative	547	900	60,8	.49
Interrogative	16	19	84,2	.76
Total	563	919		<i>Input. 629</i>

Source: The authors.

Interrogative sentences showed a strong tendency to complete. The marked intonation of the questions, combined with the expectation of an answer and the need for clarity, contributes to the subject's explicitness. According to Bortoni-Ricardo (2004), in situations of greater interaction or informational demand, speakers tend to use more explicit forms to ensure communicative effectiveness. In addition, the interrogative structure, by breaking with the canonical subject-verb-object (SVO) order, favors syntactic highlighting strategies.

Finally, the most relevant social variable was schooling. Informants with elementary education had a higher frequency of completion of the subject .61 of relative weight, followed by those with high school education of .52). Participants with higher education, on the other hand, had a lower relative weight of .44, a result that is in line with the findings of previous studies (Duarte, 1993; 2004; Naro and Scherre, 1991), in which more educated speakers tend to employ fewer explicit subjects, possibly due to the influence of the cultured norm and greater linguistic vigilance.

Table 6

Filling in the subject in the 3rd person plural and schooling

Schooling	Application	Total Occurrences	%	Relative Weight
Ens. Fund. Minor	140	245	57,1	.45
Ens. Fund. Bigger	124	175	70,9	.61
Middle school	156	252	61,9	.52
Higher education	143	248	57,7	.44
Total	563	920		<i>Input. 629</i>

Source: The authors.

Among the social variables, schooling was especially relevant. The data revealed that speakers with higher elementary education had the highest rates of pronominal completion. This result can be interpreted from two complementary perspectives: on the one hand, it suggests an approximation of these speakers to the urban oral pattern characterized by favoring the subject's explicitness; on the other hand, it may reflect a process of linguistic surveillance, resulting from the internalization of a normative model that associates clarity with the idea of "correct speech". As highlighted by Bortoni-Ricardo (2004) and Duarte (2004), contact with the school and with the written pattern directly influences linguistic choices, especially in contexts of greater speech monitoring.

In summary, the results obtained show that the realization of the pronominal subject in Brazilian Portuguese results from the interaction between linguistic and social factors. Aspects such as the verbal form, the rhythm of speech and the level of education of the informants proved to be determinants for the behavior of the variable, confirming the multifactorial character of the variation. The analysis indicates that the fulfillment of the subject is favored by contexts with less morphological marking and by social groups more exposed to the influence of urban and school norms, which reinforces the role of structural and social pressures in the current configuration of spoken Portuguese. These findings, in line with authors such as Duarte (1993, 2004), Scherre and Naro (1991) and Lucchesi (2009), contribute to the understanding that the ongoing process of change reflects both internal tendencies of the linguistic system and mechanisms of social and stylistic regulation present in speech communities.

6 FINAL CONSIDERATIONS

The results of this research confirm the predominance of pronominal realization in the third person plural in the speech of the Caxias community, pointing to a frequency of 61.2% of explicit subjects compared to 38.8% of null subjects. Such data corroborate the hypothesis

of linguistic change proposed by Duarte (1993), according to which Brazilian Portuguese would be transitioning from a language of null subject to a language of full subject.

The statistical analysis revealed that the explicitness of the subject is favored by linguistic factors such as the presence of elements between the subject and the verb, the use of verb forms in the gerund and infinitive, verbal disilabicity and interrogative intonation. In the social field, the schooling variable showed a significant influence, especially among speakers with higher elementary education.

It was also observed the predominant preference of speakers for the traditional pronominal form *they/them*, as well as the attribution of prestige to this form in the acceptability judgments. These results show not only patterns of use, but also linguistic beliefs and attitudes that contribute to the maintenance and spread of the variant in formal and informal contexts.

It is concluded, therefore, that the phenomenon of the completion of the subject configures a case of stable variation with indications of change in progress. The research reaffirms the importance of the analysis of spoken language in real contexts of use and highlights the role of linguistic attitudes in the consolidation of emerging patterns. It is hoped that this study will contribute to the mapping of pronominal variation in Brazilian Portuguese, especially in the Northeast region, where there are still significant gaps in sociolinguistic description.

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**EVALUATION OF GRADUATE PROGRAMS IN BRAZIL: THE CASE OF THE
FEDERAL UNIVERSITY OF RONDÔNIA (UNIR)**

**AVALIAÇÃO DOS PROGRAMAS DE PÓS-GRADUAÇÃO NO BRASIL: O CASO
DA UNIVERSIDADE FEDERAL DE RONDÔNIA (UNIR)**

**EVALUACIÓN DE PROGRAMAS DE POSGRADO EN BRASIL: EL CASO DE LA
UNIVERSIDAD FEDERAL DE RONDÔNIA (UNIR)**

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ABSTRACT

The study analyzed the *stricto sensu* graduate programs of the Federal University of Rondônia (UNIR), considering institutional offerings and the scores assigned by CAPES between 2017 and 2020. The research sought to answer the following question: What are the active *stricto sensu* graduate programs offered by the Federal University of Rondônia (UNIR), and how have these programs been evaluated by CAPES during the 2017–2020 period? A qualitative approach was adopted, with a descriptive character and basic nature, grounded in bibliographic and documentary procedures. The deductive method was employed to interpret institutional data and official reports. The results indicated the existence of 31 *stricto sensu* graduate programs, with scores ranging from 3 to 5, including UNIR's own courses and those in partnership with associated institutions. It was observed that the university plays a crucial role in expanding higher education within the state, although there is a concentration of programs, especially doctoral ones, on the Porto Velho campus. CAPES evaluations revealed satisfactory ratings, demonstrating the institution's commitment to academic quality. Inter-institutional partnerships emerge as important strategies to expand offerings and integrate knowledge; however, challenges remain regarding decentralization, researcher retention, and incentives for applied research.

Keywords: Postgraduate Programs. Evaluation. *Stricto Sensu*. Qualis.

RESUMO

O estudo analisou os programas de pós-graduação *stricto sensu* da Universidade Federal de Rondônia (UNIR), considerando a oferta institucional e os conceitos atribuídos pela CAPES no período de 2017 a 2020. A pesquisa buscou responder: Quais são os programas de pós-graduação *stricto sensu* ativos ofertados pela Universidade Federal de Rondônia (UNIR) e como esses programas têm sido avaliados pela CAPES ao longo do período 2017-2020? Adotou-se abordagem qualitativa, com caráter descritivo e natureza básica, fundamentada em procedimentos bibliográficos e documentais. O método empregado foi dedutivo para interpretar dados institucionais e relatórios oficiais. Os resultados indicaram a existência de 31 programas de pós-graduação *stricto sensu*, com conceitos variando entre 3 e 5, incluindo cursos próprios da UNIR e em parceria com

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instituições associadas. Observou-se que a universidade desempenha papel crucial na interiorização da educação superior no estado, ainda que haja concentração dos programas, especialmente de doutorado, no campus de Porto Velho. A avaliação da CAPES revelou conceitos satisfatórios, evidenciando o compromisso institucional com a qualidade acadêmica. As parcerias interinstitucionais surgem como estratégias importantes para ampliar a oferta e integrar saberes, porém desafios permanecem quanto à descentralização, fixação de pesquisadores e incentivo à pesquisa aplicada.

Palavras-chave: Programas Pós-graduação. Avaliação. *Stricto Sensu*. Qualis.

RESUMEN

El estudio analizó los programas de posgrado *stricto sensu* de la Universidad Federal de Rondônia (UNIR), considerando la oferta institucional y los conceptos atribuidos por la CAPES en el período de 2017 a 2020. La investigación buscó responder: ¿Cuáles son los programas de posgrado *stricto sensu* activos ofrecidos por la Universidad Federal de Rondônia (UNIR) y cómo han sido evaluados estos programas por la CAPES a lo largo del período 2017-2020? Se adoptó un enfoque cualitativo, con carácter descriptivo y naturaleza básica, fundamentado en procedimientos bibliográficos y documentales. El método empleado fue deductivo para interpretar datos institucionales e informes oficiales. Los resultados indicaron la existencia de 31 programas de posgrado *stricto sensu*, con conceptos que varían entre 3 y 5, incluyendo cursos propios de la UNIR y en colaboración con instituciones asociadas. Se observó que la universidad desempeña un papel crucial en la interiorización de la educación superior en el estado, aunque existe una concentración de los programas, especialmente de doctorado, en el campus de Porto Velho. La evaluación de la CAPES reveló conceptos satisfactorios, evidenciando el compromiso institucional con la calidad académica. Las alianzas interinstitucionales surgen como estrategias importantes para ampliar la oferta e integrar saberes; sin embargo, persisten desafíos en cuanto a la descentralización, la retención de investigadores y el fomento a la investigación aplicada.

Palabras-chave: Programas de Posgrado. Evaluación. *Stricto Sensu*. Calidad.

1 INTRODUCTION

The responsibility for the evaluation of *stricto sensu graduate programs* in Brazil, covering master's and doctoral degrees, is attributed to the Coordination for the Improvement of Higher Education Personnel (CAPES), an autarchy linked to the Ministry of Education. This evaluation is carried out systematically and periodically, within the scope of the National Graduate System (SNPG), with the disclosure of the grades assigned to the programs in operation occurring at the end of each quadrennium. The evaluation process aims to ensure the quality of academic training, stimulate scientific excellence, and promote the development of graduate studies in the country (CAPES, 2024).

The last CAPES Quadrennial Evaluation referred to the period from 2017 to 2020, with its final results published at the end of 2022. Currently, the evaluation cycle corresponding to the 2021–2024 quadrennium is underway, whose activities take place throughout 2025, including stages such as data collection, classification of intellectual production, and analysis by area committees (CAPES, 2025). This evaluation process is essential for the permanence of *stricto sensu graduate programs* within the SNPG scope, being conducted by 50 specific evaluation areas.

The results are expressed through concepts ranging from 1 to 7: programs that receive a score of 1 or 2 are deaccredited and enter the process of deactivation, while those with grades between 3 and 7 remain active. On this scale, concept 3 represents compliance with the minimum quality criteria required, while concept 7 is attributed to excellence programs with international recognition (CAPES, 2024).

Considering the relevance of the theme and the complexity of the Brazilian reality, the present study aimed to analyze the *stricto sensu* graduate programs of the Federal University of Rondônia (UNIR), considering its institutional offer and the concepts attributed by CAPES in the evaluations carried out. Despite the institutional advances and the various researches focused on themes such as institutional evaluation, there is a gap with regard to the systematic and in-depth analysis of the graduate programs of this nature offered by UNIR, especially with regard to the evaluation of these programs by CAPES.

This gap becomes even more relevant in view of the recent expansion of these programs, with the approval of new courses after the last quadrennial evaluation. In view of these circumstances, the present study proposes to investigate the following research question: What are the active *stricto sensu* graduate programs offered by the Federal

University of Rondônia (UNIR) and how have these programs been evaluated by CAPES over the period 2017-2020?

To answer the research problem, the study adopted a descriptive methodology regarding its objectives, characterized as a research of a basic nature. The approach to the problem was qualitative, seeking to understand phenomena from the interpretation of data and information. The methodological strategies used were predominantly bibliographic and documentary, with the analysis of spreadsheets and data extracted from official sources, giving the study an empirical and theoretical foundation. Regarding the method of approach, the deductive method was chosen, which starts from general premises for the analysis of specific aspects, providing a logical and coherent structure to the development of the research.

2 METHODOLOGY

The methodology of this study was designed to ensure scientific rigor and consistency in data analysis. As for the objectives, the research is classified as descriptive, as it sought to characterize and analyze existing information without direct interference in the phenomenon studied. In relation to nature, it is a basic research, aimed at expanding scientific knowledge, without immediate application in production processes.

Regarding the approach to the problem, the qualitative perspective was adopted, since the study involves the interpretation of subjective characteristics of the phenomenon, focusing on the understanding of the dynamics of social and institutional relations. Although it considers data that can be quantified, the main focus is not on numerical representativeness, but on interpretative analysis, aiming at deepening the understanding of the investigated context.

As for the methodological procedures, the research is bibliographic and documentary, based on previously consolidated sources and institutional documents. The deductive method was used because it allows the analysis of information from general concepts, evolving to specific conclusions about the reality studied, ensuring logical coherence to the investigative reasoning.

The data analyzed were secondary, as defined by Tafla et al. (2022), which characterizes them as information previously collected by other people or institutions and made available for consultation and use in research or analysis. This characteristic

distinguishes them from primary data, obtained directly by the researcher during the investigation.

2.1 INCLUSION AND EXCLUSION CRITERIA:

To ensure the relevance and quality of the information analysed, the following criteria were established:

Inclusion: Any *stricto sensu graduate programs* (master's and doctorate, academic and professional) linked to the Federal University of Rondônia (UNIR), registered on the Sucupira Platform, and belonging to the Northern Region of Brazil.

Exclusion: Any programs of private or public institutions of *stricto sensu courses* that were not affiliated or worked in partnership with the Federal University of Rondônia were excluded from the analysis.

2.2 DATA COLLECTION AND PROCESSING PROCEDURES

Data collection took place between July and August 2025, exclusively through the Sucupira Platform, an electronic system developed by the Coordination for the Improvement of Higher Education Personnel (CAPES), which provides information on the evaluation and monitoring of graduate programs in Brazil. The collection and preparation process was structured in three sequential stages:

1. Data Filtering and Selection:

Initially, the data were located on the Sucupira Platform, using filters referring to the geographic region (North), the selected institution (Federal University of Rondônia – UNIR) and the desired academic levels (master's and doctorate). Then, additional filters were applied by major areas of knowledge and academic degree, ensuring the extraction of the most relevant information for the study.

2. Organization and Tabulation:

The collected data were organized in tables, graphs and charts, using Microsoft Excel resources for calculations and visual structuring, complemented by freely accessible graphic tools, such as Canva, for the elaboration of illustrations and explanatory images.

3. Analysis and Interpretation:

In the final stage, the interpretative and descriptive analysis of the organized data was carried out, based on the deductive method. This analysis sought to identify patterns, trends, and relevant characteristics, associating them with the context of the study. This last phase

took place between the end of August and the beginning of September 2025. The resulting interpretations are detailed in the Results and Discussion section of this article.

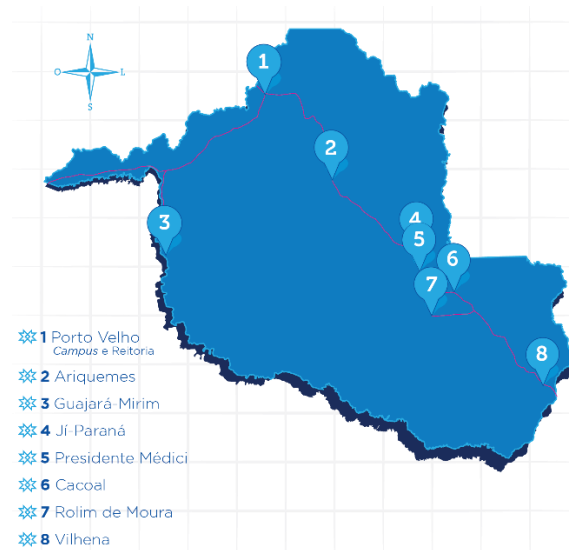
3 RESULTS AND DATA ANALYSIS

Based on the proposed objectives, the established theoretical framework and the methodological procedures adopted, this section presents and discusses the main results obtained in the research. The analysis seeks to highlight the information extracted, interpreting it in the light of the previously defined categories, in order to provide a consistent understanding and aligned with the investigated problem. In addition to exposing the data organized in tables, graphs and charts, this section also presents critical reflections based on the theoretical basis, ensuring coherence between the empirical findings and the scientific foundation that guides the study.

The Federal University of Rondônia (UNIR), together with the Federal Institute of Rondônia (IFRO), constitute two public institutions of higher education in the state. UNIR, the oldest, was created on July 8, 1982, through Federal Law No. 7,011, in the context of the transformation of the then Federal Territory of Guaporé into a federative unit (Brasil, 1982). Initially, the first campus was implemented in the capital, Porto Velho, and, later, the process of interiorization began, which resulted in the creation of the other campuses currently existing. To identify the courses offered and the respective CAPES evaluations, it is necessary to consider both the availability of each campus and its geographical location and structure. In this sense, Figure 1 presents the map of the state of Rondônia with the distribution of the university's campuses.

Figure 1

Distribution of the Campuses of the Federal University of Rondônia (UNIR)



Source: Federal University of Rondônia, (2025).

As shown in Figure 1, the Federal University of Rondônia (UNIR) currently has eight campuses distributed in different mesoregions and microregions of the state. The definition of these locations was strategically planned to ensure educational coverage throughout the territory of Rondônia, offering undergraduate courses and graduate programs. The largest and most complete campus is the José Ribeiro Filho, located in the capital, Porto Velho. It concentrates the largest number of undergraduate courses, in addition *to lato* and *stricto sensu graduate programs*. This campus covers both the university complex located on the banks of the BR-364, towards Acre, and the administrative headquarters of the institution, the Rectory, located in the center of the city. Together with the Jorge Vassaliakis campus, located in Guajará-Mirim, the José Ribeiro Filho campus serves the administrative region of Madeira-Mamoré, the most populous in the state (UNIR, 2025).

In addition to these two, the campuses located in the other regions of the state stand out: the Ariquemes Campus, which serves the Jamari Valley region; the Ji-Paraná and Presidente Médici Campus, responsible for the central region. In the region known as the coffee hub, there is the Professor Francisco Gonçalves Quiles Campus, in Cacoal. The Rolim de Moura Campus serves the population of the Zona da Mata, while the Vilhena Campus includes the Southern Cone region, on the border with the state of Mato Grosso (SEPOG, 2025). In this way, UNIR consolidates itself as the only public university in the state of Rondônia. The offers of graduate programs on these campuses can be seen in table 1.

Table 1

UNIR's Graduate Programs by major areas of knowledge

Grandes Áreas	Áreas do Conhecimento	Grau Acadêmico	Nomes dos Programas de Pós-graduação
Ciências Biológicas	Ecologia	Mestrado Acadêmico	Conservação e uso de Recursos Naturais
Ciências Humanas	Psicologia	Mestrado Acadêmico	Psicologia
	Educação	Mestrado/Doutorado Profissional	Educação Escolar
	Políticas Públicas	Mestrado Profissional	Políticas Públicas
	Geografia	Mestrado/Doutorado Acadêmico	Geografia
	Educação	Mestrado Acadêmico	Educação
	História Regional do Brasil	Mestrado Acadêmico	História da Amazônia
	Filosofia	Mestrado Acadêmico	Filosofia
Ciências Sociais Aplicadas	Comunicação	Mestrado Acadêmico	Comunicação
	Ciência da Informação	Mestrado Profissional	Gestão da Infor. e Preserv. do Patrimônio na Amazônia
	Administração	Mestrado Acadêmico	Administração
	Administração	Mestrado Acadêmico	Administração e Contabilidade
Linguística, Letras e Artes	Letras	Mestrado/Doutorado Acadêmico	Letras
	Literatura Comparada	Mestrado Acadêmico	Estudos Literários
Multidisciplinar	Políticas e desenv. de Territórios	Mestrado/Doutorado Acadêmico	Desenvolvimento Regional e Meio Ambiente
	Engenharia, Tecnologia e Gestão	Mestrado Acadêmico	Gestão de Agronegócios e Sustentabilidade
	Ensino de Ciências e Matemática	Mestrado Acadêmico	Ensino de Ciências da Natureza
	Ciências Ambientais	Mestrado Acadêmico	Ciências Ambientais
	Sociais, Culturas e Humanidades	Mestrado/Doutorado Profissional	Direitos Humanos e desenvolvimento da Justiça
	Ensino de Ciências e Matemática	Mestrado Acadêmico	Educação Matemáticas
	Políticas e desenv. de Territórios	Mestrado Acadêmico	Agroecossistemas Amazônicos

Source: Prepared by the author based on Sucupira (2025).

The university currently offers 21 *stricto sensu* graduate programs, comprising master's and doctoral degrees. The courses have a minimum duration of 12 months, in the case of master's degrees, and a maximum of 48 months for doctorates. The training available is predominantly in the face-to-face modality, and in some cases there are disciplines taught at a distance, covering both professional and academic programs. Of the total, 17 programs are academic in nature, while 4 are aimed at professional qualification. Of the major areas in table 1, the Multidisciplinary concentrates the largest number of programs, totaling seven. Among these, only the Human Rights and Justice Development course has a professional character.

Similarly, the area of Human Sciences also brings together seven programs, of which only School Education and Public Policies are specifically intended for qualification for the professional market, while the others maintain a strictly academic nature. In addition to the programs offered entirely by UNIR, the institution participates in initiatives in cooperation with other public and private universities, institutes and development agencies, resulting in a collaborative network of advanced training. Table 2 shows which are these courses and universities that lead these programs.

Table 2

UNIR's graduate programs in association with other universities

Programas de Pós-graduação	Grau Acadêmico	Instituições de Ensino Superior Envolvidas
Biologia Experimental	Mestrado/Doutorado Acadêmico	FUNDAÇÃO OSWALDO CRUZ - FIOCRUZ/RONDÔNIA 
Educação na Amazônia	Doutorado Acadêmico	UNIVERSIDADE FEDERAL DO PARA - UFPA 
Administração Pública em Rede Nacional	Mestrado Profissional	ASSOCIAÇÃO NACIONAL DOS DIRIGENTES DAS INSTITUIÇÕES FEDERAIS DE ENSINO SUPERIOR 
Saúde da Família	Mestrado Profissional	ASSOCIAÇÃO BRASILEIRA DE SAÚDE COLETIVA - ABRASCO 
Matemática em Rede Nacional	Mestrado Profissional	SOCIEDADE BRASILEIRA DE MATEMÁTICA 
Ensino de Ciências e Matemática em Rede	Doutorado Profissional	UNIVERSIDADE FEDERAL DE RORAIMA - UFRR 
Ensino de Física	Mestrado Profissional	SOCIEDADE BRASILEIRA DE FÍSICA 
Biodiversidade e Biotecnologia	Doutorado Acadêmico	UNIVERSIDADE FEDERAL DO PARA - UFPA 
Gestão e Regulação de Recursos Hídricos	Mestrado Profissional	UNIVERSIDADE ESTADUAL PAULISTA - UNESP ILHA 
Educação Inclusiva	Mestrado Profissional	UNIVERSIDADE ESTADUAL PAULISTA - UNESP PRESIDENTE PRUDENTE 

Source: Prepared by the author based on Sucupira (2025).

Table 2 presents the programs developed in partnership, totaling ten courses linked to UNIR through inter-institutional agreements. With the exception of Experimental Biology, Education in the Amazon and Biodiversity and Biotechnology, all the others have a professional nature. Most of these programs are offered in a national network and have a multidisciplinary character, allowing, in some cases, the entry of candidates without specific training in the area, given the thematic scope and curricular flexibility. Thus, between courses offered only by UNIR and agreements with other institutions, the university has 31 *stricto sensu* graduate courses, for which the grades of these programs can be seen in table 3.

Table 3

Concept courses (grades) of the CAPES evaluation (2017-2020)

CURSOS OFERTADOS E NOTAS NA AVALIAÇÃO CAPES (2017-2020)	CURSOS OFERTADOS	NOTAS CAPES (2017-2020)	CAMPIS
	Gestão de Agronegócios e Sustentabilidade	A	Francisco G. Quiles (Cacoal/RO)
	Educação Matemática	3	Ji-Paraná/RO
	Ensino de Física	5	Ji-Paraná/RO
	Gestão e Regulação de Recursos Hídricos	4	Ji-Paraná/RO
	Educação Inclusiva	3	Ji-Paraná/RO
	Administração Pública em Rede Nacional	3	José Ribeiro Filho (Porto Velho/RO)
	Psicologia	4	José Ribeiro Filho (Porto Velho/RO)
	Educação Escolar	4	José Ribeiro Filho (Porto Velho/RO)
	Educação na Amazônia	4	José Ribeiro Filho (Porto Velho/RO)
	Políticas Públicas	A	José Ribeiro Filho (Porto Velho/RO)
	Comunicação	A	José Ribeiro Filho (Porto Velho/RO)
	Biologia Experimental	4	José Ribeiro Filho (Porto Velho/RO)
	Desenvolvimento Regional e meio ambiente	4	José Ribeiro Filho (Porto Velho/RO)
	Ensino de Física	5	José Ribeiro Filho (Porto Velho/RO)
	Matemática em Rede Nacional	5	José Ribeiro Filho (Porto Velho/RO)
	Geografia	4	José Ribeiro Filho (Porto Velho/RO)
	Biodiversidade e Biotecnologia	5	José Ribeiro Filho (Porto Velho/RO)
	Educação	4	José Ribeiro Filho (Porto Velho/RO)
	Gest. da Inform. e Preservação do Patrim. Amazônia	A	José Ribeiro Filho (Porto Velho/RO)
	Administração	3	José Ribeiro Filho (Porto Velho/RO)
	Letras	4	José Ribeiro Filho (Porto Velho/RO)
	Saúde da Família	4	José Ribeiro Filho (Porto Velho/RO)
	Estudos Literários	4	José Ribeiro Filho (Porto Velho/RO)
	Direitos Humanos e desenvolvimento da Justiça	4	José Ribeiro Filho (Porto Velho/RO)
	História da Amazônia	A	José Ribeiro Filho (Porto Velho/RO)
	Conservação e uso de Recursos Naturais	3	José Ribeiro Filho (Porto Velho/RO)
	Filosofia	3	José Ribeiro Filho (Porto Velho/RO)
	Agroecossistemas Amazônicos	3	Rolim de Moura/RO
	Ciências Ambientais	3	Rolim de Moura/RO
	Ensino de Ciências da Natureza	3	Rolim de Moura/RO
	Ensino de Ciências e matemática em Rede	A	Rolim de Moura/RO
	Administração e Contabilidade	A	Vilhena/RO

Source: Prepared by the author based on data extracted from the sucupira platform (2025).

As shown in Table 3, the Porto Velho Campus concentrates the highest percentage of graduate courses in all major areas of knowledge. In second place, with a lower number and distributed in a balanced way, the campuses of Rolim de Moura and Ji-Paraná stand out. The Cacoal and Vilhena campuses offer only one master's program each, while the others do not have *stricto sensu* courses.

The evaluations carried out by CAPES attribute grades ranging from 1 to 7, with grades 1 and 2 indicating insufficiency and implying the discontinuity of the program, while grade 3 corresponds to compliance with the minimum requirements for its maintenance and grade 7 represents programs with international recognition. Currently, the university has 9 programs

evaluated with concept 3, representing 28.1% of the total offered. Programs with grade 4 correspond to 37.5%, totaling 12 of the 31 existing courses. Finally, the courses considered to be of excellence, with a score of 5, represent the lowest percentage, 12.5%, and all of them are linked to partnerships between UNIR and other institutions. This group brings together 4 courses belonging to three programs, considering that the Professional Master's Degree in Physics Teaching is offered on two different campuses: José Ribeiro Filho, in Porto Velho, and Ji-Paraná, thus accounting for two offers of the same program.

In addition, there are programs that have not yet had grades assigned, being identified by grade **A**, which represent 21.9% of the total offered, corresponding to seven programs distributed among all campuses of the university. The "Authorized" classification indicates that such programs have not yet been evaluated, possibly due to the creation after the period of the last analysis, carried out between 2017 and 2020, with the first classes starting in 2021 and 2022 for most of these programs (CAPES, 2025).

One of the most notable particularities of UNIR's *stricto sensu programs* is the offer of only one doctoral program outside the capital, the Professional Doctorate in Science and Mathematics Teaching Network, coordinated by the Rolim de Moura campus. It should be noted that this program is not entirely UNIR's, as it is developed in partnership with the Federal University of Roraima (UFRR), which assumes the coordination of activities. The Federal Universities of Acre (UFAC) and the Federal University of Amapá (UNIFAP) also participate in this association, contributing to the joint execution of the program between universities in the north.

In view of the data presented, it is observed that the Federal University of Rondônia plays a strategic role in the internalization and diversification of graduate studies *stricto sensu* in the state, contemplating different areas of knowledge and training modalities. The distribution of programs, although concentrated in certain campuses, shows efforts to meet regional demands, while CAPES evaluations demonstrate a predominantly satisfactory scenario, with emphasis on the maintenance of programs with high concepts and the expansion of inter-institutional partnerships. These aspects reinforce the importance of UNIR as an inducing agent of scientific and technological development in the Amazon, contributing to professional qualification and to the consolidation of an integrated academic network focused on excellence.

4 DISCUSSION

The preparation of this article, in addition to disseminating information on the evaluations of the graduate programs of the Federal University of Rondônia (UNIR), seeks to contribute to the formulation of public policies and institutional strategies that encourage the expansion and consolidation of these programs in all campuses. The geographic division of the state, which guided the location of the campuses, proved to be relevant in allowing greater population reach, bringing the production of scientific knowledge closer to the various regions of Rondônia. This internalization represents an important step towards democratizing access to advanced training, promoting inclusion and regional development.

However, some reflections are necessary: would such actions be sufficient to guarantee the permanence of researchers in the programs? Why do three UNIR campuses still not offer master's/doctoral courses? After completing the undergraduate or graduate program, how can the university strengthen the bond with its graduates, stimulating the continuity of training and contributing to the development of their careers? These issues point to the need for more robust institutional policies, which involve strategies for retaining researchers, fostering applied research and encouraging the creation of new graduate centers.

Another relevant point concerns the concentration of the offer of doctorates: currently, only the Rolim de Moura campus has a program of this level outside the capital, Porto Velho. This centralization raises questions about the measures that are being adopted to decentralize the offer, expanding opportunities in other regions of the state.

Contributing to this discussion is Cardoso's dissertation (2023), which highlights UNIR's graduate studies in geography and discusses the importance of these programs in a general context, where despite the challenges imposed by the Amazonian context, characterized by logistical difficulties, infrastructure limitations, and scarcity of resources, UNIR has demonstrated resilience by maintaining and expanding its actions, reinforcing its role as an inducing agent of scientific and social development. It is expected, therefore, that the institution will advance in the implementation of new policies, enabling the creation of programs in different areas and campuses, in order to consolidate a more comprehensive, inclusive and excellence-oriented academic network.

Another pertinent reflection through these results is regarding the form of evaluation used: What are the guidelines and parameters used by CAPES to evaluate graduate programs?

CAPES uses, as the main guidelines for the evaluation of *stricto sensu graduate programs*, the Qualis Periodicals System and other mechanisms derived from bibliometric indicators, such as the impact factor, the *H index* and indexing in international databases (*Web of Science*, *Scopus*, *SCImago*, among others). These instruments are used to measure the quality of the scientific production linked to the programs, largely determining the final grade awarded by CAPES. Thus, the more publications by professors and students in journals classified in the upper strata (A1, A2, A3, A4), the better the evaluation of the program tends to be (CAPES, 2025).

Corroborating this discussion is Gabardo, Rachem, Hamada (2018), who argue that the Brazilian evaluation system, although necessary for the regulation and promotion of research, has become excessively bureaucratic, standardized and decontextualized, especially in areas such as Law, in which the criteria of indexation and international impact do not reflect the reality of national scientific production. For them, the rigid and uncritical use of foreign indexes (such as JCR and SJR) generates distortions, discourages methodological and linguistic diversity, and artificially favors the concentration of scientific production in certain centers and journals.

The authors also consider that CAPES should recognize that Qualis is not only a technical instrument for measurement, but a regulatory mechanism with a broad impact on the national scientific environment. Therefore, its application must observe the principles of Administrative Law, such as transparency, predictability, good faith, non-retroactivity of criteria and democratic deliberation. In addition, the need for a more participatory and contextualized action is mentioned, capable of respecting the specificities of each area of knowledge (Gabardo; Cracking; Hamada, 2018).

5 CONCLUSION

The analysis developed in this article allowed us to understand the structure and distribution of the *stricto sensu graduate programs* offered by the Federal University of Rondônia, as well as the evaluations attributed by CAPES and the challenges inherent to their expansion in the Amazonian context. The results showed that UNIR plays a fundamental role in the interiorization of higher education, ensuring the presence of courses in different regions of the state, with a total of 31 *stricto sensu graduate programs* with grades from 3 to 5, although there is still a significant concentration of programs, especially doctorate, on the campus of the capital, Porto Velho.

It was also found that most of the programs present satisfactory concepts in the evaluations, reflecting the institutional commitment to academic quality, while interinstitutional partnerships are consolidated as relevant strategies to expand the offer and promote the integration of knowledge. However, challenges remain regarding the decentralization of graduate studies and the creation of policies aimed at retaining researchers, encouraging applied research and encouraging the permanence of graduates in academic life and the creation of more graduate programs on campuses that do not yet have them, namely, Jorge Vassilakis Campus, in Guajará-mirim; Ariquemes and Presidente Médici Campus.

In view of this, it is concluded that, despite the barriers imposed by the Amazonian scenario, UNIR has advanced in the consolidation of a *stricto sensu* training network that contributes to the scientific, technological and social development of the region. To reach an even more robust level, it is essential to implement institutional policies that favor the balanced expansion of programs between campuses, ensuring equity in access and strengthening the university's mission as a promoter of knowledge and sustainable regional development.

As a contribution to the strengthening of science in this area of knowledge and corroborating this discussion, it is suggested that in future studies some pertinent themes be discussed and addressed, such as: Decentralization of UNIR's graduate programs; strengthening inclusion and diversity policies at the university; and the role of federal universities in the Brazilian Amazon as propellers of science and welcoming spaces.

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**YOUTH AND ADULT EDUCATION IN BRAZIL: CRITICAL ANALYSIS OF
POLICIES, RETENTION AND LEARNING IN CONTEXTS OF INEQUALITY**

**EDUCAÇÃO DE JOVENS E ADULTOS NO BRASIL: ANÁLISE CRÍTICA DE
POLÍTICAS, PERMANÊNCIA E APRENDIZAGENS EM CONTEXTOS DE
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POLÍTICAS, RETENCIÓN Y APRENDIZAJE EN CONTEXTOS DE
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ABSTRACT

This study examines Youth and Adult Education (EJA) in Brazil, focusing on retention, learning, and recent policies. It maps challenges and improvement paths related to curriculum, teacher development, digital inclusion, and students' living conditions. Based on a five-year literature review combined with document analysis of regulations and programs, the paper synthesizes evidence on access, trajectories, and outcomes. Findings point to declining enrollments, irregular provision, and policy discontinuity, while highlighting promising initiatives in interdisciplinary projects, links to work and culture, technology-mediated teaching, and formative assessment. Suggested strategies include in-service teacher training, flexible schedules and spaces, contextualized materials, psychosocial support, active outreach, and data governance for monitoring student flows. The contribution lies in delivering practical syntheses for policy and pedagogy, offering indicators and guiding questions for local planning. The study aligns with agendas on educational equity, adult literacy, and lifelong learning, reinforcing EJA as a core public policy for reducing inequalities, expanding rights, and sustaining learning paths for people who combine study, work, and care.

Keywords: Youth and Adult Education. Retention and Learning. Public Policy. Digital Inclusion.

RESUMO

Este estudo examina a Educação de Jovens e Adultos (EJA) no Brasil, com foco em permanência, aprendizagem e políticas recentes. O objetivo é mapear desafios e caminhos de melhoria relacionados a currículo, trabalho docente, inclusão digital e condições de vida dos estudantes. Adota-se revisão de literatura dos últimos cinco anos em bases nacionais e internacionais, aliada a análise documental de normativas e programas, buscando identificar evidências sobre acesso, trajetórias e resultados. Os achados indicam queda de matrículas, oferta irregular e descontinuidade de políticas, ao mesmo tempo em que emergem experiências potentes em projetos interdisciplinares, articulação com trabalho e cultura, mediações tecnológicas e avaliação formativa. Sugerem-se estratégias: formação docente em serviço, flexibilização de tempos e espaços, materiais contextualizados, apoio

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psicossocial, busca ativa e governança de dados para monitorar fluxos. A contribuição do estudo está em organizar sínteses úteis para gestão e prática pedagógica, oferecendo indicadores e perguntas-guia para planejamento local. O texto dialoga com agendas de equidade educacional, alfabetização de adultos e aprendizagem ao longo da vida, reforçando a EJA como política pública essencial para reduzir desigualdades, ampliar direitos e sustentar percursos educativos de pessoas que conciliam estudo, trabalho e cuidado. Resultados orientam decisões, investimentos, acompanhamento e pactos intersetoriais locais duradouros.

Palavras-chave: Educação de Jovens e Adultos. Permanência e Aprendizagem. Políticas Públicas. Inclusão Digital.

RESUMEN

Este estudio examina la Educación de Jóvenes y Adultos (EJA) en Brasil, centrándose en la retención, el aprendizaje y las políticas recientes. El objetivo es trazar los desafíos y las vías de mejora relacionados con el currículo, la enseñanza, la inclusión digital y las condiciones de vida de los estudiantes. Se utiliza una revisión bibliográfica de los últimos cinco años, basada en bases de datos nacionales e internacionales, combinada con un análisis documental de regulaciones y programas, buscando identificar evidencia sobre el acceso, las trayectorias y los resultados. Los hallazgos indican una disminución de la matrícula, una oferta irregular y una discontinuidad de las políticas, a la vez que revelan experiencias significativas en proyectos interdisciplinarios, articulación con el trabajo y la cultura, mediación tecnológica y evaluación formativa. Se sugieren estrategias: formación docente en servicio, tiempo y espacio flexibles, materiales contextualizados, apoyo psicosocial, investigación activa y gobernanza de datos para monitorear los flujos. La contribución del estudio radica en organizar síntesis útiles para la gestión y la práctica pedagógica, ofreciendo indicadores y preguntas orientadoras para la planificación local. El texto aborda las agendas de equidad educativa, alfabetización de adultos y aprendizaje permanente, reforzando la EJA (Educación de Jóvenes y Adultos) como una política pública esencial para reducir las desigualdades, ampliar los derechos y sustentar las trayectorias educativas de las personas que concilian estudios, trabajo y cuidados. Los resultados orientan las decisiones, las inversiones, el seguimiento y los pactos intersectoriales locales duraderos.

Palabras clave: Educación de Jóvenes y Adultos. Permanencia y Aprendizaje. Políticas Públicas. Inclusión Digital.

1 INTRODUCTION

Youth and Adult Education in Brazil is a policy that recognizes interrupted trajectories and reaffirms the right to learn at any stage of life. It involves workers with long routines, women who balance care and study, people deprived of liberty, rural and urban populations, migrants and those who seek to complete school stages to access better opportunities. More than a supplementary stage, it is a gateway to active citizenship, to the critical reading of the world and to the reconstruction of personal and collective projects. From this perspective, discussing EJA is discussing the right to education itself and its effectiveness in daily school life and public policies (Sampaio, 2022).

In recent years, official figures and studies point to a drop in enrollments, interruption of offers, and discontinuities of programs, with impacts amplified during the pandemic. Night classes shrank, shifts were rearranged without dialogue, and many students gave up due to lack of transportation, income, shelter and active search strategies. The suspension of face-to-face activities exposed weaknesses in the articulation between networks, schools, and communities, but also revealed inventive experiences conducted by teachers and managers. Looking at this picture helps to understand obstacles and avenues of action to resume flows, reduce dropout, and reorganize politics (Carreira, 2025).

EJA brings together subjects with diverse repertoires, knowledge of trade, family responsibilities and varied productive insertions. Policies and schools that consider this diversity tend to propose flexible schedules, certification by stages, recognition of prior knowledge and articulation with culture, work and social participation. This line is aligned with lifelong learning agendas and SDG Goal 4, which calls on countries to ensure inclusive access and real opportunities for young people and adults, reinforcing literacy and mastery of basic and digital skills (Novais, 2024).

From the pedagogical point of view, challenges related to literacy and mathematical literacy persist, while at the same time the demand for curricular integration that connects school content to concrete problems of the territory is expanding. Experiences that start from projects, local case studies, investigative activities and formative evaluation have shown greater engagement, including when they include reading the world of work, culture and community life. Planning flexibly, with contextualized materials and clear learning goals, helps to reduce failure and dropout (Silva, 2024).

The digital dimension has gained weight. Many classes have created hybrid routines, with message groups, school radio, short podcasts, and printed activities for those with little

or no connectivity. Open resource curation and local production of plain language materials have become valuable outlets. In contexts with fragile connectivity, the use of popular media, such as community radio, has shown that it is possible to maintain a bond, guide studies, and amplify the voice of students and educators, as long as there is planning and monitoring (Dantas, 2025).

Another central point is the aging of the population that seeks EJA. Many students are mature adults or seniors who return to school to read and write autonomously, access services, and circulate more safely in the digital world. The didactic design that respects rhythms, welcomes memories and associates study with life projects favors permanence. Recent literature discusses health, self-care, and psychosocial support as components that go hand in hand with the curriculum, strengthening trust, belonging, and learning (Pereira, 2024).

The sustainability of the offer involves stable financing, federative cooperation and management based on reliable data. Without resources, transportation, lunches, material and in-service training, the efforts of schools and educators are isolated. Indicators that track entry, permanence and completion by territory, age group and sociocultural profile allow for fairer decisions, prioritizing those who need it most. Transparency, pacts with councils, and community participation help to maintain EJA as a state policy and not just as an occasional response (Castro, 2024).

This work is based on these discussions to organize a recent overview of EJA in the country. The objective is to map obstacles and paths of action, gathering evidence from the last five years and translating it into planning questions for networks and schools. The proposal dialogues with national and international references, seeking a balance between policy analysis and pedagogical practices that have already shown good results. In the end, it is intended to offer a set of useful guidelines to strengthen the right to learn of those who decide to resume their studies in the midst of work, care, and other daily responsibilities (Boutin, 2024).

2 THEORETICAL FRAMEWORK

2.1 RISK FACTORS FOR EXCLUSION AND DROPOUT IN YOUTH AND ADULT EDUCATION

EJA welcomes trajectories interrupted by hard work, care for family members, long commutes and previous experiences of little listening. These factors increase the chance of

a new interruption when the school does not talk to the routine of those who study at night after long hours. Planning based on this reality is a condition for permanence and advancement in the module (Sampaio, 2022).

Inequalities of gender, race, and territory shape access. Women accumulate study and unpaid care, men face variable schedules, residents of the peripheries deal with expensive and time-consuming transportation and unstable supply. When income is tight and commuting consumes hours, being present at all meetings becomes a difficult decision to sustain (Carreira, 2025).

In rural areas and in riverside areas, planting, harvesting and fishing organize social time. Classes that ignore these cycles lose students quickly. Adjusting the calendar and projects to the production cycle makes it possible to combine study and work in a viable way for the family and the community in periods of greater demand (Novais, 2024).

The memory of school failure weighs on the return. Many adults feel embarrassed to read aloud or to express doubts. Evaluating based on everyday practices such as interpreting notes, checking change, writing orders, and solving work measures restores confidence and reduces dropouts in the first weeks of the journey (Silva, 2024).

In prison units, turnover and internal rules interrupt the study without warning. Even so, reading projects, writing workshops, and certification in stages negotiated with the management increase attendance, organize routines, and open perspectives for life outside the system after serving their sentence (Dantas, 2025).

The aging of the public calls for didactic choices focused on autonomy. Reading health guidelines, organizing accounts, using digital public services, and understanding contracts are tasks that make study useful and increase the daily motivation of those who return after many years away from the classroom (Pereira, 2024).

2.2 IDENTIFICATION OF DEMAND, ACCESS AND EDUCATIONAL DIAGNOSIS

Presence in the classroom begins with active search. Lag maps, visits to neighborhoods, listening to leaders, articulation with health and assistance, and partnerships with community radios reveal who wants to return, in which shifts there is a greater chance of participation, and where to open new classes with better returns (Azevêdo, 2024).

The entrance needs to be simple. Reducing requirements in the first contact, guiding the recovery of documents and opening service in the late afternoon and Saturday breaks down barriers. A reception with direct language and a brief dialogue about routine and goals

create bonds from the moment they enroll and avoid giving up due to unanswered questions (Miguel, 2024).

Welcoming has a pedagogical function. Initial conversations map work, commuting, childcare and short-term goals. With this portrait, the study plan fits the student's time and there is a follow-up pact between student and team, with revisions when life changes in the middle of the module (Reis, 2023).

The diagnostic evaluation observes what the person already does. Reading notices, checking change, interpreting utility bills, measuring a room, and writing simple requests reveal knowledge that does not always appear in traditional tests. From this, the teacher sets similar goals and reduces the fear of making mistakes in front of the group (Reis, 2023).

Streams of care prevent silent evasion. Absences in sequence trigger calls and visits. If the problem is transportation, the school activates the network. If it's work, try to adjust shifts. If you are taking care of children, organize a children's reading corner at critical times. The message is clear. No one is invisible during the cycle (Laffin, 2022).

In territories with higher risk, the safety of the surroundings is part of the planning. Schedule adjustments for busier lanes, adequate lighting, and dialogue with the municipal guard make the way to and from work smoother, which favors the presence of women and elderly people in night classes (Castro, 2024).

Partnerships with public services reduce pending issues that hinder enrollment. Community health agents, referral centers, and guardianship councils help locate interested families and shorten the time between the desire to study and the first day of school, with organized referrals (Boutin, 2024).

Curriculum that is born from the territory engages. Projects on neighborhood public services, workers' memories, urban agriculture, energy consumption, and local history connect reading, writing, and mathematics to real uses and generate products that circulate outside the classroom such as guides, podcasts, and maps (Franco, 2023).

Active methodologies work best with concrete problem and useful product. Short sequences, clear objectives, peer review, and frequent feedback offer predictability for those who return after years away and also test their own confidence in reading and writing (Miguel, 2024).

Flexibility of time and space is central to those who work. Modules with step certification allow for breaks without losing everything. Replacement windows and early

evening help those who fulfill the shift. When the internet fails, printed materials and local radio maintain the routine and protect the bond with the school (Dantas, 2025).

Valuing knowledge from work brings school content closer to life. Inventory control, reading labels, measurements, receipts, and route planning open doors to ratios, functions, percentages, and instructional texts. The student realizes that he has already mastered practices and that the school adds method and precision (Azevêdo, 2024).

The library needs to pulsate with the community. Book clubs, zines, soirees and meetings with local authors circulate writing in the neighborhood. The effect appears in self-esteem, in the taste for reading, and in attendance, as the school becomes a cultural space accessible to families and neighbors (Reis, 2023).

Mathematics takes on a new face when it is born from everyday problems. Household budgeting, price comparison, purchase planning, and bill reading make the concepts closer. By resolving situations previously seen with insecurity, the student creates a basis to advance in formal content (Franco, 2023).

Writing grows with cycles of rewriting. Draft, objective feedback, revision and new version form a visible path of advancement. When the feedback shows what is already good and what can be improved, the class takes more risks and starts to sustain longer texts with better argumentation (Miguel, 2024).

Pairing between students reduces common barriers on return. Pairs and trios with similar levels exchange strategies, welcome those who are afraid to expose their reading and teach how to ask for help in a respectful way. With this arrangement, speech circulates more and the class learns to review text and calculation without unnecessary constraints (Xavier, 2024).

Taking care of those who teach is part of the project. Present coordination, time to plan, observation with careful feedback and a calendar of in-service training avoid permanent improvisation. Teachers with support tend to build clear sequences, mediate conflicts with serenity, and maintain continuity even when the school faces a shortage of staff (Castro, 2024).

Simple baselines help you plan. Quick, non-punitive instruments at the beginning and end of the module show progress in reading, writing, and arithmetic, and help calibrate goals for the next cycle. The same goes for basic digital literacy, measured with short tasks that are useful for everyday life (Miguel, 2024).

The culture of the territory is a bridge for more people to study. Partnerships with theater and music groups, libraries and culture points generate workshops, exhibitions and circulation of texts. The school becomes part of the neighborhood's cultural circuit and attracts people undecided about returning to the classroom (Boutin, 2024).

For students with disabilities, a support plan with accessible resources ensures autonomous participation. Expanded materials, reading aloud, Libras and assistive technologies create conditions for advancement at the pace of each person, without isolation and with clear progression goals (Azevêdo, 2024).

2.3 LIFELONG EDUCATION, MULTI-PROFESSIONAL SUPPORT AND ADHERENCE

EJA concretizes the right to learn at any stage. Many return to increase autonomy at work, accompany children, access services and use digital tools. When the course is born from these goals, daily study gains direction and attendance is maintained even in weeks with unforeseen work and care (Pereira, 2024).

Multiprofessional support provides support. The management articulates transportation and benefits with social assistance, aligns prevention actions with family health and activates psychological support when necessary. Coordination and teachers reserve individual service times for fine adjustments in the course (Boutin, 2024).

Materials and tasks need to fit into the routine of those who arrive tired. Short texts, direct language, examples from the neighborhood, and exercises in smaller blocks avoid overload. The same goes for the use of apps when there is a connection, always with guidance that does not scare those who are learning to navigate the digital (Dantas, 2025).

Real life calls for practical solutions. Those who work long shifts solve tasks during the break. Those who take care of children need punctual support at critical times. Those who are on an alternating schedule combine face-to-face meetings with asynchronous study accompanied by a reference teacher so as not to lose the thread of the course (Miguel, 2024).

The presence of the elderly requires memory and attention strategies. Short texts, regular breaks, spaced revision and connection with life stories favor advancement without overload and keep studying pleasurable. Small weekly records help to consolidate what has been learned and sustain the will to continue (Pereira, 2024).

For internal and international migrants, the school functions as a language laboratory. Activities that welcome accents and combine orality and writing, with bilingual materials when

necessary, accelerate insertion in work and access to rights. This translates into greater presence and engagement in activities throughout the module (Novais, 2024).

2.4 RISKS OF THE ABSENCE OF A POLICY FOR EJA AND BENEFITS OF A WELL-ORGANIZED OFFER

Treating EJA as something residual is expensive for people and for the city. Without safe reading and calculation, adults sign contracts without understanding clauses, misinterpret health guidelines, are more exposed to scams and transmit a fragile relationship with school to children. Inequality reproduces itself and limits life projects (Carreira, 2025).

The neighborhood's economy loses when the adult population does not master writing, calculus and digital tools. Small businesses with little organization make mistakes in inventory, lose credit and miscalculate prices. Many close before maturing, which reduces employment and local income and discourages new entrepreneurs (Castro, 2024).

In health, low schooling appears to be associated with worse indicators. When EJA expands reading and calculation, self-care decisions improve, the search for services occurs at the right time, and avoidable expenses decrease. The family gains autonomy to deal with prescriptions, vaccination cards, and online appointments (Azevêdo, 2024).

In social participation, literacy increases the voice of historically silenced groups. Adults with fluent reading and writing occupy councils, participate in hearings, formulate requests and monitor the municipal budget more safely. As a result, demands from the territory are more visible and negotiated based on data and rights (Novais, 2024).

Some results appear in short timeframes. Enrollments and completions rise, dropout dropouts fall, returns after breaks increase, textual production circulates in the neighborhood, the use of digital services becomes safer and negotiations at work gain firmness. This increases collective confidence in the study and creates a demonstration effect for new stakeholders (Miguel, 2024).

To sustain gains, politics needs pillars. Stable funding ensures transportation, food, material and training. Cooperation between administrative spheres defines responsibilities and avoids interruptions at each change of management. Monitoring with reliable data guides the opening of classes and adjustment of schedules by territory (Pereira, 2024).

In the daily life of the school, simple principles guide choices. Welcoming without judgment, planning with the class, valuing previous knowledge, proposing small goals, making progress visible, opening doors to certifications, and taking care of the teacher create

a culture of permanence that crosses the most demanding months of the calendar (Reis, 2023).

Public celebrations and cultural products of the class bring school and neighborhood closer together. Reading exhibitions, fairs and podcasts make the community see the value of studying and attract partnerships with local businesses and public services. This social network expands the reach of EJA and helps keep classes alive throughout the school year with continuous enrollment (Franco, 2023).

Monitoring indicators with transparency strengthens public trust. Periodic monitoring of enrollment, attendance, completion, return after pause and class productions, debated with the community, guides decisions and avoids choices based only on impressions. When everyone participates in the reading of this data, politics gains stability and shared meaning (Pereira, 2024).

3 METHODOLOGY

This study adopts a qualitative-based applied approach, supported by simple descriptive measurements. The objective is to understand how Youth and Adult Education is organized to favor access, learning and permanence of those who return to school after interrupted trajectories. The design combines documentary analysis, class observation, semi-structured interviews with students and teachers and a focus group per unit, in order to produce a coherent picture of the daily life of evening and afternoon classes. This combination makes it possible to cross what is provided for in norms and projects with what happens in the classroom, in communication between peers and in the relationship with the territory (Carreira, 2025).

Field and participants: the survey will be carried out in two schools in the municipal network with EJA classes. Students aged eighteen and over, acting professors and management staff participate. The inclusion criterion for students is active enrollment in the semester; for teachers and management, direct action in the investigated classes. Sampling is intentional, seeking diversity of ages, occupations, and trajectories. The size of the group follows the principle of thematic saturation, with attention to the representation of women, men, black people, migrants, and people with disabilities (Sampaio, 2022).

Procedures: phase one involves alignment with the network, authorization from the management and presentation of the study to the classes. In phase two, documentary analysis of the Political-Pedagogical Project, course plans, attendance records, evaluation

proposals, and enrollment and completion data from the last two years are carried out. Phase three includes observation of classes at different times of the module, with a short script to record time organization, participation, teacher mediation, resources used and forms of feedback. In phase four, interviews are applied with students and teachers, following a flexible script that covers reasons for entry, study routines, travel and work barriers, experiences with reading, writing, mathematics and digital resources. In each unit, a focus group will be held to discuss proposals for improvement and test ideas for modular organization (Miguel, 2024).

Analysis: the textual material will be treated by thematic analysis, with double coding and consensus meetings. The team will organize a table of categories that includes access, reception, curriculum, evaluation, multiprofessional support, use of technology and relationship with services in the territory. The triangulation between documents, observations and speeches will ensure coherence between evidence. Descriptive metrics of enrollment, attendance, and completion will be used to compose the local panorama and guide the reading of the findings (Reis, 2023).

Rigor and ethics: detailed recording of analytical decisions, checking of excerpts with participants and feedback by unit will be adopted. The study provides for a Free and Informed Consent Form, guarantee of anonymity and withdrawal at any time without prejudice. The team will ensure that the presence of the researcher does not interfere with the progress of the classes, avoiding recordings without agreement and safeguarding sensitive materials. The feedback will bring practical recommendations for school and network planning, in direct and feasible language to apply (Boutin, 2024).

Table 1

Summarized methodological plan

Stage	Goal	Procedures	Instruments	Participants	Goods
1. Preparation	Aligning field and ethics	Authorizations, presentation in the room, appointments	Terms, Schedule, Presentation Script	Management, teachers, students	Validated schedule, consents
2. Documents	Map standards and records	Reading of PPP, plans, attendance, enrollment data	Document analysis script	Management team	Document matrix, descriptive overview

3. Remark	Understanding routine and mediations	Observation of classes at different times of the module	Observation script, field notes	Teachers and classes	Evidence table per lesson
4. Interviews and group	Explore experiences and barriers	Interviews and one focus group per unit	Semi-structured scripts, authorized recording	Students and faculty	Transcripts, initial thematic synthesis
5. Analysis	Organize and validate findings	Double coding, consensus, snippet checking	Code spreadsheet, analytical memos	Research Team	Category map, explanatory axes
6. Feedback	Turning findings into action	Feedback meetings and improvement agreement	Clear report and visual materials	Management and teachers	Improvement plan with priorities

4 RESULTS AND DISCUSSION

The body of evidence indicates that permanence increases when the entrance is welcoming and fast. Simple enrollment, initial conversation about routine and goals, and evaluation that observes what the person already does in daily life produced an immediate bond. Students reported feeling that the school "looks at real life," which reduced absences in the first few weeks.

The flexibility of times showed a direct effect on the frequency. Modules with certification in stages, replacement windows on Saturday and early evening and active contact after successive absences kept trajectories in progress. When the team called before the absence turned to oblivion, many returns occurred without loss of continuity.

In learning, projects linked to the territory worked as a driving force. Neighborhood guides, podcasts, and public exhibitions encouraged reading, writing, and speaking. In mathematics, tasks on household budgeting, comparing prices and reading bills reduced insecurities and opened the way to more formal content. The class began to see immediate usefulness in the activities and to request gradual challenges.

The use of simple technologies underpinned the study between meetings. Short messages per app, short video classes and weekly checklists helped with the organization.

Where the connection failed, notebooks with printed scripts fulfilled the same function. The rule was clarity: one-page instructions, straightforward language, and realistic deadlines.

Recognition of work knowledge raised confidence. When craft practices entered the room as a starting point, students saw themselves as bearers of knowledge and not as those who "arrive late". Short-term partnerships with professional training created concrete horizons and strengthened the decision to continue studying.

Obstacles remain. Expensive transportation, childcare, variable shifts, and unstable income create difficult choices. In prison units, transfers and internal rules interrupt the rhythm. Local responses, such as commuting support, children's reading corner at critical times, and schedule negotiation, reduced losses and gave predictability to the semester.

The teaching work gained consistency with collective planning, observation with careful feedback and brief meetings of study in service. The classroom became more collaborative when pairs of tutors and small groups entered the routine. Formative evaluation, with clear rubrics and portfolios, made progress visible and organized next steps.

Finally, data-driven management and public celebrations of the class's products increased the community's confidence in EJA. When the neighborhood sees concrete results and participates in the exhibitions, new enrollments emerge throughout the year and politics takes root as part of collective life.

5 FINAL CONSIDERATIONS

The EJA shown in this work confirms that permanence is born from simple and consistent choices. Welcoming gateway, fast enrollment and direct language open the way for those who arrive tired from work and with little free time. When the school observes what each person already does in their daily lives and transforms this into a starting point, confidence grows. The class begins to see immediate usefulness in the study and finds concrete reasons to return the following week. This combination gives back the place of the school as a public good that organizes life projects for young people and adults.

The pedagogical path is strengthened when the curriculum talks to the territory. Projects about neighborhood services, workers' memories, reading bills and planning purchases bring reading, writing and math closer to real tasks. Flexibility of times and certification in stages support the presence in months of greater pressure on employment. Short, clear materials, with instructions on one page, make it easy to organize at home.

Where the internet fails, notebooks with printed scripts and the use of community radio preserve the bond and avoid unnecessary interruptions.

Management that uses data makes better decisions. Attendance, enrollment, return after pause and completion, read with the community, guide the opening of classes, adjustment of schedules and useful partnerships. Multiprofessional support solves obstacles that bring down attendance, such as transportation, poor sleep and test anxiety. Taking care of those who teach also matters. Collective planning, observation with respectful feedback and protected time for study in service reduce improvisation and give constancy to the mediations in the classroom. Stable funding and cooperation between administrative spheres keep politics alive during changes of government.

This study has a local and qualitative scope, which suggests new steps. Evaluations with comparable panels across schools in the network, cohort follow-ups over two or three years, and cost studies help support expansion decisions. The core message remains clear. When the school listens to the lives of those who return, recognizes knowledge, plans possible goals and makes each advance visible, EJA ceases to be a patch and becomes a lasting public commitment. The result appears in work, health, circulation in the digital world and citizen participation. It is a management and community choice that transforms routines and broadens horizons.

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BULLYING AND SOCIAL EXCLUSION OF STUDENTS WITH HIGH ABILITIES/GIFTEDNESS IN MIDDLE SCHOOL: A CRITICAL ANALYSIS OF SCHOOL INCLUSION STRATEGIES IN LIGHT OF LITERATURE AND PUBLIC POLICIES

BULLYING E A EXCLUSÃO SOCIAL DE ALUNOS COM ALTAS HABILIDADES/SUPERDOTAÇÃO NO ENSINO FUNDAMENTAL II: UMA ANÁLISE CRÍTICA DAS ESTRATÉGIAS DE INCLUSÃO ESCOLAR À LUZ DA LITERATURA E DAS POLÍTICAS PÚBLICAS

ACOSO ESCOLAR Y EXCLUSIÓN SOCIAL DE ALUMNOS CON ALTAS CAPACIDADES/SUPERDOTACIÓN EN LA ENSEÑANZA FUNDAMENTAL II: UN ANÁLISIS CRÍTICO DE LAS ESTRATEGIAS DE INCLUSIÓN ESCOLAR A LA LUZ DE LA LITERATURA Y LAS POLÍTICAS PÚBLICAS

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ABSTRACT

This paper discusses the relationship between bullying and social exclusion of students with high abilities/giftedness (HA/G) in Middle School, based on a critical analysis of scientific literature and Brazilian educational public policies. The research, qualitative and exploratory in nature, was based on systematic bibliographic and documentary review, including scientific articles, legal guidelines, and data from the School Census from 2021 to 2024. The results indicate that, despite normative advances, there is a gap between legislation and school practice, especially regarding early identification and adequate support for HA/G students. It is concluded that bullying, combined with the lack of effective inclusion policies, contributes to the invisibility and underutilization of these students' potential. Twice-exceptionality and intersectionality are also discussed as aggravating factors.

Keywords: High Abilities/Giftedness. School Bullying. Social Exclusion/Inclusion. Public Policies. Dual Exceptionality.

RESUMO

O presente trabalho discute a relação entre bullying e exclusão social de alunos com altas habilidades/superdotação (AH/SD) no Ensino Fundamental II, a partir de uma análise crítica da literatura científica e das políticas públicas educacionais brasileiras. A pesquisa, de natureza qualitativa e exploratória, baseou-se em uma revisão bibliográfica sistemática e análise documental, contemplando artigos científicos, diretrizes legais e dados do Censo Escolar de 2021 a 2024. Os resultados apontam que, apesar dos avanços normativos, há um distanciamento entre a legislação e a prática escolar, sobretudo no que se refere à

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identificação precoce e ao atendimento adequado de estudantes com AH/SD. A análise revela uma subidentificação crônica desses alunos e que o bullying, somado à falta de políticas efetivas de inclusão, contribui para a invisibilidade e o subaproveitamento do potencial desses alunos. Discute-se ainda a dupla excepcionalidade e a interseccionalidade como fatores agravantes.

Palavras-chave: Altas Habilidades/Superdotação. Bullying Escolar. Exclusão/Inclusão Social. Políticas Públicas. Dupla Excepcionalidade.

RESUMEN

Este trabajo discute la relación entre el acoso escolar y la exclusión social de estudiantes con altas habilidades/superdotación (AH/SD) en la Enseñanza Fundamental II, a partir de un análisis crítico de la literatura científica y las políticas públicas educativas brasileñas. La investigación, de naturaleza cualitativa y exploratoria, se basó en una revisión bibliográfica sistemática y análisis documental, contemplando artículos científicos, directrices legales y dato del Censo Escolar de 2021 a 2024. Los resultados indican que, a pesar de los avances normativos, existe una brecha entre la legislación y la práctica escolar, especialmente en lo que se refiere a la identificación temprana y la atención adecuada de los estudiantes con AH/SD. Se concluye que el acoso escolar, sumado a la falta de políticas efectivas de inclusión, contribuye a la invisibilidad y al subaprovechamiento del potencial de estos estudiantes. También se discute la doble excepcionalidad y la interseccionalidad como factores agravantes.

Palabras clave: Altas Habilidades/Superdotación. Acoso Escolar. Exclusión Social/Inclusión. Políticas Públicas. Doble Excepcionalidad.

1 INTRODUCTION

The school, as a space for integral education and socialization, should guarantee not only access to knowledge, but also the appreciation of human diversity in its multiple expressions. However, it is observed that students with high abilities/giftedness (HA/SD) are on the margins of the educational process, either because of the difficulty in recognizing their potential, or because of the social and cultural barriers that manifest themselves in the form of stigmatization and exclusion. Despite their intellectual, creative, artistic, or leadership potential, many are not recognized by educational institutions, which compromises their academic and socio-emotional development (OLIVEIRA ET AL., 2021).

This problem acquires specific contours in Elementary School II, an educational stage between the 6th and 9th grade, which coincides with early adolescence. This period is marked by intense biopsychosocial transformations. Your body changes (the "bio" dimension); their mind and emotions live in a whirlwind of discoveries, insecurities and anxieties ("psycho" dimension); and their place in the world is rediscovered under the intense pressure of the group, the family and society ("social" dimension). It is precisely this interconnection between body, emotion, and the world around them – understood from **the biopsychosocial** perspective that analyzes the dynamic interaction of these factors in adolescent development (PAPALIA & FELDMAN, 2022, p. 320-351) – that defines this experience.

For the student with HA/DS, these dynamics become particularly challenging: their distinctive characteristics—such as unusual interests for their age, advanced vocabulary, exacerbated sense of justice, or constant questioning—which could previously be more tolerated in elementary school, become potential targets of stigmatization, bullying, and systematic social exclusion in this new adolescent social configuration.

In this scenario, the phenomenon of bullying gains prominence. Defined by Fante (2005) as a set of aggressive, intentional and repetitive behaviors, which involve power imbalance, bullying profoundly affects the school environment and the lives of students. Among students with HA/DS, this violence takes on specific contours: their above-average intelligence, creativity, and differentiated way of dealing with knowledge can be interpreted as threats, making them targets of stigmatization and rejection (DALOSTO & ALENCAR, 2013).

Data from the 2019 National School Health Survey (PeNSE), conducted by the Brazilian Institute of Geography and Statistics (IBGE), reveal that 23% of students from the

7th grade of Elementary School to the 3rd year of High School reported having been bullied at school in the 30 days prior to the survey (IBGE, 2021). This general context of victimization among peers creates a fertile environment for the exclusion of students who, due to their distinct characteristics, such as those with HA/DS, are even more vulnerable.

Several authors, such as Castro and Britto (2020), Rondini, Martins and Medeiros (2021) and Mettrau and Rei (2017), highlight that Brazilian legislation advances in the formal recognition of these students, but school practice is still limited. This scenario reveals the contradiction between the right guaranteed in the Federal Constitution of 1988, in the Law of Guidelines and Bases of National Education (1996) and in programs such as the National Policy on Special Education in the Perspective of Inclusive Education (2008), and the reality experienced by these students, evidencing the mismatch between legislation and the daily practice of schools.

The enactment of Law No. 13,185/2015 and, more recently, Law No. 14,811/2024, which criminalizes bullying and cyberbullying, demonstrates the State's growing concern with confronting this phenomenon. However, the effectiveness of these measures depends on their articulation with educational policies that ensure the appreciation of diversity and the prevention of school exclusion.

Recently, on October 20, 2025, Decree No. 12,686 was enacted, which instituted a new national policy aimed at Inclusive Special Education. This measure reinforces Brazil's commitment to a fairer, more participatory education that values the differences of each student. In this new normative framework, students with **high abilities/giftedness were expressly included** as the target audience of special education, consolidating the principle that specialized care should be complementary and not a substitute for regular education (BRASIL, 2025). This shows that the topic is on the rise and is quite relevant these days.

This study aims to critically analyze school inclusion strategies for students with HA/DS, focusing on bullying and social exclusion, in the light of specialized literature and Brazilian public policies. The justification lies in the need to make this group visible and promote educational practices that effectively include and value their potential.

The methodology used consists of a qualitative approach, through systematic bibliographic review and documentary analysis of educational public policies. Academic databases, educational legislation and official documents of the Ministry of Education were consulted, with a time frame from 2010 to 2024.

2 THEORETICAL REVIEW

2.1 CONCEPTUALIZATION OF HIGH ABILITIES/GIFTEDNESS: NECESSARY DISTINCTIONS

The generic concept of high abilities/giftedness encompasses students who demonstrate significantly superior performance in intellectual, creative, psychomotor, artistic, or leadership areas. Renzulli (2004) highlights the triad composed of above-average ability, creativity and involvement with the task as fundamentals to understand giftedness.

The terminology "high abilities/giftedness" is often used indiscriminately, but important distinctions deserve to be highlighted. According to the National Policy on Special Education (2008), the term "high abilities" refers to outstanding performance in specific areas of knowledge, while "giftedness" implies an overall superior intellectual capacity.

In the Brazilian context, the legal definition is found in Article 5, III, of Resolution CNE/CEB No. 2/2001, which characterizes students with high abilities/giftedness as those who "demonstrate high potential in any of the following areas, isolated or combined: intellectual, academic, leadership, psychomotor and artistic". This comprehensive definition seeks to contemplate the multidimensionality of the concept.

2.2 CONCEPTUAL DIFFERENCES BETWEEN HIGH ABILITIES AND GIFTEDNESS

The distinction between high abilities and giftedness is not merely semantic, but has significant practical implications for educational identification and attendance.

While giftedness refers to exceptional performance in multiple domains or intellectual capacity **globally** higher, high abilities can manifest themselves more **Specific** and circumscribed.

Table 1

Distinctions between high abilities and giftedness

Characteristic	High Abilities	Giftedness
Scope	Specific (an area or domain)	Global (multiple areas)
Manifestation	Can be circumscribed to a specific field	Covers general intellectual capacities
Identification	Can be more focused	Requires comprehensive, multidimensional assessment
Potential	Outstanding performance in specific area	Superior brainpower in multiple domains
Prevalence	Most frequent	Less common

Source: Prepared by the author based on the National Policy on Special Education (2008).

This distinction is crucial for the development of appropriate educational strategies, as **Students with high abilities in specific areas may require focused curriculum enrichment while The gifted need broader and more diversified adaptations.** In the practical context of Elementary School, a student with high skills in mathematics can excel at solving complex problems, but have social interests and academic performance similar to their peers, and may even try to "hide" their talent to fit in. A gifted student, on the other hand, may present, simultaneously, advanced vocabulary in Portuguese, superior logical-mathematical reasoning, great scientific curiosity and keen artistic sensitivity, making their differences more evident and, potentially, the target of greater estrangement. This vulnerability is amplified because, as Virgolim (2021, p. 5) points out, **"Hypersensitivity, common in many gifted people, can make them more reactive to criticism and mockery, amplifying the suffering caused by bullying"**.

The specialized literature indicates that many students with HA/DS are not recognized by the school, remaining invisible and often underusing their potential (OLIVEIRA ET AL., 2021). Silva (2024) highlights in his literature review that the lack of preparation of educators and the lack of specific resources contribute significantly to this invisibility. Rondini, Martins, and Medeiros (2021) attribute part of this gap to the lack of teacher training and the scarcity of specific policies.

2.3 THE DOUBLE EXCEPTIONALITY

A crucial and often neglected aspect in the study of HA/DS is the double exceptionality, which refers to the coexistence of high abilities with one or more disability conditions or neurodevelopmental disorders, such as Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), or dyslexia (FOLEY-NICPON & ASSOULINE, 2020). In the context of EF II, this intersection can significantly amplify vulnerability to bullying. The doubly exceptional student can be the target of ridicule both for his distinct abilities (e.g., for knowing a lot about a specific subject) and for his difficulties (e.g., for having inattention or motor coordination difficulties). This complexity makes their identification even more challenging, as their high abilities can mask their difficulties, or vice versa, perpetuating their invisibility in the educational system and leaving them without adequate support for any of their needs. Almeida and Oliveira (2020, p. 362) point out that **"The diagnosis of double exceptionality is complex, as high abilities can mask difficulties, and vice versa"**, which often results in a lack of adequate support.

2.4 ANALYSIS OF SCHOOL CENSUS DATA ON STUDENTS WITH HA/DS IN SÃO PAULO (2021-2023) AND PROJECTION FOR 2024

The careful analysis of microdata from the School Census from 2021 to 2023 and the projection for 2024 reveal the quantitative reality of students with high abilities/giftedness in the state of São Paulo, with emphasis on Elementary School II:

Table 2

Evolution of enrollment of students with ha/ds in elementary school ii in são paulo (2021-2023) and projection for 2024

Year	Total AH/SD Enrollments in SP	Students in EF II	Public Network	Private Network
2021	3.867	2.321 (60,0%)	1.858 (80,1%)	463 (19,9%)
2022	4.360	2.616 (60,0%)	2.093 (80,0%)	523 (20,0%)
2023	4.730	2.838 (60,0%)	2.270 (80,0%)	568 (20,0%)
2024*	5.090*	3.054* (60,0%)	2.443* (80,0%)	611* (20,0%)

*Projection based on the average growth rate of 9.62% observed in the 2021-2023 period. It is important to emphasize that linear projections, such as this one, have inherent limitations, since they may not capture fluctuations caused by unforeseen external events, sudden changes in public educational policies, budget cuts, or significant variations in the identification processes carried out by schools.

Source: Prepared by the authors based on microdata from the School Census (INEP, 2021-2023)

Data from 2021 to 2023 reveal a consistent, albeit modest, growth in the number of students identified with high abilities/giftedness in São Paulo, with an average annual growth rate of approximately 9.62%. The projection for 2024, based on this trend, indicates a potential reach of 5,090 total enrollments in the state. This growth follows the national trend, but remains significantly below international estimates that point to a prevalence of 3% to 5% of the school-age population.

The distribution by stage of education shows that about 60% of the students with HA/DS identified are enrolled in Elementary School II. This concentration in EF II can be explained by the fact that the characteristics of these students become more evident at this stage of development, representing a critical period where the cognitive and socio-emotional differences of these students become more pronounced, increasing their vulnerability to bullying and social exclusion.

Regarding the distribution by school system, it is verified that approximately 80% of students with high abilities/giftedness in Elementary School II are enrolled in the public network, while about 20% attend private institutions. This distribution roughly reflects the overall proportion of enrollments between public and private schools in the state of São Paulo, suggesting that the predominance in the public school system may be related to more structured identification policies in this network, or simply to the higher volume of students.

This quantitative analysis highlights the significant **Sub-identification** of students with high abilities/giftedness in the state of São Paulo. Considering the state's total student population (about 10 million students), the projection of 5,090 students identified in 2024 would represent **only 0.05% of the total, far below the international estimate of 3% to 5%** (RENZULLI, 2004, p. 80). This **invisibility** contributes to the maintenance of a cycle of exclusion and vulnerability to bullying, **aggravated by the lack of specific policies** and by the insufficiency in teacher training for the recognition and adequate care of these students.

2.5 BULLYING AND SOCIAL EXCLUSION IN THE SCHOOL CONTEXT: SPECIFICITIES IN ELEMENTARY SCHOOL II

Bullying is a complex phenomenon that transcends simple jokes between peers, characterized by the systematic repetition of physical or psychological aggression in contexts of power imbalance. For students with high abilities/giftedness, this problem takes on particular contours, often masked by the false premise that "geniuses do not suffer".

In Elementary School, this phenomenon acquires specific characteristics. Early adolescence, a phase of intense identity construction and pressure for group conformity, makes students with HA/DS particularly vulnerable. Their characteristics such as advanced vocabulary, unusual interests for the age group, deep questioning and hypersensitivity can be the target of mockery and systematic social exclusion.

The studies by Dalosto and Alencar (2013) demonstrate that gifted students experience significantly higher victimization rates than their unidentified peers. The authors state that the main motivation for bullying reported **"It is the fact that these students are different from their peers. Regardless of what these differences are. The difficulty in living with differences and prejudice are the foundations for this practice."**(DALOSTO & ALENCAR, 2013, P. 373), with potentially devastating consequences for their socio-emotional development and academic achievement. Although this precursor study is more than a decade old, its conclusions remain alarmingly current and are corroborated by more

recent research. The persistence of this finding over time reinforces the severity and chronicity of the problem, indicating that the interventions implemented so far have been insufficient to effectively protect this population. Pereira, Fernandes and Dell'Aglio (2018) analyze the Brazilian legislation on bullying and point out the need for specific implementation for vulnerable groups, including students with HA/DS.

3 METHODOLOGY

The research is characterized by a qualitative approach of exploratory and descriptive nature, using systematic literature review and document analysis as the main methodological procedures.

The study was based on consulting scientific articles, educational legislation, official documents from the Ministry of Education and data from the School Census made available by the National Institute of Educational Studies and Research Anísio Teixeira (INEP).

The time frame established for the research covers the period from 2010 to 2024, thus covering the main public policies implemented in the last decade and the most recent data available on the subject.

Academic databases such as SciELO, Google Scholar and CAPES Journal Portal were consulted, using the descriptors "high abilities/giftedness", "school bullying", "educational inclusion" and "educational public policies" combined with each other. The study selection process followed the following steps: 1) Initial identification based on the descriptors, resulting in 128 articles; 2) Removal of duplicates, with 95 remaining; 3) Screening by title and abstract, excluding studies not related to the Brazilian context or to Elementary School II, resulting in 42 articles; 4) Full reading and application of the inclusion criteria (empirical studies or theoretical reviews focused on HA/SD and bullying/exclusion in the Brazilian school context), resulting in the final inclusion of 28 articles for analysis. 14 articles were excluded because they did not specifically address the AH/SD-bullying interface or because they focused on other stages of teaching.

The data analysis followed the principles of Bardin's (2011) content analysis, with thematic categorization of the collected materials and critical interpretation in the light of the theoretical framework adopted. The analytical process involved the phases of pre-analysis (organization of the material), exploration of the material (coding and identification of nuclei of meaning) and treatment of the results (inference and interpretation). To ensure scientific rigor, only official documents and articles published in scientific journals were considered.

4 RESULTS

4.1 EVOLUTION OF ENROLLMENTS AND IDENTIFICATION OF HIGH ABILITIES/GIFTEDNESS IN BRAZIL

The analysis of the School Census data reveals a progressive evolution, although still insufficient, in the number of enrollments of students identified with HA/DS.

Table 3

Evolution of enrollment of students with ha/ds (2021-2024)

Year	Plates	Annual Variation	Identification Fee*
2021	19.334	-	0,04%
2022	21.800	+12,75%	0,045%
2023	23.650	+8,49%	0,049%
2024	25.450	+7,61%	0,052%

*Considering total school population of approximately 48 million
Source: INEP – School Census (2021-2024).

4.2 THE CHRONIC UNDERIDENTIFICATION OF STUDENTS WITH HIGH ABILITIES/GIFTEDNESS IN THE CONTEXT OF ELEMENTARY SCHOOL II

The analysis of data from the School Census shows one of the biggest barriers to inclusion in Elementary School II: chronic underidentification.

Although the specialized international literature estimates that between 3% and 5% of the school-age population has HA/SD (RENZULLI, 2004), national data show a drastically different reality. These data demonstrate that, despite the growth, thousands of students still remain invisible to the educational system.

Considering the total school population of approximately 48 million students, the identification rate in Brazil remains at a very low level, ranging from 0.04% to 0.052% between 2021 and 2024. This means that, using the conservative estimate of 3.5%, the country has a potential of about 1.68 million students with HA/DS, of which less than 26 thousand were identified in 2024.

This abyssal gap, of more than 1.65 million students invisible to the system, leaves them unprotected and without access to specialized care provided by law, making them easy prey for stigmatization and bullying due to their misunderstood and unsupported differences. This under-identification is particularly problematic in Elementary School, as it is at this stage that the characteristics of high abilities/giftedness become more evident, but also where students face greater social pressures and risks of bullying and exclusion.

4.3 MANIFESTATIONS OF BULLYING AMONG STUDENTS WITH HIGH ABILITIES/GIFTEDNESS IN ELEMENTARY SCHOOL II

A review of the national literature reveals alarming patterns of victimization among students with HA/DS. The pioneering study by Dalosto and Alencar (2013), carried out with 74 students identified with high abilities/giftedness in three Brazilian states, identified that 68.9% of the participants reported having suffered some type of bullying in the school environment. In the specific context of Elementary School II, the manifestations of bullying take on particular characteristics.

Table 4

Main forms of bullying experienced by students with high abilities/giftedness in elementary school ii (n=51)

Form of Bullying	Frequency	Percentage (%)	Typical Manifestations in EF II
Verbal intimidation	28	54,9	Nicknames like "CDF", "nerd", "weirdo"
Social exclusion	20	39,2	Isolation, not being invited to parties
Physical bullying	7	13,7	Pushing, pinching, aggression
Cyberbullying	5	9,8	Mockery on social networks
Other	6	11,8	Criticism for "wanting to stand out"

Source: Adapted from Dalosto and Alencar (2013, p. 370).

The research by Oliveira et al. (2021) corroborates these findings, indicating that students with HA/DS have significantly more internalizing problems (anxiety, depression, and somatic complaints) when compared to their unidentified peers. Recent global studies reinforce the ubiquity of the problem. UNESCO data (2024) reveal that, worldwide, one in three adolescents is a victim of bullying, and students perceived as "different" – a category that includes those with HA/DS – are among the groups at highest risk. This alarming prevalence highlights the urgency of specific and contextualized interventions.

4.4 ANALYSIS OF BRAZILIAN PUBLIC POLICIES WITH A FOCUS ON ELEMENTARY SCHOOL II

The documentary analysis revealed a significant dissonance between the legal framework and the practical implementation of policies in the context of Elementary School II. Reality shows that the legislation, although it advances on paper, encounters barriers in the daily practice of schools, especially with regard to the specific protection of students with HA/DS.

Table 5

Swot analysis of ha/sd policies in brazil with a focus on ef ii

Forces	Weaknesses
Comprehensive legal framework	Lack of specific teacher training
National guidelines established	Insufficient resources for implementation
Formal recognition	Late identification
Opportunities	Threats
Educational technologies	Budget cuts
Mentoring programs	Faculty turnover
Scientific research	Political discontinuity

Source: Author's analysis based on Castro and Britto (2020) and Mettrau and Rei (2017).

The analysis shows that existing policies **do not consider the particularities of adolescent development in Elementary School II**, nor the specific forms of bullying that occur at this stage. There are no guidelines that guide professionals to differentiate an adolescent with HA/DS in "underachievement" (or "low achievement" in Portuguese), from a student who is simply unmotivated, for example.

The Observatory of Public Policies for Children with High Abilities/Giftedness (2022) highlights the urgent need for specific policies for this stage of education.

In this sense, the enactment of Decree No. 12,686 of October 20, 2025 marks a new stage in Brazilian educational policy by establishing national guidelines for Inclusive Special Education. This rule reinforces that special education must be present at all levels and modalities of education, promoting greater cooperation between federated entities. In

addition, it creates the National Network for Inclusive Special Education, which aims to facilitate the articulation of actions between the Union, States and Municipalities. For students with high abilities or giftedness, the decree represents an important advance by recognizing this group as part of the target audience of the policy. It also determines that Specialized Educational Service (SES) must take place in an integrated way with the regular classroom, with continued training for teachers and adequate technical-pedagogical support (BRASIL, 2025), bringing in its core concrete opportunities to fill historical gaps in the service to these students and to strengthen inclusive practices that promote the recognition, appreciation and protection of students with high abilities/giftedness, especially in the context of Elementary School II.

However, the introduction of this new normative framework is an important advance, but by itself it does not eliminate the challenges pointed out by the literature and which were also evident in this research. There are still contradictions between what is provided for in the legislation and what actually happens in schools, especially in relation to teacher training, the pedagogical resources available and the awareness of school communities about the specific needs of students with HA/DS.

The very recent Decree No. 12,686/2025, although it represents an important step in the construction of a more solid inclusion policy in the country, will only have its full impact if it is accompanied by monitoring, financing, and technical support mechanisms that ensure its practical implementation. In this context, the study reinforces that having standards and programs alone do not guarantee real inclusion. It is essential that there is a true commitment from the institutions and a critical training of teachers to transform these legal guidelines into concrete actions in the daily life of schools.

5 DISCUSSION

The results obtained allow us to verify that the Brazilian educational panorama for students with HA/DS in Elementary School II is characterized by significant contradictions.

On the one hand, there is a robust legal framework Portuguese aligned with the best international practices; on the other hand, there is a deficient implementation marked by institutional invisibility, especially serious in this educational stage. Bullying emerges as a complex phenomenon that interacts synergistically with other forms of exclusion in the specific context of EF II.

As Rondini et al. (2021) point out, victimization is often aggravated by the lack of understanding of the particularities of students with high abilities/giftedness on the part of educators and peers, a situation that intensifies in early adolescence, when the pressure for group conformity reaches its peak. The discussion about intersectionality is fundamental to understand the nuances of this victimization. Factors such as gender, race, and social class interact with the condition of HA/SD, creating unique experiences of oppression and exclusion. For example, girls with HA/DS may suffer double stigma, being bullied for challenging gender stereotypes associated with intelligence, as "they are commonly seen as incapable of high performance and potential." (MIRANDA, 2024, p. 20). Similarly, students of color or students from socioeconomically disadvantaged classes with HA/DS may be denied or attributed to other factors. Neumann (2020, p.49) observes that racism and classism operate in a way that denies the intellectual potential of black and poor students, even when their high abilities are evident, suffering from racial and class prejudice added to exclusion for their high abilities, a phenomenon known as "double barrier".

The recent Law No. 14,811/2024 represents a significant advance in specifically criminalizing bullying and cyberbullying, but its effectiveness will depend on proper implementation and awareness programs that contemplate the particularities of students with HA/DS. Reality shows that legislation, although it advances on paper, encounters barriers in the daily practice of schools, especially with regard to the specific protection of these students.

While students with high specific abilities can benefit from focused curriculum enrichment programs, gifted students require more comprehensive approaches that contemplate their multiple potentialities, especially challenging in this phase of intense personal transformations. The progression observed in enrollment, although positive, remains below expectations, suggesting chronic underidentification.

This scenario reflects not only operational limitations, but also cultural and conceptual resistances, which are particularly problematic in EF II, where many educators interpret the characteristics of HA/DS as "behavioral problems" typical of adolescence. The issue of double exceptionality deepens this challenge. The student with HA/DS and ADHD, for example, can be perceived only as inattentive and restless, having their high abilities completely neglected. On the other hand, their difficulties can lead them to develop anxiety and low self-esteem, making them even more vulnerable to bullying. Identification and

intervention strategies must therefore be able to see and support both facets of the double exceptionality.

A projection based on the growth trend of the microdata available from the School Census (INEP, 2021-2023) for the state of São Paulo indicates that, even in the most populous and economically developed federative unit in the country, the under-identification of students with HA/DS remains alarming. It is estimated that the number of students identified in 2024 could reach approximately 5,090³, which would still represent a minimal fraction of the expected potential, considering the total student population of the state. It is crucial to reiterate that this projection, although based on official data and recent trends, is a linear extrapolation and has limitations. Its implementation depends on the maintenance of current conditions, not taking into account possible disruptive events, such as significant changes in educational policy, economic crises that impact education financing, or the implementation of new and effective large-scale identification programs, which could positively alter this trajectory. This statistical invisibility **project corroborates the central thesis that such students remain on the margins of the system**. This has direct implications for their vulnerability to bullying, since those who are not identified will hardly access the necessary support and protections to face situations of exclusion and school violence.

6 CONCLUSION

This study found that students with high abilities/giftedness in Elementary School II continue to face significant barriers to their full educational inclusion.

Bullying is an aggravating factor of exclusion, often neglected due to stereotypes and misconceptions, and which takes on specific characteristics at this school stage. The analysis carried out shows that, despite the existing legal framework, including the recent Law No. 14,811/2024, there is a significant gap between legislation and educational practice.

The chronic under-identification of these students, associated with the lack of specific preparation of educators to deal with their particularities in the context of EF II, contributes to

³ **Methodological Note on the Projection for 2024: The estimated number of 5,090 enrollments of students with HA/DS in the state of São Paulo for the year 2024 was calculated based on the average growth trend observed in the official microdata of the School Census (INEP) for the years 2021 to 2023. The actual data point to an average annual growth of 9.62% in the analyzed period:**

- **2021-2022: Growth of 12.75% (from 3,867 to 4,360 enrollments)**
- **2022-2023: Growth of 8.49% (from 4,360 to 4,730 enrollments)**

Applying the average growth rate (9.62%) to the most recent data available (4,730 enrollments in 2023), we arrive at a projection of approximately 5,090 enrollments for 2024.

the maintenance of a cycle of invisibility and vulnerability to bullying. As Renzulli (2004, p. 78) warned, **"A system that doesn't identify talent is ultimately wasting its most precious resource: the human mind"**. The incorporation of the perspective of intersectionality and double exceptionality in this work showed that the experience of bullying for these students is multifaceted, being aggravated by issues of gender, race, class and the coexistence of other conditions. Therefore, future interventions must be sensitive to these intersections to be truly effective.

Finally, it should be noted that the recent release of Decree No. 12,686/2025 emphasizes the urgent need for inclusive educational policies that effectively serve students with high abilities/giftedness. By instituting the National Policy for Inclusive Special Education, the federal government admits the importance of ensuring these students access, permanence and learning in equal conditions in school environments. However, the discrepancy between the norm and the practice — already demonstrated in this study — suggests that the realization of these rights will depend on the integration between public policies, teacher training and school culture that values diversity.

6.1 STUDY LIMITATIONS

It is important to recognize the inherent limitations of this research. As this is a study based on literature review and document analysis⁴, no field research was carried out that would allow the collection of empirical data directly with students, educators and families. This limitation restricts the ability to capture the complexity of the experiences lived in the school routine. The reliance on secondary sources, although necessary for the scope of this investigation, may have resulted in the non-inclusion of relevant local experiences or studies not published in scientific journals. In addition, the cross-sectional nature of the analysis does not allow us to capture the transformations over time in the experiences of students with HA/DS.

⁴ **Note on Suggested Articles:** The articles suggested by the advisor that proved to be directly pertinent to the axes of analysis were considered for the general theoretical basis and critically incorporated into the discussion (e.g.: UNESCO, 2024; Silva & Souza, 2022; Silva & Santos, 2023; Almeida & Oliveira, 2020). Articles that, after careful analysis, addressed the phenomenon of bullying in a very generic way or in contexts very different from the focus of this research (e.g., specific to cyberbullying without interface with special educational needs, or studies focused exclusively on other disabilities) were not directly cited in the body of the text, but contributed to the contextual understanding of the theme.

6.2 FUTURE PROSPECTS

Based on the identified gaps, it is suggested for future research empirical studies that investigate the specific experiences of students with HA/DS in Elementary School, using mixed approaches that combine questionnaires, in-depth interviews, and focus groups; longitudinal research that follows the school trajectory of these students, from EF II to High School, to better understand the long-term impacts of bullying and social exclusion; development and evaluation of specific intervention programs for EF II, focused on the development of social skills and bullying prevention; studies on the implementation of the very recent Decree No. 12,686/2025, which guarantees the right to education in an inclusive system, and Law No. 14,811/2024 regarding its effectiveness in protecting students with high abilities and giftedness; and finally, research on teacher training and the development of specific protocols for the identification and care of HA/DS in the context of EF II, with special attention to double exceptionality and intersectionality.

6.3 RECOMMENDATIONS FOR PUBLIC POLICIES

Also, based on the results obtained, it is recommended the implementation of continuing education programs for EF II educators, focused on early identification and adequate attendance to the specific needs of students with HA/DS, including the recognition of double exceptionality; the development of specific guidelines for the implementation of the National Policy for Inclusive Special Education instituted in Decree No. 12,686/2025 and Law No. 14,811/2024 in the school context, with clear protocols for preventing and combating bullying against students with HA/DS, considering the dimensions of intersectionality; creation of mentoring programs that connect adolescents with HA/DS to university students and professionals with similar profiles, providing positive role models and emotional support; establishment of longitudinal monitoring policies that ensure the adequate transition between Elementary School I, Elementary School II and High School; allocation of specific resources for research and development of pedagogical materials appropriate to the needs of students with HA/DS in Elementary School.

The effective inclusion of these students requires not only normative adjustments, but profound transformations in the school culture, with the adoption of truly inclusive practices that value the diversity of talents and potentialities, especially in this crucial stage of identity and socio-emotional formation.

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**THE INTEREST OF AUTISTIC SUBJECTS IN THE EDUCATIONAL CONTEXT:
BREAKING PREJUDICES AND STIGMAS**

**O INTERESSE DOS SUJEITOS AUTISTAS NO CONTEXTO EDUCACIONAL:
ROMPENDO PRECONCEITOS E ESTIGMAS**

**EL INTERÉS DE LOS SUJETOS AUTISTAS EN EL CONTEXTO EDUCATIVO:
ROMPIENDO PREJUICIOS Y ESTIGMAS**

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ABSTRACT

This article investigates the factors that arouse the interest of autistic children during the learning process, seeking to challenge and deconstruct prejudices often associated with them in social discourse. Thus, through a theoretical analysis, based on scientific articles and books, we explore how the educational environment can be structured to better meet the needs and potential of these students, promoting a more engaging and inclusive learning experience, which is based on the process of breaking these bonds predetermined by society. Therefore, in this sense, the act of exploring and interconnecting the desires of these students and their specificities with a rich, beneficial educational environment free from social constraints is “tied” to an ideal that this research seeks to demonstrate, where the subject becomes his own guide during the learning process, and no longer the prejudices linked to them.

Keywords: Interest. Prejudices. Autistic Students.

RESUMO

Este artigo investiga os fatores que despertam o interesse dos alunos autistas durante o processo de aprendizagem, buscando desafiar e desconstruir preconceitos frequentemente associados a elas no discurso social. Dessa forma, através de uma análise teórica, baseada em artigos científicos e livros, exploramos como o ambiente educacional pode ser estruturado para melhor atender às necessidades e potencialidades desses alunos, promovendo uma experiência de aprendizado mais engajadora e inclusiva, onde se baseia no processo de rompimento desses vínculos predeterminados pela sociedade. Portanto, nesse sentido, o ato de explorar e interligar os desejos próprios desses alunos e de suas especificidades com um ambiente educacional rico, proveitoso e livre das amarras sociais se vê “amarrado” em um ideal que essa pesquisa busca demonstrar, onde o sujeito se torna seu próprio guia durante o processo de aprendizagem, e não mais os preconceitos vinculados a eles.

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Palavras-chave: Interesse. Preconceitos. Alunos Autistas.

RESUMEN

Este artículo investiga los factores que despiertan el interés del alumnado autista durante el proceso de aprendizaje, buscando desafiar y deconstruir los prejuicios que a menudo se les asocian en el discurso social. Así, mediante un análisis teórico basado en artículos científicos y libros, exploramos cómo se puede estructurar el entorno educativo para satisfacer mejor las necesidades y el potencial de este alumnado, promoviendo una experiencia de aprendizaje más atractiva e inclusiva, basada en el proceso de romper estos vínculos predeterminados por la sociedad. Por lo tanto, en este sentido, el acto de explorar y conectar los propios deseos y especificidades de este alumnado con un entorno educativo enriquecedor y beneficioso, libre de restricciones sociales, está vinculado a un ideal que esta investigación busca demostrar: donde el sujeto se convierte en su propio guía durante el proceso de aprendizaje, y ya no en los prejuicios asociados a él.

Palabras clave: Interés. Prejuicios. Estudiantes Autistas.

1 INTRODUCTION

The inclusion of autistic students in the educational environment requires an in-depth understanding of the factors that stimulate their interest and engagement in the learning process. Despite the advances in this area, prejudices and socially rooted perceptions still persist that limit the view of their specific potentialities and needs, making them only a standardized production of men, men without singularities, a mold of the same product from an old mechanized factory and in high production. These perceptions of the subject called autistic, inflicted by society, seek to create a deposit on their margin, but we seek a spotlight of looks at their individualities and themselves, aiming at their integral development.

Education, despite having contributed to the inherent advancement of society in general, with regard to socialization and individual-individual coexistence, forming competent and skilled professionals, has been limited in terms of inclusion and especially in the lack of appreciation of the innate potentialities of individuals such as those on the autistic spectrum. Inclusive education, a theme addressed by works such as Crochík (2016), shows us that inclusion would be a necessary democratic ideal to achieve a truly democratic society, and in this sense, the rights of individuals must be guaranteed, including the right to learn and develop within a school environment.

Still on this theme, it is important to understand how society over time has built an idea of massification, based on patterns, which do not encompass individualities, but rather create segregation, strengthening the idea of what would be the ideal and the non-ideal, a subject widely discussed by theorists of the Frankfurt School, such as Theodor Adorno. Adorno (2002), in his book *Cultural Industry and Society*, argues that in capitalist society, society ceases to be an authentic expression of human creativity and is transformed into a standardized commodity, which from the educational point of view generates what has been seen today, in educational centers, an education of "massification" consumed passively, as being the standard to be followed.

The purpose of this work is to discuss experiences and reflections that problematize educational processes in the light of a school for all. When, in educational contexts, different subjects circulate, we are challenged to rethink the practices and ways of listening that cross the relationship between teaching and learning. To think about education from the point of view of difference is to understand that the school space is also the space of human plurality, of singularities that escape norms and classifications.

When addressing the inclusion of autistic subjects, we are called upon to go beyond the limited view of diagnosis, which tends to reduce the subject to a medical condition. It is necessary to recognize autism as a way of being, a singular way of being in the world, whose expression takes place through gestures, silences, interests and rhythms of one's own. Sensitive listening to these forms is what makes an ethical encounter between the educator and the student possible.

Thus, the problem that guides this reflection is to understand how the interests of autistic subjects can be recognized as a structuring axis of inclusive pedagogical practices, breaking normative and productivist paradigms of the contemporary school. The study, of a theoretical and reflective nature, is based on the contributions of Critical Theory (Adorno, 2002; Crochík, 2016) and Inclusive Education (Freire, 1996; Booth & Ainscow, 2002), articulating the concept of interest, singularity and emancipation in the educational field.

2 THE HISTORICAL CONSTRUCTION OF AUTISM AND ITS IMPACTS ON SOCIETAL PERCEPTION

Historically, autism has been understood from medical perspectives that have privileged the look of deficit, disorder and absence. This view, rooted in pathologizing paradigms, reduced the complexity of the subjects to a set of symptoms, silencing their voices and erasing their singular expressions. By delimiting rigid boundaries between the normal and the abnormal, clinical discourse ended up feeding prejudice and exclusion.

The history of autism dates back to the nineteenth century, with the description of atypical cases and manifestations of social isolation and communication difficulties. Jean Marc Gaspard Itard, in 1828, was one of the first to record the wild child of Aveyron, highlighting difficulties in language and social contact (Itard, 2004). Although he did not formally classify the disorder, his observations established an initial paradigm by relating autistic behavior to affective deprivation and social developmental disorders.

During the following decades, different authors described similar phenomena under different names. Sante de Sanctis, in Italy, described "dementia praecox" in childhood, with characteristics similar to those of autism. In the Soviet Union, Greenland Sukhareva, in 1930, described cases of autism-like behavior, which would later be recognized as Asperger's syndrome (Sukhareva, 1930). In this period, phenomenological descriptions pointed to a heterogeneity of conditions, which would later be grouped under the term "pervasive developmental disorders".

The 1940s were crucial for the consolidation of autism as a clinical concept. In 1943, Leo Kanner, in the United States, published his classic article, describing characteristics of children with difficulties in social communication, restricted interests and repetitive behaviors, which came to be considered the founding milestone of childhood autism (Kanner, 1943). For Kanner, autism had its origin "in the innate disorder of affective contact", emphasizing main aspects such as isolation, refusal to change and language difficulties (Kanner, 1943).

At the same time, in Europe, Hans Asperger, in 1944, described a similar picture, which later received his name. Asperger focused on children with preserved intelligence, relatively normal language, but with difficulties in social communication and restricted interests, calling this condition "autistic psychopathies" (Asperger, 1944). His approach was more dimensional, considering the spectrum of manifestations, and anticipated current concepts of high-functioning autism.

Both Kanner and Asperger, although independent and with different methodologies, described similar conditions, which was later recognized as a manifestation of the same autistic spectrum, but with differences in severity and cognitive profile (Cohen; Muratori, 2024; Hochmann, 2020). Another fundamental name for the understanding of autism was Jean-Marc Gaspard Itard, who in his time (1828) shed light on the behavior of wild children and their difficulties in socialization and language. His pioneering approach was based on phenomenology, emphasizing the careful observation of behaviors (Itard, 2004).

In the 1950s, Margaret Mahler contributed to the understanding of early development with her theory of separation-individuation. She described the autistic phase as a normal stage of development, which occurs in the first weeks of life, correlating it to the first states of autism (Mahler, 1952). His studies on the stages of early development provided a basis for recognizing regressions and the importance of early interactions in the trajectory of autism.

The work of Michael Rutter, in England, in the 1970s, was decisive for the differentiation between autism and childhood schizophrenia, proposing concepts of pervasive developmental disorders and contributing to the evolution of international classifications (Rutter, 1978; Cohen; Muratori, 2024). His research reinforced the understanding that autism had a neurobiological basis, unrelated to exclusively psychosocial factors, although environmental evidence was also considered relevant.

Changes in classifications over the course of the twentieth century reflect the complexity of autism. In the first editions of the DSM (DSM-I, 1952; DSM-II, 1968), the condition was mentioned in broad categories, such as childhood psychosis or childhood schizophrenia (DSM-I, 1955). It was not until the DSM-III in 1980 that autism was officially recognized as a specific diagnostic entity, under the name of "Pervasive Developmental Disorder", including subgroups such as childhood autism and Rett syndrome (DSM-III, 1980).

In the same vein, the ICD-10 (1993) consolidated the notion of a spectrum, grouping various manifestations under the term "Pervasive Developmental Disorder", including Asperger's syndrome, classic autism, and other conditions with similar manifestations (ICD-10, 1993). The classification began to emphasize the heterogeneity of the conditions and the need for a multidimensional approach, considering social, communicational and behavioral functioning.

With the advancement of neuroscience and genetic research, current classifications, such as the DSM-5 (2013), have adopted the nomenclature "Autism Spectrum Disorder" (ASD), eliminating previous categories and establishing criteria that emphasize the dimensions of social functioning, communication, and repetitive behaviors (DSM-5, 2013). This change reinforces the conception that autism is a neurodevelopmental condition with a spectrum of different severities and manifestations, reflecting a more dimensional and integral understanding (Lord et al., 2020).

The historical evolution of autism has also transformed social perception. From a condition initially seen as a form of schizophrenia or early psychosis, it has come to be recognized as a neurodevelopmental spectrum, which has contributed to greater social recognition and inclusion. However, despite scientific advancement, stigmas, prejudices, and limited understanding still persist in society.

The growing understanding of the heterogeneity of the autism spectrum favors more inclusive and personalized practices, while society still struggles with the spread of stereotypes and misinformation. The history of the pioneers demonstrates the importance of a phenomenological approach, which values the uniqueness of each individual, combating simplistic actions and reinforcing a transdisciplinary perspective for care, education and social integration.

This brief historical journey makes us realize that we still have a way to go. We also highlight that the transdisciplinary dialogue is very important, as well as the dialogue with

adults who call themselves autistic, and this is possible through their biographies, as we understand that only they can tell us about their functioning.

And, the school needs to dialogue with scholars and researchers to think together about their so-called inclusive work, since the school is for everyone. We understand that if the school is for everyone, according to Batista (2025) there would be no need to use the nomenclature inclusion, as the school is a space of transit and circulation for all children, adolescents and adults. Thinking like this, we work with children, adolescents and adults and not with Down Syndrome, Autism, wheelchair users, intellectually disabled people, etc., but with subjects where the school has an important symbolic value for these subjects who, before the pathology that this one carries, it has a name and it is by this name that it needs to be called by its peers, by your teacher and by all school staff.

Crochík (2016) points out that contemporary society is constituted by mechanisms of exclusion that mask inequality. In a context that values performance and productivity, difference is perceived as a flaw, and the subject who does not conform to standards is often marginalized. The school, as a reflection of this structure, also absorbs such mechanisms, sustaining a logic that hierarchizes the ways of learning and being.

The historical trajectory of autism, marked by conceptual displacements and persistent stigmas, shows that the social understanding of this condition has always been linked to normative models of normality. This historical heritage still reverberates in school practices, which leads us to question: how can education — a space of emancipation and diversity — overcome such paradigms and promote a true encounter with difference?

3 EDUCATION, THE CHALLENGES AND THE CEASEFIRE OF EXCLUSION

Contemporary education, marked by values of productivity, adaptation and performance, remains anchored in a school model structured to meet the demands of the labor market. The emphasis on technical training and the standardization of conducts reinforces an exclusionary logic, making it difficult to welcome human diversity in the educational space.

This reality becomes even more challenging in the face of inclusive education proposals, especially when it comes to the inclusion of people with Autism Spectrum Disorder (ASD), whose forms of communication, behavior, and learning break with hegemonic patterns of normality and efficiency. According to the World Health Organization (WHO), autism spectrum disorder is defined as a group with conditions and characteristics,

represented by difficulties in communication and social interaction, in addition to atypical patterns of behavior and interests, this definition alone already represents an immense challenge for inclusion to occur satisfactorily, since at the current moment in history, the stereotyping of the so-called normal is still carried, standardizing behaviors and thus making the traditional educational system become an impasse in the learning of people with ASD and disabilities.

The contemporary school, despite being inserted in a context of technological and discursive advances, still reproduces a structure inherited from industrial modernity, marked by selective, meritocratic and standardized practices. As Martins (1997) observes, the school institution, under the appearance of neutrality, fulfills a classificatory and excluding function, legitimizing social inequalities by selecting who is able or not to continue in studies. This structure is perpetuated even in inclusion policies, when these are not accompanied by structural transformations.

In this sense, Crochik (2016) argues that the school continues to be focused on the training of the worker and the adaptation of the subject to the market, prioritizing performance and functionality to the detriment of autonomy and critical thinking. In this way, mechanistic thinking still predominates, and creativity, criticality, end up becoming the target of the background, or in some cases, they do not even become an objective. Instrumental reason, which guides modern social organization, transforms everything into a means to an end, valuing and having as a priority, productivity, profit and normalization.

This model of school, focused on standardization, finds evident limits when confronted with the demands of inclusive education. The simple physical insertion of students with disabilities, such as those with Autism Spectrum Disorder (ASD), does not represent true inclusion if it is not accompanied by a transformation of school culture. As Crochik (2016) points out, the presence of the subject with disabilities in the regular classroom, without restructuring pedagogical practices and institutional relations, reproduces veiled forms of exclusion. Inclusion, in this context, should be understood as an ethical and political process, not just a technical or administrative one. The proposal of Booth and Ainscow (2002) reinforces this perspective by proposing the replacement of the notion of special educational needs (SEN) by school obstacles to learning, shifting the focus from the individual to the barriers created by the environment.

In the specific case of people with ASD, this discussion becomes even more urgent. Autism has its own forms of interaction, communication and sensory perception, which often

conflict with the traditional school model, based on constant orality, obedience to fixed norms and homogeneous assessment. By demanding standardized behaviors, the traditional school disregards the subjectivity and the singular mode of existence of these students, which ends up generating symbolic exclusions — even when there is guaranteed physical presence. Adorno (2002) offers, in this case, a decisive contribution by stating that the essence of the human being is difference, and that education should focus on valuing this singularity, instead of forcing adaptation to a homogeneous model.

From this critical reading, Crochik (2016) and Adorno (2002) converge in arguing that education should cease to be a means of social training and become an end in itself, oriented to the cultural formation, sensitivity and autonomy of the subject. This perspective breaks with the paradigm of efficiency and points to education as a process of individuation, which recognizes and develops the singularities of each person.

In the case of students with ASD, this means that the school needs to restructure itself to welcome different forms of learning and expression, promoting an environment of listening, methodological flexibility, and respect for the cognitive and affective particularities of these subjects. However, both Crochik (2016) and Martins (1997) recognize that this transformation cannot occur only within the school walls. School inclusion, to be real, must be articulated with a broader social critique, which understands the school as part of a system that hierarchizes, controls and selects bodies and minds. The defense of inclusion, therefore, should not be naïve: it will only be full in a society that breaks with the logic of oppression and structural exclusion. However, as Crochik (2016) emphasizes, this does not mean renouncing inclusion, but rather assuming it as a political horizon of struggle, as a critical possibility for the formation of consciousness.

Thus, the inclusion of people with ASD — and any subject outside the normative standards — cannot be treated as a project of assimilation. On the contrary, it should be seen as an ethical and epistemological challenge, which questions the bases on which the school is organized. Coexistence with difference, as Adorno (2002) teaches, is a condition for overcoming modern barbarism, which manifests itself whenever otherness is denied, silenced or converted into a disability. True inclusive education is, therefore, an education against standardization, against indifference and against conformism — an education that recognizes in the other not a deviation, but a possibility of the world.

In view of the analyses presented, it is possible to affirm that inclusive education cannot be thought of outside the social, historical and political context that structures the

school. The inclusion of people with ASD, in particular, reveals the limitations of a school system focused on normalization, standardized performance and adaptation to the productivist logic. The presence of students with disabilities in the classroom, without real changes in pedagogical conceptions, does not constitute inclusion, but rather the perpetuation of exclusion under new contours.

The contributions of Crochik (2016) and Adorno (2002) reinforce the need for an education that promotes autonomy, critical thinking and sensitivity to difference, breaking with the instrumental rationality that dominates educational institutions. As Martins (1997) points out, the modern school fulfills a selective and excluding function; Therefore, the proposal of inclusion must be articulated with the criticism of the structures that sustain these practices. What is proposed is not only to insert the subjects into the system, but to reconstruct the system in the light of human diversity. In the case of Autism Spectrum Disorder, this repositioning is even more urgent. The unique ways of learning, perceiving and relating present in autism require a school environment capable of welcoming and respecting the multiplicity of ways of being. For this, it is necessary to abandon the narrow criteria of school success and expand the meanings of learning, coexistence and participation.

To think about school inclusion is to think about transformation: of practices, discourses and affections. The school, as an institution, has sought to reinvent itself, but it still bears deep marks of a homogenizing model, which privileges equality of results and ignores the singularity of the processes. Thus, even in inclusive discourses, there are times when difference is only tolerated, and not effectively welcomed.

Booth and Ainscow (2002) recall that inclusion is not reduced to the physical presence of students in school spaces, but requires a paradigm shift: it is necessary to build a culture of belonging, in which each subject recognizes himself or herself and is recognized as a legitimate part of the educational process. This transformation implies a ceasefire of exclusion, a symbolic suspension of practices that subtly continue to deny the right to exist differently.

Freire (2021) reinforces that educating is a political and loving act, in which dialogue and listening constitute the basis of all emancipatory practice. Thus, educating autistic subjects requires the willingness to learn from them — not just about them — recognizing that difference is a source of knowledge and not a threat. True inclusion begins when the school is willing to listen to what is not said, what is gestural, audible, silent or sensitive.

Therefore, inclusive education must be understood as an ethical and political project for the transformation of the school and society. It is not limited to access policies, but requires a thorough review of pedagogical practices, critical and continuous teacher training, and the collective engagement of all school agents. More than a legal requirement, inclusion is a constant fight against barbarism — a commitment to building a truly democratic society, in which difference not only exists, but is welcomed, valued, and celebrated as a condition of humanity.

4 ONE BEING, MULTIPLE POWERS: THE PEDAGOGICAL PROPOSAL AS AN ACT OF TRUE INCLUSION

When we consider inclusive education through the critical look proposed by Adorno (2002) and Crochík (2016), it becomes important to change the focus from disability to the *power of being*. In this bias, the interest of the autistic subject should not be observed as a deviation from a norm, but as a legitimate expression of his own subjectivity, that is, his singular way of constructing meaning in this world. The moment we turn to what arouses the interest of an autistic child, we approach the essence of their experience and, consequently, a truly inclusive pedagogical proposal. In this way, to include is, above all, to listen.

Listening, however, urgently needs to break with the paradigms of instrumental rationality. The hegemonic school model, as we have seen, is based on the logic of measurement, productivity and compliance. Since, standardized curricula, homogeneous methodologies and the search for quantifiable results distance the school from its humanizing function. From the imposition of a single learning time, a single language and previous objectives that clash with the experience of the subjects, this segregating model empties the meaning of education. In this sense, for an autistic student, who learns through non-linear and sometimes unpredictable paths, this structure not only excludes but also violent.

The proposal improved here is that of a pedagogy that recognizes interest as a legitimate starting point for learning. Paulo Freire (2021) demonstrates here an important complementary contribution to this theme: one cannot teach without listening, and no one learns from content that does not dialogue with their reality of existence. In the reality of the autistic subject, this means legitimizing their specific interests, which are in many cases intense and restricted as bridges of entry to knowledge. It is not about "tolerating" the

atypical focus of a child or adolescent, but about understanding it as the axis that structures their way of learning.

From this perspective, by recognizing the interests of the autistic subject as legitimate in the entry to knowledge, we are approaching Freire's proposal of a dialogical education, considering listening to the other as a condition for true learning. The author shows us that teaching requires respect for the knowledge of the students, and that there is no education in the absence of love, curiosity and humility in the face of the experience of the other. Therefore, inclusion is not only to guarantee access to school, but to guarantee the sensitive listening of each subject, especially those whose voices are historically silenced.

In addition, there is a necessary epistemological inversion: what is in most cases considered an obstacle can become an appeal. The interest or hyperfocus on systems, visual patterns, repetitive movements or specific themes should not be neglected and fought, but inserted into pedagogical practice. Instead of imposing a curriculum that excludes particular forms of attention and motivation, the teacher and the school committed to inclusion have built, together with the student, learning paths that include these interests. This proposal dialogues with the defense of a flexible curriculum presented by Booth and Ainscow (2002), who defend the reconstruction of the school environment to eliminate barriers to participation and engagement.

However, for the interest of the autistic student to become the structuring axis of their education, a deep ethical commitment from the educator is essential, it is not enough just to adapt activities: it is necessary to abandon the idea of a student ideal and recognize the possibility of other ways of being, expressing and learning. The educator then needs to leave his epistemological and affective comfort zone to welcome the unexpected and non-standardized. According to Adorno's (2002) reflections, standardization is a form of symbolic violence, since it erases differences in the name of false equality.

The validation of the interests of the autistic subject requires, therefore, a transformation of the school space, not only in material or methodical terms, but also in symbolic terms, it is necessary to build a space in which the student feels integrated, in which his presence is not only tolerated, but desired, in which his voice, even if it may not be verbal, is heard. This demonstrates that communication, in an ideally inclusive school, needs to go beyond the limits of oral or written language, enabling multiple forms of expression: visual, tactile, sound, body. Therefore, alternative communication, the use of

assistive technologies, respect for each subject's time, and the acceptance of behavioral manifestations as forms of language are fundamental elements in this scenario.

Furthermore, the work with the interest of the autistic subject must be crossed by a perspective or vision in which knowledge is built from the interaction between the student, his peers and the educator. Learning, in this way, will cease to be a one-way street and will become a joint construction, sensitive to the experiences, desires and limitations of each one. It is in this perspective that Crochik's (2016) proposal about an education focused on autonomy and the development of critical consciousness is based: instead of forming individuals docile to the system, we form subjects capable of affirming their difference and fighting for recognition.

In addition, the aesthetic experience plays a fundamental role in this process. Adorno (2002), when speaking of art as resistance to barbarism, invites us to think of the school as an environment full of awareness and imagination, contrary to the cold logic of productivity. Art, as the language of the sensitive, allows autistic subjects to express what in some situations they cannot say, to represent their inner self and to create bridges with the other. When the student's interest is welcomed through music, painting, dance or dramatization, what is achieved is an authentic encounter between different worlds. Art, in this sense, is not only a complementary activity, but a privileged path to the encounter with the other and with oneself.

The proposal to break with the prejudices that make the social vision of autism unfeasible therefore requires a radical reconstruction of school practices. More than technical changes, a social and political transformation is essential, making difference no longer a problem to be circumvented and becoming a condition of existence. The autistic individual, in this context, is no longer the one who needs to adapt, but the one who makes up the system, who challenges it and who demands a new way of thinking, learning and teaching.

To think of the autistic subject through their powers and not their limitations is to break with the paradigm of lack. It is to recognize that autism is not absence, but another form of presence. Each gesture, interest or look expresses its own way of constructing the world — and it is in listening to these forms that education finds its most radical power.

This perspective dialogues with contemporary conceptions of neurodiversity, which understand autism as a legitimate part of the human variety, and not as a deviation or anomaly (Armstrong, 2010). From this perspective, the school becomes a space for

coexistence between different ways of being, learning and signifying the world. The role of the educator, in this context, is to open up to multimodal listening — the one that welcomes languages beyond the word, recognizing in silence, movement and interest a form of communication and expression.

Adorno (2002) warns that education should be guided by resistance to barbarism, understood as indifference to the other. Listening to the autistic subject, therefore, is an act of resistance: it is refusing erasure and affirming life in its plurality. The true inclusive pedagogical proposal is the one that welcomes difference as a foundation, and not as an exception. The teacher, by creating spaces of recognition, transforms the classroom into a place of encounter — a meeting between worlds, rhythms and sensibilities. Inclusion, therefore, ceases to be an institutional strategy and becomes an act of ethics and humanity.

Finally, it is worth emphasizing: the interest of the autistic subject is not an obstacle, it is a power for the whole society and for each being. By recognizing and valuing this power, the school ceases to be a space of normalization and becomes, in fact, a territory of emancipation. The idealization of a school in which each subject is called by name, and not by diagnosis, must cease to be utopian. We aim at a school in which learning is not an already complete path, but a crossing built daily by those who constitute it. A school, in short, for everyone.

5 FINAL CONSIDERATIONS

From the reflections presented in this article, it becomes evident that the inclusion of people with Autism Spectrum Disorder (ASD) in the school environment cannot be limited to a politically correct discourse or mere technical adaptations. It demands, above all, a profound reconfiguration of the epistemological, pedagogical and symbolic bases that sustain the contemporary school. Autism, as a legitimate expression of multiple subjectivities, challenges us to break with the logic of homogenization and standardization that still permeates educational practices and school curricula.

Based on the contributions of Adorno, Crochík, Freire and other thinkers who founded this work, we understand that true inclusion is that which recognizes difference as a constitutive principle of humanity, and not as a deviation. Sensitive listening, the acceptance of specific interests, curricular flexibility and the valorization of multiple forms of expression are not concessions made to certain students, but fundamental elements of a truly democratic school, which proposes to educate for freedom, autonomy and dignity.

The pedagogical proposal centered on the subject, especially the autistic subject, not only transforms teaching practices, but also the very conception of education. Teaching is no longer an act of transmission and becomes an act of encounter — between worlds, knowledge and ways of existing. In this scenario, the student's interest is no longer seen as an obstacle and is recognized as a power, as an entry key to significant learning processes and the construction of meaning.

Thus, the commitment to inclusive education requires that the school abandon its selective function and become a space for valuing plurality, listening and the collective construction of knowledge. Inclusion is not only allowing access, but ensuring permanence with quality, respect and recognition of the identity of each subject. Inclusion, as we have seen, is not limited to a localized action, but constitutes an ethic of coexistence, a policy of transformation and an aesthetics of sensitivity.

The recognition of the autistic subject as the bearer of legitimate and singular interests is an ethical and urgent task of contemporary education. Breaking prejudices and affirming powers implies shifting one's gaze: leaving the paradigm of correction and entering the field of listening. Difference is not a flaw, but a source of learning and creation. The school that wants to be inclusive needs to be willing to revisit its practices, understand its structural flaws and reinvent itself in the face of the challenge of diversity. Inclusion is not limited to policies, but is concretized in relationships — in the way the educator's gaze welcomes the student's gaze, and how both humanize each other in the encounter.

Recognizing and valuing the interest of the autistic subject is to understand that inclusion is not a favor, but a right. And that this right is only effective when the school opens up to the new, the unprecedented and the multiple. Only in this way does education fulfill its deepest function: to be a space of emancipation, sensitivity and resistance.

We conclude, therefore, that a school for all — where the individual called autistic is called by name and not by diagnosis — is not an unattainable utopia, but an urgent need. It is through the critical confrontation of the exclusionary structures that still persist, the valorization of singularity and the refusal of the barbarism of standardization that we will finally be able to build a fairer, more sensitive and, above all, more humane education.

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**UNIVERSITY EXTENSION AS A STRATEGY FOR PROMOTING THE
MATERIALS ENGINEERING COURSE: RESULTS AND IMPACTS OF
PROJEMAT**

**EXTENSÃO UNIVERSITÁRIA COMO ESTRATÉGIA DE DIVULGAÇÃO DO
CURSO DE ENGENHARIA DE MATERIAIS: RESULTADOS E IMPACTOS DO
PROJEMAT**

**EXTENSIÓN UNIVERSITARIA COMO ESTRATEGIA DE DIVULGACIÓN DEL
CURSO DE INGENIERÍA DE MATERIALES: RESULTADOS E IMPACTOS DEL
PROJEMAT**

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ABSTRACT

University extension projects play a strategic role in promoting scientific and professional fields that are still little known to society. This study reports and analyzes the actions of the Extension Project for the Promotion of the Materials Engineering Program at the School of Technology of the State University of Amazonas (PROJEMAT), aimed at disseminating the Materials Engineering program at UEA and strengthening its integration with schools, industries, and the community. Regarding methodology, the actions were structured in different areas, including interactive lectures in high schools, technical visits to local industries, guided tours of university laboratories, student welcoming pro-grams, workshops, and continuous dissemination through social media. The results showed significant engagement

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of 815 high school students who participated in the lectures, with a measurable increase in interest in the program and direct enrollments of participants. The technical visits promoted interaction with the productive sector and generated professional opportunities, while academic workshops and reception activities strengthened the sense of belonging among undergraduate students. Therefore, it is concluded that PROJEMAT was an effective strategy to strengthen the ties between university and community, improve student training, and consolidate extension as a vector of scientific dissemination and professional development in the Materials Engineering program.

Keywords: University extension. Materials Engineering. High school. Industry. Social Media.

RESUMO

Os projetos de extensão universitária desempenham um papel estratégico na promoção de áreas científicas e profissionais ainda pouco conhecidas pela sociedade. Este estudo relata e analisa as ações do Projeto de Extensão para Promoção do Curso de Engenharia de Materiais da Escola Superior de Tecnologia da Universidade do Estado do Amazonas (PROJEMAT), destinado a divulgar o curso de Engenharia de Materiais da Universidade do Estado do Amazonas (UEA) e fortalecer sua integração com escolas, indústrias e a comunidade. No que se refere à metodologia, as ações foram estruturadas em diferentes frentes, incluindo palestras interativas em escolas de ensino médio, visitas técnicas a indústrias locais, visitas guiadas a laboratórios universitários, programas de acolhimento de estudantes, workshops e divulgação contínua através das redes sociais. Nos resultados foram observados um envolvimento expressivo de 815 estudantes do ensino médio que participaram das palestras, com aumento mensurável no interesse pelo curso e ingressos diretos de participantes. As visitas técnicas promoveram interação com o setor produtivo e geraram oportunidades profissionais, enquanto oficinas acadêmicas e atividades de recepção fortaleceram o senso de pertencimento entre os alunos de graduação. Dessa forma, conclui-se que o PROJEMAT constituiu uma estratégia eficaz para estreitar os laços entre universidade e comunidade, aprimorar a formação discente e consolidar a extensão como vetor de divulgação científica e de desenvolvimento profissional no curso de engenharia de materiais.

Palavras-chave: Extensão Universitária. Engenharia de Materiais. Ensino Médio. Indústria. Redes Sociais.

RESUMEN

Los proyectos de extensión universitaria desempeñan un papel estratégico en la promoción de áreas científicas y profesionales aún poco conocidas por la sociedad. Este estudio relata y analiza las acciones del Proyecto de Extensión para la Promoción del Curso de Ingeniería de Materiales de la Escuela Superior de Tecnología de la Universidad del Estado de Amazonas (PROJEMAT), destinado a divulgar el curso de Ingeniería de Materiales de la UEA y fortalecer su integración con escuelas, industrias y la comunidad. En cuanto a la metodología, las acciones se estructuraron en diferentes frentes, incluyendo charlas interactivas en escuelas secundarias, visitas técnicas a industrias locales, recorridos guiados por laboratorios universitarios, programas de acogida de estudiantes, talleres y difusión continua a través de las redes sociales. Los resultados mostraron una participación significativa de 815 estudiantes de secundaria en las charlas, con un aumento medible en el interés por el curso y matrículas directas de participantes. Las visitas técnicas promovieron la interacción

con el sector productivo y generaron oportunidades profesionales, mientras que los talleres académicos y las actividades de recepción fortalecieron el sentido de pertenencia entre los estudiantes de grado. De esta manera, se concluye que el PROJEMAT constituyó una estrategia eficaz para estrechar los vínculos entre universidad y comunidad, mejorar la formación estudiantil y consolidar la extensión como un vector de divulgación científica y desarrollo profesional en el curso de Ingeniería de Materiales.

Palabras clave: Extensión Universitaria. Ingeniería de Materiales. Escuela Secundaria. Industria. Redes Sociales.

1 INTRODUCTION

University extension is one of the structuring axes of higher education in Brazil, alongside teaching and research, promoting the exchange of knowledge between university and society and contributing to social, scientific, and technological development (Ramos et al., 2023; Chinelatto et al., 2006; File; Dantas; Silva, 2025). In the field of materials engineering, this approach is strategic, because, despite its relevance to sectors such as metallurgy, polymers, ceramics and biomaterials, the course remains little known by the general public, especially in the North Region. This low visibility is confirmed by two factors: the concentration of graduate programs in Metallurgical and Materials Engineering in the Southeast (53.3%), South (23.9%) and Northeast (18.5%), compared to only 3.3% in the North Region (CAPES, 2024); and limited social perception, since 81.4% of engineers and 68.1% of the Brazilian population consider engineering to be little or moderately recognized (CBIC, 2024).

In this context of growing industrial demand for qualified professionals and the need to expand knowledge about the possibilities and impacts of this area, it is essential to develop initiatives that clarify the role of the materials engineering course, increase its visibility, and encourage student participation in academic and scientific activities (Teixeira et al., 2023; Silva; Matos; Borges, 2023). The literature points out that university extension projects not only bring the institution closer to the community, but also strengthen the integral education of students by developing technical, social, and communication skills (Oliveira-Melo et al., 2025; Silveira et al., 2025). In addition, successful experiences at different universities show that activities such as lectures in schools, technical visits, workshops, and the use of social media arouse vocational interest, consolidate the image of the materials engineering course, and highlight its contribution to technological innovation and sustainable development (Federal University of São Carlos, 2023; DEMAUFSCAR, 2023; Federal University of Amazonas, 2023; Silva; Fernandes, 2025). Likewise, studies reinforce that actions planned in a democratic and participatory perspective, involving students, professors, and external partners, expand engagement and social impact (Lima; Dantas; Silva, 2025; Sakata; Peres, 2024).

Therefore, this work aims to present and analyze the actions developed by the Extension Project for the Promotion of the Materials Engineering Course of the School of Technology of the University of the State of Amazonas (PROJEMAT). Specifically, we sought to evaluate the impacts of lectures in high schools, technical visits to companies and

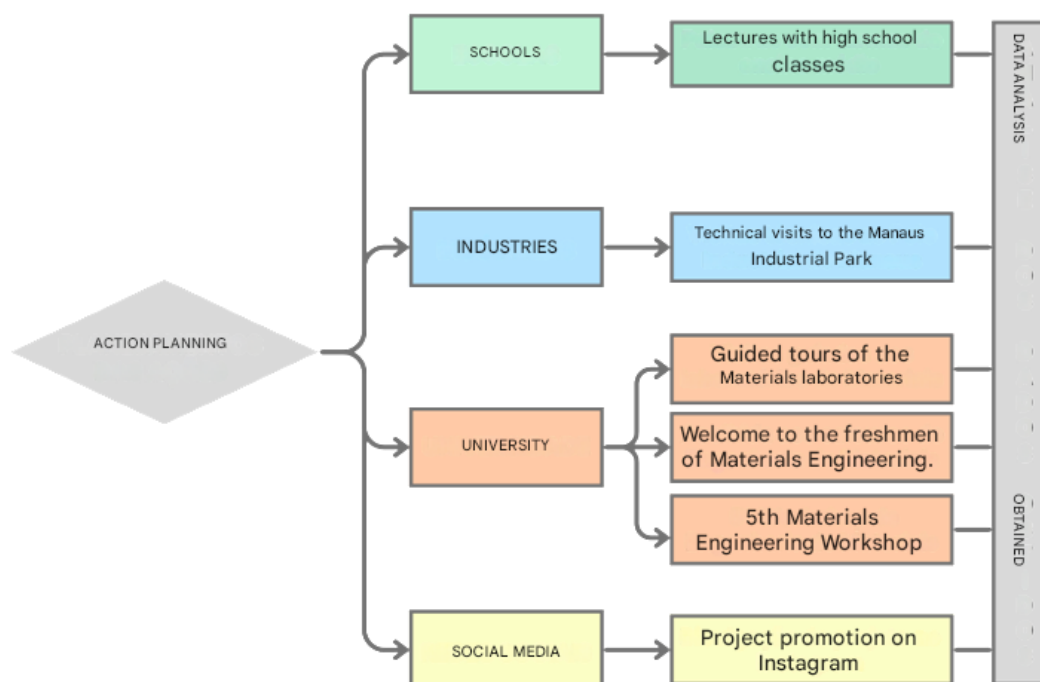
dissemination on social media, in order to measure the reach of the activities, the level of engagement of the academic community and the contribution of the project to the visibility of the course and to the understanding of its possibilities of professional performance.

2 METHODOLOGY

PROJEMAT's actions were planned in order to integrate schools, industries, universities and social networks (Figure 1), with the objective of publicizing the Materials Engineering course and expanding interaction with different audiences.

Figure 1

PROJEMAT methodological flowchart



Source: Prepared by the authors.

In public and private schools, interactive lectures were held with high school classes (1st, 2nd and 3rd grade), with an average duration of 45 to 50 minutes. The contents addressed the history of the course, areas of activity of the materials engineer, curricular structure, selection processes and academic opportunities. The activities were complemented by discussions to clarify doubts, a mid-level question and answer game and the delivery of personalized gifts to the participants.

In the industries Companhia de Bebidas das Américas – Ambev S.A., Tutiplast Indústria de Plásticos Ltda. and Conecthus Institute of Technology and Biotechnology of

Amazonas, technical visits were promoted with students from the first periods, allowing contact with fields of activity and professional possibilities linked to the Manaus Industrial Pole. These institutions represent a reference in their respective segments, evidencing the relevance of the integration between the course and large companies with regional impact.

At the university, guided tours were held, such as the one from the Ângelo Ramazzotti State School to the UEA School of Technology, to present the laboratories and the infrastructure of the course. The reception of freshmen was also organized, highlighting scientific initiation activities, monitoring, internships and other academic opportunities. In October 2023, during the National Week of Science and Technology, the PROJEMAT team organized the 5th Materials Engineering Workshop, an event that featured lectures by professionals who graduated from the course and technical mini-courses focused on processes and analyses applied in the area.

On social networks, especially through the Academic Center for Materials Engineering (CAEMAT), actions were carried out to publicize PROJEMAT and publications on the trajectory and consolidation of the course. Finally, the data obtained in all stages were analyzed to evaluate the impacts of the actions and the contribution of the project in the promotion of Materials Engineering.

3 RESULTS AND DISCUSSIONS

The project involved 815 high school students from public and private schools in Manaus-AM (Table 1); 18.7% were in the 1st year, 42.5% in the 2nd year and 38.8% in the 3rd year (Figure 2). Of the total number of finalists, five (1.58%) enrolled in the materials engineering course in the 2025/1 period, with the group composed exclusively of women. Despite the restricted initial knowledge about the course, the students showed growing interest during the presentations, actively participating in the question and answer game, an activity that included the delivery of gifts (Figure 3). University extension initiatives aimed at High School have a positive influence on arousing interest in the areas of Science, Technology, Engineering and Mathematics (STEM) and contribute to the motivation to enter higher education (Muller et al, 2025), as evidenced in PROJEMAT.

Table 1

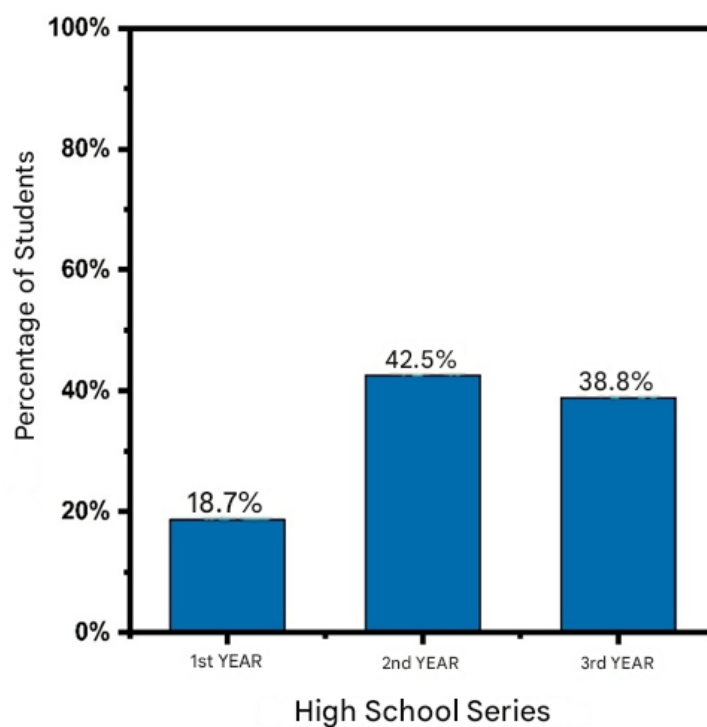
Distribution of High School Students by School and Grade

Schools	Year 1	Year 2	Year 3
E.E. Ângelo Ramazzotti	69	69	41
E.E. Vicente Telles de Souza	53	69	44
E.E. Sólon de Lucena	0	127	74
E.E. João Bosco Pantoja Evangelista	0	49	36
Colégio Amazonense Dom Pedro II	0	0	109
Don Bosco College	31	32	12
Total students	153	346	316

Source: Prepared by the authors.

Figure 2

Percentage of students by grade level



Source: Prepared by the authors.

Figure 3

Lectures in schools: a) presentation of the project; b) interaction with students; c) delivery of gifts



Source: Prepared by the authors.

In the industries, three technical visits were carried out (Table 2), which registered a high demand for participation by the students. Membership, however, was restricted by the reception capacity of each company. It was also observed that many students in the initial periods of the night course were already inserted in the labor market, a factor that limited their availability for full participation in the activities.

Table 2

Distribution of Participants by Company Visited

Companies Visited	Number of participants per company
Tutiplast Indústria e Comércio LTDA	10
Companhia de Bebidas das Américas - Ambev S.A	11
Conecthus Institute	5
Total participants	26

Source: Prepared by the authors.

The technical visits to the Tutiplast, Ambev S.A. and Conecthus Institute industries (Figure 4) allowed the students to observe the production processes, understand the areas of business activity and associate them with the theoretical knowledge learned in the classroom. As a result, some participants established contact with the companies visited and are now employed in them. These data reinforce the relevance of technical visits as an effective strategy to connect students to the professional environment, promoting practical integration and opportunities for insertion in the labor market (Raulino et al, 2024).

Figure 4

Technical visits to the companies of the Manaus Industrial Pole: a) Tutiplast; b) Ambev; c) Conecthus Institute



Source: Prepared by the authors.

The guided tour carried out with high school students (Figure 5) constituted an effective strategy for bringing basic education and higher education closer together. During the action, students had the opportunity to explore the academic facilities, including the laboratories of the materials engineering course, being introduced to equipment, research methodologies and technological applications pertinent to materials science. This experience provided direct contact with the university environment and scientific practice, which proved to be a determining factor in arousing curiosity, broadening the understanding of professional perspectives in the area and stimulating continuous interest in science and engineering. A recent study points out that actions similar to the results promote a positive impact on academic training, strengthening student engagement and contributing to regional scientific development (Rethman et al, 2020).

Figure 5

Guided tours with high school students to the Materials laboratories



Source: Prepared by the authors.

The reception of the students of the materials engineering course at the UEA School of Technology involved the presentation of the project, the academic center and the opportunities for monitoring and scientific initiation, followed by visits to the laboratories and facilities of the institution (Figure 6). The activity also included the delivery of institutional materials and moments of interaction between freshmen and veterans. It was observed that this initial approach favored the feeling of belonging and expanded the understanding of the academic and professional possibilities of the course. Such initiatives are associated with the reduction of student dropout, since they provide clear information about training, stimulate the motivation of freshmen, and promote integration with the academic community, in line with studies that demonstrate the positive impact of reception programs and institutional support on university permanence (Carneiro et al, 2024) and the relevance of strengthening the sense of belonging and academic engagement to increase student persistence (Hansen et al, 2023).

Figure 6

Welcome to the freshmen of Materials Engineering: a) presentation of the academic center; b) visit to the materials laboratories

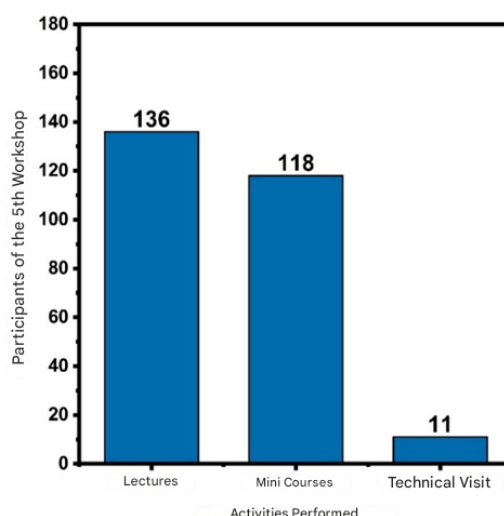


Source: Prepared by the authors.

PROJEMAT, in partnership with CAEMAT, organized the 5th Materials Engineering Workshop, which was attended by 136 people in lectures, mini-courses and a technical visit (Figure 7). The activities promoted the engagement of the participants and contributed to the development of specific skills in the area. This result is in line with recent evidence that academic workshops favor active learning, broaden student engagement, and encourage the practical application of knowledge (Shipps et al, 2023).

Figure 7

Distribution of participants in the activities of the 5th Materials Engineering Workshop

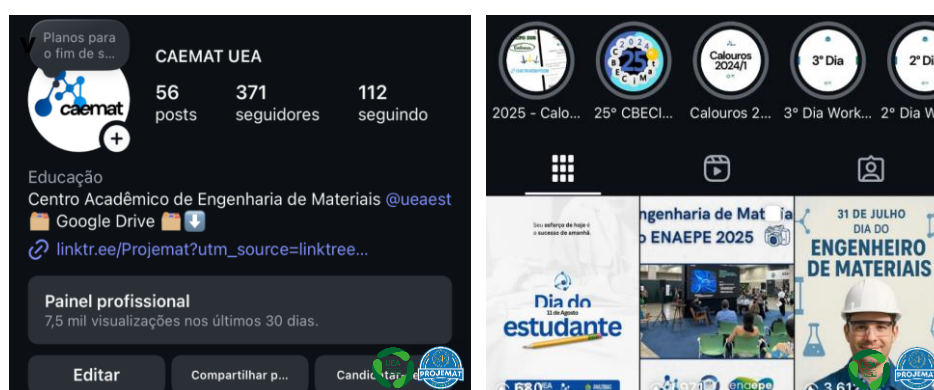


Source: Prepared by the authors.

Before the implementation of PROJEMAT, the dissemination of the Materials Engineering course occurred sporadically and restricted to the academic environment. With the execution of the project, this dissemination was expanded to different spaces, including schools, industries and social media (Figure 8). This expanded approach resulted in greater reach among students and contributed to improving the perception of the course, highlighting its possibilities for innovation and professional performance. Thus, it highlights the role of social media as a strategic tool to increase the visibility of undergraduate courses and strengthen communication with stakeholders (Santos et al, 2025).

Figure 8

Profile of the Academic Center for Materials Engineering (CAEMAT) on Instagram



Source: Prepared by the authors.

4 CONCLUSION

PROJEMAT was an effective initiative to bring the Materials Engineering course closer to society, establishing links between university, high schools and the industrial sector. The actions developed, such as lectures, technical visits, reception of freshmen, workshops and publications on social networks, aroused the interest of new students and contributed to maintaining the engagement of those already enrolled. In this sense, the involvement of more than eight hundred students and partnerships with large companies reinforce the relevance of linking academic training to the professional environment and expanding the feeling of student belonging.

In summary, the results achieved reveal different contributions to society and academia. In the context of society, it was observed the direct entry of students from the schools visited in the course and the insertion of academics in the companies, demonstrating the impact of extension on professional choice and employability. In the academic field, the

project strengthened the integration between theory and practice, promoted the development of technical, social and communicational skills, consolidating Materials Engineering as a strategic area in university education.

Despite the advances, the survey presented some limitations, especially regarding the difficulties in scheduling with schools, the barriers to the team's locomotion and the delay in the transfer of financial support, which reduced the scope of the actions. Finally, this work represented an initial research on the results and importance of extension in the materials engineering course, and it is necessary in future studies to carry out a broader mapping, in order to reach a greater number of schools, especially public ones. Such measures can enhance the social and academic impact of the project, expanding its contribution to the dissemination of Materials Engineering and to the training of new professionals.

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The authors thank PROEX/UEA for the scholarships awarded to PROJEMAT extension scholarship holders and for the financial support for the project's extension activities (PADEX Notice No. 073/2023 – GR/UEA). They also thank the Department of Materials Engineering at UEA and the Research and Development (R&D) and Materials (LabMat) laboratories for their institutional and technical support.

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**EMPOWERING THE EXACT SCIENCES: AN IMMERSIVE EXPERIENCE TO
HIGHLIGHT THE LEADING ROLE OF WOMEN IN MATHEMATICS**

**EMPODERANDO AS CIÊNCIAS EXATAS: UMA EXPERIÊNCIA IMERSIVA PARA
DESTACAR O PROTAGONISMO DAS MULHERES NA MATEMÁTICA**

**EMPODERANDO LAS CIENCIAS EXACTAS: UNA EXPERIENCIA INMERSIVA
PARA DESTACAR EL PROTAGONISMO DE LAS MUJERES EN LAS
MATEMÁTICAS**

 <https://doi.org/10.56238/sevened2025.038-016>

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ABSTRACT

The article describes the successful experience of the 2024 Knowledge Fair at the Clóvis Nogueira Alves State Technical School (ETECNA), which addressed the theme of Women in Science, with a specific focus on the underrepresentation of women in the fields of Exact Sciences, in this case Robotics, Physics, Mathematics, and Statistics, seeking to rescue historical figures who are often invisible, such as Hypatia of Alexandria, Sophie Germain, Marília Chaves Peixoto, and Elza Gomide, in addition to connecting their trajectories to contemporary reality through a creative approach. To maintain the attention of the event's target audience, which is mainly 9th-grade students, the exhibition was structured as a science fiction narrative, with time travel, theatrical performances, games, robots, and audiovisual resources, where the immersive experience brought science and pop culture to the same stage, making learning more playful and accessible. The preparation of educational products and the development of activities was carried out by groups of students separated into different thematic areas: History of Mathematics in Brazil, History of Mathematics in the World, Statistics/Probability, and Robotics. This resulted in a positive impact on two fronts: improving the interpersonal and academic skills of participating students, such as oral communication and teamwork, and successfully sparking visitors' interest and awareness of the importance of diversity and women's contributions in STEM fields. The conclusion reinforces the transformative potential of non-instrumental and innovative educational methods that use interactivity and creativity to promote scientific knowledge and social reflection, ensuring that even an area surrounded by prejudice such as mathematics can be palatable and interesting to all audiences, facilitating learning and enabling discussions on the subject.

Keywords: Women in Mathematics. Mathematics Education. Innovative Teaching. STEM.

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RESUMO

O escrito descreve a experiência de sucesso da Feira de Conhecimentos 2024 na Escola Técnica Estadual Clóvis Nogueira Alves (ETECNA), que abordou o tema, Mulheres na Ciência, com foco específico na sub-representação feminina nas áreas de Ciências Exatas, neste caso a Robótica, Física, Matemática e a Estatística, buscando resgatar figuras históricas muitas vezes invisibilizadas, como Hipátia de Alexandria, Sophie Germain, Marília Chaves Peixoto e Elza Gomide, além de conectar suas trajetórias à realidade contemporânea por meio de uma abordagem criativa. Para manter a atenção do público alvo do evento, que são principalmente os alunos do 9º do ensino fundamental, a exposição foi estruturada em uma narrativa de ficção científica, com viagens temporais, encenações teatrais, jogos, robôs e recursos audiovisuais, onde a experiência imersiva trouxe ciência e cultura pop para o mesmo palco, tornando o aprendizado mais lúdico e acessível. A preparação dos produtos educacionais e o desenvolvimento das atividades foi realizado por grupos de alunos separados em diferentes eixos temáticos, História da Matemática no Brasil, História da Matemática no Mundo, Estatística/Probabilidade e Robótica, resultando por meio destes um impacto positivo em duas frentes, com o aprimoramento das habilidades interpessoais e acadêmicas dos alunos participantes, como na oralidade e no trabalho em equipe e o sucesso em despertar o interesse e a conscientização dos visitantes sobre a importância da diversidade e das contribuições femininas nas áreas STEM. A conclusão reforça o potencial transformador de métodos educativos não instrumentalizados e inovadores, que utilizam a interatividade e a criatividade para promover o conhecimento científico e a reflexão social, garantindo que até uma área rodeada de preconceitos como a matemática possa ser palatável e interessante para todos os públicos, facilitando o aprendizado e possibilitando discussões sobre o assunto.

Palavras-chave: Mulheres na Matemática. Ensino de Matemática. Ensino Inovador. STEM.

RESUMEN

El artículo describe la exitosa experiencia de la Feria del Conocimiento 2024 en la Escuela Técnica Estatal Clóvis Nogueira Alves (ETECNA), que abordó el tema «Mujeres en la ciencia», con especial atención a la infrarrepresentación femenina en las áreas de ciencias exactas, en este caso la robótica, la física, las matemáticas y la estadística, con el objetivo de rescatar figuras históricas a menudo invisibilizadas, como Hipatia de Alejandría, Sophie Germain, Marília Chaves Peixoto y Elza Gomide, además de conectar sus trayectorias con la realidad contemporánea mediante un enfoque creativo. Para mantener la atención del público objetivo del evento, que son principalmente alumnos de 9.º de secundaria, la exposición se estructuró en una narrativa de ciencia ficción, con viajes en el tiempo, representaciones teatrales, juegos, robots y recursos audiovisuales, donde la experiencia inmersiva llevó la ciencia y la cultura pop al mismo escenario, haciendo el aprendizaje más lúdico y accesible. La preparación de los productos educativos y el desarrollo de las actividades fue realizada por grupos de alumnos separados en diferentes ejes temáticos: Historia de las Matemáticas en Brasil, Historia de las Matemáticas en el Mundo, Estadística/Probabilidad y Robótica, lo que tuvo un impacto positivo en dos frentes: con la mejora de las habilidades interpersonales y académicas de los alumnos participantes, como la expresión oral y el trabajo en equipo, y el éxito en despertar el interés y la conciencia de los visitantes sobre la importancia de la diversidad y las contribuciones femeninas en las áreas STEM. La conclusión refuerza el potencial transformador de los métodos educativos no instrumentalizados e innovadores, que utilizan la interactividad y la creatividad para promover el conocimiento científico y la reflexión social, garantizando que incluso un área



rodeada de prejuicios como las matemáticas pueda ser agradable e interesante para todos los públicos, facilitando el aprendizaje y permitiendo debates sobre el tema.

Palabras clave: Las Mujeres en las Matemáticas. Enseñanza de las Matemáticas. Enseñanza Innovadora. STEM.

1 INTRODUCTION

The embezzlement in the sciences, especially in the areas of Exact Sciences, caused by the underrepresentation of minority groups, such as women, members of the LGBT community and the black population, reflects a waste of talent and innovation. The absence of diversity limits scientific production and prevents progress in more inclusive and varied solutions to global challenges (Orsi, 2020).

In this context, the annual event of the Knowledge Fair of the Clóvis Nogueira Alves State Technical School (ETECNA), is a demonstration of the creative and methodological potential of the institution's faculty and students, where it aims to demonstrate through interdisciplinary exhibitions the singularities of each area of knowledge, displaying in each edition a central theme that covers various facets of society. In its 2024 edition, which took place in September, it worked on the theme "Women in Science", a very comprehensive theme that could encompass all teaching professionals in the school community, including the topic addressed in this article "Women in the Exact Sciences". As highlighted by Prof. Daniel C. de Moraes Filho, in his article for Revista do Professor de Matemática (RPM), "Women in Mathematics", understanding this theme is extremely important, as it recognizes the trajectory and challenges faced by women throughout history in the scientific field, areas traditionally dominated by men.

The search for female figures in the areas of Exact Sciences, Robotics, Physics, Mathematics and Statistics, proved to be a real challenge, due to the scarcity of information in the literature on the subject. Luckily, articles that address this context were found in the RPM database, for example, the aforementioned "Women in Mathematics" (RPM30), "... And They Have Finally Arrived" (RPM33) and "Stories & Stories" (RPM80). Historical and current personalities are most often made invisible and socially discouraged from pursuing an academic career in some area of Science, Technology, Engineering and Mathematics - STEM (Tarasiuk, 2021), demonstrating the constant need to work on these themes in school.

2 OBJECTIVES

2.1 GENERAL OBJECTIVE

Develop an interactive and playful approach, which contemplates the delimited theme, in order to captivate the attention and arouse the curiosity of the public, in addition to passing on important information in a clear and reliable way.

2.2 SPECIFIC OBJECTIVES

1. Promote scientific knowledge, through active learning, stimulating creativity and curiosity;
2. To pass on in a playful and didactic way the content acquired through research and to present the educational products developed during the process.

3 METHODOLOGY

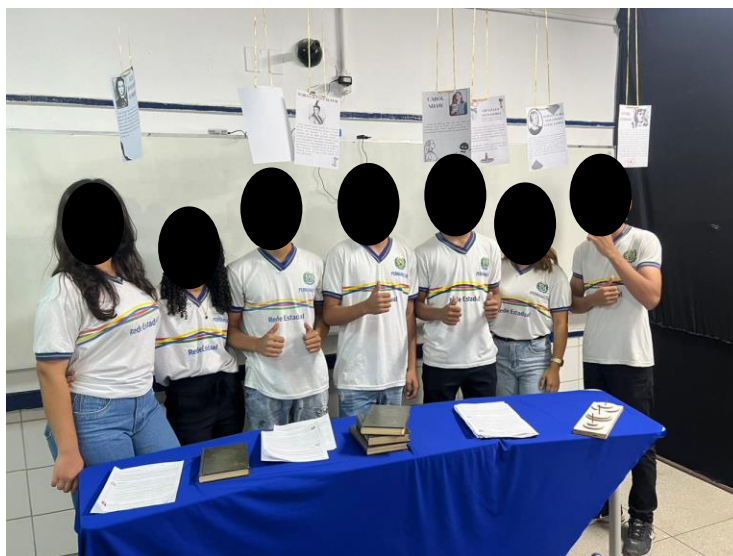
During the event, through the central theme, it was sought to connect the reality of important female personalities erased from history to science fiction, transforming the theme into something current that would attract and become light, and palatable to the target audience, the 9th grade students of the public school system. A generation immersed in Mass Culture, they are in constant contact with utopian realities, time travel and distortions of reality (Costa, 2021), this great influence directly affects the way an entire population sees information and filters what deserves or does not deserve to be consumed, with awareness of these facts an approach was used that aims to bring elements of this experience into the theme presented, involving games, light and sound control, robots, theatrical plays, and most importantly a script that communicates with all parts of the work, taking elements largely present in the content consumed by these young people.

3.1 FIRST STEP

In the meetings, the development of the project followed a series of well-structured stages. The first of these was the formation of separate working groups in the areas of Exact Sciences already addressed, as shown in Figure 1, such committees were made up of students from different classes and sociocultural realities, based on how they identified with the possible topics to be worked on, ensuring the possibility of demonstrating their strengths and expressing themselves, generating knowledge and new proposals from their interactions, adding value to the whole. In this stage, the elaboration of superficial research and the choice of the main figures to be worked on before starting the first drafts of the presentation planning were provided.

Figure 1

Demonstration of the formation of a presentation team



Source: Survey authors, September 2024.

3.2 SECOND STAGE

The second stage consisted of organizing and talking as a team with the students to define a central point that linked the presentations of the different groups, giving a starting point for the production of the material used during the exhibition, defining the theme of Time/Space Travel as a tool for transition and involvement in all parts of the presentation, shaping from the way the guests were going to contextualize and immerse the story to the ending with references to an epic film. Several tools were used to provide an interdisciplinary experience and learning that would draw the attention of the students, with characterization, audiovisual resources, and interactive, such as those already mentioned, means not even considered in the teaching environment, providing a different form of approach to make them aware of the theme.

With the figures arranged, it was possible to determine the functions of the teams, establishing themselves in 4 main axes, "Mathematics in the History of the World", with the theatrical representation and contextualization of the futuristic theme of the presentation, "Mathematics in the History of Brazil", with the continuation of such a story, "Statistical Research and Probability", with the use of Artificial Intelligence (AI) tools and games and "Robotics and Space Rescue", making use of NXT robots developed by the team and a space rescue context.

3.3 THIRD STEP

At this stage, the working groups began to finalize the educational and interactive products that would be part of the exhibition. It was at this stage that the students, with the guidance of teachers and more experienced colleagues, completed the main tools used, such as visual materials, the historical representations of the scientists, the production of the robot, the concepts of the interactive games that would be used, the scripts and the sound effects. In addition, the final concept of the exhibition was defined, ensuring coherence and unity between the different approaches to the presentation.

3.4 FOURTH STAGE

In the last stage, rehearsals were carried out to ensure that each group was prepared for the presentations to the public and the work as a whole made sense (Figure 2). This process included reviewing the students' explanations of the contents, the way they would receive the public, the final adjustments to the audiovisual resources, the souvenirs and the costumes. Rehearsals provided a safe space for students to practice their communication skills and adjust their performances with criticism from teachers and peers.

Figure 2

Teams properly ready to present



Source: Survey authors, September 2024.

There was also the presentation to the visitors, observed in Figure 3, consisting of 2 days of the Knowledge Fair event, with the presence of numerous schools and adjacent visitors, who enjoyed its various attractions, including the presentation that generated this discussion, starting with a time traveling guide who guaranteed the immersion of the guests

throughout the period, transiting between the different temporal openings in a spatial excursion, passing through various contexts that introduced him to figures such as Hypatia, of Alexandria and Marie Sophie Germain in the sector of historical personalities, Marília Chaves Peixoto and Elza Furtado Gomide in Brazilian history, a game about statistics and probability arising from a research carried out with students of the school, and a newspaper narrating important facts for the study of this area of mathematics and a space disaster of temporal consequence, leading to the rescue using the NXT robot, ending the show.

Figure 3

Presentation to the visiting students



Source: Event advisor, September 2024.

4 RESULTS AND DISCUSSIONS

The results obtained can be directly divided into two main parts, glimpsed in individual ways, highlighting the teaching and student performance of the school body. Demonstrating the achievements from different perspectives.

4.1 TEACHING PERSPECTIVE

During the preparation process, the advisors worked on the awareness of both individual and collective potential and skills, with clear examples being orality, research skills, teamwork, among others, skills that are necessary in the learning and growth of students. With the opportunity to express their ideas and use their creativity to prepare the proposal for the edition, an improvement in their self-confidence to perform the proposed tasks was obtained with planning based on the mastery of the theme, broadening the knowledge

generated among the different students when working together, bringing appreciation and learning from the effort dedicated during the meetings, in addition to the rich teaching material produced that improved the learning experience and creative skills of the students.

4.2 STUDENT PERSPECTIVE

The proposal of the Knowledge Fair was successfully achieved by observing the interest and admiration of the visiting students when they watched what was produced with the work of local students, awakening in the public confidence with the mastery of the theme and the skills that the participants acquired throughout the meetings, in addition to the admiration for the audiovisual effects and experience that encompassed the entire presentation, demonstrated by the audience through a podcast produced by Tai, where they told their experiences at the Fair as a whole, which was extremely important to validate and demonstrate the result of the effort applied in the exhibition of what was produced. From the moment of reception to the exhibitions, it was ensured that they felt immersed in the works produced, the awareness of the theme showed them the reality of great personalities who contributed to the current times, exposing studies and achievements that did not receive due recognition.

The challenges faced by the students during the planning meetings resulted in growth and understanding of group work, becoming a personal learning experience for each one, observing their mistakes and having guidance not only from the teacher but also from other students with more experience, this exchange of knowledge generated better performance in the tasks and the opportunity to connect with their colleagues, developing strong interpersonal points that will be taken to other areas even outside of school. The feeling of affection for their own work is one more result of how much effort they put into their performance and the gratification of quality work by themselves, generating the memory of being part of an extremely important theme.

5 CONCLUSION

At the end of the event, "Empowering the Exact Sciences", the significant advances achieved are reflected, both in terms of learning and social and educational impact. The project provided an innovative and engaging experience, which connected the historical reality of underrepresented female figures in the Exact Sciences with science fiction and the Cultural Industry. This immersive approach, by exploring interactivity through games,

robotics, theater, and audiovisual resources, allowed students to absorb content in a playful and accessible way, while encouraging active engagement and creativity. Where the main results in each specific area addressed were demonstrated.

5.1 MATHEMATICS

The great achievement of the project was the experience that encompasses all areas of work, with theater as a highlight, which brought a dramatic and visual perspective to the theme, allowing the stories of these women to be told in a captivating way and in spaces of common recognition, in the case of Mathematics in World History, a laboratory, in Figure 4, and the one on Mathematics in the History of Brazil, a congress, Figure 1. The combination of these activities not only achieved the objective of promoting scientific knowledge, but also encouraged reflection on the importance of inclusion and diversity in the field of Mathematics, mitigating part of the prejudice on the part of students in the study of the discipline.

Figure 4

Part of the decoration seen by visitors in the area of mathematics



Source: Survey authors, September 2024.

5.1.1 Statistics

In the field of statistics, as an area of mathematics, she stood out for leading an innovative research for the institution's environment that sought to understand the dynamics

of women in relation to the exact sciences in the institution, Figure 5, in the male and female view, in aspects such as interest in the area and gender equality in the sector, and from this information a board game was created that aimed to teach probability and statistics through competition, in addition to presenting important figures that had not yet been highlighted, which provided a form of teaching based on problem solving, challenging the audience to think critically about the contribution of these women, presented in Figure 6. In addition to the use of Hedra AI to create a representation of an important female voice in the area, who had already passed away, approached and drew the attention of the public, the newspaper that documented an important part of the process, was a crucial instrument to disseminate the ideas worked on and connect the presentation of robotics.

Figure 5

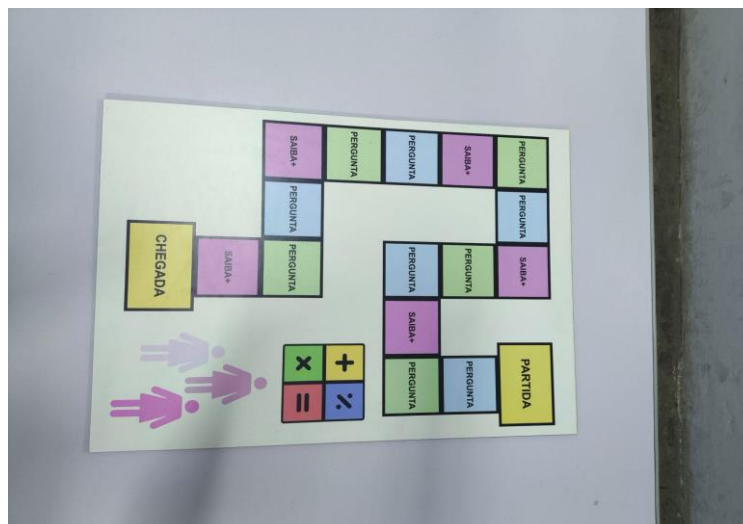
Excerpt from the statistical research carried out



Source: Statistics team, August 2024.

Figure 6

Board for learning probability and statistics



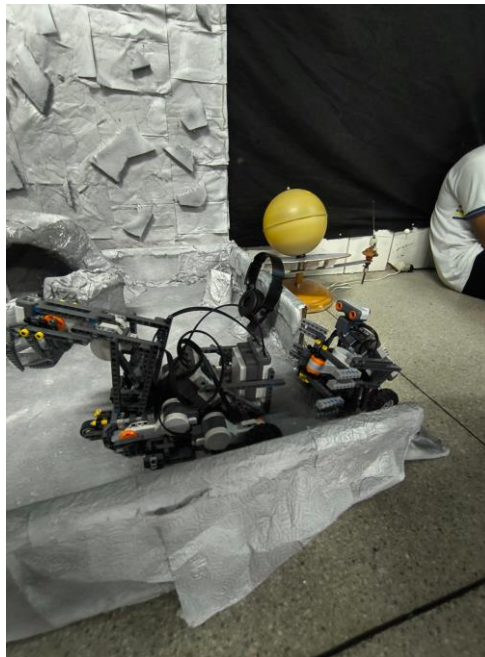
Source: Statistics team, August 2024.

5.2 ROBOTICS

The robots, built to simulate the rescue of people trapped in a rocket on the Moon, using the NXT system, being a crane robot and a claw robot, observed in Figure 7, it was evident the adaptability and variety of uses that modern robotics can perform, with several women being involved in these advances, such as Ada Lovelace, known as the Mother of Computing, among countless other women who make room in the area for future enthusiasts, in addition to demonstrating how technology can be used creatively and educationally, serving as an example of teamwork and cooperation.

Figure 6

Robots used in the simulation of space rescue



Source: Robotics Team, September 2024.

5.3 PHYSICS

The physics indirectly worked throughout the project was an essential part for the construction of the effects, with Optics for the lights and sound direction techniques to improve acoustics, in addition to being demonstrated in the presentation of ancient mathematics that guaranteed great contributions to the area, such as Marie Sophie Germain who made important contributions to the dynamics of materials, including those used in the construction of the Eiffel Tower (Green, 2023) and Maria Gaetana de Agnesi, who ensured important advances in Calculus, which is used in several areas of physics, such as Classical

Physics, Thermodynamics, and Electromagnetism, and was responsible for its popularization as a discipline (Green, 2023)

In terms of results, the goals were largely achieved, the participating students developed interpersonal and intrapersonal skills, expanded their knowledge, and above all gained confidence in their abilities when they saw the impact that the project had on the public. The success of the Knowledge Fair highlighted the transformative potential of innovative educational methods, while bringing visibility to crucial female figures in the history of Mathematics and Exact Sciences in general.

The main achievements obtained were guaranteed from the creative approach, with the use of common elements in approaches to the media scene, with the strategic use of sound effects that complement the experience of a visit, and a facet of theater and constant presence of effects and visual elements held the attention of the audience from the beginning, already demonstrated in Marcelo Picaro Cerigatto's 2022 research, where he demonstrates the beneficial effects of a non-instrumentalized education that adapts to the new reality of students for their learning.

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**LA PEDAGOGÍA DEL ORDEN PERSONAL Y SOCIAL PARA EL CRECIMIENTO
Y LA PROSPERIDAD. BASE TEÓRICA Y CONCEPTOS FUNDAMENTALES**

**THE PEDAGOGY OF PERSONAL AND SOCIAL ORDER FOR GROWTH AND
PROSPERITY: THEORETICAL BASIS AND FUNDAMENTAL CONCEPTS**

**A PEDAGOGIA DA ORDEM PESSOAL E SOCIAL PARA O CRESCIMENTO E A
PROSPERIDADE: FUNDAMENTOS TEÓRICOS E CONCEITOS
FUNDAMENTAIS**

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RESUMEN

Los términos pedagógicos "Orden Personal" y "Desorden Personal" se establecieron con la intención de referirse al estado de presencia necesario para que los seres humanos contribuyan al orden social en todos los aspectos de su vida, como la familia, los negocios, la educación, el trabajo, la religión, etc. Estos términos buscan integrar las obligaciones y responsabilidades básicas de los seres sociales, para alcanzar su máximo potencial y ayudar a otros a alcanzar el suyo. En consecuencia, podemos tener sociedades más eficaces y, por lo tanto, un mundo mejor. Para este estudio, fueron fundamentales las contribuciones de Hedley Bull (1932-1985) de su obra principal, "La Sociedad Anárquica". Porque según Bull, el orden social se crea a través de la vida, la verdad y la propiedad. Por lo tanto, el método de investigación conceptual fue esencial para la elaboración del marco teórico. Además, se aplicó el método de investigación observacional para poder corroborar cómo estos elementos contribuyen al desarrollo personal mediante el mantenimiento, la apreciación y el buen uso de los recursos individuales y colectivos, como el capital humano, los recursos naturales, el tiempo, y los bienes locales. Consecuentemente contribuyendo al desarrollo social, evitando la anomia social y, por consiguiente, el desorden social. Adicionalmente, otras contribuciones también fueron necesarias, como las teorías sobre las necesidades humanas fundamentales; las experiencias de vida de la autora; la filosofía africana de Ubuntu; la Teoría General de Sistemas de Ludwig von Bertalanffy (1901-1972); la obra de grandes pedagogos como Pablo Freire (1921-1997) y Antón Makarenko (1888-1939); la obra de importantes sociólogos como Anthony Gramsci (1891-1937), etc. Por consiguiente, la fusión de todos estos trabajos, estudios, experiencias, ideas, hallazgos y constructos permitió la creación de los términos «Orden Personal» y «Desorden Personal».

Palabras clave: Orden Social. Desorden Social. Expansión. Orden Personal. Desorden Personal.

ABSTRACT

The pedagogical terms "Personal Disorder" and "Personal Order" were established with the intention to be able to refer to the state of presence necessary for human beings to contribute to social order in every aspect of their life. As family, business, education, work, religion, etc. As these terms are intended to integrate the basic obligations and responsibilities of social

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beings, to be able to reach full potential, and to be able to help others reach theirs. Consequently, we can have more effective societies, and therefore, a better world. For this study, it was fundamental the contributions of Hedley Bull (1932-1985) from his main work, "The Anarchical Society". Because, according to Bull, social order is created through life, truth, and property. Then, it was essential the conceptual research method for the theoretical framework. Additionally, the observational research method was put into practice to corroborate how these elements contribute also to personal development in the life of people throughout maintenance, really appreciation, and good use, of individual and collective resources. As human capital, natural resources, time, and local assets. Which contribute also to social development, avoiding social anomie and, so, social disorder. Other contributions were taken also into consideration. As theories on fundamental human needs; the life experiences of the author; the African philosophy of Ubuntu; the General System Theory of Ludwig von Bertalanffy (1901-1972); the work of great pedagogues such as Pablo Freire (1921-1997) and Anton Makarenko (1888-1939); the work of important sociologists such as Anthony Gramsci (1891-1937), etc. Consequently, the fusion of all these works, studies, experiences, ideas, findings, and constructs, enabled the creation of the terms "Personal Order" and "Personal Disorder".

Keywords: Social Order. Social Disorder. Development. Personal Order. Personal Disorder.

RESUMO

Os termos pedagógicos "Ordem Pessoal" e "Desordem Pessoal" foram estabelecidos para se referir ao estado de presença necessário para que os seres humanos contribuam para a ordem social em todos os aspectos de suas vidas, como família, negócios, educação, trabalho, religião, etc. Esses termos buscam integrar as obrigações e responsabilidades básicas dos seres sociais, permitindo que alcancem seu pleno potencial e ajudem os outros a alcançarem o seu. Consequentemente, podemos ter sociedades mais eficazes e, portanto, um mundo melhor. As contribuições de Hedley Bull (1932-1985) em sua principal obra, "A Sociedade Anárquica", foram centrais para este estudo. Segundo Bull, a ordem social é criada por meio da vida, da verdade e da propriedade. Portanto, o método de pesquisa conceitual foi essencial para o desenvolvimento do arcabouço teórico. Além disso, o método de pesquisa observacional foi aplicado para corroborar como esses elementos contribuem para o desenvolvimento pessoal por meio da manutenção, valorização e uso adequado de recursos individuais e coletivos, como capital humano, recursos naturais, tempo e ativos locais. Consequentemente, eles contribuem para o desenvolvimento social, evitando a anomia social e, consequentemente, a desordem social. Além disso, outras contribuições também foram necessárias, como teorias sobre as necessidades humanas fundamentais; as experiências de vida do autor; a filosofia africana do Ubuntu; a Teoria Geral dos Sistemas de Ludwig von Bertalanffy (1901–1972); o trabalho de grandes educadores como Pablo Freire (1921–1997) e Anton Makarenko (1888–1939); o trabalho de importantes sociólogos como Anthony Gramsci (1891–1937), etc. Consequentemente, a fusão de todos esses trabalhos, estudos, experiências, ideias, descobertas e constructos permitiu a criação dos termos "Ordem Pessoal" e "Desordem Pessoal".

Palavras-chave: Ordem Social. Desordem Social. Expansão. Ordem Pessoal. Desordem Pessoal.

1 INTRODUCCIÓN

Las instituciones, los organismos, las empresas y los gobiernos modernos parecen carecer de la capacidad, por sí solos, para resolver muchos de los problemas que afectan a la mayoría de las sociedades actuales, como la pobreza, un problema que causa conflictos, guerras, marginación, etc. (Tabares, 2023). Para comprender esto, podemos tomar como referencia los objetivos establecidos por las Naciones Unidas en la Cumbre del Milenio de 2000, que buscaban reducir la pobreza mundial a la mitad para 2015 (Rodríguez, 2006). Dado que estos objetivos aún no se han cumplido, las Naciones Unidas los reformularon como Objetivos de Desarrollo Sostenible en 2015 (Tabares, 2023; Tabares & González, 2023). Sin embargo, la agonía de estados colapsados como Somalia demuestra claramente las consecuencias en la vida de las personas de la falta de Estado, nacionalidad, organizaciones, empresas, etc. Las consecuencias del *desorden social*, en este caso causado por la apatridia. Por lo tanto, el *orden social* no es un lujo, sino una necesidad vital, sin la cual no puede haber prosperidad, ni desarrollo económico ni social (Chhibber, 1997, en Wallis & Dollery, 2001).

Por lo tanto, el *orden social* en todos los aspectos de la vida es fundamental para el buen desempeño de los individuos y de las funciones administrativas eficaces de las sociedades, para la seguridad ciudadana, la prestación de servicios públicos y privados, etc. (Tabares, 2023). Para lo cual, los ciudadanos deben ser individuos responsables, con contribuciones éticas y estéticas, y con el sentido de colectividad, para aprovechar al máximo las oportunidades y recursos y así hacer de las sociedades un lugar mejor, y no causarles daño. Para lo cual, deben cuidar, valorar, consumir y hacer un uso responsable de los recursos naturales, económicos, y materiales, de los activos locales, y del capital humano, asegurando su preservación y continuidad. Lo que requiere ciudadanos saludables, honestos y con los recursos suficientes para responsabilizarse de su propia existencia y la de sus descendientes de la mejor manera posible, tanto ética como estéticamente (Tabares, 2024a; Tabares 2024b). Porque todos deben participar en el logro de sociedades democráticas y prósperas, como ciudadanos responsables, utilizando bien su tiempo libre, ganándose la vida éticamente (Adler, 1998), recibiendo instrucción, etc., y la base de estas acciones sociales, como adultos y ciudadanos desarrollados, puede residir en los tres factores establecidos por Bull (1977) para alcanzar el *orden social*. Los cuales son *propiedad, verdad y vida*.

Por estas razones, surgieron los términos «*Orden Personal*» y «*Desorden Personal*», porque se crearon con la intención de educar sobre las consecuencias de la falta de *propiedad, verdad, y vida*, es decir, cuando las personas no consideran los elementos personales básicos necesarios para el *orden social* y, por ende, para un desarrollo potencial. Porque estos elementos pueden generar beneficios económicos, sociales y personales, así como propiciar la colaboración y la cooperación a nivel regional, nacional o internacional, con un impacto positivo en la prosperidad para todos (Tabares, 2025).

Sin embargo, antes de alcanzar el «*orden personal*», los seres humanos deben desarrollarse. Lo cual solo es posible mediante la provisión, el acceso, o la adquisición de los recursos necesarios para cubrir las necesidades humanas fundamentales. Por ello, se ha dedicado una sección de este trabajo a la presentación del contenido sobre las necesidades humanas fundamentales.

2 ANTECEDENTES

La motivación que empujó el desarrollo de esta investigación surgió con el trabajo de Hedley Bull "La Sociedad Anárquica" (1977). Porque por medio de este, floreció la conexión que puede existir entre los elementos establecidos por Bull para el *orden social*, la *vida*, la *verdad* y la *propiedad* (posesiones o recursos), con las cualidades y atributos humanos que también facilitan la armonía, la cooperación, el trabajo en equipo y, por ende, el logro de metas y resultados, que permiten el desarrollo en todos los ámbitos de la vida humana, y de la sociedad en general.

Entonces, para analizar, comprender y verificar dicha conexión, fue necesario profundizar en la investigación conceptual de las necesidades fundamentales del desarrollo humano. Porque sin un desarrollo humano adecuado, no puede existir una sociedad o comunidad, y sin sociedades, no puede existir el *orden social*.

Posteriormente, fue necesario continuar la investigación conceptual del término *desorden social* y analizar los elementos establecidos por Hedley Bull para el *orden social*, la *vida*, la *verdad* y las *posesiones*. De esta manera, fue posible comprender mejor sus posibles analogías en la esfera humana y personal.

Posteriormente, fue necesario poner en práctica el método de investigación observacional. Porque de esta manera, se pudieron corroborar los análisis y hallazgos de la investigación conceptual, reflejados en el marco teórico. Por tanto, respaldando los supuestos que motivaron la realización de este estudio.

3 OBJETIVO

Los fundamentos de este estudio, basado en la investigación conceptual y observacional, son la comprensión de los términos *orden social* y *desorden social*, lo que implica también la comprensión de las necesidades humanas fundamentales para el desarrollo humano, con el fin de confirmar y determinar la existencia de términos pedagógicos que ayuden a las personas a comprender el impacto de sus acciones en todos los aspectos de su vida y en la de los demás, como los negocios, la educación, el trabajo, la salud, etc., así como en el *orden social*.

Consecuentemente, será posible comprender el impacto que dichas acciones pueden tener en el *orden social* en los siguientes niveles:

- En el nivel de desarrollo personal. El cuál es el nivel de desarrollo que la persona puede alcanzar con la *verdad*, la *vida* y la *propiedad*. Los cuales son los elementos fundamentales para el *orden social*.

- En el nivel de desarrollo social. Que es el nivel de desarrollo que grupos como la familia, los vecinos, los estudiantes, etc., pueden lograr mediante las acciones de cada una de las personas que conforman dichos grupos.

- En el nivel de desarrollo comunitario o colectivo. El desarrollo que la comunidad, las instituciones, las empresas y las organizaciones pueden lograr, así como la sociedad en general, mediante las acciones de cada una de las personas que conforman los grupos que le dan la existencia a dicha comunidad o sociedad.

Porque todas las acciones personales individuales, dentro de grupos y sociedades, crean un conjunto de acciones que pueden producir o facilitar un *orden social* que permita la sostenibilidad y, por lo tanto, el crecimiento y la prosperidad.

Por consiguiente, los objetivos generales de este estudio son tres:

- Comprender las necesidades humanas fundamentales para el desarrollo humano. Porque una persona debe estar plenamente desarrollada para comprender qué debe hacer para mejorar su vida y la de los demás.
- Comprender el término *orden social*. Porque sin *orden social*, es más difícil alcanzar el desarrollo potencial, así como el bienestar, la sostenibilidad, el crecimiento y la prosperidad.
- Definir los términos pedagógicos «*orden personal*» y «*desorden personal*». Porque se consideran necesarios para que las personas contribuyan personalmente al *orden social* y eviten el *desorden social*. De esta manera, las personas pueden tener una

mayor probabilidad de alcanzar su máximo potencial, difundiendo el *orden social* en cualquier escenario de sus vidas, como en la familia de la que forman parte, la comunidad donde viven, la empresa donde trabajan, las instituciones públicas que utilizan para los servicios públicos, las organizaciones que utilizan para los servicios privados, las asociaciones donde colaboran, etc., y, en consecuencia, estarán contribuyendo a un mayor *orden social* en la totalidad de la sociedad donde se encuentran.

4 METODOLOGÍA

Esta investigación se realizó mediante la metodología cualitativa, porque se centra en la interpretación, comprensión y verificación de los conceptos fundamentales *orden social* y *desorden social*. Un fenómeno social que implica también la comprensión de las necesidades humanas fundamentales para el desarrollo.

Consecuentemente, los principales métodos de investigación utilizados en este estudio fueron la investigación conceptual y la investigación observacional. Porque estos métodos de investigación se consideraron fundamentales, dadas las características del estudio, para poder comprender, corroborar, y establecer los conceptos pedagógicos de *orden personal* y *desorden personal*.

4.1 INVESTIGACIÓN CONCEPTUAL

El método de investigación conceptual se define como un método de investigación que se lleva a cabo mediante la observación y el análisis de la información existente sobre un tema determinado. No implica experimentos prácticos.

Se relaciona con conceptos o ideas abstractas. Los filósofos lo han utilizado desde hace mucho tiempo para desarrollar nuevas teorías o interpretar las existentes desde una perspectiva diferente.

Algunas ventajas de la investigación conceptual son:

- La investigación conceptual se centra en el concepto o teoría que explica un fenómeno. ¿Qué lo causa?, ¿cuáles son sus componentes básicos?, etc. Es una investigación con papel y lápiz.
- Este tipo de investigación se basa en gran medida en estudios previos; no se realizan experimentos, lo que ahorra tiempo, esfuerzo y recursos. Mediante la investigación conceptual se puede generar información adicional y más relevante.

- La investigación conceptual se considera una de las formas de investigación más convenientes, porque en este tipo de investigación, si el marco conceptual está listo, solo es necesario clasificar la información y la literatura relevantes (QuestionPro, 2025).

En este estudio, a lo largo de la investigación conceptual, la revisión bibliográfica fue esencial, ya que permitió desarrollar una investigación conceptual de datos textuales relacionados con los conceptos de necesidades humanas fundamentales para el desarrollo, y también de los conceptos de *orden social* y *desorden social* (Scribbr, 2025).

En consecuencia, para lograr este objetivo principal de la investigación, se utilizaron fuentes de información secundarias, principalmente datos e información recopilados por otros investigadores académicos a través de artículos, libros, blogs, etc. Sin embargo, la fuente de información más importante fue "La Sociedad Anárquica" de Hedley Bull (1977), ya que allí se presenta el concepto de *orden social*.

4.2 LA OBSERVACIÓN

La observación es uno de los enfoques de investigación más antiguos y fundamentales. Implica recopilar impresiones del mundo mediante la observación y la escucha, de forma sistemática y con un propósito, para comprender un fenómeno de interés. La investigación observacional asume que el comportamiento tiene un propósito y refleja valores y creencias más profundos. Si bien puede realizarse en un laboratorio u otro entorno elegido por el investigador, suele tener lugar en entornos naturales para capturar el comportamiento tal como ocurre en el mundo real. Suele implicar contacto directo entre el investigador y los participantes. Durante la observación, los investigadores recopilan datos tanto descriptivos como relacionales mediante la observación del comportamiento en el entorno de interés.

La investigación observacional, como cualquier otra investigación, comienza con la selección de un problema de investigación, que a menudo se presenta como un área de interés. Si bien algunos investigadores prefieren adentrarse en el campo y comenzar la observación de inmediato, sin las posibles limitaciones de las ideas preconcebidas, muchos realizan una búsqueda bibliográfica para identificar indicadores relevantes y conceptos explicativos que puedan fundamentar el proyecto (McKernan et al., 2008). Siendo ese el camino de este estudio, porque la investigación conceptual fue fundamental para aclarar qué

era necesario observar para enriquecer la investigación y poder establecer y corroborar los términos *orden personal y desorden personal*.

En este estudio se utilizaron en particular la observación naturalista encubierta y la observación participante. Dado que los participantes desconocían que la observación se estaba llevando a cabo.

Las acciones para la recopilación de datos se llevaron a cabo en situaciones que surgieron espontánea e inesperadamente en escenarios públicos diversos. Por lo tanto, para llevar a cabo la investigación de manera eficiente, no se pudo causar ninguna perturbación, ya que era fundamental aprovechar y utilizar eficientemente las situaciones que surgían ante los ojos del investigador, ya que se trataba de valiosas fuentes de información. Además, considerando las consideraciones éticas, el investigador no podía ser intrusivo, y las observaciones se llevaron a cabo únicamente en situaciones públicas donde las personas no estaban solas, respetando su intimidad y bienestar, y protegiendo siempre su identidad, privacidad y autonomía.

La observación naturalista implica que el estudio de los sujetos de investigación se lleva a cabo en sus propios entornos, en escenarios naturales e incontrolados. De esta manera, es posible explorar comportamientos y acciones sin ninguna influencia o control externo. Es un método de investigación utilizado en estudios de campo (Bhandari, 2023).

La observación participante implica que el investigador se sumerge en un entorno social o grupo específico, observando los comportamientos, interacciones, y prácticas de los participantes. En la observación participante, el investigador se denomina observador participante, ya que participa en las actividades del grupo a la vez que observa sus comportamientos e interacciones (George, 2023).

El período de observación se desarrolló entre junio de 2023 y junio de 2025.

La observación naturalista se utilizó cuando los participantes fueron observados a distancia, sin estar involucrados con el investigador, a pesar de compartir el mismo espacio.

La observación participante se utilizó cuando el investigador también estaba inmerso en el desarrollo de actividades, acciones, y eventos con los participantes.

Sin embargo, en ninguno de los casos, se informó a los participantes que estaban siendo observados e investigados. Tampoco se les explicó sobre la investigación en curso, ya que podría afectar su comportamiento (Bhandari, 2023).

Entonces, se empleó el método de investigación de observación naturalista en eventos, actividades, acciones, etc., observados externamente por el investigador.

Contextos donde el investigador pudo identificar acciones negativas relacionadas con la falta de autogestión sobre el buen uso de la *verdad*, la *propiedad*, y la *vida*, que obstaculizaban o detenían el desarrollo de dichos eventos, actividades, y acciones, etc.

El método de investigación de observación participante se utilizó en dos tipos de escenarios:

1. Cuando el investigador participaba en eventos, actividades, acciones, etc., a desarrollar con otra persona. En estos casos, el investigador pudo identificar que la interacción se producía con alguien cuyas acciones perjudicaban, obstaculizaban, o impedían el desarrollo de una acción, evento, o actividad. Y lo cual se debía a la falta de autogestión en cuanto al buen uso de la *verdad*, la *propiedad* y la *vida*. Lo que provocaba acciones y comportamientos negativos, como críticas excesivas, falta de colaboración, abuso verbal, malentendidos, desinterés en la participación, silencios intencionados, obstaculización del acceso a recursos, etc.
2. Cuando el investigador participaba en eventos, actividades, acciones, etc., a desarrollar con un grupo de personas. En estos casos, el investigador pudo identificar acciones relacionadas con la falta de autogestión en cuanto al buen uso de la *verdad*, la *propiedad* y la *vida*, que obstaculizaban o detenían el desarrollo de dichos eventos, actividades, acciones, etc. Las cuales eran acciones y comportamientos negativos, como obstaculizar el acceso a recursos (como apuntes, notas, materiales, espacios, etc.), ignorar otros puntos de vista, no hacer lo prometido, cancelar la participación o los compromisos con muy poco tiempo de antelación, etc.

Por tanto, algunos de estos eventos, actividades, acciones, etc., se observaron desde fuera, mientras que otros fueron experimentados por el investigador durante la interacción con otra persona, y con grupos de personas.

Para ambos tipos de observación, los datos se recopilaban mediante la toma de notas. Lo que implica anotar de forma no estructurada cualquier aspecto relevante o importante según el tema y los intereses de la investigación (Bhandari, 2023).

5 MARCO TEÓRICO

5.1 NECESIDADES HUMANAS FUNDAMENTALES PARA EL DESARROLLO, LA MOTIVACIÓN Y EL CRECIMIENTO PERSONAL

Las necesidades humanas se han definido de diferentes maneras, pues se han establecido diferentes teorías y enfoques principales para explicar y demostrar la relación entre las necesidades humanas, la motivación y, por consiguiente, el desarrollo personal.

En primer lugar, fue Abraham Maslow (Maslow, 1943; Maslow, 1954), quien elaboró la *teoría de la Jerarquía de las Necesidades Humanas* (Cherry, 2024) (McLeod, 2025). Mediante la cual Abraham Maslow afirmó que nuestras acciones están motivadas por ciertas necesidades fisiológicas y psicológicas que progresan de básicas a complejas. Así que Maslow estableció cinco niveles diferentes de jerarquía de las necesidades humanas, conformando el nivel más bajo, las conocidas como *necesidades fisiológicas*.

Las *necesidades fisiológicas* incluyen aquellas necesidades que se consideran vitales para la supervivencia. Algunos ejemplos de *necesidades fisiológicas* son la alimentación, el agua, la respiración, etc. En el segundo nivel, las necesidades se vuelven un poco más complejas, pasando a ser primordiales las *necesidades de seguridad y protección*. Algunas de las necesidades básicas de *seguridad y protección* son la seguridad financiera, la salud y el bienestar, la protección contra accidentes y lesiones, etc. (Cherry, 2024). Una vez satisfechas las *necesidades fisiológicas y de seguridad*, el tercer nivel de necesidades humanas es el *amor y la pertenencia*. El cual se refiere a las necesidades emocionales de relaciones interpersonales, afiliación, conexión, y pertenencia a un grupo.

El cuarto nivel de necesidades humanas en la jerarquía de Maslow es la *autoestima*. Maslow clasificó la *necesidad de autoestima* en dos categorías: (i) autoestima para uno mismo o para una misma (dignidad, logro, dominio, independencia) y (ii) el deseo de reputación o respeto de los demás (p. ej., estatus, prestigio).

En el quinto nivel se encuentran las *necesidades de autorrealización*, que se refieren a la realización del potencial personal, la autorrealización, la búsqueda del crecimiento personal y las experiencias plenas. Este era el nivel más alto en la jerarquía de Maslow, hasta que Maslow lo expandió para incluir las *necesidades cognitivas* en el nivel cinco, incluyendo en este nivel el conocimiento y la comprensión, la curiosidad, la exploración, la necesidad de significado y la previsibilidad.

Maslow también incluyó las *necesidades estéticas* (Maslow, 1970^a), que se convirtieron en el sexto nivel de necesidades, con la apreciación y la búsqueda de la belleza,

el equilibrio, la forma, etc. El séptimo nivel incluye las *necesidades de autorrealización*. Que como se mencionó anteriormente, estas *necesidades de autorrealización* incluyen la realización personal, la autorrealización, la búsqueda del crecimiento personal y las experiencias cumbre (McLeod, 2025). Posteriormente, se incluyeron las *necesidades de trascendencia* (Maslow, 1970b), que se convirtieron en el octavo nivel de necesidades e incluyen el deseo humano de conectar con una realidad superior, un propósito, o el universo (McLeod, 2025).

Más tarde, en 1959, Frederick Herzberg diseñó la *Teoría de los Dos Factores*. Esta teoría se basa en la retroalimentación recopilada en EE. UU. de doscientos ingenieros y contables sobre sus sentimientos personales hacia sus entornos laborales. Información a partir de la cual Herzberg definió dos conjuntos de factores que determinan las actitudes laborales y el nivel de desempeño de los empleados, denominados *Factores de Motivación e Higiene* (Robbins, 2009). Si bien esta teoría se refiere al entorno laboral, es importante considerarla porque los *Factores de Motivación e Higiene* se pueden comparar con la vida en cualquier entorno o escenario. Porque el lugar donde vivimos, trabajamos, estudiamos, etc., puede influir en la manera que vivimos nuestra vida. Ya que puede facilitar buenas o malas condiciones de vida, puede ser seguro o inseguro, las personas pueden relacionarse sanamente o a través de conflictos, a las personas se les pueden asignar responsabilidades o se les puede ignorar, etc.

Los *factores de motivación son factores intrínsecos* que aumentan la satisfacción laboral de los empleados, mientras que los *factores de higiene son factores extrínsecos* que sirven para frenar la insatisfacción laboral (Yusoff, Kian & Idris, 2013). Bevins (2018) denomina "satisfactores" a los "motivadores" e "insatisfactores" a los de "higiene".

En su estudio original, Herzberg identificó *seis Factores Motivadores* que son determinados intrínsecamente por la empresa u organización para los empleados, los cuales son: 1. Reconocimiento; 2. Logro; 3. Posibilidad de crecimiento; 4. Ascenso; 5. Responsabilidad; y 6. El trabajo en sí (Yusoff et al., 2013). Los motivadores se conocen como "contenido laboral" debido a su naturaleza intrínseca y a lo que se obtiene de ellos (Herzberg et al., 1959; Maidani, 1991).

Además, como los *factores intrínsecos* son necesidades humanas básicas para el crecimiento psicológico, por lo que son muy eficaces para crear y mantener efectos positivos más duraderos en el desempeño laboral de los empleados. Consecuentemente, los *factores intrínsecos* impulsarán a los empleados a interesarse más por su trabajo, ya que cuando se

satisfacen adecuadamente sus necesidades motivacionales, su productividad y eficiencia mejoran (Robbins, 2009).

También, Herzberg en 1959, en su estudio original, identificó *diez Factores de Higiene*, los cuales están determinados por los factores extrínsecos del trabajo de un empleado, y estos son: 1. Salario; 2. Relaciones interpersonales (supervisor); 3. Relaciones interpersonales (subordinado); 4. Relaciones interpersonales (compañeros); 5. Supervisión (técnica); 6. Política y administración de la empresa; 7. Condiciones laborales; 8. Factores de la vida personal; 9. Estatus; y 10. Seguridad laboral (Herzberg et al., 1959).

Por ello, los *Factores Extrínsecos*, también son conocidos como factores del contexto laboral, ya que son satisfacciones extrínsecas que otras personas otorgan a los empleados. Entonces, cuando se cumple con todos estos factores externos, los empleados se verán libres de condiciones laborales desagradables, lo que disipará sus sentimientos de insatisfacción. En consecuencia, estos factores externos sirven como orientación para los empleadores a la hora de crear un ambiente de trabajo favorable donde los empleados se sientan cómodos trabajando en el mismo, aunque permanezcan neutrales, es decir, no satisfechos y no motivados (Robbins, 2009).

Entonces, las dos categorías difieren fundamentalmente y son independientes entre sí (Maidani, 1991), pero a la vez actúan de forma interdependiente. Porque como Herzberg planteó, la plena provisión de *Factores de Higiene o Extrínsecos*, no necesariamente se traduce en satisfacción laboral para los empleados. Porque esta teoría argumenta que satisfacer las necesidades de nivel inferior (mediante los *Factores Extrínsecos o de Higiene*) de los individuos evitaría su insatisfacción, pero no los motivaría a esforzarse. Por lo tanto, también se hace necesario abordar los *Factores de Motivación* para aumentar el rendimiento y la productividad de los empleados (Robbins, 2009).

Por consiguiente, ambos tipos de factores son necesarios para crear el entorno laboral más favorable, tanto para empleadores como para empleados, y por tanto, para crear también el entorno de crecimiento más favorable para cualquier ser humano. Porque toda persona necesita reconocimiento, posibilidades de logro, posibilidades de crecimiento y progreso, responsabilidad, acciones (a través del voluntariado, el estudio, la agricultura, el trabajo, etc.), seguridad financiera, buenas relaciones interpersonales con vecinos, agentes, etc., con políticas, normas y regulaciones justas, y una administración institucional eficaz que garantice buenas condiciones de vida, seguridad, etc., para poder alcanzar su máximo potencial.

Dos años después, en 1961, el psicólogo David McClelland publicó "La Sociedad del Logro", donde articuló su modelo de motivación humana (Universidad de Harvard, 2025) y presentó su *"Teoría de las Tres Necesidades"*. Esta teoría plantea que cada persona está motivada por el *poder*, la *afiliación*, o el *logro* (Kurt, 2022). McClelland desarrolló esta teoría para explorar cómo las necesidades personales influyen en la motivación y el comportamiento en el ámbito laboral. Sin embargo, este conocimiento también puede aplicarse a la vida cotidiana en cualquier escenario, como la familia, los vecinos, los amigos, etc., pues permite también comprender de mejor manera cómo se comportan las personas en relación con estas necesidades en dichos escenarios.

Con esta teoría McClelland descubrió que:

- *Las personas con necesidad de logro (nACH)*, o motivadas por el logro, siempre buscan una siguiente meta y nuevas formas de progresar o crecer. Buscan el éxito personal y prefieren asumir tareas con alta probabilidad de éxito, ya que suelen ser reacios a asumir riesgos, porque ello podría resultar fracaso en el logro de sus objetivos. Además, suelen trabajar de forma independiente, ya que prefieren trabajar solos para controlar más aspectos del logro de sus objetivos.

- *Las personas con necesidad de afiliación (nAFF)* se ven impulsadas por la afiliación que les permite prosperar en las interacciones y relaciones sociales basadas en un sentido de conexión con los demás. Disfrutan de ser percibidas como personas que trabajan en equipo y se motivan por las interacciones y las amistades con compañeros de trabajo, clientes, estudiantes, etc. Por ello, suelen satisfacer esta necesidad interactuando en puestos que implican trabajo en equipo y comunicación, y que les permiten estar en contacto frecuente con otras personas, como profesores, trabajadores sociales, personal de atención al cliente, vendedores, etc. También tienden a preocuparse por cómo se sienten los demás y por cómo se sienten los demás con respecto a ellas o ellos. Esto les dificulta implementar órdenes impopulares, disciplinar a quienes supervisan, o dar retroalimentación negativa.

- *Las personas con necesidad de poder (nPOW)*, o necesidad de autoridad, se ven motivadas por el estatus, el prestigio, la influencia y la posición social que pueden alcanzar. Esta necesidad puede adoptar dos formas generales. En primer lugar, algunas personas buscan el poder intentando mejorar el entorno general que las rodea, animando a otros a destacar. De esta manera, todos alcanzan mayor poder y pueden negociar acuerdos que generen prestigio para todo un departamento o empresa. En segundo lugar, otras se preocupan más por el poder y la gloria personal, y disfrutan más de la idea de estar en una

posición que les permita tomar decisiones importantes. Se motivan por lo que sus logros significan en términos de respeto y estatus personal, y a menudo destacan en puestos directivos o de presidencia, donde pueden ejercer control y liderar a otros (Ungvarsky, 2024).

Posteriormente, en 1964, se presentó *la Teoría de la Desintegración Positiva* (DPP), elaborada por el psiquiatra y psicólogo Kazimierz Dabrowski. Dabrowski enfatizó que, en ciertas circunstancias, el descontento interno es necesario como estímulo para el cambio o el crecimiento. Así, con esta teoría Dabrowski acentúa la necesidad, en ciertas condiciones, de síntomas como ansiedad, obsesiones, o depresión, para que se produzca el crecimiento humano en ciertos entornos. Porque estos síntomas pueden ser signos del inicio de un proceso progresivo de transformación positiva (Laycraft, 2020), a través de cinco niveles de desarrollo:

- Nivel inicial o integración primaria.
- Tres niveles que se refieren a la creciente complejidad de la desintegración: uninivel; multinivel espontáneo; y multinivel organizado.
- Nivel superior, que Dabrowski denominó integración secundaria (Mendaglio, 2019).

Ocho años después, en 1969, el psicólogo Clayton Alderfer desarrolló su *Teoría ERG* (*Existencia, Relación y Crecimiento*) (Kurt, 2023), a través de un estudio enfocado en desarrollar y probar una alternativa a la Teoría de la Jerarquía de Necesidades de Abraham Maslow. Su trabajo fue realizado mediante un cuestionario que estudió 110 empleados en varios niveles laborales de un banco. Como resultado, la teoría alternativa se basa en *una triple conceptualización de las necesidades humanas: Existencia, Relación y Crecimiento* (E.R.G.) (Alderfer, 1969). Como modelo de necesidades humanas, esta teoría ha sido validada por la experiencia humana (Ivancevich, et al., 2007), su constructo también ha sido discutido en estudios filosóficos y empíricos, y a menudo se incluye con otros enfoques de contenido para la motivación (Caulton, 2012).

La teoría ERG de Alderfer es diferente de la teoría de la Jerarquía de Necesidades de Abraham Maslow, aunque Alderfer basó *el modelo ERG* en la teoría de Maslow (Ismail et al., 2023). Porque en esta teoría, *la necesidad de existencia* se relaciona con la supervivencia física y psicológica; *la necesidad de conexión* implica un sentido de comunidad y una buena relación con uno mismo; y *la necesidad de crecimiento* se relaciona con el autodesarrollo, la realización personal y la sensación de alcanzar el propio potencial (World of Work Project CIC, 2024).

La teoría ERG no asume la satisfacción de nivel inferior como prerequisite para el surgimiento de necesidades de orden superior (Alderfer, 1969). En otras palabras, las prioridades y motivaciones de un individuo pueden ser fluidas y oscilar entre los niveles de necesidad de existencia, relación y crecimiento a lo largo del tiempo. Por lo tanto, pueden ascender o descender. Porque en la teoría de la Jerarquía de Necesidades de Maslow, los individuos deben haber satisfecho un nivel de necesidades antes de pasar al siguiente. Por ejemplo, los humanos deben haber satisfecho sus necesidades de seguridad antes de poder ser motivados por la pertenencia social. Sin embargo, Alderfer discrepaba de ello, y en su modelo, los individuos no deben haber satisfecho sus necesidades de existencia antes de ser motivados por su necesidad de relación. Además, Alderfer fue más allá y afirmó que, en base a lo que había observado en la vida, diferentes individuos priorizan sus necesidades en diferentes órdenes en función de las metas que quieran lograr. Un ejemplo típico de esto podría ser un actor que no puede pagar su alquiler, pero que persigue su pasión, motivado por el crecimiento a través del arte de la actuación, posiblemente a expensas de su existencia.

Alderfer también señaló la importancia de cómo las personas perciben su progreso en relación con cada uno de los niveles de necesidades. Porque si una persona siente que está logrando un gran progreso en la conexión con los demás, también ello puede ocasionar que la persona pueda estar cada vez más motivada por el crecimiento, aunque su necesidad de conexión no se haya satisfecho por completo. De igual manera, si una persona se siente frustrada con el progreso que está logrando en relación con el crecimiento, puede abandonarlo y redoblar su motivación en relación con la conexión con los demás (World of Work Project CIC, 2024).

Luego, más de quince años después, se publicó *“Motivación Intrínseca y Autodeterminación en el Comportamiento Humano”*, donde Edward L. Deci & Richard Ryan presentaron la *Teoría de la Autodeterminación (SDT, por sus siglas en inglés)* (Deci y Ryan, 1985). La SDT es una teoría psicológica que aborda la esencia de la felicidad y las capacidades humanas, y aborda directamente las ideas de la realización personal y el desarrollo humano. El principal nivel de análisis de la teoría se centra en los procesos psicológicos individuales. Sin embargo, la teoría también aborda cómo los entornos sociales afectan la satisfacción de las necesidades humanas y la motivación. Ya sea entornos sociales inducidos experimentalmente o no; o entornos sociales que crecen de forma natural (p. ej., Vansteenkiste et al., 2004), como son los contextos sociales continuos, como grupos

de trabajo, o familias (p. ej., Deci, Connell & Ryan, 1989; Grolnick & Ryan, 1989, en Vansteenkiste, et al., 2006); o son sistemas culturales y macroeconómicos (p. ej., Chirkov, Ryan, Kim & Kaplan, 2003; Deci, Ryan, Gagné, Leone, Usunov & Kornazheva, 2001, en Vansteenkiste, et al., 2006). Entonces, la *Teoría de la Autodeterminación* puede definirse como un marco que aborda empíricamente las necesidades psicológicas básicas asociadas con el bienestar a lo largo del desarrollo y las culturas, y las condiciones motivacionales y sociales que permiten la satisfacción de estas necesidades (Vansteenkiste, et al., 2006).

Con esta teoría, las necesidades humanas fundamentales se clasificaron en dos grupos: *las necesidades físicas o fisiológicas* y *las necesidades psicológicas*.

Las necesidades físicas o fisiológicas son las primeras necesidades del ser humano y las más básicas y mínimas. Por ejemplo, las necesidades de alimento, ropa y refugio para aliviar el hambre, protegerse del frío y dormir. Si estas necesidades no se pueden satisfacer al mínimo, los seres humanos no pueden sobrevivir ni multiplicarse (Wu & Han, 2021).

En relación con *las necesidades psicológicas*, la *teoría de la autodeterminación* (SDT) establece que existen al menos *tres necesidades psicológicas humanas básicas y universales*:

La necesidad de competencia, que es el deseo de sentirse eficaz en las interacciones con el entorno social y físico (Deci, 1975; White, 1959, en Vansteenkiste et al., 2006).

La necesidad de relación, que es el deseo de pertenecer, cuidar y sentirse cuidado por los demás (Baumeister & Leary, 1995; Ryan, 1995, en Vansteenkiste, et al., 2006); y

La necesidad de autonomía, el deseo de sentirse voluntario y respaldar plenamente las acciones de uno mismo (deCharms, 1968; Deci & Ryan, 1985).

La necesidad de competencia implica la naturaleza exploratoria de los humanos, que contribuye al crecimiento y desarrollo de habilidades de las personas, y les ayuda a adaptarse a entornos complejos y en constante cambio (Deci & Ryan, 2000). Cuando a las personas no se les brindan oportunidades para dominar el entorno, o cuando fracasan en sus intentos de dominio (p. ej., porque reciben críticas regulares e indicadores de incompetencia), es probable que se desmotiven, muestren poca motivación, y maniobren mal. *La necesidad de competencia* se corresponde bien con las teorías de la autoeficacia, del control percibido y del valor de las expectativas (Bandura, 1989; Carver, Sutton & Scheier, 2000; Feather, 1992; Maddux & Gosselin, 2003; Pajares, 1996; Rotter, 1966, en Vansteenkiste, et al., 2006). Entonces, debido a que el concepto de competencia es tan

omnipresente en la psicología contemporánea, el postulado de una necesidad de competencia no ha sido controvertido (Vansteenkiste et al., 2006).

La necesidad de relación presupone que las personas tienen una inclinación natural a buscar relaciones cercanas e íntimas con los demás y a trabajar para alcanzar un sentido de comunión y pertenencia dentro de los grupos sociales (Ryan, 1993; Baumeister & Leary, 1995, en Vansteenkiste, et al., 2006). Esta necesidad va más allá de la importancia de la interdependencia, ya que solo se satisface cuando las personas experimentan relaciones de apoyo y cuidado en las que se sienten importantes y respetadas. Por tanto, no ocurre en entornos sociales tóxicos. La necesidad de relación implica la tendencia humana a participar en sistemas de apoyo social (Ryan & Solky, 1996), a formar vínculos seguros con los cuidadores primarios (LaGuardia et al., 2000), y a transmitir conocimiento comunitario entre individuos y entre generaciones (Deci & Ryan, 2000). El concepto de *necesidad de relación* es coherente con el estudio de las relaciones cercanas en psicología social (Reis & Patrick, 1996) y con diversas perspectivas del desarrollo, como la teoría del apego (Bretherton, 1987; Shaver & Hazan, 1993). Por ello, el postulado de *la necesidad de relación* ha sido relativamente poco controvertido (Blass & Blatt, 1996).

La necesidad de autonomía se correlaciona con la naturaleza autoorganizativa del desarrollo humano, ya que las personas tienen la necesidad de sentir un sentido de decisión y autoría con respecto a su vida, y por lo tanto a su comportamiento. Además, porque la autonomía proporciona muchas ventajas adaptativas, incluyendo la capacidad de regular mejor las acciones y emociones, la capacidad de volverse más coherente internamente en el funcionamiento de nosotros, y la capacidad de desvincularse de los objetivos exógenos cuando sea necesario (Deci & Ryan, 1985, 2000). La idea de que las personas tienen una inclinación natural a experimentarse a sí mismas como el origen de su comportamiento fue, en cierta medida, también enfatizada por Nuttin (1984) cuando introdujo el concepto de *placer de causalidad*. El cual implica que las personas experimentan una satisfacción inherente cuando se encuentra en ellas la causa de sus propias acciones.

A diferencia de *las necesidades de competencia y relación*, la definición de *la necesidad de autonomía* ha sido muy controvertida, sobre todo, con varios autores que han sugerido que es principalmente un valor occidental y masculino, en lugar de una necesidad universal (Jordan, 1997; Markus, Kitayama & Heiman, 1996, en Vansteenkiste, et al., 2006). Sin embargo, la evidencia empírica muestra que *la autonomía* se asocia con un mayor bienestar tanto en las culturas orientales como occidentales (p. ej., Chirkov et al., 2003;

Vansteenkiste, Zhou, Lens & Soenens, 2005, en Vansteenkiste, et al., 2006), y tanto en mujeres como en hombres (Deci, La Guardia, Moller, Scheiner & Ryan, 2006; Vallerand, 1997, en Vansteenkiste, et al., 2006).

Según la SDT, cuando los contextos sociales permiten la satisfacción de estas *necesidades psicológicas*, se mejora el bienestar y la prosperidad de las personas, mientras que, si se impide su satisfacción, se produce malestar (Vansteenkiste et al., 2006). Ya que, así como las plantas necesitan agua y luz solar para crecer y prosperar, los individuos requieren la experiencia de satisfacer sus necesidades mediante eventos psicológicos en su vida diaria para desarrollarse óptimamente y prosperar. Dado que las necesidades psicológicas básicas de *competencia, relación y autonomía* son esenciales para el bienestar y la prosperidad humana (Ryan, 1995). Porque independientemente de si la satisfacción de estas necesidades se valora subjetivamente o se avala culturalmente, se predice que la falta de satisfacción de una de estas necesidades que han sido definidas tendrá consecuencias negativas para todos los individuos y culturas (Vansteenkiste et al., 2006).

Posteriormente, se presentó el enfoque del *Desarrollo a Escala Humana*, que conecta la satisfacción de las necesidades humanas fundamentales con el desarrollo personal y social. Fue creado por Manfred Max-Neef y se publicó por primera vez en español en 1986 (Max-Neef, et al, 1986). El *Desarrollo a Escala Humana* es un enfoque de desarrollo centrado y basado en la satisfacción de las necesidades humanas fundamentales de las generaciones presentes y futuras, que asume que el desarrollo social y personal son inseparables. Porque una sociedad saludable, debe abogar sobre todo por el desarrollo de cada persona y de la persona en su totalidad. Porque cualquier necesidad fundamental que no se satisface adecuadamente, revela una pobreza humana, y cada pobreza genera patologías y patologías colectivas comunes. En consecuencia, a través de este enfoque se entendió que las necesidades humanas deben entenderse como un sistema: es decir, todas las necesidades humanas están interrelacionadas e interactúan, por lo que no existen jerarquías dentro del sistema, con la única excepción de la necesidad de subsistencia para mantenerse vivo. Lo cual significa que, por un lado, ninguna necesidad es per se más importante que otra; y, por otra parte, que no existe un orden fijo de precedencia en la actualización de las necesidades (es decir, que la necesidad B, por ejemplo, sólo puede satisfacerse después de que se haya satisfecho la necesidad A).

En esta obra se afirma que es imposible afirmar que las necesidades humanas fundamentales sean histórica y culturalmente constantes. Sin embargo, si tienen un carácter

socio universal, ya que las personas de todo el mundo desean satisfacerlas. Por lo tanto, las necesidades humanas pueden clasificarse según diversos criterios, pero en esta obra de Manfred Max-Neef (2007), las necesidades humanas se organizan en dos categorías: *necesidades existenciales* y *necesidades axiológicas*, que interactúan entre sí.

Las necesidades existenciales son las de Ser, Tener, Hacer e Interactuar; y *las necesidades axiológicas* son las de Subsistencia, Protección, Afecto, Comprensión, Participación, Ocio, Creación, Identidad y Libertad (Max-Neef, 2007). Por tanto, *las necesidades axiológicas* se satisfacen mediante el ser, el tener, el hacer y la interacción.

Entonces, cuando cada una de estas necesidades no se satisface, se revela una pobreza humana: Pobreza de subsistencia (ingreso insuficiente, comida escasa, falta de refugio, etc.); Pobreza de protección (debido a sistemas de salud inadecuados, violencia, uso de armamento, etc.); Pobreza de afecto (debido al autoritarismo, la opresión, a una relación explotadora con el medio ambiente, etc.); Pobreza de comprensión (debido a la mala calidad de la educación); Pobreza de participación (debido a la marginación y a la discriminación); y Pobreza de identidad (debido a la imposición de valores ajenos desestimándose las culturas locales y regionales, causada también por la migración forzada, como el exilio político, etc.). Entonces, como se mencionó antes, cada pobreza humana genera patologías, y patologías colectivas como: Patologías económicas (desempleo, deuda externa e hiperinflación); Patologías políticas (miedo, violencia, marginación y exilio); Patologías de analfabetismo (barreras de comunicación, dificultades de aprendizaje, etc.); Patologías de individualismo (ruptura de los vínculos comunitarios, disminución del compromiso cívico, aumento de la soledad, sentimientos de inadecuación); Patologías biológicas (problemas de salud físico, psicológico, emocional), etc.

Con respecto a ello, también explican que cada necesidad puede satisfacerse en diferentes niveles e intensidades, *dentro de tres contextos*, y que la calidad e intensidad, no solo de los niveles, sino también de los contextos, dependerán del tiempo, el lugar y las circunstancias. Así pues, *los tres contextos en los que se satisfacen las necesidades son*: (a) con respecto a uno mismo, *personal* (Eigenwelt); (b) *con respecto al grupo social*, como la familia y la comunidad en general (Mitwelt); y (c) con respecto al *entorno*, como la biorregión o la nación (Umwelt).

Por lo que encuentran que las necesidades no solo indican privaciones, sino también, al mismo tiempo, el potencial humano individual y colectivo. Porque cuando las necesidades se conciben como privaciones, se limitan a lo meramente fisiológico. Sin embargo, dado que

las necesidades también involucran, motivan, y movilizan a las personas, son un potencial y, eventualmente, pueden convertirse en un recurso. Ya que la necesidad de participar es un potencial o recurso para la colaboración, la cooperación, el trabajo en equipo, etc., u otro ejemplo, como la necesidad de afecto, es un potencial o recurso para establecer relaciones afectivas o de amistad, relaciones matrimoniales, relaciones de aprecio o comunitarias, etc. (Max-Neef, 2007).

Más recientemente, en 1992, el psicólogo Joe Griffin & Ivan Tyrrel crearon la *Teoría del Enfoque de los Dones Humanos* (Human Given Services, 2025). Esta teoría sostiene que *las necesidades físicas, psicológicas, y emocionales*, están inextricablemente vinculadas y que, cuando estas necesidades no se satisfacen, las personas pueden ser más propensas a experimentar estrés y otros problemas de salud mental y emocional que afectan su desarrollo personal (Good Therapy, 2019).

El Enfoque o Teoría de los Dones Humanos define *ocho necesidades psicológicas esenciales*, identificadas a lo largo de décadas de trabajo por psicólogos sociales y de la salud: 1. Necesidad de autonomía; 2. Sensación de control; 3. Seguridad; 4. Conexión; 5. Atención; 6. Logro; 7. Estatus; y 8. Significado. Así pues, es al satisfacer nuestras *necesidades físicas, psicológicas, y emocionales*, que sobrevivimos y nos desarrollamos como individuos y como especie (Human Givens Institute, 2016).

Sobre la naturaleza de nuestras *necesidades emocionales*, existe un amplio consenso, descubierto por décadas de investigación en psicología social y de la salud. Así, las principales *necesidades emocionales* esenciales para nuestra salud mental son nueve: 1. Seguridad: Contar con un territorio y un entorno seguro que nos permita desarrollarnos plenamente. 2. Atención (darla y recibirla): como una forma de nutrición. 3. Sentido de autonomía y control: poder tener la opción de decidir por nosotros mismos a la hora de tomar decisiones responsables. 4. Intimidad emocional: saber que al menos otra persona nos acepta totalmente como somos. 5. Sentirse parte de una comunidad más amplia. 6. Privacidad: tener la oportunidad para reflexionar y consolidar la experiencia. 7. Sentido de estatus dentro de los grupos sociales. 8. Sentido de competencia y logro. Y, 9. Significado y propósito: que provienen de poder hacer crecer nuestra existencia con lo que hacemos y pensamos. (Tyrrell & Griffin, 2016).

Según *el enfoque o la teoría de los dones humanos*, las personas podrían no estar satisfaciendo sus necesidades debido a tres razones principales:

1. Entorno: Algo en nuestro entorno interfiere con nuestra capacidad para satisfacer nuestras necesidades.

2. Daño: Algo falla en nuestra naturaleza humana, con nuestros "recursos". Carecemos de instintos o los tenemos incompletos. Y,

3. Conocimiento: Quizás no sabemos qué necesitamos (Banham, 2022).

Ya que, según la *Teoría o Enfoque de los Dones Humanos*, la naturaleza también nos proporcionó unos "*sistemas guía*" innatos para ayudarnos a satisfacer nuestras necesidades. Los cuales son "*nuestros recursos*" y, que junto con nuestras *necesidades esenciales físicas, psicológicas y emocionales*, conforman los *dones humanos*.

Porque nuestros *sistemas guía o recursos*, fueron proporcionados por la naturaleza para ayudarnos a satisfacer nuestras necesidades humanas, y según la *Teoría o Enfoque de los Dones Humanos*, estos son ocho y son los siguientes: 1. La capacidad de desarrollar una memoria compleja a largo plazo, que nos permite ampliar nuestro conocimiento innato y aprender. 2. La capacidad de entablar relaciones, empatizar, y conectar con los demás. 3. La imaginación, que nos permite desviar nuestra atención de las emociones, usar el lenguaje, y resolver problemas de forma más creativa y objetiva. 4. Las emociones y los instintos, que nos permiten mediante la liberación de diversos neurotransmisores, hormonas, y otros mensajeros químicos, a sentirnos impulsados a actuar para satisfacer nuestras necesidades de supervivencia. 5. La conciencia, que es nuestra capacidad racional de analizar nuestras emociones, cuestionarlas, analizarlas, y planificarlas. 6. La capacidad de «saber», que consiste en comprender el mundo inconscientemente mediante la comparación de patrones metafóricos. 7. Un yo observador, que es esa parte de nosotros que puede dar un paso atrás, ser más objetivo, y ser consciente de sí mismo como un centro único de conciencia, aparte del intelecto, la emoción y el condicionamiento. Y 8. Un cerebro soñador, que preserva la integridad de nuestra herencia genética (Tyrrell & Griffin, 2016).

Por tanto, de acuerdo con la *Teoría o Enfoque de los Dones Humanos* garantizando que *las necesidades físicas, psicológicas y emocionales* de las personas estén suficientemente satisfechas y que utilicen sus *recursos innatos* de manera eficaz (nuestros *dones humanos*, es lo que sustenta toda curación, crianza, educación, comunicación, y eficacias exitosas en entornos organizacionales (Human Givens Institute, 2016).

Como se puede observar, *en relación con todas las necesidades fundamentales de motivación y crecimiento mencionadas anteriormente*, existen algunas necesidades que

parecen pasar desapercibidas para todos los autores si consideramos la contribución de Hedley Bull (1977) sobre el orden social. Las cuales son tres:

-*La necesidad de verdad*. Porque, como menciona Hedley Bull (1977), el buen uso de la verdad es un requisito para el orden social. Ya que, si las personas tienen cubiertas sus necesidades, pero no pueden confiar por la falta de honestidad, esto es perjudicial para ellas mismas y para los demás.

-*La necesidad de vivir una vida plena de salud y bienestar*, que implica *un sentido de salud y bienestar colectivo como necesidad*. Porque ser conscientes de cómo la causa y el efecto de nuestras acciones impactan en los demás, es decir, en la comunidad, puede ayudarnos a ser más conscientes y responsables. Lo que también contribuirá a lograr mejores formas de vida y mejores sociedades, con orden social y armonía. Y,

- *La necesidad de propiedad*, concretamente *la necesidad de propiedad colectiva*. Lo que implica el cuidado, mantenimiento, y buen uso de los recursos comunes, como el capital humano, los recursos naturales, el tiempo, y los bienes locales, mediante el trabajo de todos los miembros de la comunidad. Porque a todos los que forman parte de la sociedad se les pueden asignar responsabilidades, y trabajar para su mejora, especialmente a quienes están desempleados, en prisión, y reciben ayuda económica del gobierno. Por lo tanto, se deben asignar tareas competentes para todos, incluso si son solo cuatro o cinco horas al mes. Lo cual dependerá de las circunstancias personales y las condiciones de vida. Ya que, de esta manera, prácticamente todos los ciudadanos podrán contribuir al cuidado, mantenimiento, y buen uso de los recursos comunes, así como al bienestar de la sociedad. En consecuencia, también contribuirá al logro del orden personal y, por ende, el orden social.

Puesto que, considerando el trabajo de Moore (2012), se puede afirmar que, a través de nuestra humanidad natural y colectiva, podemos aumentar nuestra capacidad de vivir y trabajar juntos, conectando recursos y personas mediante el poder de relaciones nuevas y más profundas entre personas y organizaciones.

Consecuentemente, se podrá tener una mejor comunidad donde los residentes puedan sentirse orgullosos, felices, libres de conflictos, y saludables. Porque cuando existe fragmentación en la comunidad, esta no puede verse como una valiosa fuente de capital humano básico, necesario para la democracia y las sociedades prósperas, con elementos como el compromiso, la confianza, la cooperación, la comprensión, etc.

5.2 ORDEN SOCIAL

La palabra "*orden*" puede relacionarse con el término griego κόσμος (kósmos), que significa *orden*, y es la antítesis de caos Χάος (kháos o cháos) (Centro Virtual Cervantes, 2025), que significa desorden.

Para hablar de *desorden social*, se hace necesario mencionar a Thomas Hobbes (1588-1679). Thomas Hobbes fue un filósofo británico-inglés. En su obra más reconocida, "Leviatán" (1651), analiza los conceptos de la Teoría del Contrato Social, así como el surgimiento del derecho (los derechos naturales y los derechos legales), y la criminología. Nos remitimos a Thomas Hobbes para definir el desorden porque él lo relaciona con el estado de la naturaleza humana caracterizado por la violencia y el conflicto debido a la falta de regulación y la falta de orden, a causa de la falta de autoridad. Por lo tanto, donde los hombres viven en condiciones de miedo e inseguridad constante (Sorell, 2025).

Este concepto del "estado de naturaleza" también aparece en los escritos del pensador y filósofo chino Mozi, Mo-Tzu (470–391 a. C.) (Encyclopædia Britannica, 2025). Para los mohistas, la implicación más importante de esta hipótesis es que las personas tendrán visiones diferentes y contradictorias sobre lo que es moralmente correcto, y en base a las cuales se condenarán mutuamente. En consecuencia, el resultado final será un estado de conflicto violento y caos. Un caos que se resolverá completamente mediante el establecimiento de una jerarquía de gobernantes y líderes que sistemáticamente impongan una concepción unificada de lo que es moralmente correcto mediante la vigilancia y los incentivos. La conclusión del argumento es que dicha solución es una condición necesaria para el *orden social y político* (Loy, 2025).

En cuanto al *orden social*, es necesario mencionar a Hedley Bull y su obra principal, "La Sociedad Anárquica", donde presenta su teoría de la sociedad de los estados nación y enfatiza el concepto de *orden en la vida social*.

Según Hedley Bull, el *orden social* puede definirse a veces en términos de obediencia a normas de conducta, y a veces, más específicamente, como obediencia a normas impuestas por la ley, por una autoridad, como determinaron Thomas Hobbes y Mozi. Sin embargo, según Hedley Bull, el *orden en la vida social* está más estrechamente relacionado con la conformidad del comportamiento humano con las normas de conducta, y no necesariamente con las normas impuestas por la ley (Bull, 1977). Porque, por ejemplo, las sociedades primitivas tienen *orden*, pero no ley, carecen de constitución y han asumido lo que es correcto o incorrecto dentro de sus fronteras. Lo mismo ocurre en la sociedad

internacional de los estados nación, donde no existe un organismo que determine cómo los países deben comportarse, pero el orden se mantiene.

Por tanto, el *orden social* requiere patrones de comportamiento y conducta que conducen a un resultado particular, y una organización de la vida social que promueve ciertos objetivos y valores en relación con un propósito, como la sostenibilidad de la sociedad.

Sintetizando, Hedley Bull describió el término *orden social* explicando que en nuestra sociedad internacional no existe un organismo que determine qué debe hacerse y, por lo tanto, es una sociedad anárquica, pero donde se mantiene el *orden*. Lo cual ocurre porque existen tres objetivos básicos: *vida*, *verdad*, y *propiedad/posesiones*. Porque Hedley Bull (1977) encontró, que en cualquier constelación de personas, grupos o comunidades donde no se espera seguridad frente a la violencia, donde no se cumplen los acuerdos, o donde no hay estabilidad en las posesiones, es difícil llamarla sociedad. Por lo tanto, a menos que estos objetivos se alcancen en cierta medida, no podemos hablar de la existencia de una sociedad ni de vida social, ya que el logro de otros objetivos requiere primero el logro de estos objetivos básicos en cierta medida, y es por eso que, de hecho, todas las sociedades buscan promoverlos.

Consecuentemente, aunque se deben perseguir otros objetivos, todas las sociedades reconocen estos objetivos básicos, y todas las sociedades incorporan acuerdos o tratados que los promueven.

En primer lugar, en lo que respecta a la *vida*, todas las sociedades contribuyen a crear patrones de comportamiento que favorecen la seguridad y la lucha contra la violencia, con normas y leyes que protegen la vida y prohíben el asesinato y la agresión.

En segundo lugar, en lo que respecta a la *verdad*, todas las sociedades contribuyen a crear patrones de comportamiento o leyes que rigen el cumplimiento de los acuerdos y normas que prohíben el incumplimiento de los contratos.

En tercer lugar, en lo que respecta a la *propiedad* (posesiones), todas las sociedades contribuyen a crear patrones de comportamiento o leyes que rigen la estabilidad de las posesiones, con normas o contratos de propiedad.

Por lo tanto, estas son las condiciones elementales o primarias de la existencia social en esta era. En consecuencia, cuanto más se ajuste la sociedad a ellas, más *orden social* habrá. Porque en el caso de la *vida* (seguridad), si las personas no tienen cierta seguridad ante la amenaza de muerte o lesiones a manos de otros, no pueden dedicar suficiente energía o atención a otros objetivos para alcanzarlos. En relación con la *verdad*, todas las

sociedades buscan asegurar que las promesas, una vez hechas, se cumplan, o que los acuerdos, una vez firmados, se respeten. Porque sin esto, no se pueden crear ni establecer acuerdos o tratados para facilitar la cooperación humana en ningún ámbito. En cuanto a la *propiedad* (posesiones), todas las sociedades persiguen el objetivo de asegurar que la posesión de las cosas se mantenga estable hasta cierto punto. Porque si las *propiedades* de individuos o grupos no pueden estabilizarse o establecerse hasta cierto punto (ya sea mediante *propiedad privada o comunal*, o algún tipo de combinación de ambas), es difícil imaginar una sociedad socialmente estable con relaciones de cualquier tipo, ya que las cosas que los seres humanos desean poseer son de abundancia limitada.

Porque, si las personas fueran supuestamente completamente egoístas en cuanto a su necesidad de bienes materiales, la estabilización de la posesión mediante reglas de propiedad sería imposible. Lo mismo ocurriría si las personas fueran completamente altruistas. También, ocurriría lo mismo si hubiera una escasez total de las cosas que las personas desean poseer —es decir, si no hubiera nada—, ya que sería imposible hacer cumplir las reglas de propiedad. Igualmente, ello ocurriría si hubiera una abundancia total de las cosas que las personas desean poseer. Por ejemplo, si todos pudieran tener un Lamborghini, un Rolex, oro, mansiones, etc., las reglas de propiedad serían innecesarias. Sin embargo, dado que el egoísmo humano es limitado, al igual que el altruismo humano, y también lo son las cosas que las personas desean poseer, se hace necesario estabilizar la posesión de bienes para que exista la vida social (Bull, 1977).

Condiciones y circunstancias que también se pueden aplicar a las personas. Porque de esta manera, cada persona puede encontrar *orden* con los demás y consigo misma, mediante la autogestión de la *verdad*, la *propiedad*, y la *vida*. Lo cual implica buscar la estabilidad de sus *posesiones tangibles e intangibles*; *el buen uso de la verdad*; y con seguridad, *protegiendo su vida con salud emocional, física, mental y espiritual*, con una buena salud general y, por lo tanto, con una vida plena en todas sus facetas.

Ya que las personas deben ser responsables de sus propias acciones. Como lo enfatiza Talcott Parsons en su obra "El Sistema Social" con Edward A. Shils, donde presenta la Estructura de la Acción Social (1937), explicando que las acciones de los individuos conforman el sistema social, siendo la parte más importante de dichas acciones, no la persona, sino el rol o las funciones que desempeña (Parsons y Shils, 2001). Por ello, mediante *la autogestión de la verdad, la propiedad y la vida*, es posible construir un *orden personal*, activar el desarrollo potencial, y contribuir al *orden social* en cualquier escenario.

Porque sin personas no existen instituciones, culturas, religiones, ideas, gobiernos, empresas, sociedades, arte, aficiones, etc. Puesto que son construcciones humanas que, como explicó Claude Lévi-Strauss en el Estructuralismo, están determinadas en gran medida por patrones y estructuras inconscientes como la cultura, las normas, los valores, las tradiciones (Cassar, 2024) y el poder, tal como se estableció en el Posestructuralismo (Crick, 2016). Pero que también pueden dirigirse conscientemente mediante *la autogestión de la verdad, la propiedad y la vida*.

Además, como todo es causa o efecto de una acción, como lo establece el análisis casual (Klein, 1987), y todo puede construirse, como lo establece el constructivismo (Jean Piaget [1896-1980], Lev Vygotsky [1896-1934] y Jerome Bruner [1915-2016], en Chand, 2024). El cual se basa en el concepto de que los individuos construyen o crean activamente su propio conocimiento y experiencias, y, por lo tanto, sus experiencias de aprendizaje determinan la naturaleza de su propia realidad y parte de su realidad comunitaria con los demás (Chand, 2024). Por dichas razones, se puede afirmar que, a través de *la autogestión de la verdad, la propiedad y la vida*, cada persona puede construir su propia realidad y parte de su realidad con los demás de manera consciente, responsable y positiva. Ya que ello significa, que cada persona puede establecer su propio *orden* en todos los aspectos de su vida, como los negocios, la educación, el trabajo, las aficiones, etc., contribuyendo así al *orden social* en tales situaciones o escenarios. Lo cual, contribuye a su vez, al *orden social* del sistema social o comunidad, a la que pertenece. Sin embargo, esto solo puede ocurrir si se conocen los *principios básicos del orden social: las posesiones, la verdad y la vida*.

Pero para que esto suceda, primero deben cubrirse todas las necesidades humanas fundamentales, como se mencionó anteriormente, o la persona debe alcanzar un nivel de insatisfacción que actúe como estímulo para la transformación, como lo menciona Dabrowski (Mendaglio, 2019). Finalidad que implica el apoyo a los gobiernos, las instituciones, las empresas, los organismos, la comunidad y los individuos para que trabajen en ello, en asegurar las necesidades humanas fundamentales. Porque, como se establece en la teoría social del Funcionalismo Estructural, la sociedad puede describirse como un marco compuesto por diferentes partes y las interacciones entre ellas (Ormerod, 2019). Por tanto, cada una de las instituciones, relaciones, roles, normas, individuos, y grupos son indispensables para la existencia continua de los demás y de la sociedad en su conjunto (Encyclopaedia Britannica & Duignan, 2025).

6 RESULTADOS Y ARGUMENTOS

Tras una larga, laboriosa y meticulosa investigación conceptual de las necesidades humanas fundamentales para el desarrollo humano y de los términos «*orden social*» y «*desorden social*», fue importante confirmar con el método de investigación observacional cómo los elementos básicos del *orden social*, la *verdad*, la *propiedad*, y la *vida*, también eran fundamentales para el desarrollo personal. Ya que, mediante el método de investigación observacional, fue posible confirmar cómo las acciones que implicaban *un mal uso de la verdad*; *la falta de respeto por las posesiones tangibles e intangibles* de uno mismo, de los demás y de la comunidad; y *la falta de cuidado, valor y uso de la salud o la vida*, en todas las facetas humanas; obstaculizaban o detenían el desarrollo de eventos, actividades, acciones, etc. Consecuentemente, se convertían en obstáculos para la realización de actividades, actos o eventos. Lo cual, a su vez, obstaculizaba el desarrollo personal, social, y comunitario o colectivo.

También, a partir de los hallazgos de la investigación conceptual y de la investigación observacional, se desarrollaron los términos pedagógicos «*orden personal*» y «*desorden personal*», los cuales se analizan a continuación.

Según los hallazgos de esta investigación y lo presentado en el marco teórico de este artículo, se puede afirmar que el *orden social* contribuye y fomenta el pleno potencial de las personas y que, por lo tanto, cuanto mayor es el desorden en una sociedad, menos capaces son las personas de alcanzar su máximo potencial.

Por ejemplo, en relación con *las posesiones o los recursos*, si soy dueño de mi casa, la propiedad es mía, está totalmente pagada, pero he decidido irme de vacaciones y al regresar encuentro a otra persona viviendo allí. Además, si, según el gobierno, yo, como propietario, no puedo hacer nada respecto a la ocupación de mi propiedad, esto genera desorden en mi vida, un *desorden personal*, que impacta negativamente en el *orden social*. Porque mi vida está conectada a la vida de otras personas y, por tanto, lo que genera obstáculos temporales o permanentes para el logro de mi propio desarrollo humano potencial, también impacta negativamente en el desarrollo humano potencial de esas personas más cercanas a mí.

En cuanto al uso de la *verdad*, se puede mencionar, por ejemplo, la Constitución de un país, que establece que todos los ciudadanos tienen derecho al trabajo, la vivienda y la igualdad ante la ley, pero si esto no se cumple, tal disparidad crea perturbaciones en la vida de las personas generando *desorden personal*. Lo cual, de manera continua, contribuye al

desorden social mediante obstáculos temporales o permanentes que dificultan el desarrollo humano potencial. Porque si las instituciones no cumplen sus funciones como deberían, las personas no pueden confiar en su uso y, como resultado, pueden comenzar a desconfiar de ellas atrofiando las competencias.

Como ejemplo en cuanto a la *vida*, se puede mencionar el uso de armas, como cuchillos o machetes, para resolver problemas o conflictos con otros, provocando que las personas se sientan amenazadas en su vida diaria. Consecuentemente, si ante ello no se proporciona una solución y dicha aberración continúa en aumento, se generará desorden en la vida de las personas, un *desorden personal*. Lo cual impide o dificulta, temporal o permanentemente, el logro del desarrollo humano potencial, especialmente debido al impacto psicológico de tales eventos.

Por supuesto, estos ejemplos mencionados pueden no tener un impacto significativo en la estabilidad de un país, pero pueden contribuir gradualmente a la anomia social. Por consiguiente, si no se controlan, pueden escalar hasta convertirse en una amenaza y conducir a un *desorden social*, que puede desembocar como guerra civil o revolución. Lo cual, a su vez, podría generar un desorden con impacto internacional, impidiendo la libertad de movimiento, las exportaciones e importaciones, etc., y obstaculizando así el desarrollo de otras comunidades o nacionalidades. Porque, como menciona Thomas Hobbes (1588-1679), el *desorden social* puede definirse en circunstancias de guerra y crisis, donde las personas viven en condiciones de miedo e inseguridad. En consecuencia, cuando el *desorden social* ocurre, por ejemplo, debido a un conflicto que surge en períodos de guerra o revolución, las personas recurren a la violencia, rompen acuerdos y violan los derechos de propiedad en la búsqueda de otros valores (LawTeacher, 2013).

Y, ¿De qué manera la Sociedad Anárquica de Hedley Bull, las relaciones internacionales y la sociedad de estados, tiene que ver con lo que una persona puede hacer para contribuir a su propio desarrollo personal, al de los demás y, por tanto, al orden social?

Tras el análisis conceptual y observacional, se encontró que los elementos de *verdad*, *propiedad*, y *vida*, que contribuyen al *orden social* entre las naciones estado, también deben darse en la esfera personal para que el desarrollo humano potencial pueda ocurrir. Puesto que, se encontró que dichos elementos son necesarios para el desarrollo personal, grupal y social, que, a su vez, contribuyen al *orden social* dentro de una comunidad. Porque los individuos pueden encontrar orden con los demás, con el entorno y consigo mismos, como ocurre de forma similar en "La Sociedad Anárquica" de Hedley Bull (1977) con los estados

naciones. Ya que, se pudo observar que con *verdad, propiedades, y vida*, los individuos pueden tener *orden personal*, alcanzar su desarrollo potencial y contribuir al *orden social* de las siguientes maneras:

1. Respetando, cuidando, valorando, y haciendo un buen uso de las *posesiones tangibles e intangibles*, propias y comunes, como los bienes locales, el tiempo ajeno, el capital humano, y los recursos naturales.

2. Mediante un *buen uso de la verdad* por parte de la propia persona y también desde el entorno, percibiéndose franqueza y transparencia desde los agentes sociales, funcionarios, instituciones, y organismos, lo cual a su vez implica responsabilidad y eficiencia; y

3. Protegiendo la *vida*, promoviendo, respetando, cuidando, y valorando la salud emocional, física y psicológica, por parte de la propia persona y también desde el entorno, percibiéndose seguridad, recursos, armonía, y salud. Es decir, una sociedad o comunidad con personas llenas de vida en todas sus facetas, y con un entorno seguro mediante un buen sistema de salud, sistemas de vigilancia, autoridades policiales, etc.

Consecuentemente, por tanto, *el orden personal* puede definirse como *la autogestión eficaz de la propiedad, la verdad y la vida*. Primero, porque las sociedades están compuestas por personas que pueden influir en el desarrollo y mejora de dichas sociedades. Segundo, porque esto, aplicado a los seres humanos individuales dentro de grupos, comunidades y sociedades, puede asociarse con estabilidad, equilibrio y seguridad en relación con los demás. Y tercero, porque, aplicado a uno mismo, también puede contribuir a la estabilidad, el equilibrio y la seguridad a nivel individual y personal.

Precisamente, ¿cómo puede la autogestión de la verdad, la propiedad y la vida dentro de grupos, comunidades o sociedades asociarse con la estabilidad, el equilibrio y la seguridad en relación con los demás, y, por ende, con el orden personal, el desarrollo personal y el orden social?

Porque, *en relación con la vida*, si yo, por ejemplo, como persona, no respeto la vida de los demás, su salud física, emocional, y psicológica, y recorro al castigo físico o a la agresión de cualquier tipo. Esto causa trauma y desequilibrio en las víctimas. En consecuencia, se les impone una inestabilidad e inseguridad a través del trauma, debido a la *falta de autogestión de la vida* con respecto a los demás, causando *desorden personal*. Lo cual también es una *falta de autogestión en relación con la propiedad y la verdad*. Dado que el cuerpo de una persona es su propiedad tangible, y la ley prohíbe el uso del castigo

físico. Por tanto, el *desorden personal* causado impedirá que la víctima pueda alcanzar su máximo potencial, a menos que se repare el daño ocasionado. Y, por supuesto, este *desorden personal* repercutirá en el *orden social* si persiste. Ya que la víctima requerirá asistencia social, ayuda económica del gobierno, consultas regulares con profesionales como psicólogos, psiquiatras, etc.

Lo mismo ocurre con la *verdad*. Si yo, por ejemplo, soy una persona que miente, digo una cosa, pero hago otra. Esto causa desorden personal en otras personas, porque provoco desequilibrio, inestabilidad e inseguridad. Ya que, por ejemplo, si le prometí a una compañera de clase que la ayudaría con su examen, pero luego decido que no me apetece y no cumplo mi palabra, u otro ejemplo, si le he dicho a mi jefe que me cuente para el turno del domingo, pero luego no me presento. Pues por supuesto, esas circunstancias generarán inestabilidad, desequilibrio e inseguridad, retrasando o impidiendo el desarrollo potencial y, por supuesto, impactando negativamente en el orden social si persiste. Porque debido a las malas referencias de otros, puedo no conseguir trabajo y, por lo tanto, convertirme en una persona dependiente del gobierno o de otros.

También podemos decir que ocurre lo mismo con el concepto de *propiedad* (posesiones o recursos). Porque cuando no se aprecia ni respeta el capital humano o los recursos intangibles de otros, como su dignidad, decisiones, espacio personal, confianza, hábitos y prácticas positivos, límites físicos personales, gustos y emociones beneficiosos, etc., se crea desequilibrio, inestabilidad e inseguridad, o lo que se ha denominado *desorden personal*. Ya que ello también impide o retrasa el desarrollo potencial y contribuye al *desorden social* a largo plazo. Por ejemplo, si le sigo diciendo a mi hermana que no puede salir conmigo cuando sus amigas y amigos no están disponibles, porque he asumido que sus acciones son incorrectas y que sus decisiones son inútiles, se trata de una especie de acoso que hace que mi hermana empiece a evitarme, no respondiendo a mis mensajes, o manteniéndose alejada de mí. En consecuencia, actúo como si nada ocurriera, por lo que no estoy respetando sus emociones o soy incapaz de identificarlas debido a mi egoísmo. Por supuesto, eso también creará inestabilidad, desequilibrio y *desorden personal*. Ya que es una anomalía que afectará negativamente el *orden social familiar*. Porque un entorno familiar rico, estable, y armonioso es aquel donde la colaboración, el respeto, la ayuda, la comprensión, etc., son la norma.

Lo cual también ocurre con las posesiones tangibles o materiales de otros. Porque, si no respeto las posesiones de los demás, o si no existe un sentido de comunidad

profundamente arraigado, y la gente roba o destruye las pertenencias de otros, o si se hace un mal uso de los recursos públicos o comunales, como los espacios públicos, los centros de salud, los recursos naturales, la belleza natural, el capital humano, etc., como se describe en la "Tragedia de los Bienes Comunes" (Hardin, 1968), estos comportamientos también generarán inestabilidad, desequilibrio e inseguridad, y por consiguiente, *desorden personal*. Porque causan y crean obstáculos para el desarrollo potencial, lo cual, a largo plazo, contribuye al *desorden social*.

Porque, como se explica en la "Tragedia de los Comunes", el uso individual y egoísta de un recurso compartido puede llevar a su agotamiento o destrucción, perjudicando a todos (Hardin, 1968). Por lo tanto, si como seres sociales no consideramos nuestra responsabilidad personal con los recursos tangibles, lo cual implica cuidar, apreciar, usar o consumir responsable y eficazmente los recursos compartidos públicamente, incluidos los que nos proporciona la naturaleza. Lo cual también se relaciona estrechamente con la capacidad de carga de los espacios y las necesidades y demandas de los demás. En consecuencia, si realizamos estas acciones de forma irresponsable e ineficaz, estaremos dañando el medio ambiente, descuidando el capital humano y los bienes comunes, o creando un desequilibrio en la cantidad de recursos compartidos públicamente. Por lo que caeremos en el *desorden personal*, obstaculizando el desarrollo e impactando negativamente el *orden social* a largo plazo.

Porque al no considerar el valor de los bienes comunes, del capital humano y de los recursos naturales, así como las necesidades y demandas para el mantenimiento de un espacio utilizado o habitado por humanos, y su capacidad de carga, se generará inestabilidad, desequilibrio e inseguridad.

Ya que, por ejemplo, es difícil acomodar a 20 personas en una habitación de 18 metros cúbicos. Sin embargo, si esto fuese posible, debe considerarse que 20 personas dañarán ese espacio más rápidamente y requerirán más recursos, como más electricidad, más utensilios, más productos de limpieza, etc. Porque la habitación necesitará con más frecuencia limpiarse, pintarse, renovarse, etc. Lo cual es más difícil de implementar cuando no hay suficiente espacio, cuando quizás el estrés asociado con el quebrantamiento de la capacidad habitacional impida la cooperación entre sus ocupantes, o cuando los fondos existentes sean insuficientes para dicho cuidado y mantenimiento. Como resultado, se generará una especie de caos, o un mini *desorden social*, debido a las consecuencias de tales acciones que exceden los límites físicos y personales naturales y establecidos.

Lo mismo ocurre con los espacios naturales. Ya que todos los territorios, tanto naturales como contruidos, tienen una capacidad de acogida (Mignone, et al, 2025). Debido a la cantidad de recursos que proveen y a las necesidades y requisitos para su mantenimiento, si son utilizados o habitados por las personas, también tienen necesidades y requisitos para su mantenimiento. Lo cual requiere de recursos humanos, monetarios, educativos, materiales y de tiempo. Porque es necesario podar árboles, eliminar malezas, cosechar frutas, reducir el impacto ambiental, prohibir o gestionar la basura y los desechos, etc.

Para comprenderlo mejor, se puede considerar lo que afirmó Bruce Logan, director del Instituto de Energía y Medio Ambiente de Pensilvania al explicar que si consideramos el dióxido de carbono que produce una persona al respirar, además del dióxido de carbono que produce cada persona al usar combustibles fósiles en el automóvil, la calefacción, la cocina, las actividades, los pasatiempos, etc., se necesitarían 730 árboles por persona, o aproximadamente siete acres, lo que equivale a unos 28 000 metros cuadrados de terreno forestal (Logan, 2021), para prevenir el desgaste y mantener el desarrollo sostenible.

También se puede decir que lo mismo ocurre con el capital humano, ya que existen necesidades que deben satisfacerse para fomentar un desarrollo humano saludable y mantener el bienestar. Ya que como se vio al principio de este artículo, existen necesidades humanas fundamentales que deben satisfacerse para un desarrollo humano óptimo y saludable. Por lo tanto, para lograr una calidad de vida y una educación adecuada en la era en que vivimos, y para contribuir al orden personal, al desarrollo potencial y al orden social, se necesitan recursos naturales, monetarios, educativos, etc. Lo cual también se relaciona con la autogestión de la verdad, la propiedad y la vida, y con la capacidad de carga personal e individual de cada persona, así como de aquellos con quienes se interrelacionan, como los familiares cercanos, o si deben de hacerse cargo del cuidado de otros, como una expareja/cónyuge o familiar lejano de edad avanzada, hijastros, una expareja/cónyuge o familiar lejano enfermo, o una expareja/cónyuge o familiar lejano con discapacidad, etc.

Porque una persona que no puede proporcionar el cuidado físico o fisiológico, emocional y de otro tipo, como el financiero, etc., necesario para sí misma y para quienes dependen de ella, estará creando desorden en su propia vida y en las de aquellos que dependen de ella. Porque cuando una persona hace un uso indiscriminado de los recursos o se embarca en proyectos que no puede sostener de forma responsable y eficaz, puede acabar en la bancarrota o en la pobreza absoluta. Ya que, por ejemplo, si una persona solo

tiene un ingreso mínimo mensual, pero decide comprar un coche de lujo, vivir con altos estándares de calidad, o gastar más de lo que puede ganar, esto crea *desorden personal*, obstaculiza o retrasa su desarrollo potencial y puede contribuir a la anomia social (UNIR, 2025) y, además, al *desorden social* a largo plazo. Porque, por ejemplo, en el Reino Unido en 2016, la pobreza costó al gobierno 78.000 millones de libras esterlinas anuales para cubrir necesidades humanas como la atención sanitaria, los servicios sociales, la alimentación, la ayuda económica, etc. (Martin, 2016). Dinero que podría haberse utilizado para crear más infraestructura, mejoras, etc., para promover más prosperidad.

Adicionalmente, ¿cómo contribuye la autogestión de la vida, la verdad y la propiedad, en torno a uno mismo, para la consecución de la estabilidad, el equilibrio y la seguridad personales, apoyando lo que se ha denominado orden personal? Y, en consecuencia, ¿cómo ello contribuye al desarrollo potencial y al orden social?

Porque en relación con la *verdad*, cuando una persona no es honesta consigo misma, crea desequilibrio, inestabilidad e inseguridad. Ya que, por ejemplo, si una persona tiene mucho sobrepeso, pero no reconoce su obesidad, afirmando que se siente bien consigo misma y que no necesita cambiar su alimentación. Consecuentemente, este individuo al carecer de una buena gestión de la verdad en torno a su propia persona está creando inestabilidad, desequilibrio e inseguridad, un *desorden personal* con respecto a sí mismo. En este caso, con respecto a su propia salud. Lo cual retrasa su desarrollo potencial y, a largo plazo, podrá impactar negativamente en el *orden social*. Debido a que puede perder su capacidad laboral, cambiar sus hábitos de compra al tener que necesitar más alimentos y más medicamentos, y a su vez ello puede ocasionar que también necesite de recursos comunitarios adicionales para mantenerse, como profesionales especialistas de la salud, más citas médicas, cuidadores, etc.

Lo mismo ocurre de manera cuando una persona miente sobre sí misma a los demás. Por ejemplo, si miente sobre lo que sabe hacer o cómo mejorar las cosas. De esa forma, si alguien dice ser médico o abogado, pero luego destroza las expectativas de los demás. En consecuencia, crea inestabilidad, desequilibrio e inseguridad a su alrededor, lo que se ha denominado un *desorden personal*, y afectará negativamente el *orden social* si persiste. Ya que puede obstaculizar el desarrollo de proyectos, acciones, etc., lo que quizás hará que se requieran más recursos, como energía, tiempo, dinero, etc.

Similarmente, se repite el mismo patrón con respecto a las *propiedades, posesiones, bienes o activos*. Porque en el caso de los *bienes intangibles*, cuando una persona

desconoce su capital humano, como sus valores personales, el valor de su tiempo, sus metas personales profundas, sus estándares éticos y estéticos, su nivel de compromiso, la cantidad de responsabilidad que puede ofrecer, sus habilidades sociales, su colaboración, sus hábitos positivos, su participación, su higiene personal, sus talentos, su confianza, etc., se encuentra en un estado de desequilibrio, inestabilidad e inseguridad, *desorden personal*.

Porque si una persona no sabe lo que quiere, adónde va, qué le gusta o le disgusta, que está bien o que está mal, etc., no puede establecer límites ni respetarse a sí misma en las interacciones sociales, en sus comportamientos, ni en las acciones con los demás. Lo que, a su vez, impacta negativamente en el *orden social*, especialmente considerando el impacto que la inmoralidad, la fealdad, las cosas rotas, sucias y dañadas (D'Amore, 2017) tienen en uno mismo y en los demás. Ya que, en consecuencia, no pueden ser capaces de cuidar y respetar sus propios recursos intangibles, como la amistad, la confianza, la intimidad, los talentos, el tiempo, etc., o los recursos intangibles de los demás, creando *desorden personal*, obstaculizando el desarrollo potencial y, en consecuencia, impactando negativamente en el *orden social* si no se pone un remedio. Porque la persona puede terminar aislada debido a la desconfianza que puede generar en los demás, pudiendo ser incapaz de interactuar con otros, e inevitablemente, siendo más sensible a problemas de salud mental, como los ataques de pánico, ansiedad, etc. Lo que, a su vez, puede afectar su capacidad para trabajar, estudiar, etc., obstaculizando su desarrollo potencial y dependiendo de los demás.

Lo mismo ocurre con los *bienes tangibles* de las personas. Cuando una persona carece de bienes materiales, monetarios, certificación académica, etc., se encuentra en un estado de enorme inseguridad, desequilibrio e inestabilidad. Porque cuando una persona no tiene algo en lo que sostenerse, se está obstaculizando su progreso, y ello genera *desorden personal*. Porque la carencia, o la pobreza obstaculiza o retrasa el desarrollo potencial de las personas, y si ello no se corrige, impacta negativamente en el *orden social*. Porque la persona no puede pagar servicios ni consumir para su propio desarrollo, ya que, por ejemplo, no puede obtener el carné de conducir, no puede adquirir bienes que faciliten su vida, como un coche, un ordenador, no puede ahorrar, etc. Por lo que la persona puede acabar en la calle, siendo una persona sin hogar que necesita de recursos comunes adicionales para su subsistencia, como ayuda económica para ropa, alojamiento en un albergue, etc.

Ello también se produce cuando una persona no gestiona sus bienes tangibles o posesiones, excediendo su capacidad de carga personal e individual al asumir

responsabilidades o acciones que exceden sus posibilidades. Porque tales acciones o responsabilidades exigen más recursos de los que puede aportar, o más recursos de los que tiene, lo cual genera inestabilidad, desequilibrio e inseguridad. Porque si una persona solo tiene un ingreso mínimo mensual, pero decide abrir tres negocios o comprar una casa de cuatro habitaciones sin poder permitírselo, se compromete con acciones o responsabilidades que no puede gestionar de forma responsable y eficaz. Como resultado, generará inestabilidad, desequilibrio, inseguridad y *desorden personal*. Porque, por ejemplo, si la persona no puede pagar la hipoteca, puede perder su propiedad. Así, creará desorden en su vida personal, obstaculizando o retrasando su desarrollo potencial e impactando negativamente en el *orden social*. Ya que la persona puede acabar en la pobreza absoluta, lo que puede ocasionar que también pierda a su familia, que desarrolle problemas de salud debido al estrés, etc.

Con la *vida*, ocurre lo mismo. Porque cuando alguien se daña internamente con comportamientos o hábitos destructivos como pensar negativamente, fumar, consumir sustancias, comer mal, etc., crea un *desorden personal*, tanto interno como externo. Ya que, su apariencia física revelará sus circunstancias internas, impactando negativamente en sí mismo y a su alrededor a través de su mala salud física, mental, emocional y espiritual. Lo cual obstaculiza o retrasa su desarrollo potencial e impacta negativamente en el *orden social* a largo plazo.

Ocurriendo exactamente lo mismo, cuando una persona se causa daño externo, ya sea por autolesiones, conflictos con otros, porque descuida su apariencia o bienestar físico debido a la falta de vida social, la falta de ejercicio físico o deportes, la falta de educación o instrucción, etc. Lo que, en consecuencia, produce inestabilidad, desequilibrio e inseguridad, que a su vez fomenta el *desorden personal*, obstaculizando o retrasando el desarrollo potencial y afectando negativamente el *orden social* si ello persiste.

Por consiguiente, teniendo en cuenta el trabajo de Moore (2012), se puede afirmar que, debido a la falta de autogestión en torno a la *verdad*, la *propiedad* y la *vida*, desconocemos cómo nuestras creencias, pensamientos, sentimientos y relaciones con nosotros mismos, con los demás y con el entorno influyen nuestras acciones y, consiguientemente, el resultado de dichas acciones.

Por tanto, descuidar o no poner en práctica la autogestión en relación con estos elementos del orden social, la *vida*, la *verdad* y la *propiedad*, es extremadamente negativo, ya que produce *desorden personal*, lo que a su vez impide el desarrollo potencial humano.

Lo cual puede contribuir a la producción de anomia social (UNIR, 2025) y, a largo plazo, al *desorden social*.

7 DEFINICIÓN DEL ORDEN PERSONAL Y DEL DESORDEN PERSONAL

Considerando las reflexiones y hallazgos encontrados tras la observación y la investigación conceptual, se puede afirmar que el *orden personal* se refiere a la autogestión de la *verdad*, la *propiedad* y la *vida*. Lo que implica organización, cuidado y abundancia en la existencia de una persona, de bienes, recursos o activos tangibles e intangibles, el buen uso de la verdad y una vida plena, a través de la salud física y mental, así como con seguridad. Lo cual debe ocurrir en la esfera personal y en el entorno, como se explica a continuación.

Cuando una persona posee *bienes o posesiones tangibles e intangibles* y los administra y cuida adecuadamente, posee una sólida estructura de recursos que le permite desarrollar su capacidad humana, ya que proporciona estabilidad, seguridad y confianza, y permite una estabilidad económica significativa que puede fomentar o impulsar su desarrollo potencial y el de los demás. Contribuyendo con ello al *orden social*.

Porque si el entorno es rico en recursos tangibles e intangibles, y estos se cuidan y mantienen adecuadamente, la persona se encuentra en un entorno que le brinda felicidad, alegría y armonía, y que le permite utilizar dichos recursos para su propio beneficio y el de la sociedad.

En cuanto a la *verdad*, si una persona es honesta y se puede confiar en ella porque siempre sabe cómo hacer buen uso de la verdad, esto, por supuesto, también favorece y fomenta su desarrollo potencial y el de los demás, y contribuye positivamente al *orden social*.

Además, si el entorno en el que se encuentra es transparente, confiable y eficaz gracias al amplio uso de la verdad, la persona se siente segura de que su entorno es confiable, lo cual también contribuye al bienestar y al desarrollo.

En relación con la *vida*, si una persona está llena de *vida*, porque vive una vida sana, la cuida y la respeta, lo que genera bienestar ético, estético, físico, emocional, psicológico y espiritual. Posteriormente, por supuesto, esta persona puede afrontar de forma óptima y eficaz las actividades, obstáculos, problemas, acciones y responsabilidades necesarias para su vida diaria. Lo que, a su vez, favorece y fomenta su desarrollo potencial y el de los demás, contribuyendo positivamente al *orden social*.

Además, si el entorno es sano, no está contaminado, se cuida y se mantiene, con abundantes recursos naturales, belleza natural, activos locales y capital humano, contribuye a la salud de sus habitantes o usuarios. Por lo tanto, fomentará el bienestar y el desarrollo personal, y, por lo tanto, el *orden social*.

Por tanto, el *desorden personal* se refiere a todas las circunstancias personales ocasionadas por la falta de autogestión en torno a las *propiedades o posesiones*, la *verdad* y la *vida*. Ya que, ello implica una mala organización, descuido y deficiencia en la existencia social de las personas y del entorno, de los tres elementos necesarios para el *orden social*:

- *Propiedad*: Posesiones, recursos o activos. Donde se incluyen los recursos tangibles e intangibles de la persona, así como los recursos tangibles e intangibles de la comunidad o sociedad y del entorno, como son el capital humano, los recursos naturales, el tiempo y los activos locales incluidos en esos paisajes o entornos naturales y contruidos.

- *Verdad*: Honestidad y buen uso de la verdad con uno mismo, con los demás, y desde el entorno, es decir, desde las instituciones, los agentes sociales, los organismos, los trabajadores, los funcionarios, etc. Y

- *Vida*: Lo que implica tener salud en todas las facetas humanas, salud física y mental, y también tener y difuminar seguridad y protección con uno mismo, con los demás (familia, amigos, vecinos, los agentes sociales, etc.), con el entorno, y desde el entorno.

Porque, como se presentó y argumentó en los párrafos anteriores, *la falta de autogestión en materia de verdad, propiedad y vida*, ocasionada por el mal uso, la escasez, la falta de cuidado o el descuido de las posesiones o recursos, de la honestidad, de la salud y la seguridad, implica *desorden personal*. Un estado de existencia que retrasa y dificulta el desarrollo potencial e impacta negativamente, a largo plazo en el *orden social*.

Lo cual, como se mencionó anteriormente, puede originarse en dos esferas:

- Puede originarse en la esfera personal, cuando la persona no hace un buen uso de la verdad; cuando carece de recursos o estos se descuidan; cuando se excede su capacidad de carga personal e individual, lo que resulta en un mal uso o mala gestión de los recursos; y cuando su salud física y mental no es óptima. Lo cual implica una falta de atención a las necesidades humanas fundamentales para mantener el bienestar y el desarrollo humano.

- Y también puede originarse en la esfera social o medioambiental, en el entorno, cuando la verdad no es utilizada por la colectividad; cuando se excede la capacidad de carga de los espacios naturales y contruidos; cuando los recursos que proporciona el entorno son mal cuidados y mal utilizados; y cuando el entorno construido o natural no proporciona

seguridad y protección deteriorando la salud física y mental de sus habitantes. Esto generalmente se debe a la falta de atención a las demandas y necesidades de mantenimiento y conservación de estos espacios cuando son utilizados o habitados por humanos.

8 CONCLUSIONES

Tras analizar las reflexiones y los hallazgos de la investigación conceptual y la investigación observacional, presentados principalmente en el marco teórico y en los resultados de este trabajo, se puede afirmar que la relación entre el *orden personal* y el *orden social* es recíproca, al igual que la relación entre el *desorden personal* y el *desorden social*. Porque nuestra forma de comportarnos con nosotros mismos se refleja en nuestra forma de comportarnos con los demás. Lo cual dependerá de si podemos contar con los elementos básicos para alcanzar el *orden social* (*vida, verdad, bienes/o posesiones*) y de si aplicamos la autogestión sobre ellos, cuidándolos y manteniéndolos adecuadamente.

Porque si los tenemos, pero no los cuidamos o no los mantenemos adecuadamente, crearemos circunstancias que pueden generar inestabilidad, desequilibrio e inseguridad en nuestras vidas, al igual que creamos inestabilidad, desequilibrio e inseguridad en las vidas de otras personas relacionadas con nosotros, lo que genera *desorden personal*. Lo cual se produce debido a que la persona está expuesta a acciones y comportamientos irresponsables e irrealistas con consecuencias drásticas. Porque quizás pueda faltarle el respeto a los demás, al entorno, a la ley, o a sí misma, mostrando irresponsabilidad, grosería e inmoralidad, causando repulsión y bloqueos, además de potencialmente generar cuentas pendientes con el sistema judicial, a la vez que desestabiliza a la comunidad. En consecuencia, obstaculizando su desarrollo potencial y el de los demás.

De igual manera, ocurre cuando los recursos que proporciona el entorno natural o construido, habitado o utilizado por los seres humanos, no se consideran un recurso valioso que contribuya al bienestar, al desarrollo y al *orden social*. Ya que, en estos casos, los entornos no se valoran, no se cuidan, y no se utilizan adecuadamente, lo que puede ocasionar que su capacidad de acogida sea sobrepasada. Lo cual repercute negativamente en sus habitantes, visitantes y usuarios, ya que puede deteriorar la salud y el bienestar de los mismos, causando *desorden personal*, obstaculizando el desarrollo humano potencial, y contribuyendo a largo plazo al *desorden social*.

Porque todo lo que apunte a la destrucción del individuo y del entorno tendrá un impacto negativo, generando *desorden personal*, retrasando o dificultando el desarrollo potencial. Lo cual, a largo plazo, estará contribuyendo a la anomia social, proliferando el caos y, en última instancia, contribuirá al *desorden social*.

Porque la existencia de cada persona se basa en la relación con los recursos de su entorno, la cual, mediante la autogestión de la *verdad*, la *propiedad* y la *vida* crea *orden personal* que contribuye al desarrollo humano potencial, mediante el crecimiento, y la prosperidad. Ya que nadie puede sobrevivir en una habitación, sin contacto con nada ni con nadie.

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**AFROCENTRIC PRINCIPLES AND THE MEMORY OF QUILOMBOS IN
ANTÔNIO BISPO DOS SANTOS'S "THE LAND GIVES, THE LAND WANTS": A
LEGACY OF POWER**

**PRINCÍPIOS AFROCÊNTRICOS E A MEMÓRIA DOS QUILOMBOS EM “A
TERRA DÁ, A TERRA QUER”, DE ANTÔNIO BISPO DOS SANTOS: UM
LEGADO DE PODER**

**PRINCIPIOS AFROCÉNTRICOS Y LA MEMORIA DE LOS QUILOMBOS EN “LA
TIERRA DA, LA TIERRA QUIERE”, DE ANTÔNIO BISPO DOS SANTOS: UN
LEGADO DE PODER**

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ABSTRACT

This work is an exercise in analyzing how Afrocentric principles emerge as possible reflections in the memories and language contained in the work of Antônio Bispo. We also aim to highlight concepts presented that corroborate the writer's own life trajectory as a political actor, as well as to analyze how and whether the themes of education and racism are evoked in the work. The methodological approach is bibliographic and seeks to be consistent in conducting this qualitative work, where we also present contributions from other authors. The proposal of this work is an invitation to a counter-colonial education, as we are presented with concepts such as the confluence of knowledge, cosmophobia, colonialism of submission, among others. Furthermore, it approaches in a very particular way the central thought and principles of Afrocentrism proposed by Asante (2019). This work presented itself as a sophisticated framework for issues of memory, racism, and education, since it proposes strategies for an education that aims to be counter-colonial and Afrocentric.

Keywords: Afrocentricity. Quilombola Community. Memory. Racism. Education.

RESUMO

Este trabalho é um exercício de analisar como os princípios afrocêntricos surgem como possíveis reflexos nas memórias e na língua(gem) contidas na obra de Antônio Bispo. Ainda objetivamos evidenciar conceitos apresentados que corroborem com a própria trajetória de vida do escritor enquanto ator político, além de analisar como e se as temáticas educação e racismo são evocadas na obra. O caminho metodológico é bibliográfico e busca ser coerente para condução do referido trabalho, de cunho qualitativo, onde apresentamos também contribuições de outros autores. A proposta desta obra é um convite para uma educação contracolonizadora pois somos apresentados a conceitos como confluência de saberes, cosmofobia, colonialismo de submissão, entre outros. E mais, se aproxima de maneira muito particular do pensamento central e dos princípios do afrocentrismo proposto por Asante (2019). A referida obra se apresentou como sofisticado arcabouço para as questões de

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memória, racismo e educação, visto que propõe estratégias para uma educação que se proponha como contracolonizadora, afrocentrada.

Palavras-chave: Afrocentricidade. Comunidade Quilombola. Memória. Racismo. Educação.

RESUMEN

Este trabajo analiza cómo los principios afrocéntricos emergen como posibles reflejos en las memorias y el lenguaje presentes en la obra de Antônio Bispo. También buscamos destacar los conceptos presentados que corroboran la propia trayectoria vital del escritor como actor político, además de analizar cómo, y si, los temas de educación y racismo se evocan en la obra. El enfoque metodológico es bibliográfico y busca ser consistente en la realización de este trabajo cualitativo, donde también presentamos contribuciones de otros autores. La propuesta de este trabajo es una invitación a una educación contracolonizadora, al introducir conceptos como la confluencia de saberes, la cosmofofia y el colonialismo de sumisión, entre otros. Además, se aproxima al pensamiento central y los principios del afrocentrismo propuestos por Asante (2019). Este trabajo se presenta como un marco sofisticado para las cuestiones de memoria, racismo y educación, al proponer estrategias para una educación que se propone como contracolonizadora y afrocéntrica.

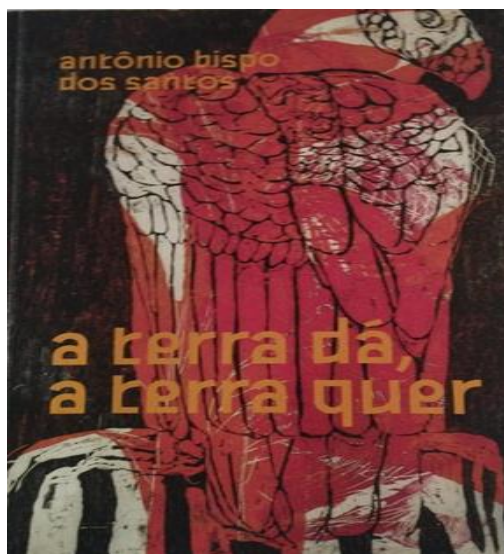
Palabras clave: Afrocentrismo. Comunidad Quilombola. Memoria. Racismo. Educación.

1 AFROCENTRICITY AND EDUCATION

This text is based on the exercise of analyzing how the principles of Afrocentrism emerge as possible reflections in the memories and narrative of Antônio Bispo dos Santos.

Figure 1

Cover photo of Antônio Bispo's Book



Source: Authored by Duília de Jesus Lopes Melo, 2025

For this purpose, we sought the presence of this theme in the work "The land gives, the land wants³", by the writer Antônio Bispo dos Santos, we also intend to highlight concepts presented that corroborate with the writer's own life trajectory as a political actor, member of a quilombola community and who seeks to strengthen the orality of his people.

This text is conceived from the reading of several African and Afro-Brazilian critics who understand that Eurocentrism is not a cultural parameter for all humanity. We started from the assumptions formulated by Asante, Diop and others so that the "epistemological relevance of Afrocentricity would be materialized in the ideal of transformation in/for Brazilian philosophical-educational thought" (Benedicto, 2016).

Also according to this same author,

Afrocentrists are definitely committed to a new narrative of African History, since the study of the history of the African continent in recent centuries has been marked by

³ The work "The Land Wants, the Land Wants" (2023) is another account by the author in his willingness to face the challenges of the colonial foundation imposed on the Brazilian people and especially on the members of quilombola communities in Brazil.

the Eurocentrism of scholars who have transformed their prejudices into absolute truths (Benedicto, 2026).

We understand that this work by Bispo presents concepts that from an Afrocentric perspective because it awakens us to realize how dear they are to the Afro-Brazilian people and to society as a whole. Like Bispo (2023), Cheikh Anta Diop's thesis presents principles that argue the importance of values and beliefs that contribute to the "process of a cultural identity", (Benedicto, 2016). And the principle that we will stick to here is the linguistic principle, since,

" linguistic factor that allows peoples to communicate their values, beliefs, knowledge and experiences. Thus, the author argues that Africans should seek an African linguistic unity despite the apparent linguistic variety spoken on the continent (pg.22)

In view of the above, we start from the central question of this text: Can the concepts listed and discussed in the work contribute to the strengthening of the Brazilian educational reality? How has research focused on the memory of members of Brazilian quilombola communities?

2 THE METHODOLOGICAL PATH

The choice for this methodological approach is bibliographic and seeks to be coherent to conduct this work, of a qualitative nature. Here, we start from the thought that bibliographic research is a type of study that analyzes documents of scientific competence such as books, periodicals, essays and scientific articles. In addition, with this type of study, we have the privilege of developing the study directly in the chosen scientific source (Oliveira, 2018).

3 DISCUSSIONS ABOUT MEMORIES

The exercise in which we sought to develop, led us to know the nature of a place in all sorts of details through the writer's memoristic memories. Here, we approach the concept of memory as the African idea of reconstructing an event or narrative. Not only the memory, but the thought of displacing the past to the present (Hampâté Bâ, 2010). The same conception as Halbwachs (1990) because he understands that memory "is, at the same time, a knowledge and a memory".

We understand this exercise of Bishop when he remembered his early days,

In the first steps of my life, the elders guided me to listen to the songs of the birds and the chirping of the forest. I understand the environment where I took my first steps as one of the launching bases of my career. A wonderful memory that still pulsates is waking up hearing the song of the birds informing them of the weather conditions of the day (Santos, 2023, P.10).

When, at the age of eighteen, I went out to see a city, I realized that there was another world besides the one where I was born and raised. The city was another world. In the cities, people did not know how to make their own houses, as we knew how to do in the place where we came from. They didn't know and were depending on others to do them for them. Where I was born and raised, everyone had a house. Only those who did not want to have a home and lived with their parents, relatives or friends. Or those who were wandering around, those who thought it was good not to have a home because it was too much work to take care of. But in the city it was not like that. People depended on houses they didn't know how to make. Where I was born and raised, since I was a child, we were observing, we found a beautiful place, we created a relationship, a communication with the place. And we marked: "I'm going to make my house here". I didn't have to pay to build my house. On the contrary, there was a great collective effort, everyone came! It was a party, and we made a house very quickly (Santos, 2023, P.20).

Such a memorable moment teaches us that "pure remembrance brings to the surface of consciousness a unique, singular, irreversible moment of life... Memory is indeed a work about time, but about lived time, connoted by culture and by the individual" (Bosi, 1994).

Thus, the critical bias contained in the work allows us a conjecture from/for an ecology of ancestral knowledge with the concepts of cosmology, cosmoperception and afroconfluence through a detailed presentation of its relationship with the environment, and more, the text manifests itself with a critical and conscious language that denounces racism and the effects of this colonial rancidity imputed to the black Brazilian people.

For Antônio Bispo dos Santos, also known as Nego Bispo, the word confluence or sharing said around the world, was a reason for celebration, because among his own, there were people who shared and were Afroconfluent. Confluence and sharing for Bispo are equated in the thought of a reciprocal relationship, of sharing and not of exchange or division and this concept is evidenced in another of his memoirs, such as the one presented below:

I was born and raised at a crossroads of biomes, where the semi-arid, the cocais, the pre-Amazon and, from time to time, also some signs of what is called the Atlantic Forest. When I was born, there was a large territorial occupation of Afroconfluent people there. Most of these people made up my family. The other families were also Afroconfluent. There were more than eighteen animal-drawn wood mills for the manufacture of rapadura that belonged to the Afroconfluent people. There is no evidence that the people of this territory were enslaved.

We don't have this memory of our grandmother, great-grandmother or great-great-grandmother generations. This means that my great-grandfather was born before the Golden Law and that my great-great-grandfather was born long before the Golden Law. We have never heard of slave labor in our family. And we didn't have bosses either.

Our relations with the people, with the non-Afro-confluent and non-indigenous people in that territory, were relations of respect, correlations of balanced forces. When there was some imbalance, they were favorable to us, because we had a great confluence of knowledge. We knew everything that was necessary to live in that environment. Our family planted what they needed, was a master in agriculture and mastered processing. He knew how to make equipment for the processing of cassava, sugarcane and alcohol. A people who knew all this were probably not enslaved or had their memory erased as the colonialist Eurochristians intended and intend to this day (Santos, 2023, p.39).

From this perspective, the proposal of this work is an invitation to a countercolonizing education because we are introduced to concepts such as confluence of knowledge, cosmophobia, colonialism of submission, among others. Moreover, it is very close to the central thought, the principles and the importance of the Afrocentric educational idea proposed by Asante (2019).

According to Noguera (2010), Afrocentric thought is "what translates into the field of education through the emphasis on the point of view that situates African peoples and the Afro-descendant population as agents and not supporting actors".

4 MEMORY IN QUILOMBOLA COMMUNITIES

In his thesis entitled "The Environment and Good Living in the Quilombola Communities of Cruz das Almas and Muritiba, Bahia: A Look at the Present Time", in progress, Melo (2025) proposes, as part of his writings, to enunciate memories of members of the Quilombola Communities⁴ of the Recôncavo Baiano, namely: the Quilombola Community of Baixa Grande, inserted in the Rural District of São José do Itaporã, municipality of Muritiba and the Quilombola Community of Vila Guaxinim, municipality of Cruz das Almas. Such research dialogues in the discussions of this text because it elects the exposure of experiences, experiences and memories in the bodily practices of these communities, bringing them closer to unique themes that demonstrate tradition, culture and resistance that are: environment, leisure relationships and how the philosophy of Good Living are inserted in them. For Melo (2024,2025), as well as Bispo (2023), Lourenço and Ribeiro

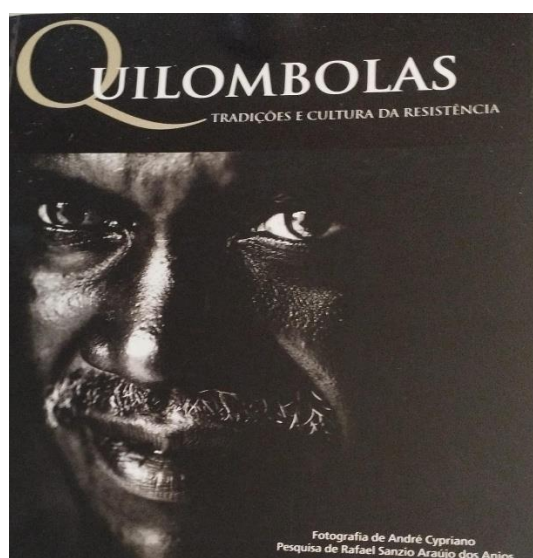
⁴ Quilombola Communities is in capital letters to demarcate the object of study.

(2024), Anjos (2006) and Gomes (2015) "the history of quilombos, quilombola communities and their developments – past and present" – is a theme of the present time.

In his work "Quilombolas",⁵ professor and researcher Rafael Sanzio Araújo dos Anjos, PhD in Geography, presents a long cartographic and photographic research of quilombola communities in Brazil. Here, Anjos (2006) discusses the maximum African expression in the Brazilian population and how the identity, history, culture and memory of these communities are part of Brazilian society.

Figure 2

Photo of the cover of the book by Rafael Sanzio dos Anjos



Source: Authored by Duília de Jesus Lopes Melo, 2025

It is worth mentioning that the themes discussed in the research and in the work of Professor Rafael Sanzio and the reports of the research participants, dialogue in the lines and between the lines of Bispo's work.

The awareness of his relationship with the land and his personal relations with the land can be evidenced in the words of Bispo: "our grandmother generation said that we plant what we want, what we need and what we like, and the land gives what it can and what we deserve" (Bispo, p.90), as well as in the report of a participant in the research, from Conceição dos Caetanos, Tururu, Ceará "the flour house, where the cassava is processed, remains alive in the quilombos, being a symbol of walking together, the example that both the day-to-day life

⁵ QUILOMBOLAS TRADITIONS AND CULTURE OF RESISTANCE, Angels ,2006

and the future of the community will always be based on the survival of this space" (Anjos, p.69).

Let us also see in the table below the themes highlighted and their reverberations:

Table 1

Propositions of the work of Anjos

African expression in the Brazilian population	Africa, the Diaspora, Brazil Africa and education
Territoriality and resistance	Quilombola cartography Contemporary quilombos The land issue
Ethnic and cultural identity	Community area Dance Religion Kalunga Mocambo
Challenges for the future	
Communities in the national territory	
Quilombolas, Traditions and Resistance	

Source: Authored by Duília de Jesus Lopes Melo, 2025

Anjos (2006), arouses our interest in this work because, according to the author himself,

The warm reception of informants, residents and leaders to the project of this book offered clear signs of the need to get in touch with the quilombolas, with their stories transmitted orally, with their traditional dances, their songs, their blessings and their prayers, their diverse speeches, wide smiles, eyes attentive to the space in which they often live in very precarious conditions; rescue all this memory and give importance to the dialogue on the main issues that involve them.

In *Mocambos and Quilombos* (2015), Gomes exposes a vast panorama of the vicissitudes of the quilombola peasantry in Brazil. Gomes introduces us to quilombola culture without losing sight of the influence of African cosmologies, their experiences in the slave quarters and their environments. The author went further by getting to know different types of quilombo in each region of Brazil and how the new forms of aquilombar acquired meanings for the Brazilian context and approaching memories from a travel diary.

Finally, we have the "Grito dos Quilombos",⁶ by Lourenço and Ribeiro (2024) where they address a historical-cultural and memoristic perspective of many quilombola communities around Brazil. The entire work is composed of stories told or lived by members of quilombos from various regions of Brazil and in its scope, many memories were revisited, bringing records of/about the African and Afro-Brazilian presence in various contexts of life of this part of the population. In its 17 texts, most of them present many memories referring to the process of certification of communities, about acceptance, racism and prejudice, culture and identity, fear, freedom and finally, consciousness.

About consciousness, we present the report of Manoel, a remnant and teacher at the Quilombo Aldeia school, in Garopaba, Santa Catarina,

"One of our tripods is ancestral knowledge... The act of educating is ancestral. We, the youngest, drink from the oldest. I, for example, teach a quilombola pedagogy. I teach math. So, it's not that I'm going to despise modern mathematics, but I'm also going to work on ethnic-mathematics.

5 MEMORY, LANGUAGE AND EDUCATION

Beyond the conceptual issues, the author seems to confabulate with bell hooks in "The language: teaching new worlds/new words" when he proposes the insertion of language(gem) "of his own" to propose the breaking of the paradigms of what is posed by the globalized, Eurocentric and hegemonic imposition that makes the colonizer not understand what is being said.

Such an allusion is in Adrienne Rich's poem "The Burning of Paper Instead of Children." The poem talks about "domination, racism and class oppression", The verse "This is the language of the oppressor, but I need it to speak to you" was the most touching in hooks' memory, because for her these words transmitted "the way" to understand that they would be instruments that consciously awakened her to the link between language and domination (hooks, 2013).

With his mastery of words, Santos teaches us:

Because I had mastered the training technique, I soon realized that, in order to face the colonialist society, at times "we need to transform the weapons of the enemies into defense", as one of my great defense agents said. So, to transform the art of naming into an art of defense, we decided to name it as well.

⁶ THE CRY OF THE QUILOMBOS, STORIES OF RESISTANCE OF A SILENCED BRAZIL by Marina Lourenço and Tayguara Ribeiro, 2024

Among other writings in which I translated the ancestral knowledge of our grandmother generation from orality to writing, we brought some denominations that people in academia call concepts. From then on, we continued in the practice of the denominations of modes and speeches, to counteract colonialism. This is what we call the war of denominations: the game of contradicting colonial words as a way of weakening them.

I was once asked by a researcher from Cape Verde: "How can we countercolonize by speaking the language of the enemy? And I replied: "Let's take the enemy's words that are potent and let's weaken them. And let's take our words that are weakened and let's enhance them.

Such issues, very dear to the Brazilian people, are also discussed and based on the words of Melo (2024), which are intrinsically related in some perspective to the propositions of/for Afrocentric thought that is proposed as a possible and necessary path for an Afrocentric and, for us, anti-racist education.

6 WHAT CONCLUSION HAVE WE REACHED...

In view of the advertisements, some considerations are presented, as we understand that the initial exercise proposed by the activity was achieved in the perspective of approaching the objective of analyzing how the principles of Afrocentrism emerge as possible reflections in the memories and narrative contained in the work.

We also show that the work "The land gives, the land wants" presented itself as a sophisticated critical framework for the issues of language, racism and education, since it proposes compatible strategies for an education that proposes itself as countercolonizing, Afro-centered, and that meets the questioning raised. And finally, the concepts listed in the work presented here are consistent with the life trajectory and memories of the writer Antônio Bispo, since they permeate throughout the text so that they are presented, explained and exemplified of how they happen in the community.

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**CRITICAL MATHEMATICS EDUCATION AND INSTRUMENTATION FOR THE
TEACHING OF MATHEMATICS: A SYSTEMATIC LITERATURE REVIEW IN A
BACHELOR'S DEGREE PROGRAM**

**A EDUCAÇÃO MATEMÁTICA CRÍTICA E A INSTRUMENTAÇÃO PARA O
ENSINO DE MATEMÁTICA: UMA REVISÃO SISTEMÁTICA DE LITERATURA
EM UM CURSO DE LICENCIATURA**

**LA EDUCACIÓN MATEMÁTICA CRÍTICA Y LA INSTRUMENTACIÓN PARA LA
ENSEÑANZA DE LAS MATEMÁTICAS: UNA REVISIÓN SISTEMÁTICA DE LA
LITERATURA EN UN CURSO DE LICENCIATURA**

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ABSTRACT

This article presents a map on Critical Mathematics Education (CME), Teacher Training and Degree in Mathematics in Theses and Dissertations resulting from the research carried out at the CAPES Theses and Dissertations Base. To answer the research question: Is Critical Mathematics Education explored in the discipline of Instrumentation for Teaching Mathematics in the Degree in Mathematics in Higher Education? The methodological referrals followed the assumptions of a Systematic Literature Review through three moments. Initially, the productions referring to Critical Mathematics Education were selected, later a synthesis was elaborated in relation to the use of EMC in Teacher Training and finally in the Mathematics Degree course referring to the researched productions. The results point to different uses of CME in the undergraduate course of Licentiate in Mathematics, thus leading to a critical and reflective look at academics and future teachers.

Keywords: Critical Mathematics Education. Degree in Mathematics. Instrumentation for teaching mathematics.

RESUMO

Este artigo apresenta um mapeamento sobre a Educação Matemática Crítica (EMC), a Formação de Professores e a Licenciatura em Matemática em Teses e Dissertações resultantes da pesquisa realizada na Base de Teses e Dissertações da CAPES. A fim de

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responder à questão de pesquisa: A Educação Matemática Crítica é explorada na disciplina de Instrumentação para o Ensino de Matemática no curso de Licenciatura em Matemática no Ensino Superior? Os encaminhamentos metodológicos seguiram os pressupostos de uma Revisão Sistemática de Literatura por meio de três momentos. Inicialmente foram selecionadas as produções referentes a Educação Matemática Crítica, posteriormente uma síntese foi elaborada em relação ao uso da EMC na Formação de Professores e por fim no curso de Licenciatura em Matemática referente as produções pesquisadas. Os resultados apontam para diferentes usos da EMC no curso de graduação em Licenciatura em Matemática, levando dessa forma, um olhar crítico e reflexivo aos acadêmicos e futuros professores.

Palavras-chave: Educação Matemática Crítica. Licenciatura em Matemática. Instrumentação para o Ensino de Matemática.

RESUMEN

Formación de Profesores y la Licenciatura en Matemáticas en Tesis y Disertaciones resultantes de la investigación realizada en la Base de Tesis y Disertaciones de la CAPES. Con el fin de responder a la pregunta de investigación: ¿La Educación Matemática Crítica se aborda en la asignatura de Instrumentación para la Enseñanza de las Matemáticas en el curso de Licenciatura en Matemáticas en la Educación Superior? Los procedimientos metodológicos siguieron los presupuestos de una Revisión Sistemática de la Literatura a través de tres momentos. Inicialmente, se seleccionaron las producciones relacionadas con la Educación Matemática Crítica; posteriormente, se elaboró una síntesis respecto al uso de la EMC en la Formación de Profesores y, finalmente, en el curso de Licenciatura en Matemáticas, considerando las producciones investigadas. Los resultados señalan diferentes usos de la EMC en el curso de Licenciatura en Matemáticas, proporcionando así una mirada crítica y reflexiva a los académicos y futuros docente

Palabras clave: Educación Matemática Crítica. Licenciatura en Matemáticas. Instrumentación para la Enseñanza de las Matemáticas.

1 INTRODUCTION

Critical Mathematics Education (CME), considered as a Trend in Mathematics Education, emerged as a movement in the 1980s concerned with the political aspects of mathematics education. It is shown in the legal documents subtly, as a way of working the content of mathematics in a critical-reflective way in a democratic way of teaching and learning, without addressing only the traditional teaching method, but uses aspects of the students' daily life to work with mathematics in a contextualized way, thus promoting a differentiated view of mathematics to the student.

For Skovsmose (2015), the notion of "traditional mathematics teaching" suggests this practice as a reference for mathematics education, a set of terminologies to be transferred to students. The author points out that exercises play a crucial role in teaching. However, during the school period, a student can answer more than 10 thousand exercises, but this practice may not help in the development and mathematical creativity. (SKOVSMOSE, 2015, p.16)

In this aspect, according to D'Ambrósio, "[...] There is something wrong with the mathematics we are teaching. The content that we try to pass on through the school systems is obsolete, uninteresting and useless" (D'AMBRÓSIO, 1991, p. 1). For this, it is necessary to use means that can lead the student to an understanding of the importance of mathematics and its use in everyday life.

Guiding documents such as the National Common Curriculum Base (BNCC), the National Curriculum Parameters (PCN), Basic Guidelines Laws (LDB) and Curriculum Guidelines, are vehemently objective with regard to the different methodologies that can be used as tools in the teaching of mathematics in Basic Education. These methodologies can help students to better understand the importance of mathematics and how this discipline is present in everything.

However, when faced with the Undergraduate Course in Mathematics, for the academic who chooses teaching in Mathematics as a profession, it is verified that the Trends in Mathematics Education could be further explored during the course. In this way, the future teacher, at the end of the Degree in Mathematics, must be prepared to use his knowledge, and thus transmit it to future students. In this way

[...] the knowledge of mathematics necessary to teach is more than knowing mathematics for oneself, it is correctly understanding concepts, as well as performing procedures, but also being able to understand the conceptual foundations of these concepts and procedures (SERRAZINA, 2014, p. 1.054).

In this perspective, the Trends in Mathematics Education can serve as a methodological tool to assist the future mathematics teacher in the transmission of knowledge. When it comes to undergraduate Mathematics Teaching Degree, it is relevant that future mathematics teachers for Basic Education and Higher Education seek alternatives in methodological trends that can help them in their pedagogical practices as teachers.

Thus, for the present research, we sought to structure the publications on CME's experiences in the discipline of Mathematical Instrumentation in the Undergraduate Mathematics Degree course. The objective of this work is to verify the use of this methodological tool with undergraduate students of the Mathematics Teaching Degree course, in the discipline of Instrumentation for Mathematics Teaching and future teachers of this discipline.

Thus, this work was carried out from the methodology of systematic literature review, in which it follows strict criteria for the mapping of the field and is being increasingly adopted in investigations within the scope of Educational Sciences.

2 THEORETICAL FRAMEWORK

The theoretical framework of this study is based on discussions that articulate the assumptions of Critical Mathematics Education and the role of the discipline of Instrumentation for Mathematics Teaching in the initial training of teachers. It seeks to understand how the critical principles of Mathematics Education, inspired by authors such as Skovsmose, Freire and D'Ambrosio, can contribute to a more reflective and meaningful teaching practice, especially in the context of the training of Mathematics undergraduates. Thus, this section presents a conceptual basis that supports the analysis of the importance of the critical and pedagogical dimension in the process of teacher training.

2.1 CRITICAL MATHEMATICS EDUCATION

Critical Mathematics Education (CME) is an area of Mathematics Education in which there are concerns with mathematics in society, it emerged as an education movement from important names such as Marilyn Frankenstein, in the United States, and in Brazil with Ole Skovsmose. Other important names influenced EMC, which are the Brazilians Paulo Freire and Ubiratan D'Ambrosio.

For Skovsmose (2007), critical mathematics is related to the nature of the competencies that mathematics could support, and also emphasizes that:

Rather than discussing mathematics and reality in terms of possible references for mathematical concepts, I wish to consider mathematics as a resource for action. [...] I just take it for granted that these actions are effected in the real world. They occur in the world in which we drive and park our cars, old and new. It is the world that we read about in newspapers, and in which Brazil is playing soccer. (SKOVSMOSE, 2007, p.220)

In this sense, Skovsmose (2007) refers to the importance of mathematical knowledge, with regard to its use as a tool in all areas of the individual so that he knows what its applicability is and in what circumstances mathematics can help him in his daily life. For Skovsmose (2007) "Mathematics" does not need to refer only to advanced mathematics, or to applied mathematics, or to mathematics in packages that are part of the entire apparatus of reason.

Borba and Skovsmose (2001) point out the importance of combating an oppressive view in the teaching of Mathematics, that if something has been mathematically proven, then mathematics is above all. For the authors, the ideology of certainty in mathematics can be attributed to the fact that mathematics has superpowers to solve any situation. (SKOVSMOSE, 2001).

Thus, Mathematics can be worked in a democratic way, in which dialogicity is part of the educational environment and in a way that mathematics makes sense to the student, it can collaborate with a better understanding of the student, in the employability of an open and fearless dialogue between student and teacher. Freire (2018) indicates that teaching requires knowing how to listen, "[...] It is not by speaking from above, above all, as if we were the bearers of the truth to be transmitted to others, that we learn to *listen*, but it is by listening that we learn to *talk to them*." (FREIRE, 2018, p.115)

To this end, it is perceived through the citations of authors such as Skovsmose (2001), Paulo Freire (2018), Ubiratan D'Ambrosio (1991) and Marcelo Borba (2008) the great importance that mathematics can serve as a contribution to help students with regard to its applicability and not only for the teacher to fulfill his annual plans. Also remain in the comfort zone that the "content" was transmitted, but did this content make sense to the students? And will the Mathematics Degree student know how to approach his teaching techniques to his future students in Higher Education?

The discipline of Instrumentation for the teaching of Mathematics brings to undergraduate students important relevant topics about the applicability of mathematics and

the methodologies used to transmit this knowledge to future teachers in the area of Mathematics.

2.2 INSTRUMENTATION FOR THE TEACHING OF MATHEMATICS

The training of Mathematics teachers encompasses an articulated set of policies that range from initial training to the continuing education of teaching professionals in Brazil. Lima's doctoral research (2018) discusses the historical facts, pointing out the formative path that has been constituted in the midst of power relations with regard to bachelor's and licentiate courses, the dichotomy between theory and practice, and the distance between university, students, and Basic Education school. (LIMA, 2018, p.50).

Thus, there is a growing concern with the pedagogical dimension in the Mathematics Teaching Degree courses, which led to changes in the curriculum with the purpose that the training of the licentiate students would not be restricted to the training of the mathematician, but would effectively contemplate the constitution of the Mathematics teacher. Therefore, in this sense, according to Moreira and David (2010), the first changes in the curricular structure of the teaching degree courses occurred from the 1970s onwards, in which some disciplines such as Sociology of Education, Educational Policy, among others, were inserted in the course curriculum.

However, there was still a distance between the Mathematics teacher and the pedagogical dimensions at the time of his work in the classroom. Thus, as Cruz (2010) clarifies, the most significant changes for the Mathematics Teaching Degree courses arose with the specific legislation on teacher training from 2001 and 2002:

Opinion CNE/CP 009/2001 that presents the proposal for National Curriculum Guidelines for the Training of Basic Education Teachers, at the higher level, Licentiate course, full graduation. Opinion CNE/CP 28/2001 – establishes the duration and workload of Basic Education Teacher Training courses, at higher level, licentiate course, full graduation. CNE/CES Opinion 1.302/2001 – provides for the National Curriculum Guidelines for Mathematics, Bachelor's and Licentiate Courses. Resolution CNE/CP 01/2002 – Establishes National Curriculum Guidelines for the Training of Basic Education Teachers, at higher level, Licentiate course, full graduation. Resolution CNE/CP 2/2002 – Establishes the duration and workload of the Licentiate, full graduation, and Basic Education teacher training courses at higher level (CRUZ, 2010 p. 32-33).

After the publication of these opinions, some changes began to occur in the Mathematics Teaching Degree courses, with the perception of the importance of pedagogical disciplines for the course, thus differentiating the Bachelor's degree from the practice of the Teaching Degree.

Based on the Mathematics Teaching Degree course at the State University of Ponta Grossa (UEPG), it is observed that the curricular changes occurred from the insertion of the Instrumentation for Mathematics Teaching disciplines in the curricular structure, configuring themselves as components of specific and professional training, as shown in Figure 1, referring to the syllabus of the Teaching Degree course.

Figure 1

Layout of the discipline of Instrumentation for the Teaching of Mathematics

DISCIPLINAS DE PRÁTICA COMO COMPONENTE CURRICULAR		
CÓDIGO	DISCIPLINAS	CARGA HORÁRIA
101167	Instrumentação para o Ensino de Matemática I	68
101168	Instrumentação para o Ensino de Matemática II	102
101169	Instrumentação para o Ensino de Matemática III	102
101170	Instrumentação para o Ensino de Matemática IV	68
101171	Laboratório de Ensino de Matemática	68
509054	Didática	68
Sub-total		476
DISCIPLINAS DE FORMAÇÃO ESPECÍFICA PROFISSIONAL		

Source: UEPG, Ementário-Lic.pdf.

In this way, the disciplines are distributed throughout the first, second, third and fourth grades of the Mathematics Degree course, whose minimum duration is four years and a maximum of six years for curricular integration. The discipline listed, continues in the four years of the course and assumes a role of great relevance for the undergraduate. It is there that the student will have the first contacts with the process of transmitting knowledge to his future students. According to the UEPG portal, in the syllabus of the Mathematics Teaching Degree course, the disciplines of Instrumentation for the Teaching of Mathematics are established as follows, in the first year, Instrumentation for the Teaching of Mathematics I:

The professional of the Mathematics Degree in the social context. Mathematics and Mathematics Education. Research and Teaching in the organization of teaching work. Interrelation of the mathematical contents that make up the subjects of the 1st grade of the Course and of these with Elementary and High School. (UEPG, Summary, p.58)

For the second grade, Instrumentation for the Teaching of Mathematics II, it refers to the organization of projects as described in the course syllabus:

Research and Teaching in the organization of teaching work. Interrelation of the mathematical contents that make up the disciplines of the 2nd grade and previous of the Course and of these with Elementary and High School. Analysis of mathematics textbooks for Elementary School. Organization of a teaching project for Mathematical content in Elementary School, High School and Youth and Adult Education. (UEPG, Summary, p.58)

In this process of the Teaching Degree course, students are faced with the different ways of working with mathematics in the classroom, and that undergraduate students have the most directed knowledge to Trends in Mathematics Education for educational practices with their future students.

For third grade students, the Instrumentation for Mathematics Teaching III course addresses questions about teaching methodologies and also practical knowledge in the Supervised Internship, with the following as instruction:

Research and Teaching in the organization of teaching work. Interrelationship with the discipline of Methodology and Teaching Practice I – Supervised Internship, in the study and discussion of pedagogical action projects, for Mathematical contents of Elementary, High School and Youth and Adult Education. Interrelation of the mathematical contents that make up the disciplines of the 3rd grade and previous of the Course and of these with Elementary and High School. Analysis of mathematics textbooks used in High School. Analysis of teaching and learning situations observed and recorded in Mathematics classes for elementary school. (UEPG, Summary, p.58)

At this point in graduation, the student is faced with classes in supervised internships and has the experience of the classroom and how the lesson plans will be and what practices they can use. In the fourth year of the Degree in Mathematics, the student will have his last discipline of Instrumentation for the Teaching of Mathematics IV, in the menu of the UEPG course there are the following topics covered for this series

Interrelation with the discipline of Methodology and Teaching Practice II - Supervised Internship, in the study and discussion of projects of pedagogical actions, for Mathematical contents of Elementary, High School and Youth and Adults. Interrelation of the mathematical contents that make up the disciplines of the 4th grade and previous of the Course and of these with Basic Education. Analysis of teaching and learning situations observed and recorded in Mathematics classes for high school. Application of teaching projects for Mathematical content of Elementary, High School and Youth and Adults in the schools of the community. Preparation of experience report. (UEPG, Summary, p.58)

At this stage of the course, the undergraduate student is closer to knowledge about the methodologies necessary for use in the classroom and probably the academic is closer to the classrooms and with some experiences carried out through the Supervised Internship.

3 METHODOLOGY

For the present article, an adaptation of the Systematic Review of Literature by Kitchenham (2004) was developed as a research methodology. For this author, the Systematic Review of Literature is a means of ascertaining, evaluating, and interpreting the available research relevant to a given research question, area of a topic, or phenomenon of interest, produced in a given period.

To conduct this process, the author suggested some steps in which they are decisive for the Systematic Review of Literature, which are: 1. Identification of research; 2. Selection of primary studies; 3. Study of quality assessment; 4. Data extraction and monitoring 5. Data synthesis.

To begin this methodological procedure, as a guiding question, the following question is asked: Is Critical Mathematics Education explored in the discipline of Instrumentation for Mathematics Teaching in the Mathematics Teaching Degree in Higher Education?

The selection of primary studies was established from a search in the List of CAPES journals, for the refinement of the research the Base of Theses and Dissertations (BDTD) was used. The filters used for this search were delimited with the options chosen for the works carried out in CME in the Theses and Dissertations for Doctorate, Master's and Professional Master's Degrees.

For this phase of the methodological referral, the search took place in three moments:

- At first, the keyword "Critical Mathematics Education" was used. After this choice, 107 (one hundred and seven) works between theses and dissertations were listed in the database. The works that stood out in this period of search are related to the critical and reflective view of the author Ole Skovsmose (2001).
- In the second moment, the refinement was carried out through the search for the keyword "Teacher Training". Which had 29 (twenty-nine) works between theses and dissertations.
- In the third moment of the search, to detail the refinement of the Systematic Review of Literature, the keyword "Teaching Degree and Mathematics" was inserted, the works listed for this keyword fell to 5 (five) works between theses and dissertations.

In the synthesis of the results, it was used as an inclusion criterion, the works that address the use of CME in the development of mathematics activities in a perspective focused on Teacher Training and for Mathematics Teaching Degree students.

The Study and Evaluation and the Extraction and monitoring of the data, as well as the validation of the results were carried out by the researchers of the present work of the Graduate Program in Science and Technology Teaching (PPGECT).

The synthesis of the data was composed of the articulation of the CME with the discipline of the Undergraduate course in the Mathematics Degree, in order to verify the use of this methodology in the Teacher Education of the undergraduate course.

4 DISCUSSIONS AND RESULTS

To meet the objective proposed in this work, table 1 presents the mapping of works focused on CME articulated with Teacher Training and with the Mathematics Teaching Degree course.

Table 1

Mapping of CME focused on the Mathematics Degree course

Topics covered	Doctorate	Masters	Total
EMC	19	88	132
Teacher Training	7	22	29
Degree in Mathematics	3	2	5

Source: CAPES. Accessed on: jul. of 2025.

To obtain a detailed perspective on the topics researched, table 2 presents a categorization of the areas in which CME, Teacher Education, and Mathematics Teaching Degree are situated. The separation of the works was selected from the searches carried out in the CAPES Theses and Dissertations Database and, for each topic addressed, the type of document, the title of the research and the year of defense are exposed.

Table 2

Categorization of papers addressing the topic of EMC

Document Type	Survey title	Author	Defense date
THESIS	Critical mathematics education in the perspective of educating in		2020

	Human Rights: connections between public policies and teacher training.	Vieira, Lygianne Batista	
THESIS	The relationship between mathematical content and the peasantry in the training of mathematics teachers in teaching degree courses in rural education.	Lima, Aldinete Silvino de	2018
THESIS	Critical mathematics education and the social implications of science and technology in the contemporary civilizing process: clashes for the training of mathematics teachers	Civiero, Paula Andréa Grawieski	2016
DISSERTATION	Interactive geometry: new media in a methodological proposal for high school.	Pereira, Geraldo Henrique Alves	2016
DISSERTATION	Solving spatial metric geometry problems using information and communication technology.	Bizinoto, José Henrique	2016

Source: The authors

Vieira's thesis (2020) presents Critical Mathematics Education from the perspective of Educating in Human Rights, the objective of his research is to answer the questions: Is it possible to develop the content and form of Mathematics Education in such a way that they can serve as a tool for Human Rights Education? To what extent are legal guidelines for teacher training and public policies involved in the process of building an education based on Human Rights?

Vieira's (2020) work was structured in *a multipaper format* based on the construction of scientific articles that are independently articulated to respond to the general objective of the research and was organized into three articles that correspond to the specific objectives of the thesis.

For Vieira's (2020) research, a Literature Review was sought through a bibliographic survey, using the systematic review methodology. For document analysis, the content analysis technique based on Bardin (2006) and Sá-Silva et al. (2009) was used.

Based on the constructions of the articles, Vieira (2020) points out that the teacher needs to resignify his role in the face of the challenges of contemporary society. It also emphasizes the need for teachers to think about their political and social positioning, their actions, their speeches, their affection, the way they see mathematics, their forms of evaluation, their posture in the face of injustices, diversity, always considering the students' learning difficulties.

The author highlights with the result of her research the identification of the inclusion that Human Rights themes can be incorporated into the training of mathematics teachers, but that the Pedagogical Projects of Mathematics Courses still need to advance a lot to achieve training in the principles of Critical Mathematics Education articulated with Human Rights Education.

In Lima's thesis (2018) the research aims to understand the relationship between mathematical content and the political, social and cultural dimensions of the peasantry in the training of Mathematics teachers in Rural Education Degree Courses. The theoretical foundation of Lima's (2018) research was based on the theoretical references of Rural Education and the aforementioned degrees, the training of Mathematics teachers and Critical Mathematics Education, which allowed us to delimit dialogue, investigation and criticism as analytical categories.

According to Lima (2018), the Political-Pedagogical Projects of the Courses (PPC) of three public universities located in the Northeast, Midwest and Southeast regions of Brazil were analyzed, we interviewed eight teacher trainers and observed classes of three curricular components taught in these courses.

The analysis of the PPC shows that the relationship between the mathematical contents and the political, social and cultural dimensions of the peasantry is present in the projects of the three courses, especially in the objectives, in the profile of the graduate and in the curricular organization. The interviews with the teacher trainers also reveal that this relationship is central to the training of Mathematics teachers and that dialogue, research and criticism are constituent elements of this relationship, according to Lima (2018).

For the analysis of the observed classes, it was evident that these elements are still treated in an incipient way in the mathematical activities proposed by the teachers, according to Lima (2018), pointing to the need for a better alignment between prescription and training.

According to the author of the research, the thesis concludes with the proposal of some learning environments that can be worked on in the training of Mathematics teachers of the

Degree in Rural Education, from the perspective of dialogue, investigation and criticism aiming at human and social transformation.

Civiero's (2016) doctoral work contemplates the propositions of Critical Mathematics Education (CME) and the social implications of science and technology in the contexts of initial mathematics teacher training. For this research, a qualitative approach was used with a historical-dialectical focus. The objective of this work was to investigate the dissemination of CME in Brazil and the possible contributions of CME to a change in the training of mathematics teachers, in view of the social relations of science and technology in the contemporary civilizing process.

According to Civiero (2016), the work initially brings a portrait of teacher training in Brazil, which shows that the teaching degree courses remain structured in the model of technical rationality, thus requiring transformations in a critical perspective. Next, historical elements of mathematics and mathematics education (MS) are presented, with emphasis on the power relations underlying mathematical knowledge.

This work presented influences from Critical Theory and Critical Education for CME. With the understanding that CME is the closest thing to critical thinking in the field of Mathematics Education (EM). To verify this influence, the author organized an inventory with international mapping of some readings on the area and another, national, with mapping of theses and dissertations from the period from 2000 to 2012, which showed that CME is disseminated worldwide, but that research in this regard is still isolated, especially in Brazil.

To collect the data for the thesis, Civiero (2016) organized semi-structured interviews with 17 teacher educators. With the help of analytical categories, possibilities, limits and obstacles, requirements and some proposals of these trainers for the insertion of CME in the training of mathematics teachers were identified.

The results point to the epistemology of the teacher as both a possibility and an obstacle, which highlights the need for epistemological and ideological-critical training. Civiero (2016) highlights the realization of a theorization movement based on the analysis of the data produced under the eyes of theoretical inspirations that discuss teacher training and the social implications of science and technology.

Thus, according to the author, the approximations with the field of Science, Technology and Society (STS) were observed and the discussions were broadened by emphasizing, together with the CME approaches, the variables of the new civilizational equation, intertwined with mathematical constructs, which can produce both wonders and horrors. It is

argued that it is urgent to emphasize, together with CME approaches, the social implications of science and technology to break the hegemonic model and thus instigate another education proposal that also values the human side.

In Pereira's master's thesis (2016), the research analyzes an important slice of Education: the teaching of Mathematics at the level of basic education. At the heart of his proposal is the study of the methodological trends that make up the current framework of discussions in Mathematics Education.

The author takes as a reference the teaching experience in which he aims to create possibilities for the resignification in the way of teaching and learning Geometry in high school courses, from the structuring of new media for the dynamics of the classroom that take into account Technologies and Ethnomathematics.

For the researcher Pereira (2016), necessary discussions were held, and in this way a proposal was presented that intertwines the two methodological tendencies making them dialogue with each other, and a contextualized activity was presented that takes into account this whole scenario.

The activity proposed by the author is configured as an alternative media to the Mathematics classroom, contemplating the use of a GeoGebra software in an environment with computers and the linking of contents to students' daily situations.

Bizinoto's master's thesis (2016) aimed at proposing an activity aimed at second-year high school students, with the purpose of teaching some concepts of Spatial Metric Geometry, specifically, calculating areas and volumes of geometric solids such as the cone, cylinder, sphere, pyramid and prism, with the help of technologies, through the GeoGebra software.

Bizinoto (2016) carried out a dissertation based on the elaboration of an activity, addressing some trends in teaching-learning of Mathematics, focusing on some Trends in Mathematics Education, mainly Problem Solving and Information and Communication Technology.

According to the author, the tendencies used in the dissertation, when worked together, are intertwined in such a way that it is difficult to verify which one is being used at each moment, Problem Solving starts from pre-acquired concepts for the teaching of new ones and Technologies help this construction at all times. The combination of the works generates a differentiated way of working with Mathematics, transforming them into a unique and effective teaching methodology.

The analysis of the mapping shows that, although there are advances in the insertion of CME in the initial training of teachers, there are gaps in the articulation between theory and practice. There is a predominance of conceptual approaches, with less emphasis on didactic experiences that promote critical reflection. These results point to challenges to consolidate teacher training aligned with the emancipatory principles of CME, indicating the need for strategies that integrate mathematical content, critical approach and contextualized pedagogical experiences.

5 CONCLUSION

This research aimed to map, through a Systematic Review of Literature, the approach of Critical Mathematics Education in the undergraduate course of Higher Education, especially in the Mathematics Teaching Degree. To structure this work, a guiding question was outlined: Is Critical Mathematics Education explored in the discipline of Instrumentation for Mathematics Teaching in the Mathematics Teaching Degree in Higher Education?

With the help of the search carried out in BDTD, it was possible to map works that portray the theme of CME, in which they present the works of Vieira (2020), Lima (2018), Civiero (2016), Pereira (2016) and Bizinoto (2016). These authors converge with regard to the use of Trends in Mathematics Education, but mainly on the relationship between critical and reflective thinking in which Skovsmose (2001) refers to Critical Mathematics Education.

Synthesizing the discussions presented in the cataloged works, several favorable arguments for the use of EMC can be perceived. The researchers' search for mathematics that makes sense to students is highlighted. In this way, it is linked to a concern that mathematics is not only for formal learning. But it can also be related to sociocultural issues, in which the student can correlate his learning with situations in his daily life.

It is noteworthy with the realization of research in the Base of Theses and Dissertations that the emphasis of this theme prevails in Basic Education. And it was noticed that after the refinement of searches for the keyword "Teacher Education" a drop in research papers about CME. When inserting a by the keyword "Degree in Mathematics" there was a low adherence to research on CME in Higher Education.

Studies aimed at future teachers in the Mathematics Teaching Degree course and especially in the discipline of Instrumentation for Mathematics Teaching were not mapped in this research. According to the syllabus of the institution chosen as a reference for this work,

UEPG, the discipline of Instrumentation directs students in the approach of contents through methodologies such as those listed in the Trends in Mathematics Education.

However, the bias of CME in the Higher Education course was little explored by researchers, there is low adherence to this methodology for Higher Education students in the Mathematics Teaching Degree. In addition, these are future teachers who will be channels for transmitting knowledge to students. Thus, the need for more research and work aimed at undergraduates is perceived.

To this end, it is observed the need for more studies related to the theme of CME in Mathematics Teaching Degree courses, so that, in this way, a more contextualized pedagogical practice can be integrated with future education professionals. In addition, a greater focus on the contributions of works involving the disciplines of Instrumentation for the Teaching of Mathematics may be to assist the praxis of teachers and academics of the course.

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PEDAGOGICAL INNOVATIONS IN PHYSICAL EDUCATION: CURRICULAR INTEGRATION AND IMPACTS ON THE INTEGRAL DEVELOPMENT OF STUDENTS IN THE MODULAR ORGANIZATION TEACHING SYSTEM – SOME IN A QUILOMBOLA SCHOOL IN AMAPÁ

INOVAÇÕES PEDAGÓGICAS NA EDUCAÇÃO FÍSICA: INTEGRAÇÃO CURRICULAR E IMPACTOS NO DESENVOLVIMENTO INTEGRAL DOS ESTUDANTES DO SISTEMA DE ENSINO DE ORGANIZAÇÃO MODULAR – SOME EM UMA ESCOLA QUILOMBOLA DO AMAPÁ

INNOVACIONES PEDAGÓGICAS EN EDUCACIÓN FÍSICA: INTEGRACIÓN CURRICULAR E IMPACTOS EN EL DESARROLLO INTEGRAL DEL ALUMNADO EN EL SISTEMA DE ORGANIZACIÓN MODULAR DE LA ENSEÑANZA (SOME) EN UNA ESCUELA QUILOMBOLA DE AMAPÁ

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ABSTRACT

This study analyzed pedagogical innovations in school Physical Education, curriculum integration, and their impacts on the holistic development of students in the Modular Education System (SOME) at a quilombola school in Amapá, Brazil. Through an integrative literature review (2010–2025), innovative pedagogical practices were identified that value local culture, promote interdisciplinarity, and strengthen students' identity. It was observed that modular education requires differentiated strategies, active methodologies, and context-specific teacher training. Despite structural challenges, Physical Education emerges as a space for cultural resistance, meaningful learning, and citizenship development. The study highlights the need for public policies supporting continuous teacher education, pedagogical autonomy, and recognition of quilombola knowledge. Gaps were identified in quantitative and longitudinal studies, indicating directions for future research.

Keywords: School Physical Education. Pedagogical Innovation. Curriculum Integration. Quilombola Education. Modular Education System.

RESUMO

O presente artigo analisou as inovações pedagógicas na Educação Física escolar, a integração curricular e seus impactos no desenvolvimento integral dos estudantes do Sistema de Organização Modular de Ensino (SOME) em uma escola quilombola do Amapá. Por meio de revisão integrativa da literatura (2010–2025), identificaram-se práticas pedagógicas inovadoras que valorizam a cultura local, promovem interdisciplinaridade e fortalecem a identidade dos estudantes. Observou-se que o ensino modular exige estratégias diferenciadas, uso de metodologias ativas e formação docente contextualizada. Apesar das condições estruturais adversas, a Educação Física revela-se espaço de resistência cultural, aprendizado significativo e construção de cidadania. Ressalta-se a necessidade de políticas públicas que apoiem a formação continuada, a autonomia pedagógica e a valorização dos saberes quilombolas. A pesquisa evidencia lacunas quanto a estudos quantitativos e longitudinais, indicando caminhos para futuras investigações.

Palavras-chave: Educação Física Escolar. Inovação Pedagógica. Integração Curricular. Educação Quilombola. Sistema Modular de Ensino.

RESUMEN

Este artículo analizó las innovaciones pedagógicas en Educación Física escolar, la integración curricular y sus impactos en el desarrollo integral de los estudiantes del Sistema de Organización Docente Modular (SODM) en una escuela quilombola de Amapá. Mediante una revisión bibliográfica integradora (2010-2025), se identificaron prácticas pedagógicas innovadoras que valoran la cultura local, promueven la interdisciplinariedad y fortalecen la identidad estudiantil. Se observó que la enseñanza modular requiere estrategias diferenciadas, el uso de metodologías activas y formación docente contextualizada. A pesar de las condiciones estructurales adversas, la Educación Física se revela como un espacio para la resistencia cultural, el aprendizaje significativo y la construcción de la ciudadanía. Se destaca la necesidad de políticas públicas que apoyen la educación continua, la autonomía pedagógica y la valorización del saber quilombola. La investigación revela lagunas en los estudios cuantitativos y longitudinales, señalando líneas de investigación futuras.

Palabras clave: Educación Física Escolar. Innovación Pedagógica. Integración Curricular. Educación Quilombola. Sistema de Enseñanza Modular.

1 INTRODUCTION

School Physical Education, historically linked to the promotion of health and physical performance, has, in recent decades, assumed an expanded role in the integral development and critical formation of students. In the context of Brazilian public schools, the area has been challenged to incorporate innovative pedagogical practices that dialogue with sociocultural diversity and with the new educational demands of the twenty-first century. In this scenario, pedagogical innovation emerges as a way to integrate knowledge, stimulate student protagonism and promote meaningful and contextualized learning.

The discussion about pedagogical innovations in Physical Education gains relevance especially when one observes the need for curricular integration between the components of the National Common Curricular Base (BNCC), which guides the pedagogical work towards the development of general competencies. The integrative perspective recognizes the body, movement and culture as powerful languages of expression and learning, breaking with fragmented and disciplinary teaching. Thus, Physical Education becomes a privileged field for interdisciplinary experiences and practices that articulate scientific knowledge with the cultural and bodily manifestations of the communities.

In the state of Amapá, the Modular Organization Teaching System (SOME) represents an educational policy aimed at serving locations where continuous access to regular education is hampered by geographical distance and socioeconomic conditions. In many of these locations, quilombola communities are located, in which the school plays an essential role in preserving cultural identity and promoting social inclusion. Modular teaching, due to its specific nature, requires differentiated pedagogical strategies, both by the alternation of school periods and by the sociocultural diversity of students.

In this context, understanding how pedagogical innovations can contribute to the teaching of Physical Education in SOME in quilombola schools in Amapá is a challenge that involves pedagogical, cultural and social aspects. The need to adapt the curriculum to community realities and to integrate quilombola culture into school practices demands creativity and commitment from teachers to an emancipatory and intercultural education. Thus, investigating the role of Physical Education as a mediator of curricular integration and promoter of integral development becomes fundamental.

The relevance of this study lies in understanding the possibilities and challenges that permeate the teaching work in Physical Education, when it is inserted in school contexts marked by territorial and cultural specificities. Based on an integrative literature review, it

seeks to identify how research published between 2010 and 2025 has addressed the topic, analyzing its contributions to the strengthening of innovative pedagogical practices in modular and quilombola teaching environments.

The choice for the integrative review method is justified by its ability to gather, analyze and synthesize results from previous studies, allowing a broad understanding of the current state of knowledge. This approach favors the identification of theoretical, methodological and practical gaps, in addition to guiding future investigations on Physical Education in contexts of cultural and curricular diversity.

The general objective of this article is **to analyze the pedagogical innovations in school Physical Education and their impacts on curricular integration and on the integral development of students of the Modular Organization Teaching System in a quilombola school in Amapá**. As specific objectives, it is proposed: (a) to understand the concept of curricular integration and its relationship with Physical Education; (b) to identify experiences of pedagogical innovation reported in the literature; (c) to discuss the challenges and potentialities of SOME and quilombola education in Amapá; and (d) to highlight the contributions of Physical Education to the integral development of students in this context.

This study is defined within a period marked by transformations in educational policies and the consolidation of new pedagogical practices mediated by active technologies and methodologies. The geographic focus is on the **state of Amapá**, with emphasis on the **quilombola schools served by SOME**, as they represent unique realities of teaching, learning and appreciation of Afro-Brazilian culture.

2 METHODOLOGY

This study is characterized as an integrative literature review, a method that provides the synthesis of knowledge and the incorporation of the applicability of results of significant studies in practice. Integrative reviews differ from traditional reviews in that they allow the inclusion of different methodological approaches (quantitative, qualitative, or mixed), enabling the comparison and integration of findings in a critical and systematized way (SOUZA; SILVA; CARVALHO, 2010).

The search for productions was carried out in the SciELO, Google Scholar and CAPES Periodicals databases, using the descriptors: "School Physical Education", "Pedagogical Innovation", "Curricular Integration", "Quilombola Education" and "Modular Teaching System". The inclusion criteria involved publications between 2010 and 2025, in full text,

written in Portuguese and that had a direct relationship with the theme. Duplicate papers, abstracts of events, dissertations without clear methodology, and articles that did not address the Brazilian educational context or school Physical Education were excluded.

The review process followed the following steps: (1) definition of the guiding question — how do pedagogical innovations in Physical Education contribute to curricular integration and the integral development of students in quilombola schools served by SOME?; (2) selection of sources and exploratory reading of the studies; (3) critical analysis and categorization of the contents into thematic axes; and (4) synthesis of the results, organized in tables and thematic sub-items. The analysis was conducted based on thematic and content analysis, seeking to identify patterns, convergences and gaps in scientific productions.

3 THEORETICAL FRAMEWORK AND LITERATURE ANALYSIS

3.1 PHYSICAL EDUCATION AND CURRICULAR INTEGRATION

Curricular integration is understood as a process of articulation between the various components of the curriculum, in order to promote meaningful and contextualized learning. For Sacristán (2000), the curriculum is a cultural and political construction, being permeated by values and intentionalities that reflect the project of society that one wishes to form. Thus, integrating knowledge is also integrating experiences, cultures and different ways of learning.

Moreira (2002) emphasizes that curricular integration demands a broader view of education, overcoming disciplinary fragmentation and promoting a dialogue between school knowledge and social knowledge. In the context of Physical Education, this implies recognizing the body and movement as languages that cross different fields of knowledge, contributing to the integral formation of students.

The BNCC (BRASIL, 2017) advises that the curricular components should be articulated to develop general skills, such as critical thinking, empathy and responsibility. In Physical Education, this translates into the appreciation of bodily practices as cultural and social expressions, favoring interdisciplinary work with other areas, such as Art, History and Human Sciences.

In Amapá, Bezerra (2019) argues that the effectiveness of curricular integration depends on pedagogical practices in tune with community knowledge and with the school's political-pedagogical project. This perspective is particularly relevant in modular and quilombola teaching contexts, where the curriculum needs to dialogue with the local reality and with the cultural traditions of the community.

For the author Gaia (2021), quilombola body practices, such as dances, games, and songs, represent a natural bridge between Physical Education and other disciplines, allowing learning that starts from the territory and collective identity. This approach breaks with the reductionist view of the body and recognizes corporeality as a dimension of culture and knowledge.

Within the scope of the Amapá State Department of Education (SEED/AP, 2024), curricular integration has been encouraged through pedagogical guidelines aimed at citizenship and intercultural education. However, the challenge is to ensure adequate teacher training and teaching materials, especially for modular teaching, which has its own calendar and dynamics.

3.2 PEDAGOGICAL INNOVATIONS IN PHYSICAL EDUCATION

The concept of pedagogical innovation is related to the ability to transform traditional practices into teaching processes that favor the protagonism of students. According to Moran (2015), innovating in education is not only adopting technologies, but resignifying the way of teaching and learning, making the classroom a space for meaningful experiences.

Kenski (2012) reinforces that innovations occur when there is pedagogical intentionality and reflection on practice. In Physical Education, this can include active methodologies such as project-based learning, blended learning, cooperative games, and the use of digital technologies for recording and analyzing body movements.

In the Amazonian context, authors such as Freitas (2023) and Pantoja (2024) point out that pedagogical innovation needs to consider regional particularities, such as climatic conditions, school infrastructure, and the cultural practices of communities. These factors influence the way teachers develop and adapt active methodologies to modular teaching.

Studies by Gaia (2021) show that teachers in Amapá have used unconventional spaces — such as squares, rivers, and forest areas — for Physical Education activities, integrating nature and community daily life into learning. This practice expands the notion of curriculum and enhances the integral development of students.

According to Moran (2015) and Kenski (2012), they highlight that innovation also involves the reorganization of pedagogical time and space, which becomes essential in SOME, whose teaching takes place in intensive periods. Flexibility and interdisciplinarity become, therefore, requirements for innovative practices to be sustainable in this model.

Continuing teacher training, centered on collaborative planning, integrated projects, and the use of local resources, is pointed out as a necessary condition for the sustainability of pedagogical innovations (FREITAS, 2023). In summary, the body of literature shows that pedagogical innovations in Physical Education combine active methodologies, cultural contextualization and teacher training; however, for the context of SOME and the quilombola schools of Amapá, there is a need for more research that documents practical experiences and their impacts (SILVA; NASCIMENTO, 2020).

3.3 QUILOMBOLA EDUCATION AND THE CONTEXT OF SOME

The Modular Teaching Organization System (SOME) was created to serve hard-to-reach communities, guaranteeing the right to education in rural and riverside regions of Amapá. The model is characterized by intensive teaching modules, in which teachers travel to the communities for specific periods, as explained by Trindade (2015).

According to the National Curriculum Guidelines for Quilombola School Education (BRASIL, 2012), the quilombola school must value traditional knowledge and ensure pedagogical practices that recognize Afro-Brazilian identity, history and culture. In this sense, Physical Education has a central role in the promotion of corporeality and cultural expression as dimensions of knowledge.

It is also understood that the SOME curriculum faces challenges related to infrastructure, the school calendar and methodological adequacy. Modular teaching requires the teacher to reorganize content, methodologies, and assessments, adapting them to the time and context of quilombola students (BEZERRA, 2019; PANTOJA, 2024).

The SEED/AP Elective Catalog (2021) indicates possibilities for curricular integration in SOME, emphasizing the use of participatory methodologies and content related to the territory. However, the effectiveness of these proposals depends on training policies and access to contextualized didactic resources (SEED/AP, 2024). Regional surveys, such as those by Gaia (2021) and Campos and Maldonado (2023), show that teachers have redefined the Physical Education curriculum by incorporating traditional quilombola dances, games, and games, strengthening the cultural identity of students and promoting meaningful learning.

However, Campos and Maldonado (2023) warn that there are still few studies that assess the impact of these practices on the integral development of students. Most of the productions are descriptive and qualitative, pointing to the need for longitudinal research and evaluation of pedagogical results.

3.4 INTEGRAL DEVELOPMENT AND CORPOREALITY

Integral development comprises cognitive, social, affective and physical dimensions; Libâneo (2013) emphasizes that educational practices must articulate these dimensions, promoting rich learning contexts. Gadotti (2016, p. 75) reinforces that "Physical Education, by working with the body and movement, contributes to learning that articulates theory and practice, strengthening the ethical, social and cultural dimension".

In quilombola contexts, corporeality and cultural manifestations — dances, drums, games — are instruments for the transmission of knowledge and the construction of identity (PEREIRA ET AL., 2024). For Vygotsky (1991), learning takes place in social and cultural interactions, and the body is a mediator in this process. Thus, corporeality must be understood as a language of expression and signification of the world, especially in community and traditional contexts.

Studies by UNIFAP (2019–2024) point out that traditional body practices in quilombola communities — such as circles, celebrations, and games — strengthen self-esteem and student participation, contributing to integral development and school permanence. These practices represent a link between culture and education.

Gaia (2021) and Trindade (2015) argue that corporeality is an essential element for meaningful learning, as it connects lived knowledge to school knowledge. By integrating quilombola culture into pedagogical practices, the SOME teacher enhances intercultural and inclusive education.

Teacher training focused on integral development needs, according to Pantoja (2024), to contemplate the study of body culture of movement, identities and ethnic-racial relations. This ensures that the teaching of Physical Education is also a space of recognition and cultural resistance. Regional authors such as Freitas (2023) reinforce that work with the body, in quilombola contexts, must transcend the biological dimension, approaching movement as a social, political, and aesthetic practice. This integrative look sustains the concept of liberating and transforming education.

3.5 SYNTHESIS AND GAPS IN THE LITERATURE

The productions analyzed show that there is a growing movement of appreciation of quilombola culture and pedagogical innovation in Physical Education, especially in the North of Brazil. However, there is still a lack of studies that explicitly integrate the context of SOME into these themes. The main gaps found refer to the lack of quantitative research on the

impact of pedagogical innovations on integral development and the need for continuing education for SOME teachers (CAMPOS; MALDONADO, 2023; SEED/AP, 2024).

In summary, regional studies point to three main ways to strengthen curricular integration and innovation in Physical Education: (a) collaborative planning among teachers; (b) the use of community spaces and local knowledge as curricular content; and (c) teacher training contextualized to quilombola realities (GAIA, 2021; FREITAS, 2023; PANTOJA, 2024).

This evidence reinforces the importance of understanding Physical Education not only as an area of movement, but as a field of knowledge and social practice, capable of promoting inclusion, identity and citizenship. In SOME, pedagogical innovation emerges, therefore, as a tool to reconfigure the curriculum and enhance integral development.

4 DISCUSSION

The results of the review indicate that curricular integration and pedagogical innovations in Physical Education are promising ways to strengthen the integral development of students of the Modular Teaching Organization System (SOME) in quilombola schools. This finding converges with the perspective of Libâneo (2015), according to which the school should articulate theory and practice, science and culture, in order to promote contextualized learning.

The BNCC (BRASIL, 2017) reaffirms its commitment to comprehensive education, highlighting Physical Education as a space for valuing diversity and building citizenship. However, the modular and quilombola context requires curricular and methodological adaptations that respect the time, culture, and territory of the communities (SEED/AP, 2024).

Authors such as Moran (2015) and Kenski (2012) emphasize that pedagogical innovation requires teacher autonomy and student protagonism, essential elements to break with traditional practices. In studies on SOME, it is perceived that innovation assumes the character of necessity and resistance, allowing teachers to develop creative solutions in the face of scarce resources.

In the case of Amapá, the practices reported by Gaia (2021) and Freitas (2023) reveal that Physical Education has been one of the most fertile spaces for dialogue between traditional and curricular knowledge. Teachers transform local bodily activities — such as quilombola dances and community games — into educational experiences that value identity and belonging. When compared with other regions of Brazil, it is observed that innovative

practices have also been developed in the Amazon (e.g., Rondônia, Pará) and in the Northeast (e.g., Bahia, Pernambuco), especially in rural contexts and traditional communities. In these regions, active methodologies and curricular integration with local knowledge contribute similarly to meaningful learning and cultural appreciation, but face distinct challenges in terms of infrastructure, transportation, and teacher training. This comparison shows that, although the problems are shared, the context of Amapá has particularities that reinforce the originality of the experiences analyzed.

Modular teaching, due to its intensive structure, requires that school time be reorganized. Moran (2018) observes that active methodologies, such as project-based learning, can optimize the short duration of the modules, stimulating collective work and student autonomy. This strategy is feasible for SOME, as it articulates content, practice and cultural context. However, the literature points out that the implementation of innovative practices is still limited by the absence of permanent training policies. Pantoja (2024) reinforces that SOME teachers face challenges in initial and continuing education, which compromises the consolidation of an innovative pedagogy rooted in the quilombola reality.

Trindade (2015) argues that the quilombola school should be a space for dialogue between cultures, where the curriculum recognizes the value of local knowledge. In Physical Education, this perspective is materialized by understanding the body as a territory of memory and resistance, overcoming Eurocentric visions of movement and performance.

The analysis of regional studies also highlights the relevance of interdisciplinarity. Bezerra (2019) shows that curricular integration is strengthened when there is collaboration between teachers and appreciation of cultural practices. This integration expands the meaning of Physical Education and contributes to meaningful learning.

From a pedagogical point of view, innovation in Physical Education at SOME transcends the use of technologies. Kenski (2012) observes that innovating implies resignifying the role of the teacher as a mediator, and not as a transmitter of knowledge. This change in posture is essential to build contextualized and emancipatory practices. In quilombola schools, innovation also represents a political act, as it reaffirms cultural identity and the right to quality education (BRASIL, 2012). The body, when recognized as a cultural expression, becomes an instrument of learning and resistance (GAIA, 2021).

Freitas (2023) adds that traditional body practices favor integral development by stimulating cognitive, affective, and social dimensions. Thus, Physical Education acts not only

as a space for movement, but as an environment for the construction of knowledge and values.

However, Campos and Maldonado (2023) identify a significant gap: there is a lack of quantitative and long-term studies that assess the effects of pedagogical innovations on the performance and engagement of quilombola students. This absence limits the formulation of more precise public policies.

On the other hand, successful experiences, reported by SOME teachers, show that the integration between Physical Education and quilombola culture promotes greater motivation and belonging among students (SEED/AP, 2021). These actions demonstrate the transformative potential of bodily practices in citizenship education.

The discussion also reveals that the absence of adequate infrastructure and pedagogical materials still represents a significant barrier (BEZERRA, 2019). However, teacher creativity and the use of community spaces have partially compensated for these limitations, setting an example of context-based innovation.

Gadotti (2009) emphasizes that the school of the twenty-first century should be a space for integral and ecological education, which considers the interdependence between subject, culture and nature. Physical Education, by integrating the natural environment and the local culture, contributes directly to this expanded vision of education.

The experience of SOME in Amapá shows that it is possible to build innovative pedagogical practices even in adverse conditions, as long as there is intentionality and cultural sensitivity. This reinforces the idea that innovation is not synonymous with technology, but with the reinvention of the educational act (MORAN, 2015).

The results indicate that, in order to strengthen curricular integration and integral development, it is necessary to invest in continuing education, pedagogical support policies and appreciation of traditional body practices. The articulation between university, community and school emerges as a promising strategy.

In summary, Physical Education in the context of SOME and quilombola schools in Amapá reveals itself as a powerful space for innovation, resistance and transformation. When associated with curricular integration and the appreciation of local culture, it effectively contributes to the integral development of students and to the construction of a fairer and more inclusive education. Within the limits of the review, despite providing a consolidated overview of pedagogical innovations in Physical Education in SOME and in quilombola schools, this integrative review has limitations. The predominance of qualitative studies, of a

descriptive and regionalized nature, restricts the generalization of the results. In addition, there is a lack of comparative research with other regions and longitudinal investigations that allow the evaluation of the impact of pedagogical practices on the integral development of students.

5 FINAL CONSIDERATIONS

The present study aimed to analyze the pedagogical innovations in Physical Education, the curricular integration and the impact on the integral development of students of the Modular Teaching Organization System (SOME) in a quilombola school in the municipality of Santana, Amapá. The literature review revealed that, even in the face of adverse structural conditions, SOME has proven to be a fertile space for creative and culturally significant pedagogical practices.

The findings indicate that Physical Education, when articulated with the quilombola reality and based on innovative methodologies, can effectively contribute to the integral development of students. The experiences analyzed demonstrate that the recognition of local culture, the dialogue between knowledges and the appreciation of traditional body practices expand the meaning of learning and strengthen the identity of the subjects involved. Thus, pedagogical innovation transcends the use of technologies and manifests itself as a political and cultural act, as argued by Moran (2015) and Trindade (2015).

The analysis reinforces the importance of understanding Physical Education at SOME as a space of mediation between scientific knowledge and community knowledge. This curricular integration favors interdisciplinarity and student protagonism, central elements for an inclusive and transformative education. The quilombola school, in this context, becomes an environment of resistance and appreciation of bodily and cultural memories, reaffirming the social role of education in strengthening identities and promoting equity.

However, the study highlights persistent challenges: absence of specific continuing education, lack of infrastructure and limitation of pedagogical materials. These gaps require greater attention from the public educational policies of the state of Amapá and the federal government. It is recommended the creation of teacher training programs focused on the reality of modular teaching and the cultural diversity of quilombola communities, promoting exchange between university, school and community.

In addition, it is essential that educational policies recognize quilombola schools as spaces for the production of knowledge and innovation, ensuring adequate working

conditions, pedagogical autonomy and access to technological resources that enhance existing practices. The inclusion of quilombola body culture content in the curricula and the encouragement of interdisciplinary practices are also fundamental for the consolidation of a plural and contextualized education.

Finally, empirical studies involving field observations, interviews and longitudinal follow-up can deepen the understanding of the effects of innovative practices in Physical Education at SOME. In summary, this review reaffirms that pedagogical innovation, when articulated with curricular integration and the recognition of quilombola culture, represents a promising path for the construction of an emancipatory, inclusive and socially committed education. SOME, in this sense, reveals itself not only as an organizational teaching alternative, but as a territory of possibilities for human development and for the transformation of educational realities in Amapá.

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SCHOOL MANAGEMENT WITH A FOCUS ON RESULTS: REGULATION AND CONTROL ACTIONS IN PUBLIC SCHOOLS

GESTÃO ESCOLAR COM FOCO NOS RESULTADOS: AÇÕES DE REGULAÇÃO E CONTROLE EM ESCOLAS PÚBLICAS

GESTIÓN ESCOLAR CON ENFOQUE EN RESULTADOS: ACCIONES DE REGULACIÓN Y CONTROL EN CENTROS PÚBLICOS

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ABSTRACT

This study aimed to discuss the impacts of results-based management policies on improving student performance and the quality of education offered, based on a literature review. This review is justified by the interpretation and analysis of a theoretical framework, conducted using the Latin American and Caribbean Health Sciences Literature (LILACS) database and the Scientific Electronic Library Online (SCIELO) virtual library, covering publications from 2015 to 2025. The impacts of results-based management policies on improving student performance and the quality of education offered are of paramount importance because they are based on market logic, employing necessary and appropriate means for the implementation of business management grounded in human capital theory, prioritizing quantitative results over qualitative ones. It is concluded that the results-based management model, through its managerial approach, focuses on developing goals and strategies aimed at achieving results, while also promoting a business model that values only quantitative aspects, prioritizing products and results measured through standardized, large-scale assessments.

Keywords: Results-Based Management. Neoliberalism. Education.

RESUMO

Esse estudo teve como objetivo geral discutir os impactos da política de gestão de resultados na melhoria do desempenho de estudantes e na qualidade do ensino oferecido, com base em uma revisão bibliográfica, que se justifica pela interpretação e análise de uma fundamentação teórica, realizada nas bases de dados Literatura Latino Americana e do Caribe em Ciências da Saúde (LILACS), e na biblioteca virtual Scientific Eletronic Library Online (SCIELO), que foram publicados no período de 2015 a 2025. Quanto aos impactos da política de gestão de resultados na melhoria do desempenho dos alunos e na qualidade do ensino oferecido é de suma importância porque está pautada na lógica de mercado ao

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empreender meios necessários e adequados para a efetivação de uma gestão empresarial alicerçada na teoria do capital humano com resultados quantitativos em detrimento de resultados qualitativos. Conclui-se que o modelo de gestão por resultado empreende pelo modelo gerencialista na elaboração de metas e estratégias que prevê o alcance de resultados com a propagação do modelo empresarial que valoriza somente os aspectos quantitativos que privilegiam os produtos e os resultados medidos em avaliações de larga escala padronizadas.

Palavras-chave: Gestão por Resultados. Neoliberalismo. Educação.

RESUMEN

Este estudio tuvo como objetivo analizar el impacto de las políticas de gestión basadas en resultados en la mejora del rendimiento estudiantil y la calidad de la educación ofrecida, a partir de una revisión bibliográfica. Dicha revisión se justifica mediante la interpretación y el análisis de un marco teórico, utilizando la base de datos LILACS (Literatura Latinoamericana y del Caribe en Ciencias de la Salud) y la biblioteca virtual SciELO (Biblioteca Científica Electrónica en Línea), que abarca publicaciones de 2015 a 2025. El impacto de estas políticas en la mejora del rendimiento estudiantil y la calidad de la educación ofrecida es de suma importancia, ya que se fundamenta en la lógica de mercado, empleando los medios necesarios y apropiados para la implementación de la gestión empresarial basada en la teoría del capital humano, y priorizando los resultados cuantitativos sobre los cualitativos. Se concluye que el modelo de gestión basado en resultados, a través de su enfoque gerencial, se centra en el desarrollo de metas y estrategias orientadas al logro de resultados, a la vez que promueve un modelo de negocio que valora únicamente los aspectos cuantitativos, priorizando productos y resultados medidos mediante evaluaciones estandarizadas a gran escala.

Palabras clave: Gestión Basada en Resultados. Neoliberalismo. Educación.

1 INTRODUCTION

The implementation, in the mid-1990s, of the managerial management model in Brazil, typical of neoliberal ideals, as a solution to the drop in the levels of production and commercialization of products that the country was facing, and with the objective of raising public administration to a level of efficiency, reached the various public sectors and, notwithstanding, education. It is important to emphasize that this is not a dynamic that transcends the national context, assuming global proportions.

As Brazil is one of the founding countries of the United Nations (UN), with representation since 1947, and being a signatory, it corroborates its objectives, which are to promote world peace, the guarantee of rights, among others, and the promotion of initiatives aimed at the socioeconomic and cultural progress of the countries.

The internationalization of education is promoted by UNESCO, through its documents and guidelines, establishing pacts and strategies for the participating countries. These documents guide the implementation of educational policies that shape the profile of the individual who wishes to be trained, according to the educational objectives that are planned to be achieved.

Based on the Incheon Declaration, which delegated UNESCO to coordinate Education 2030, based on the Sustainable Development Goals (SDGs), it argues that education drives the transformation of lives with fundamental principles such as quality, inclusion and equitable, during the life course (2015). It is observed, therefore, that it is a guiding document that introduces several important concepts for educational management, including the evaluation of learning outcomes and the implementation of mechanisms to monitor the educational progress of students.

In addition, the normative document in theory emphasizes the training and continuous qualification of the pedagogical team, the promotion of motivation among education professionals and the search for efficiency and effectiveness in educational processes. Such approaches reflect typical characteristics of a neoliberal culture, which prioritizes performance measurement, operational efficiency, and results-based management, aligning education with market principles and business practices (BUENO, 2019).

In view of the above, it is possible to evidence the worldwide advance of structuring educational policies that are in line with the neoliberal ideology that defends the freedom of the market and the reduction of the role of the State in social policies, the control of public spending, the predominance of market logic in the economy, the adoption of results-oriented

management models and the challenges imposed by technological advances, with direct impacts on the area of education (MESZÁROS, 2000).

From this context, in Brazil, there is a discussion about the democratic management of education, a movement that was a consequence of social demands for rights, including involvement in decision-making processes, guaranteed in the Citizen Constitution of 1988 (CF/88), in the Law of Guidelines and Bases of National Education of 1996 (LDB/96) reaffirmed in the National Education Plan of 2001 (PNE), as well as in goal 19 of the 2014 PNE (BRASIL, 2014). However, education is put at risk, in the face of procedures based on external agents that, validated by the administrations, start to order the methods and contents of educational policies. In view of the above, it is possible to infer and say that there was an increase in the participation of the private sector in the construction of agendas and in the production of actions for basic education.

In view of this, were we instigated to understand how the efficient use of available resources can positively influence educational results, especially with regard to raising student performance and improving the quality of education offered?

The objective was to discuss the impacts of the results management policy on improving student performance and the quality of education offered.

2 METHODOLOGY

The type of investigation was through bibliographic research based on the descriptive approach, with the use of scientific productions in databases such as Latin American and Caribbean Literature in Health Sciences (LILACS), and in the virtual library Scientific Electronic Library Online (SCIELO). This type of research is essential in the preparation of scientific investigations, because it provides a better knowledge of the phenomenon under study. It allows the identification of the current state of knowledge, the identification of gaps and the theoretical foundation of the work. Among the materials that make up the bibliographic research are books, scientific articles, theses, dissertations, journals and legal norms and other types of consolidated publications, which can be accessed both in print and digital format (APPOLINÁRIO, 2019).

According to Marconi and Lakatos (2016), the bibliographic research is based on the analysis of already published materials related to the theme under study, involving a systematic review of books, scientific articles, dissertations, theses and other academic

productions. Its main objective is to offer a theoretical basis that supports the construction of the work.

The descriptors used were: "Neoliberalism", "Result Management" and "Control". The inclusion criteria adopted were articles in Portuguese and English that contemplated the problem under study and that were present in the selected descriptors, published between 2015 and 2025. Articles not published in full and outside the cited period, as well as those that do not address the theme, were excluded.

After selecting the articles according to the inclusion criteria previously determined, the following steps were performed:

- a) reading of studies carried out on the subject;
- b) bibliographic survey;
- c) discussion in a research group to adapt the theme;
- d) preparation of the article.

3 RESULTS

It was chosen to present the results in the form of topics, based on the central question that guided the study. This approach was classified as qualitative analysis, as it offers a more efficient organization of the information collected.

3.1 THE THEORY OF HUMAN CAPITAL AND THE PROPOSAL OF BUSINESS EDUCATION

The Human Capital Theory (TCH) in Sandri's (2016) view, it is possible to reflect and say that, to date, it has been used by entrepreneurs as a practical and theoretical strategy that guides their projects in the area of education. Through this approach, it was observed that there was a reduction of education to a purely economic perspective, in its worst sense. In other words, education has come to have a meaning of a tool to teach people to become entrepreneurs of themselves, often leaving aside its more human, social and cultural aspects.

It is important to remember that Laval (2021) comments on Foucault's theory, especially from the perspective of entrepreneurship, whose approach brings valuable contributions to the reflection on neoliberalism, by showing how the idea of human capital manifests itself in the figure of the entrepreneur himself, which reinforces the feeling that workers lose the consciousness of their own class, which increases the feeling of alienation.

In this sense, it is convenient to add, according to Laval's (2021) ideas, that the worker is manufactured by this rationality, ready to act in the market, as a kind of cog in a gear that cannot ascend socially and take responsibility for its own sustenance and existential destiny. However, the author reflects that the identity and behavior of the neoliberal subject are not natural, but result from a process of social formation or construction, which Foucault calls subjectivation.

Thus, there is the neoliberal context that is characterized by a standardized narrative of the individual around the image of the organization, called the Theory of Human Capital, whose focus permeates a set of practices that has spread throughout society and has come to occupy a central position in the institutional transformations that contribute to the production of a new connotation of the subject, what is called entrepreneurial or neoliberal, reduced to human capital, with a managerial interpretation of the human being (LAVAL, 2019).

From this perspective, the traditional view of education undergoes changes in the conception of neoliberalism, that is, in the face of this new paradigm, it is no longer seen as an exclusive property of the State, nor as a prerogative of the school. Instead, it becomes a dispersed phenomenon, present in all aspects of socioeconomic and cultural life, so that its content, its values and its practices become present in all spaces of coexistence and discussion, based on a new paradigm of society. In this logic of thought, a new definition of school is registered that is consistent with the written, because,

The school, which was previously based not only on the professional value of knowledge, but also on its social, cultural, and political dimension, understood in different ways according to ideological and political currents, has been redirected, by the current reforms, to goals related to competitiveness, in line with the demands of the globalized economy (LAVAL, 2019, p. 13)

In this bias of this discussion, neoliberalism begins to register, in the very structuring axis of education, the components of the mechanism and practices of a pedagogical governmentality responsible for strengthening the strategies of entrepreneurship in education. Because of this, the school becomes a reflector of the designations that are related to the scenarios of the financial system, integrating itself into the daily lives of educators, as well as evidence such as management processes, the formulation of performance metrics, the broad resignification of curricular content and the transformation of human relations into

commodities, in addition to the fact that learning is re-signified as entrepreneurship (COSTA, 2019)

3.2 SCHOOL MANAGEMENT FOR LEARNING OUTCOMES

In the environment of managerial administration, the relationship between management, school and company is discussed, due to the fact that the private sector represents a large portion entering school spaces, with its "expertise" for public administration, with the proliferation of consultancies, organizations and foundations that are committed to training education through actions with school management (PERONI; CAETANO, 2015). In this bias, it is assumed that the adoption of management models of administration changes school management.

In the area of educational management, it is observed the performance of institutes linked to large business conglomerates and financial institutions. An example is the Unibanco Institute, which, as of 2003, began to present proposals aimed at formal education. In 2007, already expressing the intention of influencing public policies, it launched the Youth of the Future Project in Brazil, which implemented programs that focused on the School Management for Results (GEPR) model (PERONI; CAETANO, 2015).

In Management by Results, management must have three dimensions: pedagogical, administrative and participatory policy. The pedagogical political dimension aims to ensure that the school fulfills its social function, which should be provided for in its Pedagogical Political Project (PPP) and concretized in its practice, aiming to guarantee access to school, permanence and learning of students (INSTITUTO UNIBANCO, 2013).

The administrative dimension is involved in the school's routine, such as human, physical and material resources, as well as data, records and pedagogical information. Therefore, there is an urgent need for technical knowledge for management to be efficient, providing student learning. Thus, it is necessary to highlight that the idea of bureaucratic management must be overcome by a strategic vision.

In the participatory dimension, the interaction of the community (teachers, employees, students and parents) in institutional decisions, in the organization of the school, in the collective construction is understood, as everyone involved ends up being co-responsible for the improvement of the results and performance of the students (INSTITUTO UNIBANCO, 2013).

In view of the assumptions, Management by Results presents itself as an innovation in school administration, that is, as a renewal of business practices that, despite incorporating certain innovations, maintain the emphasis on goals defined in a centralized way, following a traditional bureaucratic logic, accompanied by strict control over the work of others (BRAVERMAN, 1974).

In addition, Management by Results is supported by the Management Circuit, which is a methodology developed to structure, organize, and systematize the processes and practices of school management, focusing on improving pedagogical management and improving student learning, covering all school routines and activities, which should be focused on the pedagogical (HENRIQUES et al. 2021).

Therefore, the Management Circuit is inspired by the PDCA management tool, which has the following objectives: plan, execute, check and act/adjust, which now has the following stages of planning, execution, monitoring and correction of routes, as a result of an action plan prepared by the school community in order to achieve the goals established based on its reality (INSTITUTO UNIBANCO, 2017).

Thus, the concept of School Management for Results (GEpR) is based on the premise that no organization works properly without structured management. In this sense, GEpR is materialized through the elaboration of Action Plans, considered fundamental instruments to make participatory planning in the school environment viable. These plans are validated and monitored by a team of supervisors. Through this process, the school community defines, based on its diagnosis, the actions necessary to achieve the desired results (LIMA: RODRIGUES, 2022).

4 DISCUSSION

It is reiterated that the Human Capital Theory (HCT) in the words of Laval (2019) is closely related and grounded in the proposal of business education where it represents interconnected concepts that have gained prominence in the current panorama, especially with regard to the rapid transformations of the labor market and the demands for innovation, productivity and competitiveness.

Because of this, it is argued that in the TCH, education is no longer seen only as a social right or a phase of life, but as a strategy to increase economic efficiency and promote sustainable growth, whose approach reinforces the idea that the economic growth of a country is closely linked to the degree of qualification of its working population. Therefore,

public and private policies that promote quality education, continuous training and occupational health are essential in the search for the improvement of professional qualifications.

The business education proposal is based on the increase of human capital in organizations through investment strategies in continuous training, to enhance the skills of its employees, increasing their productivity and contributing to the economic growth of the organization. This means that business education, supported by the theory of human capital, becomes a vector of innovation, competitiveness and corporate social responsibility. Therefore, in an increasingly complex and competitive world, the synergy between human capital theory and business education presents itself as an indispensable strategy for long-term success.

And in this scenario is the School Management for Results (GEpR), which through the global and cultural transformations of the system that seeks to apply private management methods in the public sector, with a focus on results, efficiency and control in the public administration that has the responsibility of assuming a new efficient management model, enabling new organizational knowledge, technologies and greater supervision of the controlling bodies, in which the public administrator starts to optimize services with the introduction of new paradigms capable of promoting quality service in the public sector, ensuring more efficient and effective services to citizens (LIMA: RODRIGUES, 2022).

However, for the authors, it is perceived that the management model focuses on the logic of results, based on a policy of decentralization of educational management aims to promote the improvement of quality in schools, triggering processes influenced by the logic of the market, based on principles such as efficiency, effectiveness and productivity.

From this point of view, a change is made in school management directed by the referrals of the private administration, together with a policy of external evaluation that uses the measures as good or bad results to justify financial punishments to public institutions, in which school management is imprisoned to the artifices of the capitalist project and, as a public institution, Instead of ensuring quality education, the institution has gradually lost the confidence of its public regarding the effectiveness of the services offered.

5 CONCLUSION

Through this study, it was discussed that the impacts of the results management policy on the improvement of student performance and the quality of education offered is of

paramount importance because it is based on the logic of the market when undertaking necessary and adequate means for the effectiveness of a business management based on the theory of human capital with quantitative results to the detriment of qualitative results.

In this sense, it was possible to understand that having as a subsidy the theoretical discussion related to these results, it is highlighted that within the scope of the capitalist world-system, a business education operated and materialized by a management by results germinates in the light of dynamics of practical programs with their logics and specificities that influence and interfere in the pedagogical aspects of the school as regulation, budget, hiring and/or training of people.

Based on the results obtained, the management model by results undertakes the managerialist model in the elaboration of goals and strategies for the field of public administration, which denotes its entrepreneurial character, impregnated by the logic of capital from the neoliberal perspective. Because of this, it is understood that this managerial vision that foresees the achievement of results with the propagation of the business model that is the only one capable of achieving the best educational indices in the achievement of teaching quality, values only the quantitative aspects that privilege the products and the results measured in standardized large-scale evaluations.

Regarding the limitations of the study, it is reiterated the relevance of future research on the understanding of the theme under study, in order to understand that the culture of management by results must be effective with the participation of all school actors.

Finally, this research does not intend to exhaust the theme, but rather to encourage new and continuous studies on the subject, considering the rapid advancement of scientific knowledge, especially in the educational field, and the relevance of a theme that still represents a great challenge for society: management by results.

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**FROM THE MINIMUM CURRICULUM TO THE PPC: THE TRAJECTORY OF
THE LIBRARY SCIENCE COURSE AT UNB**

**DO CURRÍCULO MÍNIMO AO PPC: A TRAJETÓRIA DO CURSO DE
BIBLIOTECONOMIA DA UNB**

**DEL CURRÍCULO MÍNIMO AL PPC: LA TRAYECTORIA DEL CURSO DE
BIBLIOTECOLOGÍA DE LA UNB**

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ABSTRACT

This article presents a historical analysis of the development process of the Pedagogical Course Project (PPC) for the Library Science program at the Faculty of Information Science (FCI) of the University of Brasília (UnB). Based on a qualitative and descriptive approach, documentary sources such as legislation, resolutions, and specialized literature were examined. The study highlights that, despite the mandatory implementation of the PPC since the 1996 National Education Guidelines and Framework Law (LDB) and the curricular guidelines established in 2002, the Library Science program at UnB only began its formulation process in 2019. Periods of innovation and stagnation were identified throughout the curriculum's evolution, emphasizing challenges in preserving institutional memory and systematizing historical course information. It is concluded that the historical documentation of this process is essential for future curriculum reforms and for consolidating the academic identity of the program.

Keywords: Library Science. Pedagogical Course Project. Curriculum. University of Brasília. Higher Education.

RESUMO

Este artigo apresenta uma análise histórica do processo de elaboração do Projeto Pedagógico do Curso (PPC) de Biblioteconomia da Faculdade de Ciência da Informação (FCI) da Universidade de Brasília (UnB). Com base em uma abordagem qualitativa e descritiva, foram examinadas fontes documentais, incluindo legislação, resoluções e literatura especializada. O estudo evidencia que, apesar da obrigatoriedade do PPC desde a Lei de Diretrizes e Bases da Educação (LDB) de 1996 e das diretrizes curriculares estabelecidas em 2002, o curso de Biblioteconomia da UnB somente iniciou seu processo de formulação em 2019. Foram identificados momentos de inovação e estagnação ao longo da evolução curricular, destacando-se desafios na preservação da memória institucional e na sistematização das informações históricas do curso. Conclui-se que o registro histórico desse processo é essencial para futuras reformulações curriculares e para a consolidação da identidade acadêmica do curso.

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Palavras-chave: Biblioteconomia. Projeto Pedagógico do Curso. Currículo. Universidade de Brasília. Educação Superior.

RESUMEN

Este artículo presenta un análisis histórico del proceso de elaboración del Proyecto Pedagógico del Curso (PPC) de Bibliotecología de la Facultad de Ciencia de la Información (FCI) de la Universidad de Brasília (UnB). Basado en un enfoque cualitativo y descriptivo, se examinaron fuentes documentales como legislación, resoluciones y literatura especializada. El estudio evidencia que, a pesar de la obligatoriedad del PPC desde la Ley de Directrices y Bases de la Educación (LDB) de 1996 y las directrices curriculares establecidas en 2002, el curso de Bibliotecología de la UnB solo inició su proceso de formulación en 2019. Se identificaron períodos de innovación y estancamiento a lo largo de la evolución curricular, destacando desafíos en la preservación de la memoria institucional y la sistematización de la información histórica del curso. Se concluye que el registro histórico de este proceso es esencial para futuras reformas curriculares y para la consolidación de la identidad académica del curso.

Palabras clave: Bibliotecología. Proyecto Pedagógico del Curso. Currículo. Universidad de Brasília. Educación Superior.

1 INTRODUCTION

In line with the guidelines established by the University of Brasília (UnB) for the updating and re-accreditation of courses with the Ministry of Education (MEC), a systematic process of studies and debates began in 2019 aimed at the formulation of the new Course Pedagogical Project (PPC) of the Library Science course of the Faculty of Information Science (FCI) of UnB.

During this process, the need to analyze the historical trajectory of the course since its creation in the 1960s was identified. It is noteworthy that the Librarianship course at UnB was instituted simultaneously with the foundation of the University of Brasília itself, in the context of the development project of the new capital of Brazil. Thus, understanding the current state of the course required an in-depth investigation of its evolution in the context of political and social transformations over the decades.

Understanding the past is an essential requirement for the critical analysis of the present. Thus, the first stage of the studies consisted of a bibliographic and documentary research, with emphasis on the analysis of institutional archives. The objective of this investigation was to identify the available informational resources that would enable a clear understanding of the course's mission, curricular structure and its evolution to the present day. This survey made it possible to map the successive changes in the curriculum, as well as the conjunctural factors that motivated such changes, thus providing subsidies for the formulation of the new PPC.

2 LITERATURE REVIEW

2.1 BACKGROUND

The creation of the University of Brasília (UnB) is part of the context of the construction of the new federal capital of Brazil and the need to consolidate a center of scientific production and academic training aligned with the country's demands. The conception of UnB began in the 1960s, through a working group formed by intellectuals and academics, as stated in the message sent by the then president Juscelino Kubitschek to the National Congress on the date of the inauguration of Brasília. This group developed an innovative educational project, based on curricular flexibility and integration between teaching, research and extension. The formulation of this model was led by anthropologist Darcy Ribeiro and with the collaboration of jurist and educator Anísio Teixeira, responsible for the institution's pedagogical planning (Borges; Brito, 2015).

The legal structure of UnB was established by **Law No. 3,998, of December 15, 1961**, sanctioned by the then president João Goulart, which authorized the creation of the University of Brasília Foundation (FUB) (Brasil, 1961). Subsequently, the regulation occurred through **Decree No. 500, of January 15, 1962**, which approved the FUB Statute (Brasil, 1962). The inauguration of the university officially took place on April 21, 1962.

The **Guiding Plan of the University of Brasília (1962)** established the institutional and operational foundations of UnB, outlining an innovative academic-administrative governance model in the Brazilian university scenario. This document defined the autonomy of the university, by establishing it as a foundation, giving it greater administrative independence (University of Brasília, 1962).

The Guiding Plan structured UnB based on three fundamental pillars:

- **Tripartite academic-administrative structure:** composed of **institutes** (responsible for teaching and research at the advanced and graduate levels), **colleges** (focused on professional training) and **complementary bodies** (focused on academic support and the interface between the university and society), as established in article 9 of **Law No. 3,998, of 1961**.
- **Cycle system:** the undergraduate course was organized in different stages, starting with the **first cycle**, corresponding to the basic core of training in sciences, humanities and technology. In **the second cycle**, students could opt for a bachelor's degree, while in the **third cycle** they would specialize professionally. The model also provided for a **fourth level**, corresponding to the training of doctors.
- **Collegiate management:** based on the existence of intermediate (congregations) and superior (councils) collegiates, ensuring a shared and democratic decision-making process in the institution (Universidade de Brasília, 2011, p. 18).

This organizational proposal aimed to encourage interdisciplinarity, avoid the fragmentation of knowledge and promote a critical view of social reality. In the Brazilian context, UnB was a pioneer in adopting this model, in which students began their education in multidisciplinary institutes and, later, specialized in specific colleges for professionalization or in institutes for academic and scientific careers (Borges; Brito, 2015).

To consolidate this innovative approach, UnB brought together renowned academics and specialists from different areas, establishing partnerships with researchers, artists, and professors from the country's leading universities (Borges; Brito, 2015).

Article 9 of **Law No. 3,998, of 1961**, defined UnB as a structure integrated by **Central Institutes of Education and Research and Faculties intended for professional training**.

In addition, item II of this article stipulated that the colleges should:

[...] a) to teach undergraduate courses for professional and technical training; b) to teach specialization and graduate courses; c) to carry out research and studies in the respective fields of scientific, technological and cultural application. (Brazil, 1961).

Article 10 of the same legislation reinforced the strategic role of UnB, determining that the university should:

[...] to engage in the study of problems related to the economic, social and cultural development of the country and, to the extent possible, to collaborate with public and private entities that request it. (Brazil, 1961).

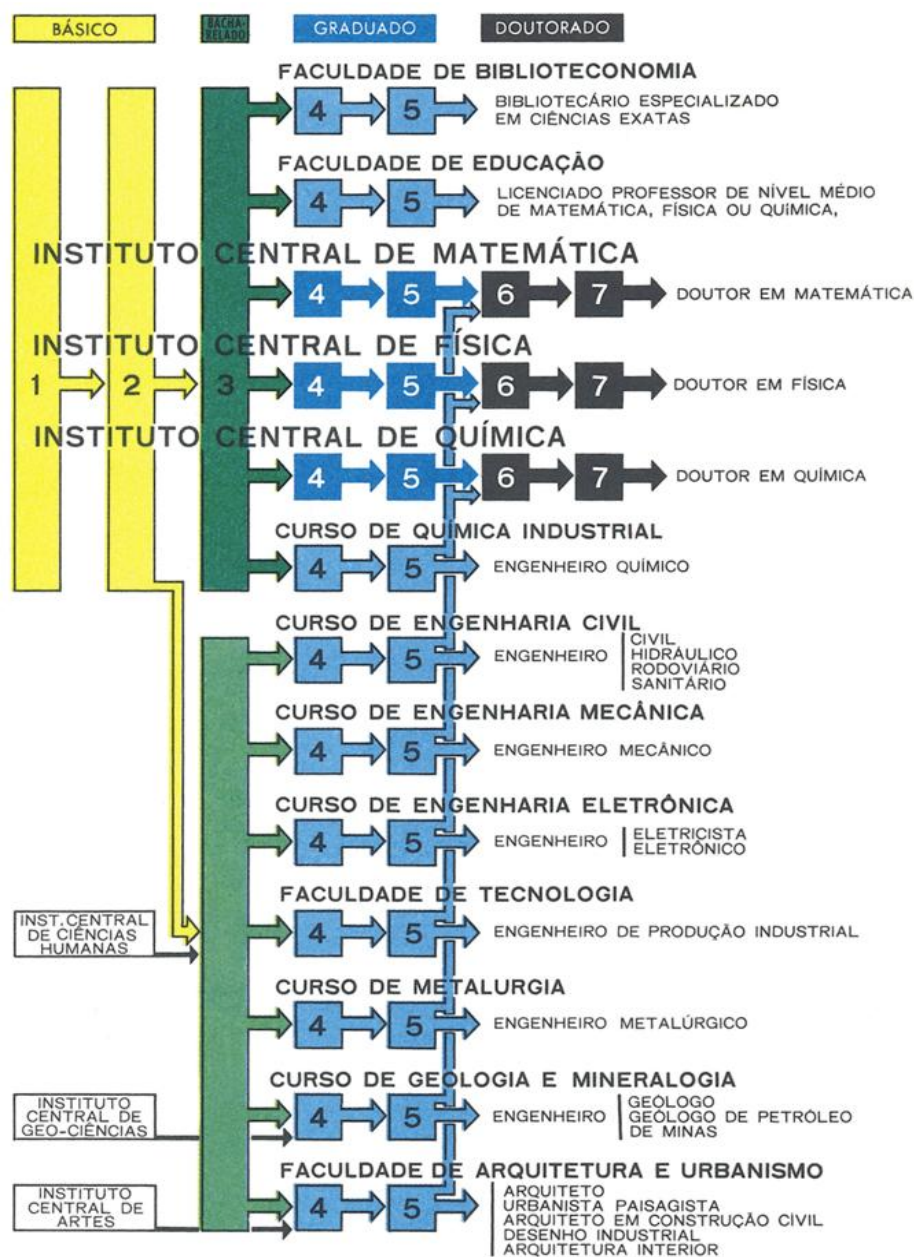
The **UnB Guiding Plan** also specified the organization of courses at different levels of training, with a progressive curricular structure:

- **Introductory courses** (basic level) – duration of four semesters;
- **Bachelor's degree** – duration of six semesters, taken after the basic level;
- **Specialized training** – duration of 10 semesters;
- **Postgraduate** – duration of up to 14 semesters (Brasil, 1962).

In this context, although the initial structure of UnB did not explicitly mention the **Faculty of Library Science**, the Guiding Plan indicated the existence of an academic unit responsible for the training of specialized librarians, particularly in the area of Exact Sciences. This information can be seen in **Figure 1**, which presents the structure of UnB courses as outlined in the 1962 Guiding Plan.

Figure 1

Structure of courses offered by UnB according to the Guiding Plan (1962)



Source: University of Brasilia, 1962.

The original conception foresaw that access to the Faculty of Library Science would be based on bachelor's degree holders trained at the Central Institutes of Sciences, Letters and Arts. In this way, graduates of these institutes could specialize in librarianship applied to different areas of knowledge.

To implement this proposal, renowned librarians were invited, among them Cordélia Robalinho Cavalcanti, Etelvina Lima, Nilcéia Amábíla Gonçalves Rossi and Pérola Cardoso Raulino, as well as librarian Abner Lellis Corrêa Vincentini, who started, in 1963, a two-year postgraduate course. However, this model was discontinued due to its high cost and the long training period required (Borges; Brito, 2015; University of Brasília, 2010).

The regulation of the librarian profession occurred on June 30, 1962, through Law No. 4,084, later regulated by Decree No. 56,725, of August 19, 1965 (Brasil, 1962; 1965). As a result of this regulation, the Faculty of Library Science and Scientific Information (FBIC) was established in September 1965, and the undergraduate course in Library Science, at the bachelor's level, was officially implemented with a duration of three years (Mueller; Macedo, 1983; University of Brasília, 1997; 2010).

UnB underwent an institutional restructuring in 1970, resulting in the transformation of FBIC into the Department of Library Science, which became part of the Faculty of Applied Social Studies (FA). Over the decades, successive changes occurred, culminating, in 2003, in the reorganization of the academic unit to the Faculty of Economics, Administration, Accounting and Information Science and Documentation (FACE). In this context, the Department of Library Science was renamed the Department of Information Science and Documentation (CID).

Finally, in 2010, the Faculty of Information Science (FCI) was created, consolidated by Resolution No. 10, of May 3, 2010, of the University Council of UnB. Currently, FCI is responsible for undergraduate courses in Library Science (created in 1963/1965), Archivology (1990/1991) and Museology (2009), in addition to coordinating the Graduate Program in Information Science (PPGCinf), which offers master's (since 1978) and doctoral (since 1992) courses.

2.2 UNDERGRADUATE COURSE IN LIBRARY SCIENCE

The need for standardization in the teaching of Librarianship led to the creation of a minimum curriculum, with the support of the Brazilian Federation of Librarians Association (FEBAB) (Oliveira; Oak; Souza, 2009). According to Castro (2002, p. 30), based on Law No. 4,084/1962 and the Law of National Education Guidelines, Dumerval Trigueiro Mendes convened a commission of experts to prepare the proposal for the Minimum Curriculum. This commission was composed of renowned professionals, including Edson Nery da Fonseca,

Abner Lellis Vicentini and Cordélia R. de Cavalcanti, all professors at the University of Brasília.

On November 16, 1962, the Federal Council of Education approved the first Minimum Curriculum (CM) for Librarianship, lasting three years and with disciplines such as History of Books and Libraries, Organization and Administration of Libraries, Cataloguing and Classification, among others (Brasil, 1982).

At the University of Brasília (UnB), Librarianship has aroused interest since its foundation, initially proposed as a postgraduate course. In 1965, as a consequence of the regulation of the librarian profession, characterized as higher education, the undergraduate course in Library Science, at the Bachelor's level, was created with a duration of three years, at the Faculty of Library Science and Scientific Information (FBIC), in September 1965 (University, 1997; 2010), based on the minimum curriculum of 1962. It had renowned teachers such as Cordélia Robalinho Cavalcanti, Etelvina Lima, Nilcéia Amabília Gonçalves Rosse, Pérola Cardoso Raulino, Fr. Astério Campos, Rubens Borba de Moraes, Antônio Agenor Briquet de Lemos, Nice Figueiredo, Myriam Mello Dulac, Abner Lellis Corrêa Vincentini and Washington Moura.

The course was officially recognized by Decree No. 71,336/1972 (Brasil, 1972). On September 28, 1978, its curriculum was changed according to Resolution of the University Council (RCU/UnB) No. 002/78, which changed the curriculum of Librarianship.

In 1982, a new Minimum Curriculum was established by Opinion No. 460 of the Federal Council of Education, promoting a multidisciplinary approach that impacted the curricular structure of UnB from 1984 onwards (Mueller; Macedo, 1983; University of Brasília, 2010). The new model was divided into three axes: general foundation, instrumental subjects and professional training, allowing greater flexibility in the composition of mandatory and elective subjects.

It is worth noting that in addition to the minimum curriculum, the Department could include other disciplines, configuring the so-called full curriculum, composed of mandatory and elective disciplines. The full curriculum³ underwent changes in 1980 that are close to the changes introduced in the minimum curriculum of 1982.

The full curriculum of 1982 was divided into two major blocks: a)

³ CP corresponds to the list of mandatory and elective subjects, as well as the minimum and maximum deadlines for completing the course.

[...] basic and introductory disciplines, whose contents do not refer directly to Librarianship, but which transmit knowledge necessary for the understanding of the librarian function and for the performance of its specific activities" (Mueller; Macedo, 1983, p. 156-157);

b) professional training subjects of the minimum curriculum of 1982.

This full curriculum was composed of mandatory and optional subjects, distributed in a basic cycle, with a minimum of 540 hours and a maximum of 900 hours, and a professional cycle, totaling 2,970 hours. It had 39 mandatory subjects meeting the minimum curriculum and the demands of UnB itself. The optional subjects correspond to 300 hours (10%), in addition to 23 optional subjects of the professional cycle, among which the student can choose the ones that interest him. "Approximately three-fifths of the course is dedicated to mandatory professional subjects, with the other two-fifths divided among the other groups" (Mueller; Macedo, 1983, p. 157).

The disciplines of a professional nature were divided into 4 main areas: a) production of knowledge records and is closely linked to the disciplines that deal with the Brazilian environment and culture in general; b) organization of registered knowledge; c) services to be offered; d) systems planning and administration.

On November 14, 1984, the Resolution of the University Council (RCU) No. 006/84 was published, which approved a change in the Library Science curriculum. In 1989, through RCU No. 029/89, of October 16, 1989, the library science curriculum was restructured. It is observed that there have been several reformulations of the curriculum over the years (Borges; Brito, 2015).

In the 1990s, Librarianship underwent paradigmatic changes, with the transition from the focus on the document to information, driven by the advancement of technologies and the internet (Oliveira; Oak; Souza, 2009).

As a result of the approval of Law No. 9,394, of December 20, 1996, which established the guidelines and bases of national education, and the Resolution of the Council for Teaching, Research and Extension (CEPE) No. 219, of December 18, 1996, which provides for the maximum number of mandatory credits to be completed in each UnB course, During 1997, the CID Collegiate elaborated a proposal to reformulate the curriculum of the Undergraduate Course in Library Science, which was implemented in 1998, and was approved by CEPE on March 9, 1998, through CEPE Resolution No. 219/96 (Miranda; Mueller; Zandonade, 1998).

The 1998 curriculum stood out for its innovation, serving as a reference for other institutions in the country. External evaluations pointed out that the main challenge was in updating the contents of the disciplines, and not in the curricular structure itself (Miranda; Mueller; Zandonade, 1998).

In 2001, the National Curriculum Guidelines for the Librarianship course were established by Opinion CNE/CES No. 492/2001, replacing the concept of minimum curriculum with a model based on competencies and skills (Brasil, 2001). The curricular guidelines were developed by the Brazilian Association of Library Science and Documentation Teaching (ABEBD), currently the Brazilian Association of Information Science Education (ABECIN), since the 1990s. According to CNE/CES Opinion No. 492/2001, the general competencies and skills are:

- generate products from the knowledge acquired and disseminate them;
- formulate and execute institutional policies;
- prepare, coordinate, execute and evaluate plans, programs and projects;
- rationally use available resources;
- developing and using new technologies;
- translating the needs of individuals, groups and communities in their respective areas of activity;
- develop autonomous professional activities, in order to guide, direct, advise;
- provide consultancy, perform expert examinations and issue technical reports and opinions;
- respond to social demands for information produced by the technological transformations that characterize the contemporary world. (Brazil, 2001).

The specific competencies and skills are:

- Interact and add value in the processes of generation, transfer and use of information, in any and all environments;
- to criticize, investigate, propose, plan, execute and evaluate information resources and products;
- work with sources of information of any nature;

- process the information recorded in different types of support, through the application of theoretical and practical knowledge of collection, processing, storage and dissemination of information;
- conduct research relating to products, processing, transfer and use of information. (Brazil, 2001).

The curricular guidelines brought greater flexibility, allowing each institution to elaborate its pedagogical project, ensuring critical and reflective training for future professionals (Castro, 2002).

Over time, the Full Curriculum of the Librarianship course at UnB has undergone several reformulations. There were two attempts to reformulate the curriculum: one carried out in 2001 and the other in 2010, the latter being a common core proposal for undergraduate courses in Library Science, Museology and Archival Science that had no solution of continuity.

The PPC of Librarianship at UnB, however, was only formally prepared in 2019, consolidating itself as an instrument for planning and evaluating academic activities.

3 METHODOLOGICAL PROCEDURES

This research is characterized as descriptive, with a qualitative approach, based on a literature review. Articles from periodicals, books, legislation, resolutions and other informational resources pertinent to the theme were analyzed.

Documents from FCI's own working groups were also searched, but they were not located. The analysis covers the history of the course up to 2019, as the most recent transformations are still in progress. Thus, the approach of the post-2019 period will be carried out in a specific document, considering the space limitations of a journal article.

4 RESULTS AND DISCUSSION

The historical analysis of the Librarianship course at UnB reveals periods of innovation and advancement, interspersed with moments of stagnation, especially with regard to the implementation of the Pedagogical Project of the Course (PPC). Despite its mandatory nature established by the Law of Guidelines and Bases of National Education (LDB) since 1996 and reinforced by the CNE/CES Resolution of 2002, which defined the curricular guidelines for the course, the process of preparing the PPC was only initiated in 2019, when the MEC evaluation visit took place. The PPC is being reformulated in 2024/2025 when curricular

extension is being included, as recommended by CEG Resolution No. 1/2021, CEG/CEX Joint Resolution No. 2/2021 and CEPE Resolution No. 118/2020. In this last PPC, the names of disciplines were revised, some syllabus, there was a change in the name of the course to Library Science and Information Science, however, there was no significant reformulation of the course. This delay highlights institutional and structural challenges that influenced the adaptation of the course to the normative requirements and transformations in the area of Librarianship.

5 CONCLUSION/FINAL CONSIDERATIONS

The historical review of the evolution of the Library Science course at the University of Brasília (UnB) is fundamental to understand the institutional, curricular and pedagogical transformations that shaped its trajectory. The analysis allowed the identification of periods of innovation and advancement, as well as moments of stagnation, especially with regard to the adequacy of the course to educational regulations. The late implementation of the Pedagogical Project of the Course (PPC), only in 2019, despite its legal requirement since 1996, reflects structural and administrative challenges faced over time.

The scarcity of documentary records and the absence of a consolidated institutional collection made it difficult to build an accurate and detailed timeline on the development of the course. The retirement of professors who actively participated in curricular reformulations and the consequent loss of institutional memory reinforce the need for systematic and accessible records for future generations. This scenario highlights the importance of documentary and historical preservation initiatives within the Faculty of Information Science (FCI), ensuring that the decisions and changes that have occurred over the years can be recovered and critically analyzed.

In addition to contributing to the historiography of Librarianship at UnB, this study highlights the need to update and continue institutional records, promoting the appreciation of academic memory. By documenting the challenges and advances of the course, the research helps to build a broader panorama of the development of the area in Brazil and reinforces the importance of information management policies that ensure the preservation and access to the knowledge produced by the university.

Thus, it is expected that this study will serve as a reference for future research and that it will foster discussions on the importance of institutional memory in higher education, encouraging the creation of strategies for the registration and dissemination of curricular,

administrative and pedagogical changes that impact the training of librarians and the strengthening of the area of Information Science.

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**IDENTITY CHARACTERISTICS OF TEACHERS IN THE FINAL YEARS OF
ELEMENTARY EDUCATION RELATED TO THE SCHOOL CONTEXT**

**CARACTERÍSTICAS IDENTITÁRIAS DE PROFESSORES DOS ANOS FINAIS
DO ENSINO FUNDAMENTAL RELACIONADAS AO CONTEXTO ESCOLAR**

**CARACTERÍSTICAS DE IDENTIDAD DE LOS DOCENTES EN LOS ÚLTIMOS
AÑOS DE LA ESCUELA PRIMARIA RELACIONADAS CON EL CONTEXTO
ESCOLAR**

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ABSTRACT

This research is part of the Graduate Program in Public Policy and Educational Management at the Federal University of Santa Maria and is an excerpt from the master's dissertation: "Implications of the School Context on the Professional Identity of Final Grade Elementary School Teachers at a School in Santa Maria, RS." The study of teacher identity is not new; however, in recent decades, with the transformations we see in our society, it has presented new paradigms. This article aims to understand how teachers define/characterize the identity aspects of their professional work collective and what identity characteristics they attribute to their work at the school studied. This is a qualitative study, in which narrative interviews were conducted, addressing teachers' perceptions of their professional identity and how the school environment relates to the development of their teaching work. The data sources for the research are the teachers of the Arco-íris school, five elementary school teachers. The results of this research highlight the complexity of teaching in socially vulnerable contexts, where teachers act beyond simply transmitting content and are agents of acceptance and transformation. Teaching identity is marked by empathy, adaptability, and ethical commitment. Completing this research was more than an academic exercise; it was an act of listening, recognition, and commitment to teaching in its most human form.

Keywords: Teaching Identity. Basic Education. Teaching Work. Narrative Interviews.

RESUMO

Esta pesquisa está vinculada ao Programa de Pós-Graduação em Políticas Públicas e Gestão Educacional, da Universidade Federal de Santa Maria e é um recorte da dissertação de mestrado: "Implicações do contexto escolar na identidade profissional de professores dos anos finais do Ensino fundamental em uma escola de Santa Maria - RS". O estudo sobre a identidade docente não é algo novo, porém, nas últimas décadas, com as transformações que percebemos na nossa sociedade, vem apresentando novos paradigmas. Este artigo objetiva compreender como os professores definem/caracterizam os aspectos identitários de seu coletivo de trabalho profissional e quais são as características identitárias que os

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professores atribuem à atuação na escola pesquisada. Trata-se de um estudo qualitativo, no qual foram realizadas entrevistas narrativas, que abordaram as percepções dos docentes sobre sua identidade profissional e como a realidade escolar se relaciona com o desenvolvimento do seu trabalho docente. As fontes de dados para a pesquisa são os professores da escola Arco-íris, cinco docentes da Educação Básica. Como resultados, a pesquisa evidencia a complexidade da docência em contextos de vulnerabilidade social, onde os professores atuam além da transmissão de conteúdo, sendo agentes de acolhimento e transformação. A identidade docente é marcada por empatia, adaptabilidade e compromisso ético. Concluir esta pesquisa foi mais do que um exercício acadêmico; foi um ato de escuta, de reconhecimento e de compromisso com a docência em sua forma mais humana.

Palavras-chave: Identidade Docente. Educação Básica. Trabalho Docente. Entrevistas Narrativas.

RESUMEN

Esta investigación se vincula al Programa de Posgrado en Políticas Públicas y Gestión Educativa de la Universidad Federal de Santa María y es un extracto de la tesis de maestría: «Implicaciones del contexto escolar en la identidad profesional de docentes de los últimos años de la escuela primaria en una escuela de Santa María, RS». El estudio de la identidad docente no es nuevo; sin embargo, en las últimas décadas, con las transformaciones que hemos presenciado en nuestra sociedad, ha presentado nuevos paradigmas. Este artículo busca comprender cómo los docentes definen y caracterizan los aspectos identitarios de su trabajo colectivo profesional y qué características identitarias atribuyen a su desempeño en la escuela estudiada. Se trata de un estudio cualitativo, en el que se realizaron entrevistas narrativas que abordaron las percepciones de los docentes sobre su identidad profesional y cómo la realidad escolar se relaciona con el desarrollo de su labor docente. Las fuentes de datos para la investigación son los docentes de la escuela Arco-íris, cinco docentes de Educación Básica. Como resultado, la investigación destaca la complejidad de la enseñanza en contextos de vulnerabilidad social, donde los docentes van más allá de la transmisión de contenidos, convirtiéndose en agentes de apoyo y transformación. La identidad docente se caracteriza por la empatía, la adaptabilidad y el compromiso ético. Realizar esta investigación fue más que un ejercicio académico; fue un acto de escucha, reconocimiento y compromiso con la enseñanza en su forma más humana.

Palabras clave: Identidad Docente. Educación Básica. Trabajo Docente. Entrevistas Narrativas.

1 INTRODUCTION

Reflection on the role of education, especially in the context of basic education schools, is fundamental to understand how educational institutions can or cannot contribute to the reduction of social inequalities. In a society marked by class divisions, the public school, intended for the economically disadvantaged, faces complex challenges in relation to the definition of its role.

Throughout her trajectory as a teacher, we realized how much the teaching identity is something inherent to the profession and how much it can change over time and in relation to its context. In this sense, the study I develop, addressing the relationship between the professional identity of teachers and the educational context of their work, is justified by the fact that it is a theme that is rarely addressed in academic research when it is related, which shows its academic, social and scientific relevance.

The research intends to correlate the identity variables of teachers in the triad: teachers, school context and teaching work to know to what extent one of the elements influences the others and vice versa. With regard to identity, it is known that it is constituted over time in the face of interactions and socialization of habits, traditions, skills and knowledge, which are linked both to the professional universe and to the personal trajectory of each individual.

Thus, it is important to problematize and research the changes that permeate our professional identity when encountering a school reality with social vulnerability, in which families are low-income and with little perspective in life. Students often have no help to carry out their schoolwork because they sometimes have a higher level of education than their parents and perform household chores, as well as care for siblings.

Due to these factors, students in social vulnerability end up seeking their main meal of the day at school, dedicating to study/school a secondary aspect in their daily routine, as they have more important and imminent concerns in their lives to deal with. This is a harsh reality, we need to analyze how this has repercussions on teaching and what is the impact on teacher preparation in the exercise of their work.

The educational relevance of this study is mainly due to the few studies that contemplate the relationships between the themes: professional identity, educational context and teaching work. In the literature review "Teacher identity: a systematic literature review study", carried out by the authors, it reveals that, in the proposed cut, no research was found

relating the three themes that guide the current research. Also, no studies were found with teachers in the final years of Elementary School.

That said, the present work is also relevant for studying the context of a municipal school located in the city of Santa Maria - RS. The respective school is one of the largest in the municipality, both in number of students and in physical space and infrastructure. The study can help in further research, such as: to confront data with other school reality(s) and observe analogous or contrasting results.

The research is qualitative and proposes, in addition to analyzing defining aspects of the professional identity of teachers, to point out some concepts and positions in relation to teaching, in the search to relate the teaching work with the school reality and the profile of teachers. Data collection was based on narrative interviews, which addressed teachers' perceptions about their professional identity and how the school reality relates to the development of their teaching work. After the interviews, all the material was used for analysis and discussion on the topic.

From the research it is expected that the investigation on the professional identity of teachers, especially in contexts of social vulnerability, allows a deeper understanding of the challenges and demands faced by Basic Education teachers. This study, by exploring teachers' perceptions about their role and the impact of the school context on the construction of their identity, offers a significant contribution to the understanding of the relationships between the work environment and professional development. In this way, it is expected that this research will contribute to reflections and actions aimed at strengthening the teaching work in scenarios of diversity and complexity, promoting a fairer and more quality public education.

2 PROFESSIONAL IDENTITY OF TEACHERS

To start our discussion about identity, we looked for the most classic author on the subject, Claude Dubar. Thus, Dubar (2006) writes that identity should be understood as a social, historical and relational process, and not as a fixed or immutable essence of the subject. Far from being something given or permanent, it results from multiple forms of identification that the individual establishes with himself and with others throughout life. This construction occurs through a continuous movement of differentiation, which defines the uniqueness of each person; and generalization, which allows the feeling of belonging to certain groups.

In the educational field, this means that each teacher builds his or her professional identity while recognizing himself or herself as part of a collective of teachers, sharing common values, practices, and challenges. However, this balance between the personal and the collective is often strained by institutional, political and cultural changes that alter the forms of recognition and appreciation of the teaching work.

Dubar (2006) emphasizes that "there is no identity without alterity", because the recognition of the other is a condition for the formation of the "I". Identity, therefore, is a continuous movement between singularity and belonging. The author distinguishes four main forms of identity:

- Biographical for others: linked to cultural heritage and to the community "we";
- Relational for others: associated with institutions and social roles;
- Relational for oneself: built on commitment to personal projects and values;
- Biographical for oneself: or narrative identity, which articulates the life story and the coherence of the subject.

These dimensions coexist and intertwine, being influenced by structures of domination and recognition that, when transformed, generate the so-called "crisis of identities". For Dubar (2006), this crisis is not just disorder, but a moment of reflection and reinvention, in which the subject redefines his social ties and the sense of himself. The crisis of identities emerges when the collective and stable references that sustained social recognition, such as profession, family or religion, are weakened.

The transformations of work, growing individualism and the plurality of social roles make identity an uncertain, multiple and ruptured process. Thus, to understand the crisis of identities is to understand the transformations of modernity itself, the continuous movement of destruction and reconstruction of ways of being in the world (Dubar, 2006).

Understanding the professional identity of teachers requires recognizing that "being a teacher" is continuously (re)constructed by experience, relationships and social transformations. This identity is affected by factors such as institutional recognition, working conditions, and social expectations. The school, ideally, should promote equality, citizenship and emancipation, but it faces structural and symbolic limitations that have repercussions on the appreciation and self-image of the teacher.

The teacher - in many cases, considered responsible for all school failure and failure of student learning, an aspect that must be problematized, considering the multiple factors

that affect the low quality of teaching. Thus, we sought to look at these professionals, to know about their identity, how they perceive themselves, how they build and project themselves every day in their work environment and what are the influences that interfere in the development of their profession.

Santos (2022) observes that social changes directly influence the constitution of teacher identity, imposing new demands that go beyond the technical domain of teaching. The teacher needs to deal with challenges such as cultural diversity, inequality, technologies and school conflicts. To face this scenario, it is necessary to continuously improve, develop social and emotional skills, and permanently reflect on one's own practice and identity. However, initial teacher training often remains outdated, generating a mismatch between preparation and the real demands of the profession, which can lead to demotivation and burnout.

The choice of the teaching profession is not something spontaneous, one does not become a teacher from one moment to the next, it is not something that one can feel like a teacher without previous preparation. Added to this is the devaluation of the profession combined with a weakened image of what it means to be a teacher. In this way, we are not born teachers nor are we destined/vocation for this profession, but rather, we become teachers.

In this process, being a teacher is not something innate or vocational, but the result of a long path of socialization and training. Bezerra (2020, p.435) highlights that "teacher identity is built in a dynamic and plural way, with no beginning and no end". Dubar (2005) adds that entry and professional experience configure a secondary socialization, in which identity is shaped by experience and daily interaction.

To complement this, De Sousa and Magalhães (2021, p.247) write:

We can then say that every time a teacher is formed, a professional, a citizen, a being in himself, is being formed. But, at the same time, we are forming a historical, communitarian, collective subject, a being for itself. When a teacher is trained, a certain extent constitutes a little of the social fabric to which this educator belongs. Thus, this teacher is then perceived as part of a collectivity, as a member of a community. There is a certain empathy with the teaching figure, as if he were always someone close, someone from the family. Perhaps this results in the treatment of "aunt" or "uncle" to teachers of early childhood education and even of the initial grades of elementary school. It happens that when he graduates, this teacher will work in institutions that are at the service of the nation-state, at the service of the interests of large economic groups, at the service of large international industry, always waiting for technically qualified labor (and at low cost), in short, at the service of the market.

For Bezerra (2020), teacher professionalization requires a reflective posture on pedagogical practice and on the social role of education, encompassing teaching, research, and extension. Professional identity, according to the same authors, is shaped both by the teacher's self-image and by the social recognition of the profession, being transformed throughout the career by institutional, political and cultural influences.

For De Sousa and Magalhães (2021), professional identity is the way professionals perceive themselves and in relation to individuals in other professions. When it comes to teaching, this identity is formed in part by the self-image that the teacher has as someone who performs specific duties in a given context, space and time. It also takes into account the way in which these functions are perceived by the community to which he belongs. In this way, the construction of professional identity is transformed throughout the teaching career and can be modified by the influence of the school, the educational system, political and cultural contexts, moral values, among other factors.

Nevertheless, it is necessary for teachers to develop the ability to reflect on their career and their trajectory, always adapting and interspersing the professional and the personal, in order to progress in their teaching work. For Bezerra (2020), school teaching currently needs to humanize interpersonal relationships and educate for empathy and solidarity, with awareness of citizenship; so that education integrates knowledge, school and community. Thus, Bezerra (2020, p.437) adds that: "Even if the teacher identity is a collective construction or even if the training process is established from the same curricular composition, each subject is constituted as a teacher in his or her own way".

According to Bezerra (2020), the constitution of the teacher's professional identity encompasses the sociocultural environment of the group to which he belongs and develops in three dimensions: personal, professional, and institutional development. It is in the interrelation of these three dimensions that a teacher is formed. The first dimension is about the events of the teacher's life; the second deals with the elements that involve the academic trajectory and the means to become the teacher.

The third, on the other hand, is related to the investments of the institutions and the various places in which they performed their work. And this entire process of training and professionalization is influenced by several transformations, because with each new learning there may be a discovery and a change that will affect the future and will be, from then on, performed throughout the teaching trajectory (Bezerra, 2020).

Leal (2014) adds that teaching is constantly changing, influenced by working conditions and social transformations. For her, teaching knowledge, values, feelings and attitudes form the constitutive elements of professional identity, developing in a constant search for the "authentic self" in the midst of crises and challenges. Teaching must be constantly reviewed and renewed. Even doing what is possible, bordering on the impossible, sometimes it turns out not to be enough.

According to Leal (2014), the constituent elements of the teacher's professional identity are: the socio-historical context, initial training, individual or collective professional career and the teaching knowledge developed since initial training. Also, the experiences as a student collaborate to be a teacher, through the established analogies and the positive or negative events of the school trajectory.

According to Campos, Gaspar and Morais (2020), teachers cannot stop being who they are when they enter the work environment, with this, beliefs, joys, disappointments, anguish and personal and professional difficulties accompany them in the exercise of their profession. For the same authors (2020, p.98) "the way the teacher teaches is directly related to the representation he/she has of him/herself when teaching".

Basic education in Brazil, although it has advanced with legal frameworks and social movements, has become more democratic by expanding the participation of the population. Even so, it cannot always guarantee equitable conditions that respect identities, differences, and power relations among its various audiences.

The concept of "education for all" does not directly ensure accessibility, sufficient learning opportunities for all involved, or recognition of different diversities. The characteristics of the school environment include frequent classifications and categorizations that can reinforce contrasting thoughts, such as the differentiation between good and bad students, or between those considered successful or unsuccessful in the view of educators (Weber and Pieczkowski, 2023).

The analysis of the teacher's professional identity reveals a complex and multifaceted panorama, in which the teacher is a central protagonist in an educational system that faces significant challenges. The teacher identity is shaped not only by the teacher himself, but also by the recognition and expectations of society and educational institutions.

The teaching profession, therefore, is not only a role to be played, but a continuous process of training and transformation. Teachers must constantly reflect on their practices

and seek to develop skills that go beyond academic content, encompassing social, emotional and intercultural competences.

Therefore, understanding teacher identity implies recognizing its complex, plural and constantly moving nature. It is continuously (re)constructed in the tensions between the individual and the collective, recognition and devaluation, tradition and innovation. As Dubar (2006) states, in contemporary societies marked by fluidity and fragmentation, the teacher needs to constantly negotiate his position, balancing the institutional requirements and his personal teaching project. Developing a solid professional identity requires, therefore, appreciation, continuous training and decent working conditions, so that the educator can reinvent himself, critically reflect on his practice and maintain the ethical and social sense of "being a teacher" today.

3 METHODOLOGY

The study proposes a reflection on the school context as a constitutive element of the professional identity of teachers in a municipal school in Santa Maria (RS). The research, of a qualitative nature, used narrative interviews with five teachers of the final years of elementary school, seeking to understand how teachers define and perceive their professional identity and how the school reality influences the development of their work.

The choice of the school, which is also the place where the researcher works, follows the proposal of the Professional Master's Degree in Public Policy and Educational Management at UFSM, which values the investigation of the work environment itself as a means of understanding its internal dynamics and proposing practical improvements. This approach enables an in-depth analysis of institutional, cultural and pedagogical relations and favors the direct application of the results in improving the school climate, teacher engagement and local educational policies.

The research aims to understand how teachers define/characterize the identity aspects of their professional work collective and what are the identity characteristics that teachers attribute to their performance in the researched school.

The narrative interviews followed Schütze's (2013) methodology, allowing participants to narrate their trajectories freely, without induction, to reveal experiences, interpretations and meanings attributed to being a teacher. Initially, the basic data of the interview were recorded, such as: name of the interviewer, place, date, time, duration and the instrument used for recording. Then, we applied a brief form containing information about the interviewee,

including: initial training, graduate degree, time working in school, teaching time and workload.

The elaboration of the script was organized in thematic blocks, with the objective of better structuring the categories of analysis of the narratives. Each block had a general title and guiding points that indicated the topics on which the interviewee could discuss. We chose to let the interviewee talk about the topics with minimal intervention, in order to avoid inductions and respect the principles of the narrative interview.

The interviews were conducted between May 31 and June 30, 2025, all conducted on the school premises, in reserved spaces, such as the meeting room and the video room. At the time of each interview, the Informed Consent Form (ICF) was presented, which authorized data collection and voice recording, intended for subsequent transcription of the interviews. The duration of the interviews was from 37 (thirty-seven) minutes to 1h06 (one hour and six minutes). Afterwards, we proceeded to the transcription of the interviews,

In general, it was remarkable to notice how each one expressed their reflections on pedagogical practice, highlighting the methods they use in the classroom and the strategies they develop to deal with the specificities of their students. The interviews also allowed them to understand what challenges them on a daily basis: from the structural limitations of the school to the complexities inherent to human relations, such as the reception of students in situations of social vulnerability. In addition, the reports about their sources of motivation were interesting, whether they were related to affective bonds with peers and students, in the pleasure of teaching or in the satisfaction of perceiving advances, even if gradual, in the learning process.

The interviews also brought to light the way in which the teaching work is intertwined with personal life. Many teachers reported strategies to balance the demands of the profession with family and personal life, while others reflected on the emotional and physical impacts that teaching practice can generate.

Finally, it was particularly interesting to learn about the perspectives that each one builds for the future, revealing dreams, plans for continuity or career changes, as well as expectations about the role of teaching and education in the current context and in the next generations.

Listening to these narratives reinforced the complexity and richness of the teacher's identity, showing that, although they share the same institutional space, each teacher has a unique trajectory, shaped by very particular experiences, values, challenges and choices.

4 ANALYSIS AND DISCUSSION OF THE INTERVIEWS

Textual analysis is a technique that transcends the mere reading and description of the content in the texts. It allows a dive between the lines, seeking to understand in depth what is being said, who says it and with what motivations. In this process, the gaze on the text broadens to capture not only the explicit words, but also the implicit meanings and hidden intentions, with the purpose of apprehending, in detail, the experiences, emotions and perspectives that are manifested in the narrative.

To analyze the narrative interviews, the perspectives of Weller (2009) and Weller and Pfaff (2010) were used, inspired by Fritz Schütze. For the authors, the narrative interview seeks to reconstruct the subject's life trajectory, letting him speak with minimal interference from the interviewer. The focus is on the way the story is told, not just the content. The subject is seen as a social actor who interprets his own story, not only as an informant.

The narrative interview, as developed by Fritz Schütze, is a qualitative technique that aims to understand individual experiences from the narratives that the subjects themselves build about their lives. This approach values the spontaneity and depth of the stories told, allowing respondents to express their perceptions and meanings attributed to their experiences.

In order to collect data not to reveal information about the school and the interviewees, the school was referred to as Arco-íris. For the teachers, each one was asked to choose a color as an identification for the research. The justification for the choice of the school reference (Rainbow) and the identification of teachers (colors) is due to the school's classes being named by colors.

Next, we have Table 1, which presents the characteristics of the teachers interviewed in relation to training and professional performance.

Table 1

Characteristics of the teachers interviewed

Subject	Age	Initial training	Postgraduate studies	Time at School	Experience in Teaching	Workload
Green	35 years	Degree in Mathematics	It does not.	8 years	13 years	40h
Red	40 years	Degree in Letters – Portuguese	Master's Degree in Languages in the area of Applied Linguistics	4 years	20 years	40h

Blue	57 years	Bachelor of Fine Arts	Specialization in Environmental Education	8 years	13 years	40h
Rose	50 years	Bachelor of Arts – English	Specialization in English Language Teaching Methodologies	2 years	30 years	50h
Yellow	28 years old	Degree in Letters – Portuguese	PhD in Education	4 years	6 years	30h

Source: Prepared by the authors (2025).

As shown in the table above, the age of the participating teachers varies between 28 and 57 years. In relation to initial training, there is a diversity of areas: one teacher has a degree in Mathematics, another in Arts, and three in Letters — two with a qualification in Portuguese and one in English. As for continuing education, it is noted that Professor Verde does not have specialization; professors Azul and Rosa have lato sensu postgraduate degrees; Professor Vermelho is a master; and Professor Amarelo has a PhD degree.

Regarding the time they have been working at the Rainbow School, the Green and Blue teachers have been at the institution for eight years; the Red teacher and the yellow teacher, for four years; and teacher Rosa is in her second year at the school. Regarding total teaching experience, two professors (Green and Blue) have a 13-year career; Professor Vermelho has 20 years of experience; teacher Rosa is the most experienced, with 30 years of experience; and Professor Amarelo is the most recent in the profession, with six years of experience in the field of education.

As for the weekly workload, the data reveal a certain homogeneity: three teachers (Green, Red and Blue) work 40 hours a week; teacher Amarelo works 30 hours; and teacher Rosa, 50 hours.

After this brief presentation of the participants' profiles, we organized the analysis of the interviews into thematic blocks, according to the previously prepared script. The structure followed the division by topics, bringing together the speeches of each teacher in an articulated way, with the objective of favoring the understanding and deepening of the analyses.

Regarding the analysis stages of the narrative interviews inspired by Schutze, we have a stage called contrastive comparison in which we compare the analyzed case with others. In this way we can have a minimum contrast - similar cases, to deepen understanding; or maximum contrast - very different cases, to explore alternatives and expand the understanding of biographical processes.

Below is the contrastive comparison on the characteristics and organization of the teaching work.

Table 2

Characteristics and organization of the teaching work

Characteristics and organization of the teaching work	TEACHERS				
	Green	Red	Blue	Rose	Yellow
Characteristics of a good teacher	It values specific training as a basis for mastering the content. The teaching experience is cumulative and formative in itself.	Mastery of the content is essential, as students perceive whether the teacher has knowledge or not. Creating a learning environment that balances seriousness with relaxation and adaptability are important qualities.	Have a balance between rigidity and flexibility, knowing how to demand from students without losing empathy and respect. He emphasizes that the teacher is the mainstay of the classroom and must command firmly, but also be attentive to the signs of the students, who may be asking for help.	Knowing your discipline and continuing to study are essential (you are currently doing a specialization). It highlights empathy and affection with students.	Being in constant learning and adaptation are essential in the profession. She is motivated to continue in the profession and transform the social reality of students.
Planning and organization of teaching work	The teacher highlights the importance of wanting to be in teaching and providing meaningful learning for students. It recognizes the need to adapt to the profile of each class.	Planning should be tailored to the specific needs of students. Inclusion requires constant innovation and learning on the part of the teacher.	He always adapted the contents of the books to the realities of the schools, avoiding rigid methods. It uses its own materials and always seeks to innovate. Each year, she reviews and modifies her polygraph, keeping what works and discarding what didn't work.	Use the English workbook and make necessary adaptations. In Educational Informatics, he creates classes and games, as there is no specific material for the subject.	Use the workbook and adapt the material. They have few additional features such as copies and video room. Create classes according to need.
Diversity/complexity of students	Good ability to adapt to the needs of classes and students.	Teacher adaptability is essential. Challenges in dealing with	Adjusts teaching strategies according to the needs of students	It recognizes the need to adapt to the	Difficulty in contemplating all the diversities of students, not

		students' social, racial, and economic issues, which influence learning.	and the results obtained.	students' context.	only those of the SEA, in relation to class time.
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Source: Prepared by the authors (2025).

In relation to block 1 on the characteristics and organization of the teaching work, the contrastive comparison allows for a deeper understanding of the teaching trajectories by putting different experiences in dialogue. The minimal contrast between the interviews points to important convergences in professional performance.

In all narratives, there is a need to adapt content, handouts, materials or methodologies according to the students' profile, learning difficulties and available resources. This reveals a striking characteristic of teaching in challenging contexts: adaptation.

Teacher planning is based on expectations about students, which often do not correspond to reality, requiring constant adaptations. The teacher also needs to consider the demands of the institution, the school community, the available resources, the curriculum and the particularities of each class; aspects present in the studies of Campos, Gaspar and Morais (2020).

Another relevant point is continuing education and professional development. Although with different training paths, teachers recognize the importance of being in constant learning, whether through courses, individual studies or through their own experience in the classroom. This valorization appears as a common trait of the teacher's identity.

Thus, in everyday life, the formation of teaching knowledge is not limited to the pedagogical practice itself. It is visible when teachers review their classes, adapt strategies and introduce new things based on new knowledge acquired in readings, experiences and exchanges with colleagues.

We also observed the appreciation of the affective and ethical bond with the students. Affectivity, empathy and the desire to make a difference in the students' lives are aspects strongly present in the statements, reinforcing a relational dimension of the pedagogical work. Both aspects related to continuing education and professional development and a more humanized and affective approach converge with the studies of Bezerra (2020).

With regard to maximum contrast, the narratives point to an important distinction. Green, Red and Pink teachers elect as an essential characteristic of being a good teacher to have mastery of their curricular component, while Blue and Yellow put adaptability first.

Although flexibility appears in everyone, it is also essential to know the content to be able to develop it with students.

The contrastive comparison of the characteristics and organization of the teaching work allows us to understand that adaptability, professional development and the bond with students permeate these professionals. On the other hand, it reveals differences in the priorities perceived in the teaching practice, divided into the domain of the disciplinary content as the basis of the work and the ability to adapt to school realities.

In summary, the comparative analysis allows us to understand that the teaching practice is sustained by a dynamic balance between theoretical knowledge, pedagogical flexibility and human involvement, composing a teaching model that resists adversity with creativity, continuous learning and commitment to the subjects who learn.

Next, we have the table with the contrastive comparison of the identity characteristics that teachers attribute to their performance in the school.

Table 3

Identity characteristics that teachers attribute to their performance in the school

Identity characteristics of the school	TEACHERS				
	Green	Red	Blue	Rose	Yellow
Specific action in the school	It is a "vocation test", due to the socioeconomic and affective needs of students, which demand more emotional than academic attention. He stressed the importance of patience, organization and adaptation to deal with the specific conditions of the school and the students.	School requires emotional resistance and psychological preparation. Separate students' problems from personal life. Difficulty in public transport.	It would be essential for each teacher to have an ambient room, adapted to their discipline, especially in the case of Arts.	Resilience to face the challenges of the school.	Empathy to understand the context of vulnerability and without feeling guilty when formal learning has not completely achieved the desired goal.
Belonging	The teachers are proud to work at the school, with good relationships with each other and with the students.	Despite the challenges, she recognizes a strong sense of belonging among both	He says that both teachers and students feel part of the school. He mentions that the	Students who are more present and motivated, belonging has been	Teachers and students like to be in school.

	However, this is not perceived by the students, many seem not to value the school, seeing it with a certain lack of interest, as an institution with low rates and little demand.	teachers and students. He reports that today he would not like to leave, because he feels that he already understands the functioning of the institution, the profile of the students and the dynamics with his colleagues.	environment among his classmates is welcoming, with a family atmosphere, and that many students see the school as their first home.	increasing among students.	
Affective bond	Affective need of students. Being a teacher in this school requires empathy, patience, listening and welcoming.	He perceives the affective bond of the students with the school. It emphasizes the need to reinforce the culture that the school is a space for learning content and not just for coexistence and welcoming.	Family atmosphere among teachers. Students, even after the end of classes, continue to attend the school environment because they miss it and identify with the welcoming space.	Affectivity is important to work in the midst of the school context.	He perceives the affectivity in the school's relationships, but points out exceptions.
Students' context	Social and emotional vulnerability. He recognizes the multiplicity of roles he assumes in the school routine. Learning gap.	Balancing formal school learning and social learning for students.	Difficult social and economic context that reflects on classroom situations.	Dealing with the context of social vulnerability brings a huge emotional overload.	The importance of adapting and being motivated to be in this school in the face of challenges.

Source: Prepared by the authors (2025).

Based on the narrative analyses of Block 2, which deals with the characteristics of the teaching performance at the Arco-Iris school, we can observe as a contrastive comparison, in terms of minimum contrast, there is a strong convergence between the teachers' reports regarding the work in a context of social vulnerability.

All teachers point out the need for a sensitive, empathetic and welcoming look at the social and emotional realities of students. The teachers recognize that, in addition to the

content, it is necessary to *"listen"*, *"welcome"* and *"adapt"* to what students experience outside the school.

Vulnerability can be understood as a condition of exposure to risks associated with social factors, such as poverty, low income, and fragile family contexts. Social vulnerability, in particular, is manifested in different dimensions of disadvantage, highlighting the fragility of affective bonds, the precariousness of interpersonal relationships and the incidence of situations of violence.

Living in a context of this nature can limit children and adolescents, making it difficult for them to build life perspectives different from those experienced by their families and communities, perpetuating a cycle of social exclusion. In addition, such conditions can lead to emotional problems, such as low self-esteem. These aspects dialogue with the studies of Silva (2006), Simões (2020), Abreu and Nóbrega (2020), Santos (2022) and De Souza and Magalhães (2021).

Another recurring aspect is the constant adaptation of pedagogical practices and the learning gap, accentuated by the pandemic and family instability, which forces teachers to continuously reinvent their strategies.

When we look at children in situations of social vulnerability, we realize that they develop insecurity and low self-esteem, which affects their relationship with the world and with school. Often, they lose interest in their studies. Therefore, it is a great challenge for the school and the teacher to welcome these children, understand their difficulties and create strategies that make the classes more interesting and motivating for them.

Learning disabilities are caused by various factors such as social, emotional, and also biological factors. These difficulties can arise at any stage of life. The above aspects, about social vulnerability and learning gap, are present in the studies by Simões (2020).

Socioeconomic status also influences the results of the IDEB, since students from families with higher income tend to have more resources and educational support. The age-grade distortion indicates that schools with more students in discrepancy face greater difficulties in achieving good results, reflecting previous problems such as repetition and dropout. All these interconnected factors cause an overload on teachers who need to cope with all these demands. These aspects are similar to those found in the study by Soares and Santos (2024).

In this sense, all teachers report the emotional impact caused by the difficulties faced by students, there is a consensus that the work requires psychological preparation, resilience

and balance to deal with intense situations, such as violence, family neglect and affective need.

In relation to belonging and bonding with the school, we have more similarities than differences. Most teachers (Green, Red, Blue and Yellow) reveal a strong sense of belonging to the institution, as well as perceive that students, to a greater or lesser extent, develop bonds with the school environment. This belonging appears as a factor of permanence and engagement of both educators and students. Only Verde questions whether students really value school, pointing to a more critical view, contrary to the others.

Regarding the most evident contrast in learning, in terms of performance, a scenario of frustration is observed in the face of low academic results, especially in the statements of the Green, Red and Yellow teachers. This fact may be related to the curricular components they teach, Portuguese Language and Mathematics, traditionally the most demanded in external evaluations, such as Sondar³ and the Basic Education Development Index (IDEB). For this reason, the concern with performance was less recurrent in the reports of the other professors.

The IDEB, however, maintains an evaluative logic focused solely on student performance, disregarding structural factors that impact the quality of education, such as school infrastructure, training and remuneration of professionals, investment per student and the socioeconomic context of families. Although statistical indicators can contribute to analysis and policy formulation, they reduce the quality of education to a number, without contemplating the complexity of the school reality. This debate is also addressed by Gil (2021).

In short, in the maximum contrast, the different perceptions about the students' learning stand out. While Green, Red and Yellow; Portuguese and Mathematics teachers show frustration with the low performance rates, this concern appears with less emphasis among the other interviewees.

The contrastive analysis of the characteristics of the teaching performance at the Rainbow School shows that the context of social vulnerability, the affective deprivation of students, the learning gap and the emotional overload converge to shape a teaching practice guided by empathy, adaptation and resistance. In this sense, the importance of self-care in relation to the emotional overload related to the school context is emphasized.

³ Sondar is the evaluation instrument of the Aprende Brasil system, of which the municipal network is a part.

5 RESULTS

Based on the narrative interviews analyzed, the teachers define and characterize the identity aspects of their professional work collective as marked by collaboration, solidarity and empathy. Living with colleagues appears as a positive and strengthening aspect, promoting mutual support and a sense of belonging.

The reports highlight exchanges of experiences, emotional support and collective construction of solutions in the school routine. This collective identity is constituted, above all, in the common experience of acting in a context of social vulnerability, which requires not only technical mastery, but sensitivity, listening, and ethical engagement with the community served, especially related to the heterogeneity of students, the needs experienced, and the need to reinvent pedagogical practice

In this sense, teachers see themselves as reflective professionals, who learn from practice and from colleagues, and who understand their work as more than instruction, as an action that involves care, conflict mediation and constant reinvention. Thus, the identity aspects of the teaching collective of the Arco-Íris school are built at the intersection between resistance, empathy and social commitment, articulating a professional identity that is, at the same time, individual and collective.

In relation to the identity characteristics that the teachers attribute to the performance in the researched school, we can say that the identity characteristics are strongly marked by welcoming, resilience, adaptability and affective involvement with the students. Teaching is understood as a practice crossed by emotional, ethical and social dimensions.

In addition, teachers express a sense of belonging to the school, perceiving themselves as part of a community that shares challenges and seeks, even with limitations, to promote learning and well-being of students. The pedagogical practice is built in constant dialogue with the context, requiring teachers to be open to the shortcomings presented.

Another relevant aspect in relation to the performance in school concerns the need to establish limits between professional and personal life. In contexts marked by social vulnerability, such as the Arco-Íris school, it is essential that teachers are able to differentiate the challenges faced by students from those who, as educators, are in a position to welcome and intervene.

From this perspective, this separation of professional and personal life does not imply indifference, but rather care for one's own mental health, avoiding emotional exhaustion and

professional illness. Thus, preserving this balance is perceived as an essential strategy for self-protection and sustainability of teaching practice in adverse contexts.

However, to be a teacher at the Arco-Íris school is also to be a conflict mediator, an agent of social transformation and a professional who integrates his personal trajectory into the collective construction of the school. These elements show a teaching identity that goes beyond the curricular content and is based on values such as solidarity, social commitment and resilience.

6 CONCLUSIONS

The development of this study, centered on the (re)construction of the professional identity of teachers at the Arco-Íris school, located in Santa Maria – RS, proved to be significant in multiple dimensions. From the attentive listening to the narratives of teachers who work in a context of social vulnerability, it was possible to understand how the daily challenges, the human bonds and the structural aspects of the school directly influence the ways of being and being in teaching.

In the social sphere, the research reveals the complexity of teaching in contexts marked by inequalities, affective deficiencies and social instability. Teachers, far from acting only as transmitters of content, are agents of welcoming, resistance and social transformation. The teacher identity built in this scenario is forged in empathy, adaptability, and ethical commitment to students and their families, highlighting the role of the public school as a space for protection and human development.

For the school institution, the results offer valuable subsidies to reflect on the organization of pedagogical work and the strengthening of collective spaces. We note the strong emphasis on empathy, welcoming, flexibility and institutional belonging of the teachers.

As a synthesis of the results, it is highlighted that the teaching identity at the Arco-Íris school is constantly tensioned by a challenging daily life, but also fed by affective bonds, a sense of belonging and the desire to make a difference. The (re)construction of identity is, therefore, a dynamic process, situated between resistance and exhaustion, autonomy and loneliness, collective commitment and individual trajectories.

It is noteworthy that the development of this research faced some important challenges. One of them was the resistance of some teachers to participate, which caused a limited number of participants. This fact may be related to the lack of time of teachers in the

face of the demands of the profession, or even the fear of exposing their perspectives and pedagogical practices.

Also, we can mention the specific cut of only one school with a study limitation. Although the qualitative deepening allows a good understanding of the phenomenon, the expansion to other school contexts could enrich the comparative analysis. However, in view of the time of the research, this expansion would become unfeasible.

For future research, it is suggested to expand the study to other education systems or schools with distinct characteristics, the inclusion of interviews with managers and/or families, in addition to the exploration of institutional strategies that contribute to the strengthening of professional identity in challenging environments. It would also be relevant to further investigate the impact of continuing education and emotional support networks among teachers as preventive factors in the face of teacher illness.

Completing this research was more than an academic exercise; It was an act of listening, recognition and commitment to teaching in its most human form. As a researcher and teacher at the Arco-Íris school, this work is more than an academic study, it is a reflection of how transformative teaching can be even in the face of difficulties.

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PSYCHOPEDAGOGICAL INTERVENTION IN LEARNING DIFFICULTIES: A PRACTICAL ANALYSIS

INTERVENÇÃO PSICOPEDAGÓGICA NAS DIFICULDADES DE APRENDIZAGEM: UMA ANÁLISE PRÁTICA

INTERVENCIÓN PSICOPEDAGÓGICA EN LAS DIFICULTADES DE APRENDIZAJE: UN ANÁLISIS PRÁCTICO

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ABSTRACT

This article is a synthesis of a psycho-pedagogical follow-up with a second-grade elementary school student experiencing learning difficulties. The psycho-pedagogical assessment process aims to gather data about the student's life, analyzing their relationships with family and learning to understand the causes of the symptoms and factors maintaining the complaint, as well as to classify diagnostic instruments based on the reported complaint in order to intervene with the student and reverse their current situation. To this end, the contributions of several theorists were used as a foundation, such as: Acampora (2012), Bossa (2011), Fonseca (2009), Paín (1985), Sampaio (2011), Wallon (1992), among others. This work is structured as a case study and presents a concise conceptualization of the learning process, how it occurs in the individual, learning difficulties and their indicators as presented by the learner, aiming to intervene so that the child recovers their full potential to learn, as well as to restore and strengthen their self-esteem.

Keywords: Learning. Learning Difficulties. School.

RESUMO

Este artigo é a síntese de um acompanhamento psicopedagógico com um aprendiz do 2º ano do Ensino Fundamental com dificuldades de aprendizagem. Deste modo, o processo de avaliação psicopedagógica tem por objetivo obter dados em relação à vida do aprendiz, analisando suas relações vinculares com a família e a aprendizagem para compreender as causas dos sintomas e fatores de manutenção da queixa, bem como classificar instrumentos diagnósticos com base na queixa apontada para intervir junto ao aprendiz em questão, a fim de reverter seu quadro atual. Para tanto, utilizou-se como fundamentação a contribuição de alguns teóricos, tais como: Acampora (2012), Bossa (2011), Fonseca (2009), Paín (1985), Sampaio (2011), Wallon (1992), entre outros. O trabalho configura-se num Estudo de caso e traz uma sucinta conceitualização do processo de aprendizagem, de como este se dá no sujeito, sobre a dificuldade de aprendizagem e seus indicativos apresentados pelo aprendiz, visando intervir de modo que a criança recupere todo seu potencial para aprender, além de resgatar e fortalecer sua autoestima.

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Palavras-chave: Aprendizagem. Dificuldade de Aprendizagem. Escola.

RESUMEN

Este artículo sintetiza el seguimiento psicopedagógico de un alumno de segundo de primaria con dificultades de aprendizaje. La evaluación psicopedagógica se centró en recopilar información sobre la vida del alumno, analizando sus relaciones familiares y comprendiendo las causas de los síntomas y los factores que perpetúan dichas dificultades. Asimismo, se utilizaron instrumentos diagnósticos basados en la queja manifestada para intervenir y revertir su situación actual. Para ello, se fundamentaron las aportaciones de diversos teóricos, como Acampora (2012), Bossa (2011), Fonseca (2009), Paín (1985), Sampaio (2011) y Wallon (1992), entre otros. Este trabajo, estructurado como un estudio de caso, presenta una conceptualización concisa del proceso de aprendizaje, su desarrollo en el individuo, las dificultades de aprendizaje y sus indicadores, según la perspectiva del alumno. El objetivo fue intervenir para que el niño recupere su pleno potencial de aprendizaje y restaure y fortalezca su autoestima.

Palabras clave: Aprendizaje. Dificultades de Aprendizaje. Escuela.

1 INTRODUCTION

Learning problems affect several children of different school age. These are problems that can be detected from an early age and are a great concern for parents and educators, and these problems interfere with the school performance of their children and the relationships they maintain in the school and social environment in which they are inserted. For Vitor da Fonseca, "difficulties can create inexplicable obstacles and impediments to learning to speak, listen, read, write, reason, solve mathematical problems, etc., and can last throughout life" (2009 p.140).

These learning difficulties can come from organic or even emotional factors, presenting different aspects, such as lack of motivation to perform tasks in the classroom, difficulties in reading and writing, affecting the individual's learning capacity in terms of acquisition, development and construction of cognitive functions.

In this sense, the importance of the psychopedagogue in our context is perceptible, not only with regard to the development of learning and prevention of the difficulties presented by some children, but also in the relationships that permeate within the school as a whole, thus contributing to the understanding of school failure.

This article is a case study under a qualitative approach. According to René Barbier (2002), the researcher has an important role and cannot do without what he calls sensitive listening. This listening is not a simple listening with the ears, but the ability to feel the imaginary and cognitive universe of the other, and thus understand and understand attitudes, behaviors, values and beliefs. However, this does not mean identification or adherence to the other's references, but openness to understand it.

The work brings a succinct conceptualization of the learning process, how it occurs in the subject, about the learning difficulty and its indications presented by the learner.

2 LEARNING DIFFICULTY FROM A PSYCHOPEDAGOGICAL PERSPECTIVE

Learning is a process that goes beyond the walls of the school. The subject learns from birth and this learning is not limited to the simple accumulation of information acquired throughout his daily life, because learning is not based on conditioning. In other words, it is not a mechanized activity. In this perspective, Fonseca clarifies that learning "is a change in behavior caused by experience, between an initial moment, in which the task is not mastered, and a final moment, where the task becomes mastered and automated [...]" (FONSECA, 2009, p. 152).

However, although it is a natural process, learning requires the existence of stimuli that awaken the desire to learn. In the teaching-learning process, which takes place in a systematized way, in addition to the desire to learn, it is necessary to have a link between the learner and the one who teaches, as well as between the learner and the object to be learned.

In this sense, the learning process is, therefore, quite complex and a series of cognitive, social, moral, physical, and emotional elements are involved in it, among others. These elements, in turn, can intervene in a positive or negative way. Hence the importance of instigating the pleasure of learning, as it will announce what will negatively influence the teaching/learning process. For this reason, for discovery and the pleasure of learning

Educators must look for new ways and alternatives for this whole delicate process of learning, so that students are not forced to become copyists who do things for the sake of doing things or to pass the year, fulfilling a demotivating and castrating obligation. It is necessary for the student to feel good, it is necessary for him to have pleasure in learning. LEAL (2011, p.48).

Thus, the most relevant mission for the educator is to be able to discover or awaken in his students the pleasure of learning. For Piaget (2006), learning occurs through the inseparable interaction between the process of assimilation and accommodation, where in assimilation the subject uses existing schemes to solve a problem-situation without there being a change in his cognitive structure and in accommodation is when the change in the cognitive structure necessary to solve a problem-situation occurs. According to Piaget (2006) apud Leal (2011, p.34),

(...) Learning happens through constant processes of balance and imbalance. In the face of a new learning, there is an imbalance (or inadequacy), which mobilizes a need, an action of the subject. In view of this event, two mechanisms are brought between action that will contribute to the development and balance of the subject's structures: assimilation and accommodation to the new learning.

It is important to point out that this whole process leads the subject to a state of unstable adaptation, as the environment will always require new assimilations and accommodations, and therefore other adaptations. An essential process when learning. According to Piaget (2006, p. 156-157), "adaptation is a balance – a balance whose achievement lasts throughout childhood and adolescence and defines the proper structuring

of these periods of existence – between two inseparable mechanisms: assimilation and accommodation".

In the conception of Sara Pain (1985), learning "comprises all behaviors dedicated to the transmission of culture, including those aimed at institutions that, specifically (school) or secondarily (family) promote education (p.17-18)".

The school, in this sense, even though it is the institution specifically focused on education, struggles to stay alive in the face of so many difficulties such as: the lack of interest, both by the student and by the professional, which are mutually contagious; disrespect, professional devaluation (poor salaries and working conditions); violence; the curricular structure itself; and learning difficulties. It is also worth addressing the competition of technology, with its dynamicity, which is more attractive to students.

In this way, the school cannot be treated separately from the rest of the social elements, since it is an 'official institution' where learning takes place, which must also be seen in a way that is linked to all the aspects that surround it. For this reason, the school should not be conceived

(...) as something isolated, without a link to the economy, culture and the police, as if the educational processes took place in an isolated and disintegrated way from reality. Hence the need to think about the development of education (school) at the same time as thinking about the development of the subject in society, as they are interdependent. LEAL (2011, p. 30).

The subject is also a fully articulated being, as well as his attitudes. According to Freud (1974) apud Leal (2011, p. 31), their attitudes are always determined; In other words, "our acts (even those that seem to occur at random) are related to a series of causes, of which we are often unaware."

Thus, the subject, despite starting his learning process at birth, needs to constantly acquire information that is indispensable to his life in society. And it is in the social life itself that he develops such learning. Therefore, each subject learns in different ways.

In the face of the multiplicity of learning, incompatibilities arise between what is taught and what is learned. Teachers, many times, after exhausting all their strategies to make a certain student learn, justify failure with the existence of a learning difficulty. However, before labeling a child as having some type of learning disorder or disorder, a thorough investigation is necessary, carefully checking for each indication.

Having a learning disability, however, does not necessarily mean that this student has to be classified as disabled. According to the National Policy on Special Education in the Perspective of Inclusive Education, by Ordinance No. 555/2007, promulgated by Ordinance No. 948/2007, a student with disabilities is one who:

They have long-term physical, mental, intellectual or sensory impairments, which in interaction with various barriers may have restricted their full and effective participation in school and society. [...] Among the specific functional disorders are: dyslexia, dysorthography, dysgraphia, dyscalculia, attention and hyperactivity disorder, among others. The definitions of the target audience must be contextualized and are not limited to the mere categorization and specifications attributed to a condition of disability, disorders, disorders and aptitudes. It is considered that people change themselves continuously, transforming the context in which they are inserted. This dynamism requires pedagogical action aimed at changing the situation of exclusion, emphasizing the importance of heterogeneous environments that promote the learning of all students. (BRASIL, 2008, p. 15)

In the case of learning difficulties, the situation may be configured only as momentary or in the short and medium term, and the situation may be totally reversible. According to Barbosa (2006, p. 53), having difficulty learning [...] means being faced with an obstacle that may have a cultural, cognitive, affective or functional character and not being able to continue learning because they do not have tools, or cannot use them, to overcome it.

Garcia Sánchez apud Nunes and Silveira (2004, p.174), on the other hand, characterizes learning difficulties as "a set of disorders that is expressed in the field of language, reading, writing and mathematical skills, which can appear throughout the life cycle". Therefore, for the learning process to be carried out in a balanced way, it is necessary to exclude the existence of obstacles, hence the importance of psychopedagogical follow-up.

For this reason, the psychopedagogical diagnosis is configured in an investigation of learning that considers the totality of factors in the act of learning. The diagnosis aims to examine how the learner's learning takes place, and how it happens. This will serve as a starting point for both new learning and the elaboration of a therapeutic plan, as it will point out the learner's learning modality and allow the development of strategies that best meet their needs.

According to José & Coelho (2008, p.28), "the learning problem [can be] a symptom, in the sense that non-learning does not configure a permanent framework, but enters a peculiar constellation of behaviors, in which it stands out as a sign of decompensation".

Therefore, parents and teachers should not face the learning difficulties of the student as a fait accompli, but as a situation that can be avoided, as long as the necessary measures are taken. Resorting to a professional in the area, who in turn, must work in an articulated way.

2.1 CLINICAL PSYCHOPEDAGOGICAL DIAGNOSIS

The psychopedagogical work aims to understand the cause of the subject not being able to learn or having difficulties to learn some things, but also to analyze how he can learn and in what way. "The changes in learning, school failure and the different ways in which the learning problem presents itself in high proportion, [...] and, it requires a careful analysis of its etiology and particularity". (FERNÁNDEZ, 1991 p. 24). For this reason, the diagnostic process is indispensable, as it is from it that the therapist will intervene in the face of learning difficulties, initiating an investigation and, above all, making an accurate reading of the learner's reality.

It is important to reiterate at this point, the student's life history within his family group, remembering that, if everything went well without major problems, he will develop positive bonds with learning. However, if there has been any negative change in this path, whether due to factors internal to the family structure, inadequacy of the methods adopted by the school or teacher, in short, this exchange with the family and social environment can work as a facilitator or inhibitor in the process of affective-intellectual development of the student, and the school can manage this process well or badly.

It is worth mentioning that the Psychopedagogical clinical work, in addition to intervening in learning problems, also has a preventive function, while in the treatment of certain difficulties it can concomitantly prevent the appearance of future problems. Thus, the Psychopedagogical treatment in its singularity consists in the fact that there is a goal to be achieved, which is: the elimination of symptoms.

This treatment takes place in two stages, the first is the investigation of the subject's difficulties and/or disorders presented and the second the intervention for the disappearance of the detected symptoms. For a better understanding:

Psychopedagogical evaluation occurs when the family has as a fundamental complaint the difficulty of one of its members in the face of their learning, and therefore learning and its relationships are the gateway to understanding the case that is presented. The psychopedagogical diagnosis aims to penetrate the family dynamics, but keeping the

focus on the patient and his complaint. A complaint is never isolated, there are all the consequences of this complaint and they must be investigated at the time of diagnosis. (ACAMPORA, 2012 p. 69,70).

Thus, the clinical psychopedagogical care of this work was carried out with the learner J.P.M.S. who will be identified here by the initials of his name to preserve his anonymity, at the moment he is 11 years old and attending the 2nd year of elementary school. The complaint presented by the Mother is that he has difficulty reading and writing.

The follow-up with J.P.M.S began in the first half of 2012. At first, an initial interview was conducted with the learner's parents to talk about schedules, sessions and the importance of attendance in subsequent sessions, Once the schedules were agreed, the anamnesis began with the parents who, according to Nadia Bossa (2011), during the anamnesis, the psychopedagogue is informed about the history of the learner's development, as well as their difficulties, which allows the therapist to realize that learning problems may not be linked only to school, but to other factors.

In addition to the anamnesis with the parents, the teacher was also interviewed, in a visit made to the learner's school. The teacher reported that J.P.M.S has a lot of difficulty reading and writing, and this difficulty is more accentuated in the writing discipline.

It is important to point out that to carry out the Psychopedagogical diagnosis it is necessary to use some resources such as tests, drawings, games, toys, pedagogical and psychomotor activities, stories, among others. "These resources constitute an important language instrument and reveal data about our lives, which are often secrets to ourselves." (BOSSA, 2000 p.12).

With reference to these reports, we set out to carry out the present study with the objective of first obtaining data on biological, intrapsychic and social life, which socially and psychologically justify the complaint presented, followed by the analysis of the bonding relationships with the family and learning.

Continuing the psychopedagogical diagnosis, based on the information reported by the parents and teacher, we prepared 03 sessions of 1h and 30min contemplating the different aspects, which are: Cognitive, Socio-Affective, Psychomotor and Pedagogical, for this, the following instruments were used to investigate the problem pointed out: Learning-Centered Operative Interview (EOCA), by Jorge Visca; Jorge Visca's Projective Tests: Me with my companions; The Four Moments of a Day, Doing What You Like Most; Psychomotor

Assessment; Pedagogical games; Background Figure Test; Sequence Organization Tests; Discrimination and Auditory Perception Tests.

During the application of the tests, the learner showed interest in carrying out the activities. On the other hand, he presented attention and concentration deficits and difficulty with reading and writing, as well as in language. It was observed that the learner's posture permeated a Hyperassimilative learning, because while performing the proposed activities he brings several subjects, talks, asks, questions, however he usually hears little, because he is already formulating another question, sticking to the details and failing to observe the whole.

It is important to point out that the learner in question presented a very marked picture of low self-esteem. Because he reported during the application of the tests that he feels very sad and discouraged for not achieving the grades expected by him and his mother, that is, he cannot evolve in the classroom.

2.2 THERAPEUTIC PLAN

The case report examined here is based on the initial complaint of the learner's parents who show their difficulty in reading and writing and later this complaint is confirmed in the statement of their teacher. J.P.M.S, despite having developed reading and writing skills, is with age/grade distortion, as she is 11 years old in the 2nd year of Elementary School. It was observed that the family complaint coincides with that of the school. The teacher also reported that J.P.M.S does not interact with his classmates and that he only communicates when asked, or stimulated to speak.

From the diagnosis made with the learner, with the objective of investigating the complaint pointed out by the mother, serious difficulties were found with regard to reading, writing, organization, paragraphs and sequence of events, in addition to the difficulty of working with limits. The learner showed a very low auditory memory, also highlighting difficulty in understanding the utterance. It was also observed through evaluation, immaturity in the development of language and writing, leading him to write certain words the way he pronounces them, with exchange and suppression of letters.

In view of such difficulties, it was found that the learner has signs of dyslexia. Simaia Sampaio (2011, p.111), contributes by clarifying that "dyslexia is a reading disorder that affects writing, and is usually detected from literacy, the period in which the child begins the reading process". It is necessary to clarify that a dyslexic person has normal intelligence,

and may even be above average. Thus, the difficulty lies in not being able to identify graphic symbols (letters and/or numbers) reflecting the difficulty in reading and writing.

It is important to point out that only a neurological professional can make the diagnosis. Thus, once confirmed, the dyslexic patient will need a multidisciplinary team for treatment, as well as support work with the school and family (MOOJEN & FRANÇA, 2006).

After the diagnostic sessions, we then leave for the return with the learner's parents, to talk about the positive aspects, valuing what he does best, and analyze the factors that are causing the problem in learning. The return "is an analysis of the problem followed by integrative syntheses, which must be repeated whenever new information is added and, in some way, rearranging the situation in the sense of reducing resistance" (ACAMPORA, 2002 P.117). To intervene positively in the difficulties encountered, 05 psychopedagogical sessions were elaborated with a duration of 1 hour and 30 min. every.

Pain states that "the basic objectives of psychopedagogical treatment are, obviously, the disappearance of the symptom and the possibility for the subject to learn normally or, at least, at the highest level that his organic, constitutional and personal conditions allow him" (1985 p.80). In this way, through the interventions, we seek to awaken the potential of the learner, giving him conditions to be able to know, write and do.

Before we started the first intervention session, the learner was very anxious. Once the activities began, greater comfort was perceived, and soon he became involved in the proposed activities. During the subsequent sessions, the learner behaved very communicatively. An important aspect to report is that the learner has a positive bond with learning, as his desire to learn to improve his performance at school and raise his self-esteem was visible, in addition, he demonstrated in his conversations a relationship of affection and harmony with his parents. For Sampaio (2011, p.77), "the family must make every effort so that the child can overcome his difficulties". This care and commitment to the child's learning was observed by the learner's parents throughout the treatment.

A relationship of trust between the learner and the therapist was also perceived. In this sense, Henri Wallon (apud DANTAS, 1992 p.85) says that "the affective dimension occupies a central place, both from the point of view of the construction of the person and of knowledge". This is essential for learning to take place in a positive and peaceful way.

It was verified throughout the intervention sessions that the learner presented some advances, but that they need to be improved with the continuity of the treatment, with regard to writing, he can already write including all the letters without forgetting to add the "r" which

was a great difficulty that he presented, to the detriment of his speech impairment, as well as improvement in the understanding of statements and association of ideas. This advance was also noticeable in relation to the self-esteem of the learner, who at each session expressed great joy and personal satisfaction, reporting an improvement in his grades and a good development in the discipline of writing, as it caused him low self-esteem whenever he remembered the low grades.

It was also observed that throughout the intervention sessions, the learner behaved less anxiously and more focused on the proposed activities, always with the desire to change and improve their performance at school, as their effort was noticeable.

After the end of the intervention sessions, it was perceived the need for the learner to continue the psychopedagogical treatment for a greater advancement of the difficulties, as well as follow-up with the speech therapist to treat the immaturity in language, as this difficulty hinders both his communication with people and his school development, which despite the advances we had during the treatment it is essential to continue the process.

3 REFLECTIVE CONCLUSIONS

In view of the theoretical basis and the case report, it is concluded that the performance of the Psychopedagogue parallel to the work of the educator is indispensable, due to the existence of some points that are beyond the reach of the teacher because they have a greater demand, making it impossible for them to deal more closely with their students.

The problem that prevents the expected learning in the learner of the present study is the learning difficulty in reading and writing associated with factors such as attention, concentration and language. The psychopedagogical work with it showed significant advances in the development of the learner. Such as, for example, greater concentration on the proposed activities, even if partial. As well as the teacher's performance, who, in possession of a diagnosis and with some suggested guidelines, has a greater opportunity to contribute to the development of this learner.

With this, it is important to emphasize the importance of continuing the psychopedagogical intervention so that the problem is solved. The family and the school should work in an articulated way, valuing the efforts of the learner in order to improve their self-esteem. The school, specifically, should offer activities that work on the diagnosed difficulty, prioritizing the use of concrete materials in order to provide significant learning

opportunities for the learner, but at the same time be challenging and offer activities that favor cooperation among students and encourage them in the execution and exposure of them.

Therefore, to think about learning difficulties in the light of Psychopedagogia is also to think especially that such difficulties can and should be solved with the help of the psychopedagogue in an articulated way with other professionals, providing the learner with moments of joy and autonomy with regard to the construction of knowledge so that he perceives himself capable of overcoming his limits and difficulties.

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**11TH GRADE STUDENTS' PERCEPTION OF THE FACTORS AFFECTING
THEIR ENGLISH LEARNING**

**PERCEPÇÃO DOS ESTUDANTES DO 11º ANO SOBRE OS FATORES QUE
INFLUENCIAM SUA APRENDIZAGEM DE INGLÊS**

**PERCEPCIÓN DE LOS ESTUDIANTES DE 11º GRADO SOBRE LOS
FACTORES QUE INCIDEN EN SU APRENDIZAJE DEL INGLÉS**

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ABSTRACT

The English language holds great relevance worldwide. In recent decades, proficiency in this language has provided access to various opportunities in academic, professional, and cultural fields. At the secondary level, English language learning is influenced by both internal and external factors. The objective of this research is to analyze the perceptions of 11th-grade students regarding the factors that influence their learning of the English language. The study is framed within the quantitative paradigm, applying a non-experimental, cross-sectional descriptive approach. The results show that the factors that most affect English language learning among 11th-grade students are: the instrumental value of the language (future, travel, resources), motivation and personal confidence (self-efficacy vs. anxiety), pedagogical practices (activities, materials, teacher's role), and extracurricular habits (low exposure to authentic English). In conclusion, 11th-grade students recognize the value of English for their future lives and are aware of the factors that influence their learning of the language.

Keywords: English Learning. Perception. Secondary Education. Factors. Students.

RESUMO

O idioma inglês é uma língua de grande relevância em nível mundial. Nas últimas décadas, o domínio desse idioma tem possibilitado o acesso a diversas oportunidades nos âmbitos acadêmico, profissional e cultural. No ensino médio, o aprendizado do inglês é influenciado por fatores internos e externos. O objetivo desta pesquisa é analisar as percepções dos estudantes do 11.º ano sobre os fatores que influenciam sua aprendizagem do idioma inglês. O estudo insere-se no paradigma quantitativo, adotando uma abordagem descritiva, não experimental e transversal. Os resultados demonstram que os fatores que mais impactam a aprendizagem do inglês entre os estudantes do 11.º ano são: o valor instrumental do idioma (futuro, viagens, recursos), a motivação e a confiança pessoal (autoeficácia vs. ansiedade), as práticas pedagógicas (atividades, materiais, papel do professor) e os hábitos extraclasse (baixo contato com o inglês autêntico). Em conclusão, os estudantes do 11.º ano reconhecem o valor do inglês para sua vida futura e estão conscientes dos fatores que influenciam sua aprendizagem.

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Palavras-chave: Aprendizagem do Inglês. Percepção. Educação Secundária. Fatores. Estudantes.

RESUMEN

El idioma inglés es una lengua de gran relevancia a nivel mundial. En las últimas décadas, el dominio de dicha lengua ha permitido el acceso a diversas oportunidades dentro del ámbito académico, profesional y cultural. A nivel secundario, el aprendizaje del idioma inglés se ve impactado por factores internos y externos. El objetivo de esta investigación es analizar las percepciones de los estudiantes de 11.º grado sobre los factores que influyen en su aprendizaje del idioma inglés. El estudio se enmarca en el paradigma cuantitativo aplicando un enfoque descriptivo no experimental y transversal. Los resultados demuestran que los factores que más inciden en el aprendizaje del idioma inglés en estudiantes de 11.º grado son: el valor instrumental del idioma (futuro, viajes, recursos), la motivación y confianza personal (autoeficacia vs. ansiedad), las prácticas pedagógicas (actividades, materiales, rol docente), los hábitos extraclase (bajo contacto con inglés auténtico). En conclusión, los estudiantes de 11.º grado reconocen el valor del inglés para su vida futura y están conscientes de los factores que inciden en el aprendizaje del mismo.

Palabras clave: Aprendizaje del Inglés. Percepcion. Educación Secundaria. Factores. Estudiantes.

1 INTRODUCTION

The English language is a language of great relevance worldwide. In recent decades, mastery of this language has allowed access to various opportunities within the academic, professional and cultural fields. At the secondary level, the teaching of this language has always been a challenge due to multiple internal and external factors related to the teaching-learning process of this language. (BASTIDAS; MUÑOZ, 2020).

In Panama, the English language is taught as a foreign language from primary to university level with the aim of providing students with the necessary skills to function in a globalized and interconnected world. However, in the case of the secondary level, the students' levels of competencies do not meet the expected standards. Research shows that there are several factors that affect the teaching-learning of the English language at the secondary level. These factors range from socioeconomic and educational factors (quality of teaching, educational resources), personal motivation, as well as the perception and attitudes that students have about their ability to learn the language. (BABILONIA et al., 2018).

The teaching of any language goes beyond just didactic strategies. Different aspects must be taken into consideration, such as the internal and external factors that may affect this process. Muñoz (2009) cited by ROA ROCHA (2023), highlights that there are psychological, physical, and social states that can affect language learning. According to BASTIDAS; MUÑOZ (2020), various studies have been carried out on both internal and external factors that influence the learning process of a language (p.165). In his study Factors that influence the learning of English by high school students in Pasto, Colombia, he establishes that there are biological, cognitive, linguistic and psycho-socio-affective factors, as well as sociocultural and pedagogical factors that affect the motivation and attitude of students towards learning the English language. Their study shows that among the external factors that have the greatest impact on English language learning, the learning environment in the classroom, the institutional curriculum, the professional preparation of the teacher, the role of the local community and the role of national educational policies stand out; On the other hand, the internal factors that exert the most influence include the attitude, attention and motivation of the students.

The study carried out by BABILONIA et al. (2018) factors that affect the Learning of the English Language as a Second Language in Students of Grade 6, 7, 8 and 9 of Basic Secondary School of the Jesús de Nazareth Educational Institution, located in the village of Los Monos, municipality of Lorica, Córdoba establishes that the factors that most affect the

learning of the English language in its context are motivation since students are not motivated to learn because they do not understand (38%), in addition to the lack of support to reinforce knowledge from teachers and parents (94%).

Other international research related to this topic is that of CANRINUS et al. (2024) who found that intrinsic motivation varies significantly depending on the type of school and geographical location, and that even weak external motivation can evolve positively over time. Similarly, MAI et al. (2024) emphasize that linguistic (such as vocabulary and grammar), affective (self-esteem, anxiety), and pedagogical (class size, teaching methods) factors condition student participation in English classes. These findings highlight the complexity of the phenomenon we studied.

This research focused on analyzing 11th grade students' perceptions of the factors that influence their English language learning. The elements that facilitate or hinder the acquisition of skills in this language were identified, as well as the expectations that are held about the learning of the English language in relation to the professional and academic future. This analysis seeks to offer a clear vision of the factors that must be considered to develop methodological strategies and thus optimize the learning of the English language at the secondary level.

Research Question:

1. What is 11th graders' perception of the internal factors that influence their English learning?

General and Specific Objectives: General Objective:

- To analyze 11th grade students' perceptions of the factors that affect their English learning.

Specific objectives:

- Identify the factors that affect English language learning in 11th grade students.

2 THEORETICAL FRAMEWORK

Learning English as a Foreign Language (EFL) in secondary education is a complex and multidimensional process, influenced by a diverse network of variables. Understanding these factors is key to improving teaching methodologies and enhancing student performance (ROA ROCHA, 2023). This research is based on a taxonomy of the factors that affect second language (L2) learning, dividing them into internal (or individual) and external (or contextual) categories, with a special emphasis on student perception.

2.1 AFFECTIVE AND COGNITIVE FACTORS OF THE STUDENT

Internal factors are those psychological, cognitive, and affective attributes of the student that mediate their interaction with the learning process (RICHARDS; RENANDYA, 2002).

2.2 MOTIVATION IN FOREIGN LANGUAGE LEARNING

Motivation is universally recognized as the force that initiates and directs learning behavior, being a predictive factor of success in Foreign Language Learning. In L2 teaching, motivation can be conceptualized as a continuum that varies from an autonomous orientation (intrinsic, for the pleasure of learning) to a controlled one (extrinsic, for rewards or pressure) (CANRINUS et al., 2024). Research has shown that motivation, while it can be stable, also undergoes changes over time, influenced by contextual factors such as the type and location of the school, as well as the teaching methodology employed.

2.3 PERSONAL TRUST AND LANGUAGE ANXIETY

Among the affective factors, personal trust and its counterpart, anxiety, play a determining role. Self-esteem is a variable that affects the learning of English, since the student's perception of himself directly influences his or her willingness to face linguistic challenges (CEBALLOS PARRA et al., 2014).

Specifically in the classroom, language anxiety acts as a barrier that limits interaction and participation. Affective factors are a main group of obstacles that prevent the student's active participation in conversation classes, including fear of making mistakes or being judged ((XUAN MAI et al., 2024). This anxiety directly affects oral production, despite the high intrinsic motivation that the student may have.

2.4 CONTEXTUAL AND PEDAGOGICAL FACTORS

External factors encompass the social, cultural, and educational environment that surrounds the student and that provides the stimuli and conditions for learning.

2.5 THE TEACHING ROLE AND PEDAGOGICAL PRACTICES

The quality of instruction and the role of the teacher are determinants in the teaching-learning process of English. Studies underscore the importance of pedagogical practices that prioritize the functional use of language. For learning to be meaningful and effective,

classroom activities must facilitate the development of language skills, including the implementation of practical, game, and conversational activities (ROA ROCHA, 2023). Likewise, constructive feedback and a supportive environment from the teacher contribute to mitigating the factors that hinder student participation (XUAN MAI et al., 2024).

2.6 SOCIO-CONTEXTUAL FACTORS

The environment outside the classroom significantly influences exposure to English and attitude towards the language.

Social and Family Environment: The support of the family and the social circle is a factor that affects academic performance, providing an environment of reinforcement or obstacle (BABILONIA DÍAZ et al., 2018; BASTIDAS; MUÑOZ, 2020).

Instrumental Value of Language: At the baccalaureate level, the perception of the usefulness of English becomes a crucial factor, since language is seen as a tool for access to university, the labor market, and global information. This perspective is key to maintaining extrinsic motivation in the long term.

2.7 PERCEPTION AS A LEARNING FILTER

Perception not only describes what the student "sees" in his environment, but also how he interprets and values the factors that affect him. In the educational context, perception is the filter through which students experience the learning process, determining whether the activities are "useful," whether the teacher is "motivating," or whether the language is "difficult." Therefore, 11th graders' perceptions of internal (such as English difficulty) and external (such as the quality of materials or social support) factors have a direct impact on their attitude and learning outcomes. The exploration of these perceptions allows the educational institution to better align pedagogical strategies with the needs and subjective realities of its student population.

3 METHODOLOGY

This study was framed in the quantitative approach, since numerical data obtained through structured instruments were collected and analyzed, with the purpose of objectively and systematically describing the perception of 11th grade students about the factors that affect their learning of the English language. The quantitative approach allows measuring and analyzing response patterns in a representative sample, which facilitates the generalization

of the results within the context studied. The research is descriptive, since its main purpose was to identify and characterize the perception that students have about various internal and external factors that influence their English learning process. This type of study does not seek to establish causal or correlational relationships between variables, but to provide a clear and detailed view of the phenomenon from the perspective of the students themselves. The design adopted is not experimental, since the study variables were not deliberately manipulated. Data will be collected in their natural context, without intervention by the researcher. Within this design, the transversal modality was used, since the information was obtained in a single time moment, which allowed capturing the perception of the students at a specific stage of their academic training.

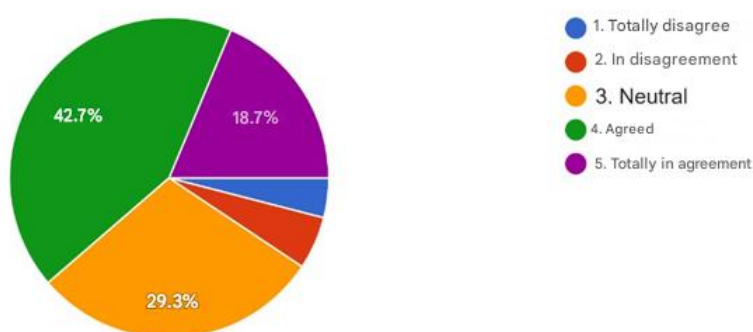
3.1 PARTICIPANTS

The population was made up of 75 11th grade students from an educational institution in the area. The technique used was the survey and the instrument, a structured questionnaire with items on a Likert-type scale. The questionnaire consisted of questions that inquire about factors that affect their learning of English. The data collected were processed using descriptive statistical tools, such as frequencies and percentages, to clearly describe and interpret the students' perceptions in relation to the identified factors.

4 RESULTS AND DISCUSSIONS

Figure 1

I feel motivated to learn English

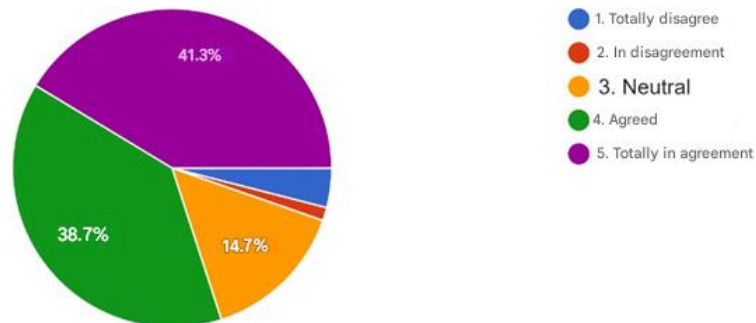


Source: from the authors.

Analysis: 11th graders' motivation towards learning English shows a predominantly positive trend, with 42.7% of respondents agreeing and 18.7% strongly agreeing. Overall, more than half of the students (61.4%) feel motivated. This finding underscores the importance of motivation as an internal factor in the learning process

Figure 2

Importance of English for the Future

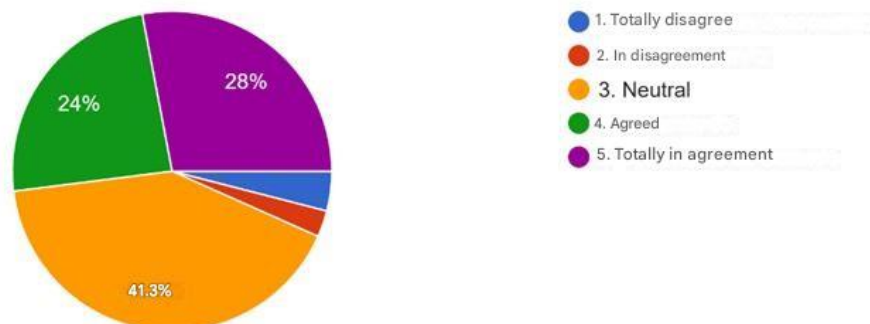


Source: from the authors.

Analysis: There is an overwhelming consensus among 11th graders on the instrumental value of English for their academic and professional future, with 41.3% strongly agreeing and 38.7% agreeing. This means that 80% of the student population recognises the relevance of this language for their future life, a factor that has a significant impact on their learning.

Figure 3

Enjoy Class Activities

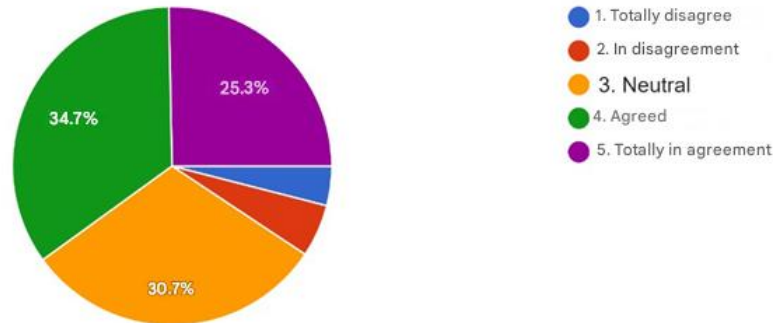


Source: from the authors.

Analysis: The perception of enjoyment in participating in English activities in class is markedly divided, with a high percentage of students in the "Neutral" category (41.3%). Despite this, a sizable portion do enjoy the activities, with 28% strongly agreeing and 24% agreeing. This result suggests that pedagogical practices (activities and teaching role) are a key factor influencing learning and participation in the classroom.

Figure 4

Learning English as Fun and Entertaining

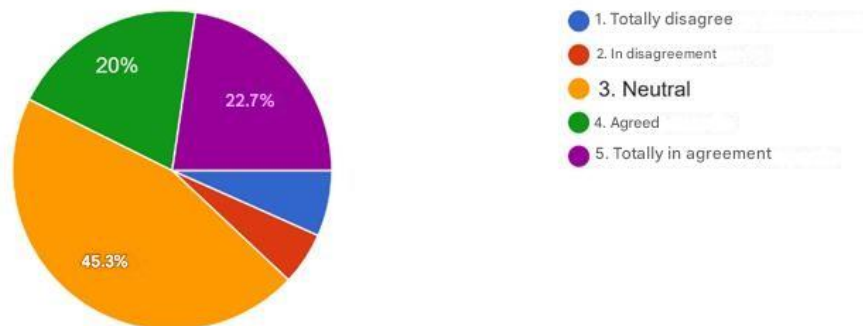


Source: from the authors.

Analysis: The perception of English as a fun and entertaining process is mostly positive, with 34.7% agreeing and 25.3% strongly agreeing. In total, 60% of students see it positively. However, 30.7% remain in a neutral position. This general perception of entertainment may be related to students' motivation towards the language.

Figure 5

Perception of English Difficulty

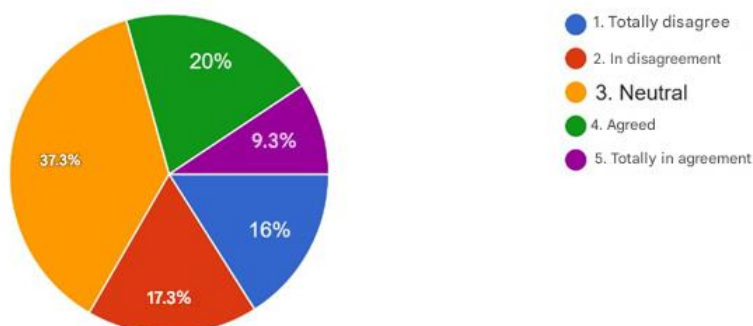


Source: from the authors.

Analysis: The opinion on the difficulty of English is quite ambivalent, since the majority of students (45.3%) were neutral. Positive and negative perceptions are distributed in a similar way: 20% agree and 22.7% strongly agree with the difficulty, while 7.9% (4.7% strongly disagree and disagree) do not consider it difficult. This high level of neutrality could indicate insecurity or variations in individual perception of linguistic complexity

Figure 6

Comfort in Speaking English Compared to Others

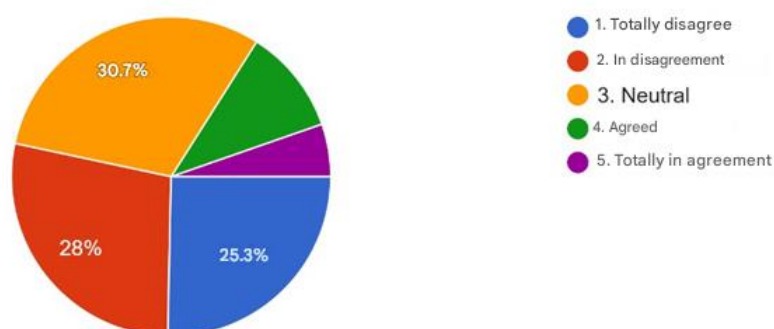


Source: from the authors.

Analysis: A significant portion of 11th graders show anxiety or lack of confidence when speaking English in front of others, with 16% strongly disagreeing and 17.3% disagreeing, totaling 33.3%. The highest percentage (37.3%) is in the neutral position. Only 29.3% (20% agree and 9.3% strongly agree) feel comfortable. This result highlights the influence of personal confidence (self-efficacy vs. anxiety) as a crucial internal factor that affects learning.

Figure 7

Preference for Authentic Content (English Movies/Series)

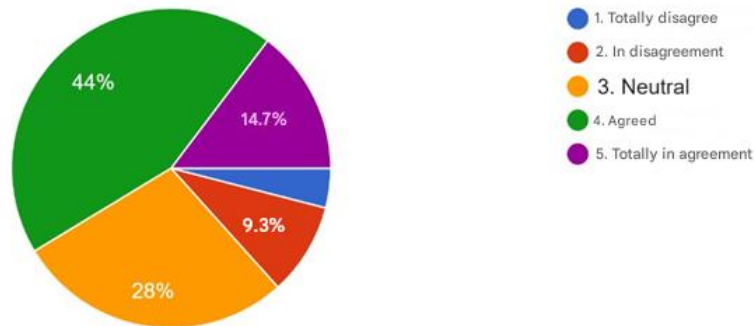


Source: from the authors.

Analysis: The preference for extra-class contact with authentic English (films or series) is remarkably low or neutral. 30.7% declare themselves neutral, and 53.3% disagree or strongly disagree (28% and 25.3% respectively). Only a small 16% say they do prefer this type of content (12% agree and 4% strongly agree). This low exposure to authentic material is pointed out in the results as a relevant factor that affects learning.

Figure 8

Satisfaction with Progress in Learning English

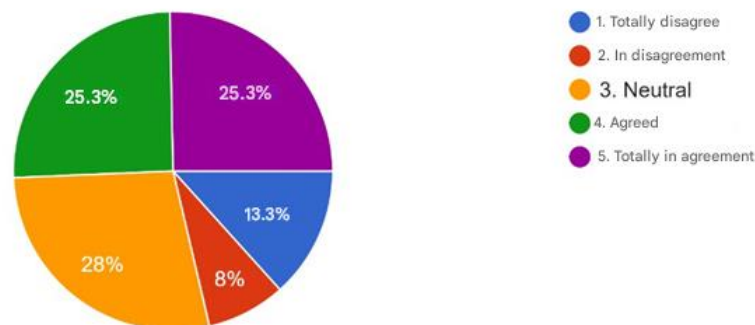


Source: from the authors.

Analysis: A sizable majority of 11th graders are satisfied with their progress in English, with 44% agreeing and 14.7% strongly agreeing, totaling 58.7%. 28% remain neutral, while only 13.3% declare themselves dissatisfied (9.3% disagree and 4% strongly disagree). This satisfaction may be linked to their self-perception of ability, an internal factor that influences their learning.

Figure 9

Family or Friend Support

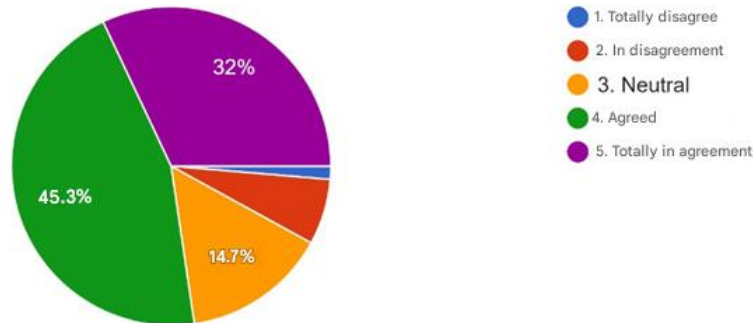


Source: from the authors.

Analysis: Perceptions of family or friend support for learning English are evenly split between agreement (50.6% agree and strongly agree), neutrality (28%), and disagree (21.3% disagree and strongly disagree). That almost half of the students report support is positive, although the percentage of neutrality and disagreement is considerable and suggests that the lack of external support is still a factor for many.

Figure 10

Usefulness of Practical Activities (conversation, games, etc.)

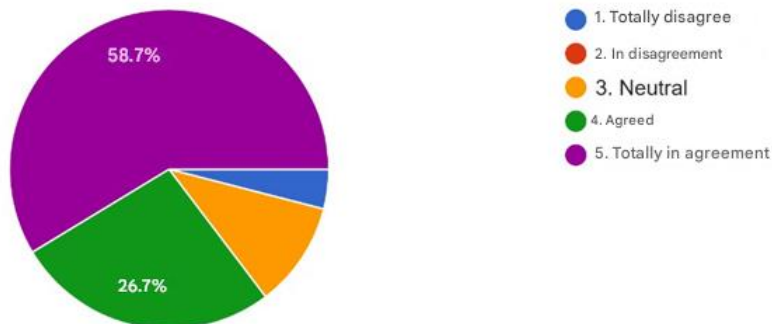


Source: from the authors.

Analysis: There is a strong consensus that practical activities (conversation, games, etc.) are beneficial for learning English. 45.3% agree and 32% strongly agree, adding up to 77.3% support. Only 14.7% remain neutral. This result reaffirms the importance of pedagogical practices that prioritize active participation.

Figure 11

English as a Global Communication Tool

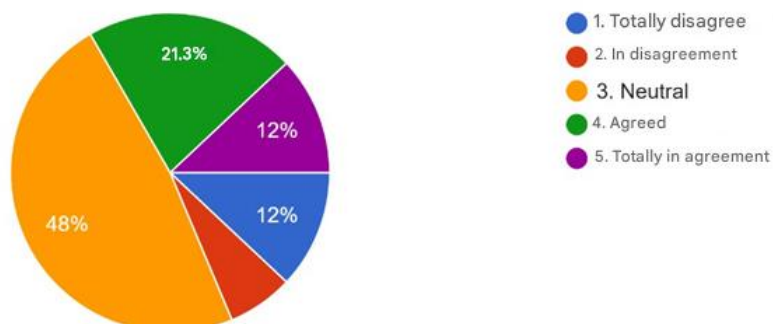


Source: from the authors.

Analysis: The vast majority of students perceive English as a vital tool for global communication, with 58.7% strongly agreeing and 26.7% agreeing, totaling 85.4%. This perception reinforces the instrumental value of the language (travel, resources) and its motivation to learn.

Figure 12

Desire for More Oral Practice Time

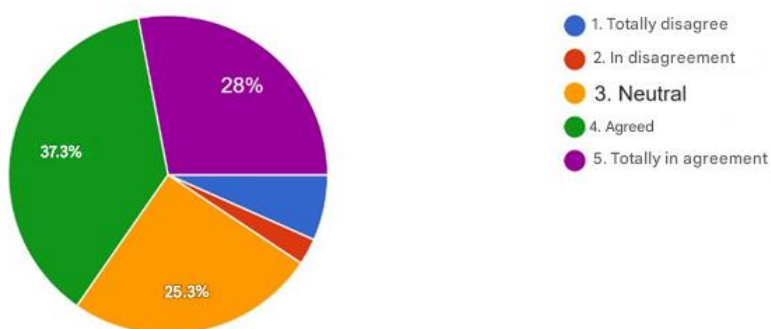


Source: from the authors.

Analysis: The opinion on the need for more time for oral practice leans towards neutrality (48%). However, 33.3% would like more time (21.3% agree and 12% strongly agree). 18% disagreed or strongly disagreed (6% and 12% respectively). This result suggests that, although oral practice is valued (see Figure 10), not all students feel a pressing need to increase their class time, which could be related to anxiety when speaking in front of others (see Figure 6).

Figure 13

Access to Information and Resources on the Internet

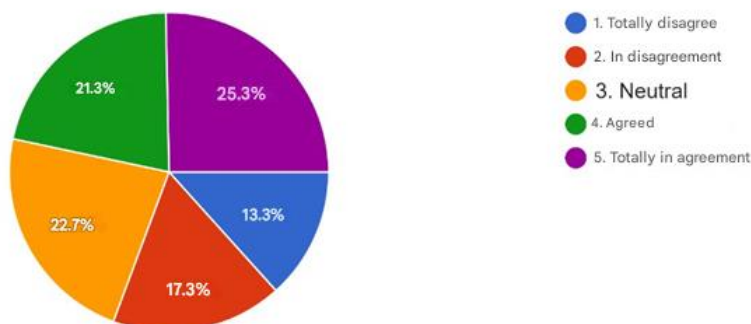


Source: from the authors.

Analysis: 11th graders strongly recognize the instrumental value of English as a key to accessing information and resources on the internet, with 37.3% agreeing and 28% strongly agreeing. This represents 65.3% who agree. This perception is a component of the factor that affects their learning, the instrumental value of language.

Figure 14

Anxiety or Nervousness When Speaking English in Class

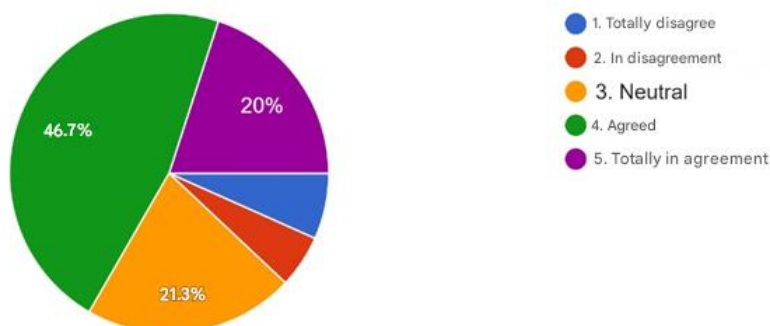


Source: from the authors.

Analysis: Anxiety or nervousness when speaking English in class is a significant feeling, with 21.3% agreeing and 25.3% strongly agreeing, adding up to 46.6%. 22.7% remain neutral. Only 30.6% disagree or strongly disagree (17.3% and 13.3% respectively). This high level of anxiety is part of the personal confidence factor (self-efficacy vs. anxiety) that influences the learning process.

Figure 15

Interest and Usefulness of Class Materials (books, videos, etc.)

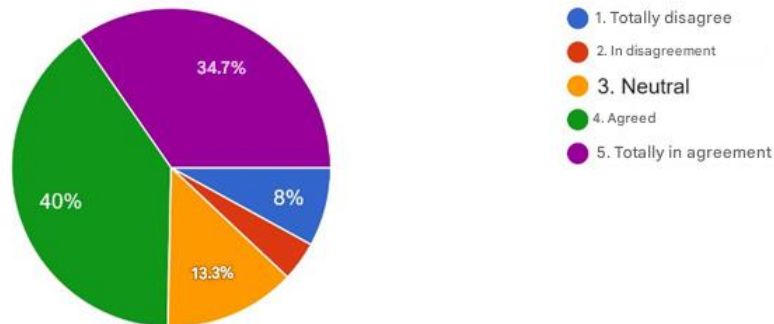


Source: from the authors.

Analysis: Students have a mostly positive perception of the usefulness and interest of class materials (books, videos, etc.), with 46.7% agreeing and 20% strongly agreeing, totaling 66.7%. Only 21.3% are neutral. This suggests that the materials contribute favorably to pedagogical practices, a factor that affects language learning.

Figure 16

Learn English to Travel and Experience Cultures

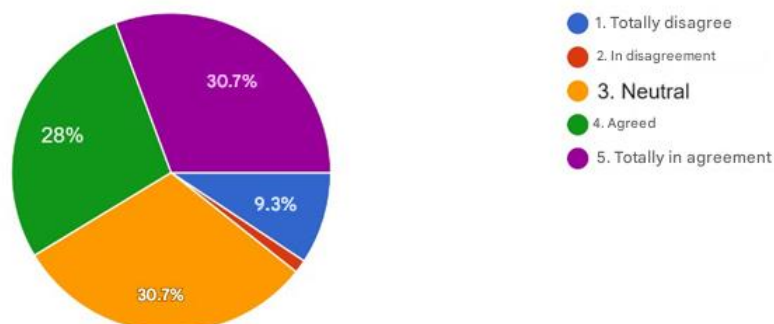


Source: from the authors.

Analysis: The desire to learn English for travel purposes and cultural knowledge is very high, with 40% agreeing and 34.7% strongly agreeing, for a total of 74.7%. This aspiration is linked to the instrumental value of the language and is a source of motivation for students.

Figure 17

Perception of English as Easy to Learn with Practice

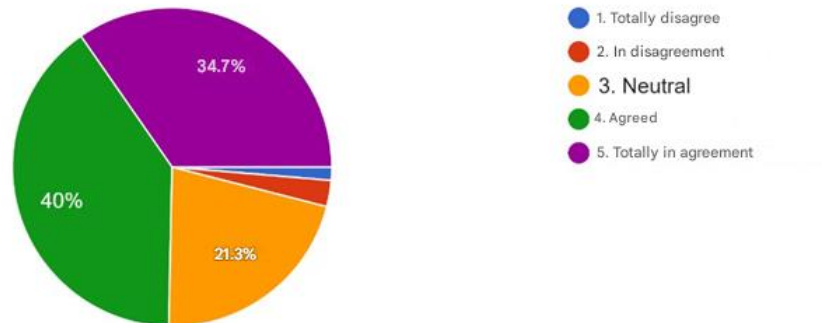


Source: from the authors.

Analysis: The perception that English is an easy language to learn with frequent practice is divided, with 58.7% agreeing or strongly agreeing (28% and 30.7% respectively) and 30.7% in the neutral position. 10.6% disagree or strongly disagree (1.3% and 9.3% respectively). The implicit correlation between practice and ease suggests students' belief in self-efficacy.

Figure 18

Confidence in Achieving a Good Level of English

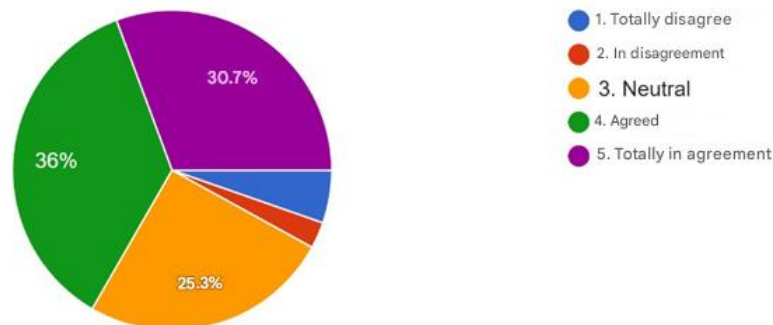


Source: from the authors.

Analysis: Personal confidence in one's ability to achieve a good level of English is very high, with 40% agreeing and 34.7% strongly agreeing, resulting in 74.7% of positive responses. Only 21.3% remain neutral. This high self-efficacy is an important internal factor that favorably impacts learning.

Figure 19

Motivation by Teachers

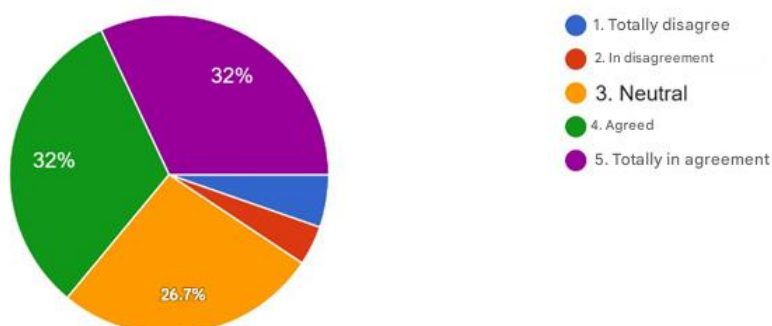


Source: from the authors.

Analysis: Most students perceive positively the role of the teacher in their motivation, with 36% agreeing and 30.7% totally agreeing, adding up to 66.7% of positive responses. 25.3% declare themselves neutral. Pedagogical practice and the role of teachers are confirmed as key factors that influence student learning and motivation.

Figure 20

Taste for the Sound of English



Source: from the authors.

Analysis: Liking for the sound of English when speaking it is high, with 32% agreeing and 32% strongly agreeing, totaling 64%. 26.7% are neutral. This positive attitude towards the sound of the language can be considered as an internal factor that contributes to motivation and the general attitude towards learning.

5 CONCLUSION

This research has made it possible to identify and characterize the influence of internal and external factors on the process of language acquisition at the secondary level. The results confirm that 11th graders recognize the value of English for their future lives and are aware of the factors that affect their learning.

The factors that, according to the student's perception, have the greatest impact on learning English are:

- **The Instrumental Value of Language (External Factor):** There is a majority recognition of English as a crucial tool for academic and professional future, access to more information, internet resources, travel opportunities and knowledge of new cultures. This strong recognition of external value acts as a motivating engine for learning.
- **Motivation and Personal Confidence (Internal Factors):** Students report feeling motivated to learn English and exhibit a high level of self-efficacy, with most confident that they can achieve a good level of English over time. However, anxiety or nervousness when speaking English in class is a significant obstacle, affecting almost half of those surveyed. This shows that, despite motivation, confidence and anxiety (self-efficacy vs. anxiety) are critical internal factors that must be addressed in pedagogical practice.
- **Pedagogical Practices (External Factors):** Students value aspects of teaching positively. A large majority agree that hands-on activities such as conversation and

games help them learn better and perceive classroom materials to be interesting and useful. In addition, the influence of the teaching role is positive, indicating that their teachers motivate them to continue improving their English.

- Extracurricular habits (External Factor): Low contact with authentic English outside the classroom is identified, as only a small percentage of students prefer to watch films or series in English. This limited extra-classroom exposure to the authentic language represents a barrier to optimising learning and the acquisition of skills.

In summary, the findings suggest that future methodological strategies should capitalize on students' high motivation and recognition of the value of English, while implementing specific approaches to reduce speaking anxiety and actively encourage contact with authentic English outside the classroom, in order to bridge the gap between the desire to learn and the linguistic competence achieved.

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HISTORY AND IMPACTS OF THE PARINTINS MATHEMATICS OLYMPIAD (OPM): A JOURNEY OF LEARNING, CHALLENGES, AND ACHIEVEMENTS

HISTÓRIA E IMPACTOS DA OLIMPÍADA PARINTINENSE DE MATEMÁTICA (OPM): UM PERCURSO DE FORMAÇÃO, DESAFIOS E CONQUISTAS”

HISTORIA E IMPACTO DE LA OLIMPIADA MATEMÁTICA PARINTINS (OPM): UN VIAJE DE ENTRENAMIENTO, DESAFÍOS Y LOGROS

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ABSTRACT

This article aims to present the development, challenges, and achievements of the Parintins Mathematics Olympiad (OPM). To this end, we sought to analyze the historical trajectory of the OPM since its inception, identifying its pedagogical, social, and institutional impacts on the development of mathematics education in the municipality of Parintins. The methodological approach adopted was qualitative, descriptive, and historical-documentary in nature, also configured as a case study. The research was conducted through interviews with the founder of the competition, as well as the analysis of official documents and records from previous editions of the event. The object of study is the trajectory of the Parintins Mathematics Olympiad from 2004 to 2024. The results obtained throughout the analyzed period indicate that the OPM has played a fundamental role in strengthening mathematics education in Parintins. Since its creation, the number of participating schools has grown significantly, encompassing both urban and rural areas. Among the main challenges faced are the maintenance of continuous financial support, the expansion of participation from rural schools, and the need to consolidate a permanent network for teacher training linked to the project.

Keywords: Mathematics Education. History of the Olympiad. Learning.

RESUMO

Este artigo visa apresentar o percurso de formação, desafios e conquistas da Olimpíada Parintinense de Matemática. Para tanto buscamos analisar a trajetória histórica da OPM desde sua criação, identificando seus impactos pedagógicos, sociais e institucionais no desenvolvimento do ensino de Matemática no município de Parintins. A metodologia utilizada

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foi a qualitativa, descritiva e de caráter histórico-documental, configurando-se também como um estudo de caso, foi desenvolvida por meio de entrevistas com o idealizador da competição, além da análise de documentos oficiais e de registros das edições anteriores da competição. O objeto de estudo é a trajetória da Olimpíada Parintinense de Matemática entre os anos de 2004 e 2024. Os resultados obtidos ao longo do período analisado indicam que a OPM tem desempenhado um papel fundamental no fortalecimento do ensino de Matemática em Parintins. Desde sua criação, o número de escolas participantes cresceu significativamente, abrangendo tanto a zona urbana quanto a zona rural. Entre os desafios enfrentados destacam-se a manutenção de apoio financeiro contínuo, a ampliação da participação das escolas rurais e a necessidade de consolidar uma rede permanente de formação docente vinculada ao projeto.

Palavras-chave: Educação Matemática. História da Olimpíada. Aprendizagem.

RESUMEN

Este artículo tiene como objetivo presentar la formación, los retos y los logros de la Olimpiada Matemática de Parintins (OPM). Para ello, se analiza la trayectoria histórica de la OPM desde su creación, identificando sus impactos pedagógicos, sociales e institucionales en el desarrollo de la enseñanza de las matemáticas en el municipio de Parintins. La metodología empleada fue cualitativa, descriptiva e histórico-documental, configurándose además como un estudio de caso. Se desarrolló mediante entrevistas con el creador de la competición, así como el análisis de documentos oficiales y registros de ediciones anteriores. El objeto de estudio es la trayectoria de la Olimpiada Matemática de Parintins entre los años 2004 y 2024. Los resultados obtenidos durante el periodo analizado indican que la OPM ha desempeñado un papel fundamental en el fortalecimiento de la enseñanza de las matemáticas en Parintins. Desde su creación, el número de escuelas participantes ha crecido significativamente, abarcando tanto zonas urbanas como rurales. Entre los retos a los que se enfrenta el proyecto se encuentran mantener el apoyo financiero continuo, ampliar la participación de las escuelas rurales y la necesidad de consolidar una red permanente de formación docente vinculada al mismo.

Palabras clave: Educación Matemática. Historia de la Olimpiada. Aprendizaje.

1 INTRODUCTION

Pedagogical practice needs to adapt to current times, where information and technology impose on us increasingly greater and more complex challenges in our so-called knowledge society. In this context of change, it is necessary to seek a new posture and way of working with the discipline of Mathematics.

Freire (2007) advises that, "mathematical knowledge is not predetermined, but arises from the coordination of the actions of the mathematical subject and is projected as reflected abstraction (reflective abstraction with awareness)". The author is corroborated by Ghedin (2007) who states "in mathematics nothing is free, everything is built".

In this sense, the process of construction of mathematical knowledge can take place in several ways and the insertion of the Olympiads in the panorama of public education can be one of them. Since its first edition in 2004, the OPM has consolidated itself as an important public policy in the area of Mathematics Education in Parintins, currently in its XVII edition, the OPM has reached, according to Araújo et al (2025), a total of 61 registered schools and 13,797 participating students, configuring itself as an event of great educational and social relevance. In view of this scenario, the present study seeks to answer the following question: What was the historical path of the OPM and its impact on the development of Mathematics teaching in the municipality of Parintins?

The Parintinense Mathematical Olympiad (OPM) is an initiative with the purpose of stimulating interest in Mathematics among basic education students in the municipality of Parintins and region and also aims to reduce the high rates of failure and dropout in this discipline, providing students with a differentiated view and greater interactivity by developing logical ability, creativity and sociability, as well as appropriate methods of thinking and mathematical work.

The Pedagogical Political Project (PPC, 2021), of the Mathematics Degree Course at the Center for Higher Studies of Parintins of the University of the State of Amazonas (CESP/UEA), aims among its objectives "to train the Mathematics teacher to carry out their professional activities in schools of the public and private education systems, in the exercise of teaching in Elementary School from 6th to 9th grade and High School" PPC (2021, p.40).

The aforementioned PPC, adapting to the teacher training policies present in the Brazilian legislation, among which we highlight LDB 9.394/96 and the CNE/CP Opinion 28/2001, highlights that: "the pedagogical project must include other activities of a scientific, cultural and academic nature, enriching the teacher's training process as a whole" (BRASIL,

1996). In addition, the National Common Curriculum Base (BNCC) reinforces the importance of methodologies that promote meaningful learning and the development of complex cognitive skills, such as problem solving, logical reasoning and argumentation, in this way, the Parintinense Mathematical Olympiad also aims to contribute to the training of mathematics teachers and consequently, aims to improve the quality of teaching in Parintins.

Methodologically, the research adopted a qualitative approach, based on the analysis of official documents of the OPM, regulations, minutes, reports and dissemination materials, and on interviews with creators and former students. Orality, as Gerhardt and Silveira (2009) argue, was essential for the collection of evidence and for understanding the evolution and impact of OPM over the years.

The scarcity of systematized records on the history and contributions of the OPM reinforces the importance of this study, which seeks to fill a gap in the literature on scientific Olympiads in the Amazon and offer subsidies for future research on the impact of these initiatives on education.

Thus, the article is organized into four main sections. The theoretical framework referring to the origins of the main mathematical Olympiads. The methodology that classifies the present work in a qualitative research. The third section, Results and discussions, summarizes the historical path of OPM and the evidence on the pedagogical and social effects of the initiative, correlating them with theoretical references on teaching and learning. Finally, the last section presents the final considerations, in which the contributions of the study and perspectives for future research are pointed out.

2 THEORETICAL FRAMEWORK

According to Torrente and Reis (2023) in 1934, the 1st Mathematical Olympiad was held in the city of Leningrad. In 1959, the 1st International Mathematical Olympiad (IMO) was held in the city of Bucharest, Romania. In Brazil, the São Paulo Academy of Sciences (APC) created the São Paulo Mathematical Olympiad (OPM) in 1977. In 1979, the Brazilian Mathematical Olympiad (OBM) was created, organized by the Brazilian Mathematical Society (SBM). The 1st edition of the Brazilian Public School Mathematics Olympiad (OBMEP) was held in 2005, with the participation of more than 10 million students, placing Brazil as the world record holder in number of participants in Mathematics competitions.

Fonseca et al (2025) states that in the northern region of Brazil, the municipality of Parintins has held the Parintinense Mathematical Olympiad (OPM) since 2004. The

competition aims to stimulate interest in mathematics, identify talents and strengthen the teaching of the discipline in the local context, and is organized by the Center for Higher Studies of Parintins (CESP), of the University of the State of Amazonas (UEA).

The Brazilian Public School Mathematics Olympiad (OBMEP) is an important public policy to promote Mathematics (through the study of the subject, teacher training, talent identification, etc.). Created in 2005, OBMEP reaches 99% of Brazilian municipalities. It is an initiative of the Institute of Pure and Applied Mathematics (IMPA), with the support of the Brazilian Mathematical Society (SBM), and is funded by the Ministry of Education (MEC) and the Ministry of Science, Technology and Innovation (MCTI).

In IEDE (2024) we can observe the results in OBMEP numbers, where it is possible to verify that schools awarded in OBMEP have

a) Better results in the SAEB, in Mathematics. There is a significant correlation between the results of the schools in the OBMEP (in the 2nd phase) and their performance in the SAEB. Units awarded medals in OBMEP perform better in the SAEB in Mathematics, reaching higher averages (270.3 and 288.8 in the final years of Elementary School and High School, respectively). The non-awarded and/or non-participating schools and those awarded with honorable mention had lower averages: in the final years of Elementary School, they were 240.2 and 257.5, respectively, and, in High School, 269.8 and 276.9.

b) Better results in Enem, in Mathematics. There is also a high correlation between the performance of schools in the OBMEP and in the National High School Exam (Enem). Schools awarded with medals in OBMEP perform better in Enem, in Mathematics, reaching higher averages (516.1). Schools that did not award and/or did not participate and those that received

The objectives of the Mathematical Olympiad are in accordance with the contemporary educational panorama, based on the development of cognitive skills in the teaching of mathematics.

The National Common Curriculum Base (BNCC) reinforces the importance of methodologies that promote meaningful learning and the development of complex cognitive skills, such as problem solving, logical reasoning and argumentation. According to the document, the teaching of Mathematics should go beyond the simple memorization of procedures, favoring the construction of mathematical thinking through challenging and contextualized situations, which encourage the active participation of students (Brasil, 2018).

Santos (2019) states that the Mathematical Olympiads are for all those who like to think, especially for children, young people and educators. We believe that the Scientific

Olympiads in general do not presuppose that students should already like to reason to participate in the competition, but rather that by participating in the competition the student develops the taste for thinking, since they stimulate and disseminate knowledge and interest in mathematics and science, awakens in students the interest in mathematical challenges and the resolution of problem situations, they develop reasoning and improve the quality of teaching.

According to Puldeco and Zimer (2018), Problem Solving can be understood as a teaching methodology, which aims to develop student-centered work, which is led to build mathematical knowledge through the elaboration and use of strategies to seek solutions to the problem situations proposed in the mathematical activity.

Azevedo (2020) approaches mathematical research recognizing the role of problem situation recognition, the process of formulating conjectures, testing, and the eventual refinement of conjectures. And, finally, to the argumentation, demonstration and evaluation of the answer worked, it should be noted that all these ingredients are common when answering a question about the Olympics.

In this context, the Mathematical Olympiads have provoked reflections on their possible contributions to the improvement of the teaching strategies adopted in the classroom. More than a competitive event, the Olympiads have inspired teachers and schools to incorporate pedagogical practices based on problem solving, mathematical research and active learning, essential components for an innovative and meaningful approach to the teaching of Mathematics.

Despite its broad reach and its growing institutionalization in the scope of Basic Education, the Mathematical Olympiads are still often understood only as meritocratic competitions, disconnected from everyday pedagogical practices. Vale (2025) highlights that this limited view obscures the formative potential of these initiatives, which, if properly incorporated into the school pedagogical project, can contribute significantly to the transformation of Mathematics teaching.

The Mathematical Olympiad can help educators through training courses, effectively contributing to good school performance and active participation in society. In addition, it also aims to reduce the high failure rates in Mathematics and dropout in this subject.

As Torrente and Reis (2023) highlight in the Mathematical Olympiads, the focus is not on formulas and products, but on knowing how to think/reason, demonstrating a development of mathematical logical reasoning.

Finally, we agree with Santos (2019) when the author proposes that the Mathematical Olympiads in schools rescue what sometimes seems lost in the school benches of our public schools: the pleasure of reasoning and understanding.

3 METHODOLOGY

The research was characterized as qualitative, descriptive and historical-documentary, also configuring itself as a case study. The object of study is the trajectory of the Parintinense Mathematical Olympiad between the years 2004 and 2024. The methodological procedures involved:

The documentary survey was based on the analysis of institutional records, minutes, evidence, reports and photographs of the OPM editions; Semi-structured interviews were conducted with the creator teacher and organizers and former students of the competition via application message. To analyze the results, we used Content Analysis – according to Bardin (2011), using it to identify thematic categories related to origin, evolution, impacts and challenges; and the triangulation of data for the crossing of information obtained through the different collection instruments.

4 RESULTS AND DISCUSSIONS

4.1 HISTORY AND CHALLENGES OF THE PARINTINENSE MATHEMATICAL OLYMPIAD (OPM)

The Parintinense Mathematical Olympiad (OPM) was created in 2004 as an extension initiative of the Center for Higher Studies of Parintins (CESP), of the University of the State of Amazonas (UEA), with the objective of stimulating interest in Mathematics among public school students. According to the creator of the competition, Professor Francisco Eteval da Silva Feitosa, "the first edition had the participation of state and municipal schools in the urban area, in addition to the Padre Vitório School, located in the municipal prison. The Olympiad was organized by grade and awarded students with symbolic medals."

Thus, the records presented by Reis (2017) and Oliveira (2017), which indicated the beginning of the OPM in 2005, are rectified. According to the creator's report, OPM was consolidated as an extension project of UEA involving schools in the urban and rural areas of Parintins, distributed in seven levels of competition, covering from the 6th to the 9th grade of Elementary School and High School. A striking aspect of the first edition was the

participation of people deprived of liberty, highlighting the potential of education as an instrument of social rehabilitation.

In addition to encouraging students, OPM sought to mobilize the academics of the Mathematics Degree course and bring the University closer to the school community. The institutional records of the time mention, among the members of the coordination, professors Francisco Eteval da Silva Feitosa, Ana Acácia Pereira Valente, Aurélia Nogueira, Elizabeth Blanco and Isabel do Socorro Lobato Beltrão.

The logistics of the first edition was a great challenge. According to Feitosa, "the printing and distribution of the tests to the participating schools were moments of great apprehension". The students with the best performance received symbolic awards, such as trophies and medals. The first two editions were organized with seven and five levels, respectively. Among the main obstacles, the absence of financial resources, the lack of sponsorship and the limitation of personnel stood out.

From the second edition onwards, the project began to have the support of CNPq, with the collaboration of the City Hall and with the active involvement of Mathematics academics, strengthening the sustainability of the initiative. Former participants reported that OPM has always made support materials available to students and teachers, such as lists of challenging questions, which contributed to the preparation of those enrolled.

In 2005, the Brazilian Mathematical Society (SBM) launched the Brazilian Public School Mathematics Olympiad (OBMEP), structured in three levels — a model that inspired subsequent editions of the OPM.

The fourth edition of OPM, held in 2007, marked a period of significant expansion. The project was approved to receive resources from the Amazonas State Research Support Foundation (FAPEAM), which made it possible to expand the activities to the municipalities of Barreirinha, Itacoatiara and Parintins. This year, the achievement of the gold medal by a visually impaired student stands out, a fact that reinforces the inclusive character of the competition.

With the strengthening of institutional partnerships, the awards have become progressively more expressive. From the 4th edition onwards, the prizes began to include school kits, scholarships, bicycles, medals and trophies, valuing the performance of students and encouraging the continuity of the project.

The following editions maintained the award pattern and expanded the recognition to outstanding students. The participation of UEA academics has intensified, both in the

preparation of students and in the application of the tests. From the 5th edition onwards, academics from other courses began to act as inspectors, promoting an interdisciplinary character in the organization of the event.

In 2008, the last edition was held under the coordination of Professor Feitosa, who, upon joining the Federal University of Amazonas (UFAM), consolidated a reference project in the interior of the state. OPM, however, remained active, maintaining partnerships with the City Hall and continuing to reveal promising talents in the exact sciences.

From 2009 (VI OPM), the coordination passed to Professor Dr. Isabel do Socorro Lobato Beltrão, who remained until 2015. During this period, the structure and format of the Olympiad were maintained and improved, and the partnership with the Municipal Department of Education (SEMED) was consolidated, allowing greater reach to rural communities.

The award continued to include bicycles and school kits, and also began to value teachers whose students obtained gold medals, recognizing the teaching role in the teaching-learning process. In addition, training courses were implemented for teachers from participating schools, with the objective of presenting methodologies and pedagogical materials used by the OPM coordination.

In 2015, during the XII OPM, a question bank was created for the preparation of the tests of the two phases of the competition. That same year, the teachers of the champion students began to receive cell phones as a prize, in recognition of their contribution to the success of the students.

In general, the 2016 reports reveal the logistical difficulties faced by students in rural areas, especially dropout during the second phase of the competition. One of the causes identified was the holding of the tests on Saturdays, which prevented the participation of some students for religious reasons. In addition, the drought that occurred between the months of August and September made it difficult for students from rural areas to travel by river, compromising the presence of these participants in the final stage of the Olympiad.

In 2017, during the XIV edition of the OPM, the coordination began to be led by Professor Pedro Silvio Rodrigues Coimbra, who maintained the advances already consolidated and implemented important structural changes. Among the main changes, the change in the day of the second phase stands out, which started to take place on Sundays, in order to expand the participation of students and minimize the logistical and religious barriers identified in previous years.

In 2020, the coordination of the Parintinense Mathematical Olympiad (OPM) was taken over by Professor Dr. Paulo Sérgio da Silva, who maintained the improvements promoted by his predecessors and introduced new initiatives, such as the creation of the official OPM website. This digital environment began to disseminate announcements, training lists, calendars and relevant information to students and teachers, strengthening the institutional bond and expanding the visibility of the project.

However, still in 2020, in the face of the COVID-19 pandemic, the OPM was temporarily suspended. In this context, the website has become an essential tool for maintaining contact with students, enabling remote problem-solving courses and other continuing education actions. Despite the efforts, health restrictions made it impossible to hold the Olympiad in person that year.

In 2021, OPM's face-to-face activities resumed. On June 11, at 8:30 am, an opening live was held that marked the beginning of the registration period, which extended until June 30.

Students in the urban area were instructed to access the official website of the OPM, in the *Registration* tab, and register online, informing their full name, school, Mathematics teacher and level of participation. Students from rural areas, on the other hand, registered directly with the Mathematics teachers of their schools, following the same procedure adopted in previous editions.

The first phase of the XVI OPM was scheduled for September 10, 2021, at 8 am, and took place in two formats, due to the sanitary measures still in force: face-to-face, with printed tests for students in the rural area, and online, for students in the urban area of the municipality of Parintins.

The second phase of the Parintinense Mathematical Olympiad (OPM) was scheduled for September 11, 2022, on the premises of the Center for Higher Studies of Parintins (CESP/UEA), in a face-to-face format and subject to the current epidemiological circumstances. Due to health restrictions, the OPM was held over two years (2021/2022), which generated specific challenges. One of them was the significant absence of students from the 3rd year of High School in 2021, since the second phase only occurred in 2022, when many of these students had already passed entrance exams, resulting in an approximate dropout rate of 50%.

Despite the difficulties, the Municipality of Parintins maintained its institutional partnership, contributing with the donation of cell phones, tablets, medals and trophies for the

awarded students. The award ceremony took place with a reduced number of participants, in compliance with the health protocols resulting from the COVID-19 pandemic.

In 2023, under the coordination of Professor Dr. Júlio Cezar Marinho da Fonseca, OPM maintained its collaboration with the Parintins City Hall, which continued to support the students' awards. The prizes offered included notebooks and cell phones, reinforcing the recognition of student performance and encouraging the engagement of participants.

Continuing education courses for teachers and specific training for students classified for the second phase were maintained. In addition, scientific initiation projects were developed, with the objective of evaluating the impacts of the XVII OPM on the teaching of Mathematics, strengthening the link between competition and educational research.

In 2025, some students awarded at the XVII OPM were invited to participate in the "Olympic Problem Solving" course, held every two weeks on Saturdays. This initiative aims to deepen students' knowledge of problem-solving techniques, stimulating logical reasoning, creativity and continuous interest in Mathematics.

Throughout its history, OPM has undergone several structural and regulatory transformations. In the first editions, the competition had seven levels, and the training lists were inspired by the tests of the Brazilian Mathematical Olympiad (OBM) and books of mathematical curiosities. According to Fonseca (2025), there is a positive correlation between student performance in OPM and OBMEP, as schools awarded in OPM tend to maintain good results in OBMEP as well, reflecting the consolidation of a culture of excellence in Mathematics.

Currently, the Parintinense Mathematical Olympiad (OPM) is in its 17th edition, celebrating the success of students from rural areas, who have won gold medals at the levels in which they compete. This result represents a significant milestone in valuing education in the most remote communities. At the same time, the official OPM website is being updated, with the aim of recording the progress of the project and documenting the trajectory of former participants who stood out in their professional careers, highlighting the formative and social impact of this long-term educational initiative.

4.2 CURRENT STRUCTURE OF OPM

The Parintinense Mathematical Olympiad (OPM) has consolidated itself as a structured and institutionally recognized educational initiative, supported by the Municipality of Parintins, SEMED, SEDUC and local companies. Its official documentation — regulations,

reports and minutes filed at the Center for the Improvement of Mathematics Teaching (NAEM) — ensures the continuity and transparency of the project, recording quantitative and qualitative indicators on performance, participation and management.

The OPM is currently composed of three levels: Level 1 (6th–7th grades of Elementary School), Level 2 (8th–9th grades) and Level 3 (High School and EJA). The competition is organized in two phases: an objective test, applied in schools under the supervision of CESP/UEA professors and academics, and a discursive test, aimed at the 5% of students with the best performance. This structure combines multiple-choice assessment and open-ended questions, promoting the articulation between logical reasoning and mathematical argumentation.

In addition to the tests, OPM promotes continuing education for Mathematics teachers, focused on the elaboration and analysis of problems, strengthening the articulation between university and basic school. This formative dimension has contributed to the creation of a bank of contextualized questions and to the improvement of the teaching of Mathematics in the public network.

The award, held in partnership with the City Hall and the private sector, includes students, teachers and schools with medals, trophies and technological equipment, recognizing academic merit and encouraging students to remain in the field of Mathematics.

Recent adaptations, including the incorporation of digital tools and the improvement of evaluation and classification criteria, reinforce OPM's commitment to innovation, inclusion and pedagogical excellence, consolidating it as a regional model for promoting the teaching of Mathematics and encouraging participation in the Brazilian Public School Mathematics Olympiad (OBMEP).

5 IMPACTS OF THE PARINTINENSE MATHEMATICAL OLYMPIAD

The holding of mathematical Olympiads has been consolidated as an effective strategy to encourage learning and the appreciation of science in Brazil. Among these initiatives are the Brazilian Mathematical Olympiad (OBM), the Brazilian Public School Mathematics Olympiad (OBMEP) and, at the local level, the Parintinense Mathematical Olympiad (OPM), created with the purpose of promoting interest, logical reasoning and excellence in the teaching of this subject.

Established in 2005, OBMEP emerged as an action of the Institute of Pure and Applied Mathematics (IMPA), in partnership with the Ministry of Education (MEC), the Ministry of

Science, Technology and Innovation (MCTI) and the Brazilian Mathematical Society (SBM), aiming to encourage the study of mathematics among public school students, identify talents and contribute to the improvement of basic education in the country (Strategic Support Center, 2011). Studies carried out by the Center for Strategic Studies (2011) indicate that participation in Olympiads such as OBMEP has a positive impact on students' general school performance, expanding their opportunities for entry into higher education and developing relevant cognitive and socio-emotional skills.

These results corroborate the idea that the insertion of students in challenging contexts, such as mathematical competitions, favors not only formal learning, but also the integral formation of the student. Participation in Olympiads stimulates affective bonds with the school, promotes self-confidence, strengthens self-esteem and awakens an investigative and critical posture in the face of knowledge. By interacting in situations that transcend the school routine, the student perceives mathematics as a living language, endowed with beauty, logic and applicability in the understanding of natural and technological phenomena.

In this context, the Parintinense Mathematical Olympiad (OPM) emerges as a regional experience of great educational and social relevance. According to Da Fonseca et al. (2025), OPM seeks to overcome recurring challenges in mathematics teaching, such as difficulty in interpreting statements, lack of concentration, lack of logical reasoning, and obstacles related to algebra, arithmetic, geometry, and problem-solving content that require strategic thinking and spatial visualization.

Structured in phases and levels corresponding to the different stages of basic education, OPM adopts an approach that values comprehension and reasoning to the detriment of simple memorization of formulas. This conception is supported by Torrente and Reis (2023), when they state that progressively organized Olympiads allow the identification and development of talents from basic education, stimulating successful academic trajectories.

The convergence between OPM, OBM and OBMEP lies in the emphasis on higher-order mathematical thinking, according to Bloom's taxonomy (1956), which highlights the skills of application, analysis and synthesis as essential for meaningful learning. The preparation of students for OPM mobilizes cognitive and metacognitive skills that are directly reflected in school performance and in the formation of positive attitudes towards mathematics.

Research such as those by Carneiro (2004) and Badaró (2015) shows that training for the Olympics, centered on problem solving, stimulates creative and analytical thinking. In the same direction, Dante (2007) emphasizes that problem solving develops initiative, exploratory spirit and intellectual autonomy in the student. In addition, Polya (1995) argues that the systematic practice of problem solving constitutes the central axis of mathematical learning, as it promotes logical, critical and creative reasoning, fundamental aspects for active and transformative learning.

In this way, OPM has consolidated itself as a training space that transcends competition. It represents an environment of learning and appreciation of mathematical knowledge, capable of strengthening the bond between university and school, expanding the pedagogical repertoire of teachers and enhancing the protagonism of students. Its impacts go beyond performance in tests, reflecting in the construction of a more inclusive, participatory and socially significant mathematical culture in the Amazonian context.

6 FINAL CONSIDERATIONS

The historical and documentary analysis of the trajectory of the Parintinense Mathematical Olympiad (OPM) shows that its creation and consolidation represent a significant milestone in the valorization of mathematics teaching in the municipality of Parintins and in the lower Amazon region. Since its first edition, in 2004, the OPM has been configured as a space for scientific dissemination and citizenship training, joining efforts between universities, schools and public authorities in favor of a more inclusive, participatory and contextualized mathematics education.

The results obtained demonstrate that OPM goes beyond the competitive character, assuming a formative and social dimension. The involvement of teachers, managers and academics of the Mathematics degree reinforces the extension nature of the project, enabling the exchange between theory and practice, in addition to contributing to the initial and continuing training of teachers. There is also a significant increase in the participation of schools in rural areas, which reflects the organization's commitment to the democratization of access and educational equity.

From a pedagogical point of view, OPM has favored the development of higher cognitive skills, aligned with Bloom's taxonomy (1956), such as analysis, synthesis and application. By stimulating logical reasoning and problem solving, the Olympiad promotes significant learning, as advocated by Dante (2007) and Polya (1995), contributing to the

strengthening of mathematical thinking and to the formation of autonomous, critical and creative students.

In addition, the reports and documents analyzed indicate positive impacts on the self-esteem and motivation of the participants, revealing that public recognition through medals, awards and honorable mentions has a direct influence on the permanence and engagement of students with mathematics. The experience of competition thus becomes a space for belonging and valuing scientific knowledge, strengthening links between the different levels and institutions of the educational system.

The OPM, therefore, proves to be an initiative with a lasting formative and social impact. Its continuity over two decades, even in the face of logistical, financial, and pandemic challenges, demonstrates its relevance as a public policy for valuing mathematics.

In summary, the results and discussions presented reaffirm that the Parintense Mathematical Olympiad is not limited to a competitive event, but constitutes a structuring educational movement, guided by the principle of inclusion and the belief in the transformative power of mathematics teaching. Its historical path reveals a successful experience of articulation between university and school, capable of inspiring policies and practices aimed at promoting excellence and equity in the teaching of mathematics in local and regional contexts.

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**DIGITAL INFORMATION AND COMMUNICATION TECHNOLOGIES IN
LANGUAGE(S) TEACHING AND TEACHING PRACTICE**

**TECNOLOGIAS DIGITAIS DE INFORMAÇÃO E COMUNICAÇÃO NO ENSINO
DE LÍNGUAS(GENS) E NA PRÁTICA DOCENTE**

**TECNOLOGÍAS DIGITALES DE INFORMACIÓN Y COMUNICACIÓN EN LA
ENSEÑANZA DE LENGUAS(JES) Y EN LA PRÁCTICA DOCENTE**

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ABSTRACT

This article is an excerpt from a doctoral thesis that aims to investigate how the implementation of active, collaborative, and hybrid methodologies, mediated by Digital Information and Communication Technologies (DICTs), in the conduct of pedagogical activities contributed to the teaching and learning processes of Language(s) during the period of social distancing at the Federal Institute of Pará (IFPA), Santarém Campus, PA. The investigation stems from a central question, unfolded into three guiding questions concerning the limits and possibilities of applying DICTs as didactic-pedagogical resources in both face-to-face and emergency remote teaching (ERT) in the area of Language(s). From the field of Applied Linguistics, the research is qualitative and interpretivist, with an ethnographic approach supported by Clifford (2002) and Flick (2009). The analysis of the synchronous online focus interview technique (Murray, 1997; Gondim, 2002) follows the methodology of Content Analysis, as proposed by Bardin (2016). Grounded in the studies of Lévy (2010), Alves (2020), Bortoni-Ricardo (2008), Moita Lopes (2006), Kenski (2013), Zulfa (2021), Hodgers et al. (2020), and Moran (2017; 2018; 2019), the corpus of analysis consists of experience reports from seven (7) Language(s) teachers at IFPA/Santarém. From the exploration and analysis of these experience reports, it is concluded that the greatest challenge in Language(s) teaching stemmed from ERT, intensified by the restriction of face-to-face contact and limited Internet access for the use of DICTs, given that teachers had already been applying such methodologies in their teaching. Thus, through the use of active, collaborative, and hybrid methodologies via DICTs, it is expected that teachers will analyze, rethink, and (re)construct their pedagogical practices in face-to-face education.

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Keywords: Hybrid Teaching. Language(s). Pedagogical Practice. Technologies.

RESUMO

Este artigo é um recorte da tese doutoral, que objetiva investigar como a implementação de metodologias ativas, colaborativas e híbridas, mediadas pelas Tecnologias Digitais de Informação e Comunicação (TDICs), na condução das atividades pedagógicas contribuíram para os processos de ensino e de aprendizagem de Línguas(gens), no período de distanciamento social, no Instituto Federal do Pará (IFPA), Campus Santarém, PA. A investigação parte de uma questão central, desmembrada em três questões norteadoras sobre limites e possibilidades de aplicação das TDICs como recurso didático-pedagógico no ensino presencial e ensino remoto emergencial (ERE) na área de Línguas(gens). Da área da Linguística Aplicada, a pesquisa é qualitativa e interpretativista com abordagem etnográfica, sustentada em Clifford (2002) e Flick (2009). Na análise da técnica de entrevista focal on-line síncrono (Murray, 1997; Gondim, 2002), segue a metodologia da Análise de Conteúdo, em Bardin (2016). Fundamentada nos estudos de Lévy (2010), Alves (2020), Bortoni-Ricardo (2008), Moita Lopes (2006), Kenski (2013), Zulfa (2021), Hodgers et al. (2020), Moran (2017; 2018; 2019), o corpus de análise é constituído pelos relatos de experiência sete (7) professore(as) de Línguas(gens) do IFPA/Santarém. A partir da exploração/análise dos relatos de experiência conclui que o maior desafio no ensino Línguas(gens) decorreu do ERE, potencializado pela restrição do contato presencial, dificuldade de acesso à Internet, para exploração das TDICs, posto que os(as) professores(as) já exploravam tais metodologias no ensino. Assim, pela exploração das metodologias ativas, colaborativas e híbridas através das TDICs, espera-se que os docentes analisem, repensem e (re)construam suas práticas pedagógicas no ensino presencial.

Palavras-chave: Ensino Híbrido. Línguas(gens). Prática Pedagógica. Tecnologias.

RESUMEN

Este artículo es un recorte de la tesis doctoral que tiene como objetivo investigar cómo la implementación de metodologías activas, colaborativas e híbridas, mediadas por las Tecnologías Digitales de Información y Comunicación (TDIC), en la conducción de las actividades pedagógicas, contribuyó a los procesos de enseñanza y aprendizaje de Lenguas(jes), durante el período de distanciamiento social, en el Instituto Federal de Pará (IFPA), Campus Santarém, Brasil. La investigación parte de una cuestión central, formulada a partir de tres preguntas orientadoras sobre los límites y posibilidades de aplicación de las TDIC como recurso didáctico-pedagógico en la enseñanza presencial y en la enseñanza remota de emergencia (ERE) en el área de Lenguas(jes). Desde el campo de la Lingüística Aplicada, la investigación es cualitativa e interpretativa con un enfoque etnográfico, basada en Clifford (2002) y Flick (2009). En el análisis de la técnica de entrevista focal en línea y sincrónica (Murray, 1997; Gondim, 2002), se sigue la metodología del Análisis de Contenido, según Bardin (2016). Fundamentado en los estudios de Lévy (2010), Alves (2020), Bortoni-Ricardo (2008), Moita Lopes (2006), Kenski (2013), Zulfa (2021), Hodgers et al. (2020) y Moran (2017, 2018, 2019), el corpus de análisis está constituido por los relatos de experiencia de siete (7) profesores(as) de Lenguas(jes) del IFPA/Santarém. A partir de la exploración y análisis de los relatos de experiencia, se concluye que el mayor desafío en la enseñanza de Lenguas(s) surgió durante el ERE, intensificado por la restricción del contacto presencial y la dificultad de acceso a Internet para la utilización de las TDICs, dado que los(as) docentes ya venían aplicando dichas metodologías en su práctica. De este modo, mediante la implementación de metodologías activas, colaborativas e híbridas a través de

las TDIC, se espera que los docentes analicen, repiensen y (re)construyan sus prácticas pedagógicas en la enseñanza presencial.

Palabras clave: Enseñanza Híbrida. Lenguas(jes). Práctica Pedagógica. Tecnologías.

1 INTRODUCTION

Pedagogical practice and teaching practice have been the target of many reflections and inflections throughout the History of Education. This article derives from the thesis entitled *Applicability of Digital Information and Communication Technologies for Language Teaching in Teaching Practice*, defended in the Graduate Program in Languages at the State University of Western Paraná (UNIOESTE), Cascavel Campus, in 2023.

In addition to the constant challenge of seeking quality and efficient teaching and learning, the experience, experience and construction of knowledge in the areas of Languages and their different expressions, contemplating teaching experiences in Portuguese, Spanish, English, Computational Language and Philosophy, in Basic and Higher Education, lead us to several questions, concerns and questions. However, with social distancing⁸ due to the covid-19 pandemic⁹ and the resulting teaching totally mediated by digital technologies, the research expanded to draw a parallel between the exploration of DICTs in face-to-face teaching¹⁰ and social distancing, in emergency remote teaching (ERE),¹¹ completely *online*.

It was in the incessant search for didactic strategies, pedagogical mechanisms and technological instruments that would contribute to teaching-learning and safeguarding lives, that, including the lack of preparation to handle the various technological applications, computers, in addition to the difficulty of accessing *the Internet*, teachers sought in countless ways to respect social distancing. They sought to make their pedagogical practices more agile and effective, in order to fill the gaps left by the impossibility of physical contact during the teaching-learning process entirely *online*.

⁸ Unlike social isolation, social distancing refers to "[...] measures that aim to reduce interactions in a community, which may include people who are infected, not yet identified and, therefore, not isolated" due to contamination by the *Sars-CoV-2 virus*, responsible for the coronavirus pandemic (Aquino *et al.*, 2020, p. 2425).

⁹ Covid-19, a disease that has affected humans, caused by the *Sars-CoV-2 virus*, whose acronym comes from **CORona VIRus Disease, which means Coronavirus disease. "At first, the spelling 'Covid' obeyed the rule of acronyms: '[...] With more than three letters and pronounceable, the acronyms must be written with a capital letter and the rest in lowercase'. From the moment the acronym started to name the disease, 'covid-19' became a common noun written with lowercase letters, like so many other diseases" (TRF. Federal Justice, 2020, s.p.; ABL, 2022, electronic resource).**

¹⁰ The expression *face-to-face teaching* is used to differentiate it from the meaning attributed to *emergency remote teaching* (ERE) that requires the simultaneous participation of students and teachers at a single moment in class, physical presence even remotely, during the time when the class is actually held.

¹¹ Emergency remote teaching (ERE) consists of a temporary solution that allows the continuity of face-to-face teaching activities during the period of the covid-19 pandemic. Therefore, ERE is not a new teaching modality. It is just a strategy that aims to continue school activities during the school year. To this end, it promotes a temporary curricular change, thus appearing as a viable alternative in the face of the circumstances generated by the pandemic crisis (Hodges *et al.*, 2020).

Thus, to enable the teaching of curricular content in a non-face-to-face manner, teachers implemented active¹², collaborative,¹³ and hybrid¹⁴ methodologies. Students started to attend classes in their home environments, pedagogical activities were carried out by digital means through synchronous and asynchronous interaction¹⁵, highlighting the new and temporary expression used in the area of Education during social distancing: Emergency Remote Teaching (ERE).

In this context, the present research investigates and discusses the potential of DICTs as a didactic-pedagogical resource explored during Language(gens) classes at the Federal Institute of Education, Science and Technology, IFPA, *Santarém Campus*, which offers Technical and Technological Professional Education¹⁶ in formal education¹⁷, in face-to-face and *online* teaching in the ERE. In this perspective, the approach to the theme contemplates the association of the potential of DICTs with didactic-pedagogical methodologies and strategies applied to pedagogical practice and language learning at IFPA/Santarém.

¹² Later defined, in this thesis, the generic term active learning has been used in the sense of student-centered learning, instead of teacher-centered and consists of the act of learning by doing (Moran, 2018).

¹³ Under a broader conception, collaborative learning is said to be "[...] any activity in which two or more people work together to create meaning, explore a topic or improve skills" (Harassim, 1995 *apud* Torres, Alcantara; Irala, 2004, p. 5).

¹⁴ Hybrid learning refers to 'blended education', and consists of the mixture of "[...] face-to-face education with distance education (*online*), promotes the combination of different learning spaces or between formal and informal learning [...]" (Mattar, 2017, p. 27).

¹⁵ Synchronous interaction is one that takes place in real time, that is, "[...] The parties involved in the exchange of messages have immediate access to the responses and reactions of the other, since, in some way, they are simultaneously sharing a communication channel that instantly carries out the exchanges of messages". In asynchronous interaction, "[...] the exchange of messages is interspersed for a period of time that disfigures the instantaneous character of the interaction/synchronous communication" (Jungblut, 2004, p. 105).

¹⁶ In this thesis, the expression Technical and Technological Education is used to encompass Technical Professional Education (EPTM) and Basic Education (EBIS) and Technological Professional Education in Higher Education (EPT/ES). Secondary Technical Professional Education (EPTM) is a type of vocational education found in Basic Education. Its offer is through technical courses of initial technical professional qualification in the integrated modalities, concomitant or subsequent to High School, and technical professional specialization courses, according to the National Catalog of Technical Courses (CNCT). Technological Professional Education, on the other hand, refers to undergraduate and graduate courses, including intermediate outputs of technological professional qualification, observing the National Catalog of Higher Technology Courses (CNCST), technological professional specialization courses and professional Master's and Doctorate programs (Brasil, 2021).

¹⁷ Formal education is that which is developed in institutions regulated by law, certifying, organized according to national guidelines such as schools and universities, with previously demarcated contents, thus constituting institutionalized education (Gohn, 2006, p. 26). Formal education can be offered in Secondary Level Technical Professional Education (EPTM), in Basic Education, integrated and subsequent modalities (EBIS) and in Technological Professional Education under one of three teaching modes: face-to-face, blended (or hybrid) or distance education (DE) (arts. 80 and 81, LDB/1996, Brazil, 1996).

2 THE RESEARCH: FOUNDATIONS AND CONTEXTS

This section presents the foundations and contexts that underpin the research. Initially, we approach a conceptualization of what is understood by research and research report, with the purpose of fostering reflections on the theoretical-methodological foundations that guided the investigative path.

Next, the context of the investigation, the participating subjects and the procedures adopted for the generation of the records are described, as well as the systematic analysis and interpretation of the data produced. Finally, the limitations and delimitations that configure the scope of the study are highlighted.

According to Moreira and Caleffe (2011, p. 248), research can be understood as a systematic search process, supported by data, which aims to answer a question, solve a problem or expand the understanding of a given phenomenon. Methodology, on the other hand, refers to the study of the paths and instruments used in the construction of scientific knowledge.

The research activity is configured as an academic practice supported by two complementary dimensions: the generation of data and the scientific description of the investigated phenomenon. For Amorim (2001), the generation of data is a process that involves the understanding of the subject in relation to his context and his actions. Scientific description, on the other hand, refers to the analysis of the phenomenon studied, whose interpretation is systematized and expressed in the research report.

According to Jobim and Souza (2003), the research report is the result of a process that takes place when the researcher, appropriating the other's gaze, turns this gaze to himself and starts to act from the perspective that the other's gaze allows him to have on the phenomenon studied. This reflective movement contributes to the resignification of his own worldview.

As for the methodological procedures, we present the approach adopted to search for answers to the guiding questions, supported by the theoretical-methodological framework that underlies the investigation on the meanings attributed by IFPA/Santarém teachers to the insertion of DICTs in their pedagogical practices in the teaching of Languages, in the context of Technical and Technological Education.

The research is anchored in the assumptions of Applied Linguistics (AL), of a qualitative and interpretative nature, with an ethnographic orientation and is theoretically based on the field of Applied Linguistics (AL), understood here in an expanded way,

distancing itself from traditional conceptions that treat it only as an application of theories. So, when thinking about AL, we seek to "[...] create intelligibility about social problems in which language occupies a central place" (Moita Lopes, 2006, p. 14), in order to provide "[...] gains to social practices and their participants, in the sense of a better quality of life" (Rojo, 2006, p. 258).

The comprehension and analysis bias adopted from the perspective of Applied Linguistics (AL) was concentrated on a previously delimited object of study, which includes the area of Natural Language Processing (NLP¹⁸), articulated with objectives and procedures supported by the use of multimedia in the teaching-learning process. Thus, we consider problem situations and objects of investigation and interpretation emerging from teaching practice, reported by teachers in the areas of Letters, Portuguese, Spanish and English, as well as Computational Language and Philosophy, working at IFPA/Santarém, both before and during the period of emergency remote teaching resulting from the covid-19 pandemic.

2.1 THEORETICAL-METHODOLOGICAL PERSPECTIVE OF THE RESEARCH

Technically, the analysis of the object of study and interpretation permeated other fields of Science, particularly Anthropology and Sociology, and brought together a set of methods and theoretical-methodological approaches in qualitative research (Bortoni-Ricardo, 2008).

In this article, we contemplated the interpretivist paradigm which, like any other, does not specifically constitute a research method, is only concerned with translating/interpreting subjective and sociopolitical meanings and symbolic actions in the way that, through subject-object interaction, the person (re)constructs his own reality (Thanh; Thanh, 2015).

However, as reality will never be ready, as it is always changeable, the subject-object interaction enables the (re)construction of different worldviews, which is why interpretivist research assumes that what the researcher has as a result of his investigation are not the facts of an objective reality, but, above all, the interpretation that the researcher makes about the interpretations of the subjects who participate in the investigated phenomenon (Bortoni-Ricardo (2008).

Thus, for the development of this research, we adopted the perspective of analysis

¹⁸ The area of NLP, particularly in the Portuguese language, is influenced by several other currents that, by nature, require a multidisciplinary treatment, such as, for example, the areas of Linguistics, Logic, Computer Science, Psychology, among others.

centered on the interpretative paradigm that seemed appropriate to me, since we sought, at a level of subjective experience, to understand the reality experienced in the before-during-after-ERE from the point of view of Language(gens) teachers at IFPA, *Santarém* Campus.

3 METHODOLOGICAL PERSPECTIVE: TYPES OF RESEARCH

In this investigation, we adopted the qualitative approach as a methodological path, understood as a situated activity that inserts the researcher in the context of the phenomenon studied. This type of research consists of a

[...] a set of material and interpretative practices that give visibility to the world. These practices transform the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and reminders [...] (Denzin; Lincoln, 2006, p. 17).

The qualitative research "[...] explores the characteristics of individuals and scenarios that cannot be easily described numerically" (Moreira; Caleffe, 2008, p. 73). For this reason, we are situated in a qualitative perspective, linked to studies of an ethnographic nature and an interpretative approach.

In turn, ethnography seeks to understand the meaning of actions and events in the way they are perceived by people or groups in their respective cultural contexts (Lüdke; André, 2012). In this sense, ethnographic research is less concerned with describing social events or processes only from reports, but, above all, from "[...] an understanding of the social processes of production of these events and from an internal perspective of the process through participation during its development" (Flick, 2009, p. 31).

Ethnographic research is characterized by direct contact between the researcher and the situation investigated, which enables the construction of processes and relationships that shape the daily experience of professional life, involving "[...] linked and re-elaborated knowledge, attitudes, values, beliefs, ways of seeing and feeling reality and the world" (André, 2009, p. 34).

In the context of this qualitative investigation, we turned to the contents that emerged from the experience reports of each teacher, seeking to understand the creative role they assume in the construction of their teaching practices. To this end, we use Content Analysis, defined as a methodology that

[...] brings together a set of communication analysis techniques aimed at obtaining, through systematic and objective procedures for describing the content of messages, indicators (quantitative or not) that allow the inference of knowledge related to the conditions of production/reception (inferred variables) of these messages (Bardin, 2016, p. 48).

Content Analysis, understood as a method of empirical nature, underlies the set of content analyses that we carry out in this research. Its application depends on the

[...] type of "speech" to which he dedicates himself and the type of interpretation that is intended as an objective. There is no ready-made thing in content analysis, but only a few basic rules, sometimes difficult to transpose. The content analysis technique appropriate to the intended domain and objective has to be reinvented at every moment, except for simple and generalized uses [...] (Bardin, 2016, p. 36).

The application of Content Analysis allowed us to make logical and reasoned inferences about the origin of the messages, considering the sender, the context of production and the possible effects produced by the analyzed discourse. According to Bardin (2016), the objective of this method is to explain, systematize and reveal the meaning contained in the messages that constitute the object of analysis. For this, quantitative and/or qualitative data are used, recorded through a set of partial but complementary techniques.

According to Bardin (2016), conducting Content Analysis involves three main phases: (a) organization of the pre-analysis; (b) exploration of the material, with the processes of coding and categorization; and (c) treatment of results, inference and interpretation. The observance of each of these steps proved to be essential to ensure the coherence and reliability of the results obtained.

As a research methodology applied to the area of Education, we explore the experience report, which, according to Furtado (2018, p. 48), "its conduction is not a mere description", as it seeks to reflect and narrate "educational actions from a consolidated epistemology". In this investigation, the adoption of this methodology enabled the teacher-researcher to describe and infer aspects experienced in the use of DICTs in the daily life of her teaching practice in Spanish, in addition to favoring the deepening of knowledge that contributed to her professional training in the context of the Doctorate.

In the procedures for generating records for Content Analysis (Bardin, 2016), we explored different tools of DICTs, which enabled the application of the synchronous online focus group interview technique. This methodological choice proved to be pertinent in view of the restrictions imposed by social distancing during the period of the covid-19 pandemic.

As a technique for recording the material intended for analysis, we understand the interview, in the conception of Moreira and Caleffe (2008, p.166), as "[...] a conversation with purpose".

From the perspective of Schmidt, Palazzi and Piccinini (2020, p. 961), "[...] Online interviews are an alternative for the continuity of research that was already in progress, or even for carrying out new studies during the Covid-19 pandemic". The authors reinforce that this interview format constitutes an effective strategy for the registration of analysis material in qualitative investigations, especially because it enables interaction between researcher and participants in contexts of face-to-face restriction, without compromising the quality of the data obtained.

The combination of *online* interview techniques and synchronous *online* focus group techniques has become increasingly frequent in different areas of research, both nationally and internationally, with varied applications in various fields of human activity (Murray, 1997; Gondim, 2002; Fox; Morris; Rumsey, 2007).

The synchronous online *focus group* is an effective tool for the production of analysis material, based on collective discussions centered on a specific theme, as highlighted by Gondim (2002) and Fox, Morris and Rumsey (2007). In this format, discussions should flow spontaneously, without a rigid structure, and should be conducted by a moderator, usually the researcher responsible for the study.

According to Gondim (2002, p. 151) it is the moderator who "[...] assumes a position of facilitator of the discussion process, and its emphasis is on the psychosocial processes that emerge, that is, on the interplay of interinfluences of the formation of opinions on a given topic".

According to Murray (1997) and Gondim (2002), it is up to the moderator to conduct the discussion in such a way as to allow the group to explore the proposed theme in a broad way, considering and comparing the opinions of each participant, since the dynamics of the focus group reflect the individual expression of its members. When an opinion is presented by only a few participants, Gondim (2002, p. 151): "[...] for the purpose of analyzing and interpreting the results, *it* (the opinion, emphasis added) is referred to as the group's".

In the synchronous online *focus group*, all participants interact with each other, simultaneously, in real time, in chat rooms or through TDICs tools that enable *online conferences* (Fox; Morris; Rumsey, 2007). To this end, there is a need for a script, Theme

Guide or Discussion Guide, which includes all the topics to be addressed in order to ensure that all these topics are adequately addressed (Gondim, 2002).

According to Flick's opinion (2009, p. 189) that "[...] as an analytical technique for focus group data", the exploration of Content Analysis is recommended. For this reason, I chose as the *corpus* of analysis of the research the content present in the participants' experience reports about the object of the study: the application of DICTs and active, collaborative and hybrid methodologies in the development of pedagogical practice in the teaching of Languages, face-to-face and in the ERE at IFPA/Santarém.

Thus, the corpus of analysis focused on the experience reports on teaching practice, produced through the application of the interview technique in a synchronous online focus group format, structured specifically for this research.

During the elaboration of the protocol of the Discussion Guide for the synchronous online focus group, which is part of the second part of the recording instrument, the contribution of verbal interaction to the understanding of the mechanisms of speech use in pedagogical practices was considered, providing subsidies for the analysis of Language(gem) activities mediated by DICTs (Bortoni-Ricardo, 2008; Thanh; Thanh, 2015).

3.1 CONTEXT, SUBJECTS AND PROCEDURES

The *locus* of this research was the Federal Institute of Education, Science and Technology of Pará (IFPA), Santarém Campus, in the state of Pará, an institution created by Law No. 11,892, of December 29, 2008. The IFPA aims to offer Basic Education, Technical Professional Education and Technological Professional Education, as recommended by Brazilian educational legislation (Brasil, 1998).

3.1.1 Research Subjects

At IFPA/Santarém Campus, we identified a faculty composed of ten (10) teachers with training in the areas of Languages (Portuguese, Spanish and English), Computational Language and Philosophy, who work in the courses of Technical Professional Education, Technological Professional Education, Proeja and Graduate Studies.

During the period of Emergency Remote Education (ERE), seven (7) teachers agreed to participate in the research reported in this article, three (3) of whom were self-declared as belonging to the male gender/sex, hereinafter identified by teacher(s), and four (4) belonging to the female gender/sex, hereinafter identified by teacher(s).

These professors worked in the area of institutional management, coordinating and supporting professors and students in the development of courses in synchronous and asynchronous formats. In addition, they played an essential role in assisting students and families, contributing significantly to the continuity of teaching activities during the pandemic period.

To register the specificities related to the identification of the sample participants, we adopted a coding strategy that employs fictitious names composed of only three letters, defined according to sex/gender. This form of identification is not directly related to the order of the schedule of the synchronous online focus group meetings (Table 1).

The procedure adopted is in line with the regulations of the National Health Council (Brasil, 2012; 2013; 2016), ensuring compliance with the ethical principles of scientific-academic research and the preservation of the integrity and rights of the professors who voluntarily participated in the study.

3.1.2 Registration, Analysis and Interpretation Procedures

After the issuance of the favorable opinion by the Research Ethics Committee of the State University of Western Paraná (Unioeste), the actions scheduled for the insertion of the project in the investigative locus, the Federal Institute of Education, Science and Technology of Pará (IFPA), Santarém Campus, began.

The actions were developed in specific phases. In the first, the researcher's initial and official contact with the General Directorate of IFPA/Santarém took place. With institutional consent, the project was presented to the Board of Education, Research and Extension and, later, to the professors invited to participate in the study.

With the agreement of the professors, with the consent of the aforementioned professors, the copies of the Project were forwarded to the Opinion of the Ethics Committee, the Informed Consent Form for the Use of Image and Sound of Voice (ICF/TCUISV) and the Declaration of Use of Data. Still in this phase, upon authorization from IFPA to carry out the research, we requested support from the Coordination of the Courses to contact each of the possible and probable participating teachers.

In the second phase, we carried out the initial approach with the participating teachers by *email* and *WhatsApp*, presenting the project and sending the ICF/TCUISV and the Declaration of Data Use. We asked each professor to authorize, through these documents,

their participation in the research, the recording of voice and image during the synchronous online focus group interview and the collection of the corresponding signatures.

After this initial stage, we scheduled the following meetings with the purpose of clarifying any doubts and discussing the possible ways of generating the information necessary to meet the objectives defined in the research.

In the second phase, as face-to-face contact was not possible due to the covid-19 pandemic and social distancing measures, we decided to hold the focus group in a synchronous *online* format, through the *Google Meet* platform. All invited teachers, contacted first by *WhatsApp* and then by *email*, agreed to participate, pointed out *Google Meet* as the most appropriate resource and suggested possible dates and times for the meeting.

During this stage, with the support of the IFPA/Santarém Course Coordinations, considering the availability of the group of professors, who committed to collaborate with the research, by mutual agreement, three moments were defined for the realization of the synchronous online focus group meetings on different days and times.

The first meeting took place on October 5 and was attended by a teacher. On October 6, 2021, we held the second and third meetings. The second had the participation of a teacher and a teacher. And, in the third, three professors participated, one professor and two professors.

In the third stage of the study, the theoretical foundation of the thesis was resumed, as well as the transcription and analysis of the content produced in the experience reports during the synchronous online focus group meetings. At this stage, the Sociodemographic Registration Units, which characterize the research sample, were also organized and examined (Table 1).

Table 1

Sociodemographic registration units

Sociodemographic Registration Units (Self-declaration – from or on)
Belonging to the male or female sex/gender, age, marital status and offspring.
Professional training and academic title for teaching.
Time of teaching and professional performance at IFPA.
Weekly workload and shift of professional activity at IFPA.
Functional situation at IFPA and in another Higher Education Institution (HEI).

Accumulation of functions/positions (teaching and institutional management), participation in study groups and/or in research and/or extension projects at IFPA and/or another HEI.

Source: Adapted from RIEDNER, 2024, p. 79.

4 RESULTS AND DISCUSSIONS

As for the generation of sociodemographic information, this occurred through the electronic form [*on-line*], sent by institutional e-mail (*e-mail*), which facilitated the application of the synchronous online focus group technique , since previous knowledge about the context and the participants contributed to the elaboration of the sociodemographic profile and the professional training of the participant.

The electronic form consisted of a kind of questionnaire, characterized as an excerpt from the first part of the record generation instrument (Table 1: Sociodemographic Registration Units) and aimed to outline a professional identity profile of the participants in order to present the reader with a brief characterization of the sample.

Some sociodemographic specificities of the participants registered were analyzed/presented here. Starting with initial academic training in Higher Education. Among the teachers, there was a predominance of training in Languages (Portuguese/English and Portuguese/Spanish and English Language and Literature) and in Pedagogy. The teachers revealed initial training in Philosophy, Languages and Technology in Computer Networks, the latter being especially focused on the Language of Digital Communication and Information Technologies, important for the conduction and effectiveness of the ERE at IFPA/Santarém.

In the synchronous online focus group meetings , we found that all IFPA/Santarém professors participated in and/or coordinated study groups or research or extension projects. The study groups and/or research/extension projects were listed in alphabetical order (Table 2).

Table 2

Study groups and/or research/extension projects at IFPA/Santarém

Study group and/or research/extension projects
Linguistic Atlas of Brazil (ALIB).
Coloniality of power, knowledge and art: transversal critiques.
Study and research at the Internship Center.
Software Development Teams.
Digital Genres in Vocational Education.

Geosociolinguistics and Socioterminology (GeoLinTerm).
Study Group on Digital Genres in High School and in the National Program for the Integration of Professional Education with Basic Education, in the Youth and Adult Modality (Proeja).
Research group on Language and Linguistic Processing.
Workshop on Cyberculture.
The impacts of the Continuing Education Program (Alfmat) of the Municipal Department of Education of Belém, PA, on the pedagogical practice of teachers of Cycle II of the School of Early Childhood Education and Elementary Education Prof. Pedro Demo.
Research and development of the Structuring Teaching Nucleus of the Technology in Events Course.
Protagonists of Contemporary Youth Narratives.

Source: Adapted from RIEDNER, 2024, p. 82.

The organization of the Registration Units and Context Units (Bardin, 2016) for the analysis of the content present in the reports of the teachers who conducted the discussions in the synchronous online focus group meetings (Table 3), occurred based on the questions proposed in the Record Generation Instrument.

Table 3

Registration and context units guiding the synchronous online focus group

Order	Registration Units	Context Units
1st	Experiences	Reports of experiences lived with the use of educational technologies during the process of professional training (initial and continuing) of teachers.
2nd	Active, collaborative, and hybrid practices	Participants' perception of the preparation of teachers and students for the exploration and application of DICTs in contexts that combine active, collaborative, and hybrid methodologies in the classroom that lead to the (un)success of language teaching in <i>offline</i> and <i>online modes</i> , expressions of synchronous and asynchronous classes during ERE in the covid-19 pandemic.
3rd	TDIC in Offline and Online Language Teaching	Conditions, scenarios and contexts of use of DICTs at IFPA, <i>Santarém Campus</i> , to lead teachers to reflect on challenges, limits and possibilities of DICTs in the language classroom, synchronous and asynchronous in ERE in the covid-19 pandemic.
4th	Educational policies in Technical and Technological	Teachers' perception of educational policies at IFPA, <i>Santarém Campus</i> , institutional incentive, ease of access to the Internet, student motivation to study with TDICs, incentive to active and collaborative learning, teacher's

	Education in <i>offline</i> and <i>online</i> teaching	motivation to work in hybrid teaching, offline and online modalities and synchronous and asynchronous classes in ERE during the covid-19 pandemic.
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Source: RIEDNER, 2024, p. 83

To generate the analysis material from the synchronous online focus group , according to each Registration and Context Unit, the Google Meet platform was used , which enabled the recording of the experience reports in the voice of the participants, according to previous authorization. These recordings were transcribed, faithfully respecting the content present in each participant's report.

The fourth and last phase of the research corresponded to the organization of the academic report, appreciation by the participants of this report and the defense of this thesis.

4.1 LIMITATIONS AND DELIMITATIONS OF RESEARCH

In this item, we present the main limitations and limitations that affected the development of the research, especially with regard to the time allocated to the meetings, the choice and application of the data generation instrument, the analysis of experience reports and the scarcity of studies related to the exploration of DICTs in the pedagogical practice of language teachers.

These considerations, which concern the real and methodological conditions of the investigative process, were originally discussed in the doctoral thesis (RIEDNER, 2023) and are resumed here because they are essential to understanding the course of the study and the circumstances that involved the generation and analysis of the data:

i) First Context Unit – lived experiences: reports of experiences lived with the use of educational technologies during the professional training process (initial and continued) of the teachers participating in the synchronous online focus group .

ii) Second Context Unit – active, collaborative and hybrid practices in the Languages classroom: participants' perception of the preparation of teachers and students for the exploration and application of DICTs in contexts that combine such methodologies in the classroom, which leads to the (un)success of Languages teaching in *offline* and *online* modes, expressions of synchronous and asynchronous classes in ERE during the period of the covid-19 pandemic.

iii) Third Context Unit - DICTs in *offline* and *online* language teaching: conditions, scenarios and contexts of use of digital technologies at IFPA/Santarém, to lead teachers to reflect on the challenges, limits and possibilities of DICTs in the classroom of synchronous and asynchronous languages in the ERE of the covid-19 pandemic.

iv) Fourth Context Unit – educational policies at IFPA/Santarém in *offline* and *online* teaching: perception of the teachers participating in this research on educational policies, institutional incentive, ease of access to the *Internet*, student motivation to study with DICTs, incentive to active and collaborative learning, teacher motivation to work in hybrid teaching, *offline* and *online modalities* and synchronous and asynchronous classes in the ERE of the covid-19 pandemic.

In this sense, when we consider the experience reports lived by teachers with educational technologies during the professional training process, we observe that, despite the limitations and challenges faced at the time, initial training provided only basic computer knowledge.

Currently, in view of the accentuated technological evolution, it is essential to offer the future teacher, who will work in educational institutions, new learning opportunities in the computational area. Such training should enable the didactic-pedagogical use of technological resources, respecting the context, conditions and reality of each teacher, so that the use of DICTs is effectively integrated into the academic routine.

5 CONCLUSION

Considering the guiding question of this research, which seeks to discuss the potential of Digital Information and Communication Technologies (DICTs) as a didactic-pedagogical resource in the Language(gens) classes of the Federal Institute of Education, Science and Technology of Pará – Santarém Campus (IFPA/Santarém), an institution that offers Technical and Technological Professional Education both in the face-to-face modality and in emergency remote teaching (ERE), we propose to reflect on the possibilities of integrating DICTs into teaching methodologies and strategies applied to teaching practice and language learning.

In this sense, we seek to favor the analysis, reflection and (re)construction of pedagogical practice in face-to-face teaching, presenting below some considerations arising from this discussion. We observed that the experience reports lived by each teacher participating in the synchronous online focus group meetings, corresponding to the respective Context Units, were organized into distinct sections and subsections, in order to

facilitate the analysis of the content and, consequently, enable a broader understanding of the situations experienced and the challenges faced.

Thus, we found that the results of research, both national and international, corroborate the understanding that the process of appropriation of DICTs in the pedagogical practices of teachers who work in professional, technical and technological training courses is still in the consolidation phase, not being fully established (Kenski, 2013; Silva, 2015; Pinto, 2015; Williamson, Eynon, Potter, 2020; Barin *et al.*, 2020).

Thus, based on the analyzed reports and considering the aforementioned assertion, according to which the process of appropriation of DICTs in pedagogical practices is still being consolidated, we present and discuss the content related to the second Context Unit: active, collaborative and hybrid practices in Language classes.

Thus, when we analyze the reports of experience lived by teachers with the use of educational technologies during the professional training process, we found that, even in the face of the limitations and challenges faced at the time, there was a subtle advance in the field of information technology during initial training.

In this scenario of accelerated technological evolution, it is essential that new learning opportunities in the area of digital technologies are provided to the future teacher, who will work in educational institutions, enabling him or her to develop his or her practice with greater didactic-pedagogical exploration of technological resources, in line with his or her context, conditions and reality. The purpose is for the use of DICTs to be effectively and meaningfully integrated into the academic routine.

In addition, in view of the trajectory of this research, we recognize the relevance of carrying out a systemic evaluation that contemplates the institutional efforts undertaken, identifies achievements and eventual (un)successes, and systematizes the aspects that showed greater weaknesses and functional limitations.

Such evaluation points could serve as preparation for facing possible future situations that require emergency actions, such as academic dropout and massive failure, which compromise the organizational structure of the institution and require an active search for students, or, in the opposite direction, automatic or massive approval, which requires curriculum replanning, diagnostic evaluation to guide the recovery of learning and review of promotion criteria, among other measures (Brasil, 2021b).

From the results of this research and the analysis of the experience reports, we show that the use of Digital Information and Communication Technologies (DICTs) constitutes a

promising path for the expansion and improvement of pedagogical practices, especially in the teaching of Languages. The experiences of teachers during Emergency Remote Education (ERE) allowed us to identify not only challenges, but also opportunities for innovation and collaboration that can inspire the face-to-face context.

In this way, we propose to expand the possibilities of inserting DICTs as didactic-methodological resources integrated with face-to-face teaching, favoring the (re)signification of teaching practices and strengthening professional training. We believe that the consolidation of a critical and reflective digital pedagogical culture can contribute to the development of more meaningful practices, contextualized and committed to the contemporary demands of education.

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**THE STATUTE OF THE CHILD AND ADOLESCENT (ECA) AND THE EXERCISE
OF THE RIGHT TO EDUCATION OF ADOLESCENTS IN CONFLICT WITH THE
LAW**

**ESTATUTO DA CRIANÇA E DO ADOLESCENTE (ECA) E O EXERCÍCIO DO
DIREITO À EDUCAÇÃO DOS ADOLESCENTES EM CONFLITO COM A LEI**

**EL ESTATUTO DEL NIÑO Y DEL ADOLESCENTE (ECA) Y EL EJERCICIO DEL
DERECHO A LA EDUCACIÓN DE LOS ADOLESCENTES EN CONFLICTO CON
LA LEY**

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ABSTRACT

The discussion presented in this text analyzes the strengths and weaknesses of the Statute of Children and Adolescents (ECA) in the pursuit of the effective realization of the right to education for adolescents in conflict with the law. Situated at the interface between education and human rights, the study shows that, although the ECA represents a milestone in comprehensive protection, its practical application still faces institutional, political, and structural barriers. The study adopts a qualitative approach, of a bibliographic nature, Adorno (1995), Cury (2002), Fernandes and Paludetto (2010), and Queiroz (2017)) and documentary nature (Federal Constitution of 1988; the Law of Guidelines and Bases of Education - LDB nº 9.394/1996); the ECA (Law nº 8.069/1990) and the SINASE (Law nº 12.594/2012). The results highlight the invisibility of adolescents in society and the limitations of public education policies, where the right to education, although legally guaranteed, is not fully realized due to a lack of intersectoral public policies that integrate the areas of education, justice, and social assistance.

Keywords: Statute of Children and Adolescents (ECA). Right to Education. Adolescents in Conflict with the Law.

RESUMO

A discussão apresentada neste texto analisa as potências e fragilidades do Estatuto da Criança e do Adolescente (ECA) na busca da efetivação do direito à educação de adolescentes em conflito com a lei. Inserido na interface entre educação e direitos humanos,

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o estudo evidencia que, embora o ECA represente um marco na proteção integral, sua aplicação prática ainda enfrenta barreiras institucionais, políticas e estruturais. O estudo adota uma abordagem qualitativa, de natureza bibliográfica, Adorno (1995), Cury (2002), Fernandes e Paludetto (2010) e Queiroz (2017)) e documental (Constituição Federal de 1988; a Lei de Diretrizes e Bases da Educação - LDB nº 9.394/1996); o ECA (Lei nº 8.069/1990) e o SINASE (Lei nº 12.594/2012). Os resultados apontam a invisibilidade dos adolescentes perante a sociedade e as limitações das políticas públicas educacionais, onde o direito à educação, embora garantido legalmente, não se concretiza plenamente, devido a carência de políticas públicas intersetoriais que integrem as áreas da educação, justiça e assistência social

Palavras-chave: Estatuto da Criança e do Adolescente (ECA). Direito à Educação. Adolescentes em Conflito com a Lei.

RESUMEN

La discusión presentada en este texto analiza las potencialidades y debilidades del Estatuto del Niño y del Adolescente (ECA) en la búsqueda de la efectividad del derecho a la educación de los adolescentes en conflicto con la ley. Inserto en la interfaz entre la educación y los derechos humanos, el estudio evidencia que, aunque el ECA representa un hito en la protección integral, su aplicación práctica aún enfrenta barreras institucionales, políticas y estructurales. El estudio adopta un enfoque cualitativo, de naturaleza bibliográfica (Adorno, 1995; Cury, 2002; Fernandes y Paludetto, 2010; Queiroz, 2017) y documental (Constitución Federal de 1988; Ley de Directrices y Bases de la Educación – LDB n.º 9.394/1996; el ECA – Ley n.º 8.069/1990; y el SINASE – Ley n.º 12.594/2012). Los resultados señalan la invisibilidad de los adolescentes ante la sociedad y las limitaciones de las políticas públicas educativas, donde el derecho a la educación, aunque garantizado legalmente, no se materializa plenamente debido a la falta de políticas públicas intersectoriales que integren las áreas de educación, justicia y asistencia social.

Palabras clave: Estatuto del Niño y del Adolescente. Derecho a la Educación. Adolescentes en Conflicto con la Ley. Políticas Públicas.

1 CONVERSATION STARTER...

This article establishes an interdisciplinary interface that articulates the field of Education with Human Rights, covering the areas of Psychology, Public Security and Social Assistance. The study focuses on the central problem of guaranteeing access to schooling and the realization of the right to education for adolescents in conflict with the law in the State of Piauí. The objective of this reflection is to increase the investigative corpus that examines the potentialities and limitations inherent to the Statute of the Child and Adolescent (ECA), with regard to the promotion of the right to education for this youth segment. It is noteworthy that these adolescents often face a condition of social invisibility, not receiving the full protection and specialized treatment that their unique situation demands and that the legal system itself recommends.

Education is a constitutionally guaranteed social right, which enables the understanding and access to other rights, providing the subject with the means to transform his reality, considering the employability of knowledge conceived through the relationship with the environment, with the mediators of learning, as well as the emancipation that knowledge provides.

In this sense, education is not restricted to the transmission of knowledge and, according to Adorno (1995) it cannot even be called the modeling of people, because we do not have the right to model people from their exterior. Thus, education is not restricted to the institutional limits of teaching or schooling, but is, above all, an important instrument of social transformation, which, taking into account the above statement, should not be used for the reproduction or maintenance of a social order.

Fernandes and Paludetto (2010) point out that it is through education that we recognize the other, the values, the rights, the morals, the injustice, we communicate, discovering the elements that surround us as social individuals. The movement of history, for example, is made possible through the transmission to new generations of the previous acquisitions of human culture, through education. In view of this, from this movement that allows the history of societies to be written in different social, cultural and economic contexts, education is perceived as a means and an end itself, through which struggles are established, through which it is possible to ascend to different places in society, transforming reality and oneself.

According to Cury (2002), currently, most countries in the world guarantee, in their legal texts, the access of their citizens to basic education. Considering the basic role of school

education in the organization of life in society, as well as in the preparation of citizens for the exercise of citizenship and in their personal and professional development, in all areas of life.

As previously exposed, education is a right of all Brazilian citizens and that it must be ensured and promoted not only by the Brazilian State, but by the family and society, with a view to the development of the person, their preparation for citizenship and professional qualification, which corroborates the idea that education cannot be limited only to institutional issues of teaching, since it touches human development as a whole, and not just the aspects of the subject's professional life.

In Article 227 of the Federal Constitution of 1988, which in view of the social scenario of the time and social advances, demarcated the role of the State, the family and society with regard to the rights of children and adolescents, it is stated that:

It is the duty of the family, society and the State to ensure the child, adolescent and young person, with absolute priority, the right to life, health, food, education, leisure, professionalization, culture, dignity, respect, freedom and family and community life, in addition to safeguarding them from all forms of negligence, discrimination, exploitation, violence, cruelty and oppression (Brasil, 1988, p. 137).

In other words, children and adolescents are guaranteed the same rights as adults and the elderly, but as shown by the wording of Article 227 (Brasil, 1988), with absolute priority, due to their peculiar condition as a person in development and it is important to point out that this applies to any children and adolescents, without distinction, without prejudice to any other condition or specificity.

The individual dimension of the right to education is also highlighted by Caggiano (2009, p. 23) who, emphasizing the social character of education itself, argues that currently:

[...] The right to education is envisioned with multifaceted content, involving not only the right to education as a process of individual development, but also the right to an educational policy, that is, to a set of interventions legally organized and executed in terms of a process of formation of society, aiming to offer the members of the social community instruments to achieve their ends.

In addition, it is a universally recognized right, attributed to all men, regardless of origin, sex, age or any other discriminatory criterion and without spatial or temporal limitation.

2 CONTEXTUALIZING LAWS AND ACTIONS FOR CHILDREN AND ADOLESCENTS

Perhaps it is a consensus that the legal provision of something or need is an essential condition for it to be recognized as a right, however, there are countless examples that this alone, by itself, is not enough to guarantee that something expressed in a law is actually enjoyed by people. The realization of social rights involves the provision of public services that, in turn, require budgetary resources, that is, from the state treasury (Silveira, 2012).

Thus, it can be argued that the materialization of rights involves the imperative of having mechanisms that force the State to fulfill its duties. In this regard, Silveira (2012, p.354) points to one possibility: the "existence of some legal power that allows the holder of the right, in case of non-compliance with the obligation due", to demand action by the State.

The author refers to legal bases for individuals to request, through the Judiciary, what is due to them. However, despite the pertinence and correctness of this note, it is impossible not to ponder the fact that in order to access the Judiciary, it is necessary to have a set of information (about one's own rights and how to proceed to guarantee them) and, not infrequently, financial conditions (lawyers, costs of lawsuits, etc.), which precisely the individuals most affected by the State's negligence do not have.

The table below presents the historical evolution of laws/or actions that address children and adolescents in Brazil, both from the perspective of protection, charity or punishment.

Table 1

"Laws and political actions aimed at children and adolescents"

YEAR	LAW /ACTION	BRAZILIAN HISTORICAL CONTEXT
1726	Wheel of the exposed	The Brotherhood of the Holy House of Mercy created the first "Wheel of the Exposed" in Bahia. It was a cylindrical compartment installed in the wall of a house that rotated from the outside in. The child was placed there to be sheltered and raised by the entity, preserving the identity of those who abandoned him. The measure was regulated by law and became the main form of child care in the 18th and 19th centuries. Popularly, it was also known as the "Wheel of the Rejected".
1890	Criminal Code of the Republic	Criminal accountability now considers the Theory of Discernment. Thus, children between 9 and 14 years old are psychologically evaluated and penalized according

		to their "discernment" about the crime committed. They could be pitied by an adult or considered imputable.
1927	Minors Code or Mello Mattos Code⁵	It represented advances in the protection of children. The law prohibited the "Roda dos Expostos" and made young people liable until the age of 18. He created the "preservation school for delinquents" and the "reform school for the abandoned"
1990	Statute of the Child and Adolescent	It applies to all children and adolescents, regardless of social class; formalizes the idea that children and adolescents are citizens in formation and deserve special care; It comprises the main rights of children and adolescents; It covers their protection for sensitive issues such as sexual violence.

Source: prepared by the authors (2025).

From the circle of the exposed to the Statute of the Child and Adolescent (ECA), there is a historical evolution of the Brazilian legal provisions that deal with issues linked to childhood and adolescence. This evolution also demonstrates the progress of a civilizing process, especially with regard to the ECA and all its legal guidelines. Something singular is to realize that this statute clearly presents priorities that link it to the world of formal education, carried out in school spaces.

The Wheel of the Exposed was created during the empire and was maintained by charitable institutions (abbeys, monasteries and charitable brotherhoods). Children were left in them whose parents for some reason could not raise them (Santa Casa, 2018). And this was a constant practice throughout the national territory (França, 2024). Also according to França (op. cit. p. 28),

Brazil still took many years to adopt effective measures in favor of children and youth. The indignation of the Emperor, as well as of other individuals, who like D. Pedro II, who had a privileged position in society, unfortunately, was more in the realm of ideas and not in political and social practices.

The Brazilian empire had a Constitution, promulgated in 1824. After the proclamation of the Republic in 1889, an attempt was quickly made to draft a Federal Constitution of the Republic, and it was promulgated in 1891. In the same period, the Penal Code of 1890 was

⁵ Name of the first Juvenile Judge in Brazil and Latin America and author of the Code

published and this, if observed from current perspectives, would be a real affront to the rights of children and adolescents. Although, it is noted from the bibliography of the time that those who had a more humanitarian view towards the child also found this penal institute too coercive. According to Articles 27 and 30:

Article 27. They are not criminals: § 1. Children under 9 years of age; Paragraph 2. Those over 9 and under 14, who act without discernment; Article 30. Those over 9 years of age and under 14 years of age, who have acted with discernment, will be taken to industrial disciplinary establishments, for as long as the judge deems it to be the case, provided that the collection does not exceed the age of 17 years (Brasil, 1890, n.p.).

In the view of França (2024, p. 27),

[...] In matters of criminal laws, these remained in force for a long time. And so, children from 9 to 14 years old were judged very rigorously, not least because defining discernment in a society permeated by prejudices of various kinds was difficult for children. In addition to this, it is necessary to highlight the passage contained in article 30 of the Penal Code of 1890, "[...] shall be taken to industrial disciplinary establishments [...].

From the above, it is possible to affirm that these children were available for forced labor and as free labor. In 1927, the Minors Code, also called "Mello Mattos Code", was sanctioned, in honor of the author of the bill, Judge José Cândido de Albuquerque Mello Mattos. This code protected only some social, criminal, political rights, among others. However, it played a historical role (Brasil, 1927). According to the author Cossetin (2012, p. 29), the Mello Mattos Code followed some principles in force in society at the time:

The Code of Minors in Brazil, which was called the Mello Mattos Code, followed the logic of intervention originated by the situations of poverty to which the abandoned and the so-called delinquents were exposed. It did not provide for the institution of rights, but was based on a preventive and repressive orientation aimed at punishing those who did not adjust to the development process undertaken by the country.

Although the legislator, perhaps, was trying to improve the lives of minors, the society of the time was still permeated by distant visions of what we know to be adequate today. Historians, sociologists, scholars of Applied Sciences of Law, Educators and other professionals who analyze society and its nuances generally mention that one cannot judge the past with the eyes of the present. Even so, this fact does not prevent one from having a

critical and reflective view of the situations already experienced. According to Rizzini (2021, p. 34):

The Lost Century", in which he studies the passage from the nineteenth century to the twentieth century, with regard to childhood and what views society had towards individuals at that age. (...) the concept of the importance of the child, as well as the vision that one has of childhood as the "future of the nation" and how society sees them and how all this influenced, in 1927, the writing of the Melo Mattos Code; in his words: It is the first legislation specifically aimed at the population of children and adolescents, at the time, without any problematization, called "minors".

The 1979 Minors Code is historically recognized as an advance in dealing with the problem of needy and marginalized childhood, before it, there was no specific regulation for this population. What we had was legislation centered on the concept of "the abandoned and delinquent minor", being those with specific characteristics of poverty, mostly black, living on the outskirts of cities or in very impoverished rural areas - including other groups, as they know, the native-Brazilian populations, blacks, riverside dwellers and quilombolas.

Regarding this advance, the authors Carneiro and Medeiros (2021) highlight that many prejudiced terms in force today are a legacy of the stigmas created in this period, in the same sense highlights Rodrigues (2021, p.47)

From the 1927 Code, which presented many terms correlated to children and adolescents, and reaching the apex of prejudice, after the New Minors Code, in 1979. This period, in which Brazilian society began to distinguish concepts between "child" and "minors", the latter having a pejorative connotation. And the laws for children will be directly related to families, while minors will be subject to the criminal guardianship of the State.

The history of the rights of children and adolescents began to undergo significant changes from the Doctrine of Integral Protection, which was presented by the Federal Constitution (Brasil, 1988), and recognized in the Brazilian legal system from Law 8.069/90 that gave rise to the Statute of the Child and Adolescent – ECA, which is presented as the most complete legislation regarding the rights of children and adolescents, and that it was the document responsible for breaking with the Doctrine of Irregular Situation, present in the two Minors Code, of 1927 (Decree No. 17. 943-A of October 12, 1927) and 1979 (Law 6.667 of October 10, 1979).

In the midst of the great economic, political and social transformations that mark the capitalist industrial era, from 1988 onwards, with the advent of the Federal Constitution, the concept of childhood acquires new meanings and a social dimension that until then did not exist in the Western world. The interest of society soon resulted in studies and congresses that would culminate in specific legislation, among which the Statute of the Child and Adolescent - ECA stands out, the result of rigorous struggles in the political and social field in defense of Brazilian childhood (Brasil, 1990).

Law No. 8,069, of July 13, 1990, which deals with the Statute of the Child and Adolescent (ECA), by incorporating assistance to the chapter of constitutional rights, pointed out the possibility and even the need for the development of mechanisms and political instruments that would enable decentralization, gradually articulating the political participation of those who, as citizens, they would contribute directly to the transformation of the service and monitoring of all public policies assumed by the State.

The Statute of the Child and Adolescent (ECA), enacted in 1990, represented a civilizing milestone in the consolidation of the Doctrine of Full Protection, by recognizing children and adolescents as subjects of rights. However, after more than three decades, challenges persist in the implementation of such guarantees, especially with regard to the right to education of adolescents in conflict with the law.

According to Silvia (2015), the construction process through which the implementation of the Statute of the Child and Adolescent (ECA) went refers to the question of reading what was previously called the Doctrine of Irregular Situation. Doctrine that treated children and adolescents in situations of vulnerability and in a situation of conflict with the law in the same bias, being the same interned in institutions without any socio-educational service structure. Which did not resolve conflicts and still complicated them. The Doctrine of Integral Protection marks an advance in the care process, which places the adolescent as a subject of rights, and who is in the process of development (Queiroz, 2017).

The way in which the socio-educational system works today is decisive in a proposal to advance the treatment of adolescents in deprivation of liberty, and of course, also with those who comply with other socio-educational measures; with regard to the construction and strengthening of the Doctrine of Full Protection (Silvia, 2015).

3 STATUTE OF THE CHILD AND ADOLESCENT (ECA) - EDUCATION OF CHILDREN AND ADOLESCENTS

Law No. 8,069, of July 13, 1990, the Statute of the Child and Adolescent (ECA), represents a fundamental milestone in the history of Brazil, by establishing a set of norms and principles aimed at the full protection of the rights of children and adolescents. It comes into force almost a decade after the end of the civic military dictatorship in Brazil, and is born in a historical context of great social, political, educational and legal transformation in Brazil.

Its creation is linked to the strong mobilization of growing social movements in the country (1984-1989). A proposed law aligned with human rights, a more accurate and welcoming look at the cause of Brazilian childhood and adolescence. According to Martins (2010, p. 35), "[...] it is known that, in the decade prior to the enactment of the ECA, there was great progress in the field of social struggles, as well as in the structuring of counter-hegemonic pedagogical theories, as opposed to non-critical pedagogies that intensely favored the maintenance of the oppressive order (Saviani, 2005). At the end of 1985, when the discussion about the constituent process took over the country, the debate on the rights of children and adolescents expanded, cultivating a new phase, that of the debate on the pedagogy of rights (Graciani, 2005)

According to public information on the website of the Court of Justice of the State of Santa Catarina (TJSC), in the 1980s, the protagonism of society was imposed by the expression of its interests. Article 227 of the Federal Constitution of 1988 expresses this protagonism when it guarantees children and adolescents the fundamental rights of survival, personal, social, physical, psychological and moral integrity, in addition to protecting them in a special way, that is, through differentiated legal provisions, against negligence, mistreatment, violence, exploitation, cruelty and oppression (Brasil, 1988). The content and focus of this article referred to the United Nations Doctrine of Full Protection, constituted a relevant and propelling chapter of social mobilization and struggle in the history of the 1988 Constituent Assembly, having resulted from a popular process of legislative construction of great legitimacy (Rodrigues, 2021).

The ECA is the result of the articulation and participation of social movements and contemplated the most advanced in international legislation in relation to the rights of the child and adolescent population. In this way, it is verified that it is the result of a collective construction, of the deposit of expectations of transformation that resulted in normative realities endowed with great legitimacy for this reason.

In this sense, the participation of the National Movement of Street Girls and Boys (MNMMR), a non-governmental organization that fights for the rights of children and adolescents in street situations, founded in 1985, is considered of fundamental importance for the legal framework. In 1986, the First Meeting of Street Boys and Girls took place in Brasilia. Adding to the forces of this achievement, in 1985, the National Front for the Defense of Children's Rights (FNDDC) was created, and both were important for the construction of the ECA. The dissemination of the Pastoral do Menor, created in 1978, and many others, such as the pioneering defense movements in the area of children and adolescents. They articulated themselves in favor of what we know today as the ECA.

Through all these social movements, and through the work of non-governmental organizations (NGOs) and human rights activists, who fought against child exploitation, child labor, domestic violence, poverty and marginalization of children and adolescents and even more mobilizations of social groups and movements, they demanded more protective legislation capable of guaranteeing the rights of children and adolescents, the need for a new legal and social treatment (Lorenzi, 2016).

This new legal treatment occurs from the need to meet popular desires and at the exact moment when the country was mobilizing around the National Constituent Assembly, the legislative power decided to create in 1987 the Mixed Parliamentary Front for Children and Adolescents, which is an association of parliamentarians that defends the rights of children and adolescents.

This mixed Parliamentary Front that exists to this day, has the following objectives: to promote and defend the rights of children and adolescents; monitor the processing of legislative proposals; and to suggest innovations in legislation (Brasil, 1987). It is coordinated by deputies and senators from various parties. And, in addition to this front, there is also to this day, the National Council for the Rights of Children and Adolescents (CONANDA), which is a collegiate body that also defends the rights of children and adolescents. After more than ten years, the National Campaign for the Right to Education emerged.

It was created in 1999, working for the implementation and expansion of educational policies so that all people have their right to a public, free, inclusive, secular, and quality education in Brazil guaranteed. In this context, taking advantage of the moment, organizations focused on children began a call from the whole society in favor of the Children's Amendment, a National Priority. And so, children and adolescents took over the National Congress to deliver more than one million collected signatures. The constituent

legislators, respondents, unanimously approved Articles 227 and 228 of the Federal Constitution of 1988, which respectively state that:

It is the duty of the family, society and the State to ensure the child, adolescent and young person, with absolute priority, the right to life, health, food, education, leisure, professionalization, culture, dignity, respect, freedom and family and community life, in addition to safeguarding them from all forms of negligence, discrimination, exploitation, violence, cruelty and oppression. (Text given by Constitutional Amendment No. 65, of 2010) – Minors under eighteen years of age are not criminally liable, subject to the rules of special legislation (Brasil, 1988, p. 69).

Following this approach of changes in Brazil, in the social, cultural and political fields, the enactment of Law 8.069/1990 (ECA), becomes a new paradigm for the protection of children and youth, a zeal for the future, considering the construction of a more just and equitable society. It is possible to see that the creation of the ECA contributed to the evolution of legislation and to the idea of childhood and adolescence, assumed by civil society.

The implementation of the law contributed to the creation of a more solid and more integrated protection network between the various State agencies and social organizations. Since its enactment, it has been possible to observe significant advances in several areas, such as health, education and social assistance, confronting the exploitation of child labor, school dropout, sexual abuse against children and adolescents, all of which have triggered the development of specific actions to meet the needs of this age group. that were previously neglected (Lorenzi, 2016).

Despite the advances, after more than three decades of implementation (35 years), the ECA faces challenges, such as social inequality, violence, lack of resources and difficulty in implementation. Regarding social inequality, we see children in poverty who still have difficulty accessing basic rights, such as education and health. In addition, food insecurity directly affects the living conditions of children and adolescents.

Violence against children and adolescents is a persistent challenge and the crime of rape is the one that most victimizes children and adolescents in the country. The authorities allege a lack of resources, which causes the low efficiency of the Justice System and the precariousness in the execution of socio-educational measures, which are great challenges. Police stations and courts specializing in crimes against children and adolescents face high demand for work and lack of servers. The Guardianship Council does not have enough personnel or equipment to meet all the demands.

In addition, the difficulty of implementation caused by territoriality and regional inequalities hinder the implementation of efficient national public policies. Thus, the implementation and inspection of the ECA guidelines still face major challenges, and there is already talk of threats of regression of rights with proposals for changes in the Adoption Law, in the criminal age and in the minimum age for work, and no less challenging are the proposals that allow the dissemination of the image of children and adolescents to whom an infraction is attributed (Castro, 2011).

According to the Brazilian Coalition to End Violence against Children and Adolescents, a group formed in 2017 by government organizations, forums and networks, there are obstacles to the proper measurement of child and youth violence, as the data are not unified and complaints are often underreported and others are not even attended to, being totally ignored (Brasil, 2017). Even so, data from the National Human Rights Ombudsman's Office, of the Ministry of Human Rights and Citizenship, can give an overview of the current stage of violence against children and adolescents in Brazil.

In the first seven months of 2024, 145,780 complaints were made for violence against children and adolescents. In the same period, in 2023, there were 125,796. In other words, there was an increase of 15.89% in the number of complaints. Violence against children and adolescents has diversified configurations. The 2023 Brazilian Public Security Yearbook provides data on abandonment of the disabled, material abandonment, mistreatment, sexual exploitation, rape, child pornography, intentional bodily injury in the context of domestic violence, and intentional violent deaths (Brasil, 2023).

According to the report, "different forms of violence against those between 0 and 17 years old have increased in the last year. The numbers are impressively high and, as predicted in the latest Yearbooks, they already exceed the statistics prior to the COVID-19 pandemic" (Brasil, 2023, p. 12). In 2023, the National Secretariat for the Rights of Children and Adolescents, linked to the Ministry of Women, Family and Human Rights, conducted a survey of police stations specializing in crimes against children and adolescents in Brazil. 59 Specialized Courts and 120 Police Stations were identified, responsible for receiving 95 thousand complaints throughout the country.

The State of São Paulo has the largest number of Specialized Courts, with 27, and the rest of Brazil only 32, with only 02 in the State of Piauí, which are located in the capital Teresina, while Santa Catarina has the largest number of specialized police stations, with 31 units, and the rest of Brazil with only 89 specialized police stations (Brasil, 2023)

Among the greatest difficulties encountered by police stations and courts in their operations are: high demand for work and insufficient number of servers; building structure and precarious facilities; the need to hire to compose a psychosocial team; lack of training and continuing education for the protection and care of children and adolescents who are victims of violence; lack of old computer equipment; scrapped and/or inadequate and/or insufficient vehicles (op. cit., 2023).

The Statute of the Child and Adolescent (ECA), by ensuring the full protection of the rights of children and adolescents, strengthens the work carried out by the school institution, which now has a legal basis and a support network for the development and fulfillment of its social role. It is a law that guarantees the right to education to children and adolescents, and that also defines their responsibilities at school. The right to education came as follows:

i) ensuring access to free public schooling; ii) ensuring the availability of vacancies in the same school for the student's siblings; iii) ensures daycare and preschool attendance for children from zero to five years of age; vi) it obliges them to enroll their children in the regular school system. The responsibilities of the school, according to the ECA, are: i) The school must be attractive and have a curriculum that considers regional diversities; ii) The school must be present in terms of access in both urban and rural areas; iii) The school should include children in the activities of the school's own daily life, in a playful, affectionate, poetic, playful, sporting, curious, artistic, creative and reflective way (Brasil, 1990, p. 32)

Measures that, in theory, aim to facilitate access, permanence and learning, as they are considered inclusive and attractive to children and adolescents. Finally, Article 208, item I, of the ECA states that: "The provisions of this Law govern the actions of liability for offense to the rights guaranteed to the child and adolescent, referring to the non-provision or irregular offer: I - compulsory education..." (Brasil, 1990, p. 28).

Regarding this protection and right, observing the situation of adolescents in conflict, we perceive double standards contained in a single public policy. When it comes to adolescents who come into conflict with the law, more specifically, the lack of projects in state and municipal education councils is latent. Nothing happens systematically in education to favor, make visible, attack the problem or even guarantee specialized treatment in schools in the State of Piauí. Not that there is not some kind of formal treatment (complete legislation and SINASE).

4 SOCIO-EDUCATIONAL SYSTEM - A PORTRAIT... A CUTOUT

Human rights education in the 1990s was configured around two movements. First, by the continuity and expansion of what was done in the previous decade and second, by the incorporation of new actors in the promotion of this type of education, as is the case of the Federal Government.

The Federal Government's entry into the debate and implementation of human rights education took place mainly through the creation of the National Human Rights Program (Ministry of Justice) and the National Curriculum Parameters (Ministry of Education), emphasizing civil rights, presented as its main proposals the guarantee of the right and the protection of life, as well as increasing people's security, fighting impunity, eliminating forced labor, ensuring equal treatment before the law, protecting the rights of children and adolescents, women, blacks, indigenous people, the elderly, foreigners, refugees, migrants, people with special needs, among others.

Without delving too deeply into the creation and development of these institutions, and bringing the focus to what really matters in this specific case of this research, we proceed to expose what each of them accomplishes and what was produced in terms of data to be evidenced here as strengths and weaknesses in the face of the creation of the ECA and the guarantees of the right to education of adolescents in conflict with the Law.

In the State of Piauí, several institutions work to guarantee the right to education, including public agencies, rights defense entities and civil society. The State Secretariat of Education (SEDUC), the Public Prosecutor's Office (MPPI) and the State Court of Accounts (TCE) are examples of public agencies with an important role in this guarantee. In addition, the State Council of Education and the Public Defender's Office also contribute.

Civil society, through organizations such as APAE and UNCME, also plays a crucial role. Recently created, the Office of Articulation for the Effectiveness of Education Policy (GAEPE) is an instance of dialogue and cooperation between the public sector and civil society in favor of public education, according to articulo.org.br. Another important body is the National Observatory of Education and Human Rights, which disseminates and analyzes strategic information on the human rights situation in Brazil, providing evidence for the planning and monitoring of public policies.

In Piauí, the State Data Observatory offers interactive panels with data on various topics, including education. In 2024, the Government of Piauí released the 1st State Human Rights Plan (PEDH/PI). Published in the Official Gazette and effective from 2024 to 2028, the

plan aims to build public policies to promote equity, social justice and combat rights violations in the state.

In line with the National Human Rights Plan 3 (PNDH-3), the PEDH/PI proposes integrated actions to address inequalities and protect the most vulnerable groups. The PEHR/PI is structured in six axes: i) democratic interaction between the State and civil society; ii) development and human rights; iii) universalizing rights in a context of inequalities; iv) public security, access to justice and combating violence; v) cultural education and human rights; vi) the right to memory and truth (Piauí, 2024).

The State Council of Education of Piauí was created by State Law No. 2,489, of 11.20.63, and modified by Law 4.600, of 06.30.93. Its Internal Regulations are regulated by State Decree No. 23,219, of August 7, 2024, and are published in the Official Gazette of the State of Piauí in issue No. 155, of 08/08/2024. The Council has its own headquarters in Teresina, being the normative body of the State Education System of Piauí, with deliberative and advisory functions.

Its purpose, among others, is to promote, guide and discipline the institutions that make up the Education System of the State of Piauí, which comprises the institutions of the state network, including those of higher education; private educational institutions that provide elementary, secondary and professional education, in any of its modalities, and Early Childhood Education, are only in the municipality where the municipal education system is not organized.

The expected composition is 13 (thirteen) councilors and 03 (three) alternates, appointed by the head of the Executive Branch after approval by the Legislative Assembly, for a term of 04 (four) years, with only one reappointment allowed. The counselors and alternates must be chosen from among people of recognized ethics, knowledge and experience in the area of education, proven through titles and work carried out.

In the national panorama of the CNJ (National Council of Justice) in education, especially in Piauí, it involves initiatives such as the Technical Cooperation Agreement between the TJPI (Court of Justice of the State of Piauí) and the State Secretariats of Justice and Education for the remission of sentence for reading in prison establishments. The CNJ also has a crucial role in promoting education in the socio-educational system, guaranteeing the right to education for adolescents deprived of liberty.

It is true that the CNJ has been concerned with education in the socio-educational system, seeking to guarantee the right to education and social inclusion for adolescents in

conflict with the law. In terms of inclusion programs, the CNJ develops programs such as "Novos Caminhos" that address topics such as sexual health, disease prevention, and healthy habits, seeking to promote the integral education of young people (Brasil, 2023)

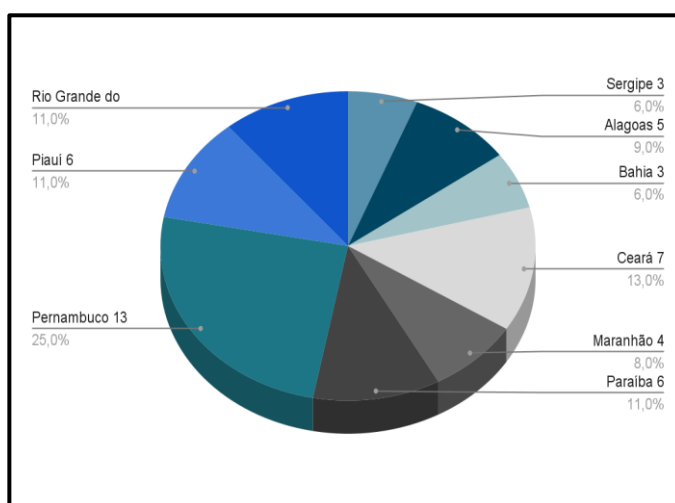
In terms of pedagogical actions, socio-education aims to ensure the quality of education and assist in the social inclusion of adolescents, through pedagogical actions aimed at improving the educational process. In relation to the promotion of culture, the CNJ has also been concerned with promoting the democratization of access to culture through the National Guideline for the Promotion of Culture in Socioeducation.

In addition to all this, the CNJ also monitors and inspects, playing an important role in monitoring and inspecting the socio-educational system, seeking to ensure that socio-educational measures are properly complied with and that the rights of adolescents are respected. In summary, the CNJ and the TJPI, together with other entities, work to guarantee the right to education and social inclusion of adolescents in the socio-educational system and to promote the remission of sentences for reading, showing the importance of education and culture as tools for resocialization and inclusion (Brasil, 2023).

Data from the Panorama of the Northeast Region in 2012 indicated that the region had 53 hospitalization MSE establishments located in only 27 municipalities (Figure 1), indicators that provide the worst regional average of establishments per location.

Figure 1

Quantity and percentage of establishments by State - 2012



Source: DMF/CNJ - Elaboration: DPJ/CNJ – 2012.

The institutional gaps in the region are proven when observing the distribution of establishments in the geoFigureic network of the states. No state in the Brazilian northeast provides establishments in all mesoregions, although only four of these do not have municipalities with a population above one hundred thousand inhabitants.

The reduced number of establishments becomes alarming when one observes the excessive centralization of socio-educational care, both in the states with the largest territorial extension, Bahia, Maranhão and Ceará, and in the smaller ones: Alagoas and Sergipe. The states of Pernambuco, Paraíba and Piauí have the best socio-educational systems in the region, although they still have uncovered areas of structure. The number of courts with exclusive jurisdiction does not differ considerably from this reality, since in the entire region only 25 municipalities have specialized courts.

The overload in the structure of the socio-educational system has become a reality in almost all states in the region, with the exception of the states of Maranhão, Piauí and Rio Grande do Norte. Most of the establishments in the region (58% of the total) work with a capacity above the planned, and the states with the highest number of MSE units for inpatient care, Pernambuco and Ceará, have practically half of the establishments overloaded in the system (CNJ, 2012).

Despite the high percentage of overcrowding found in socio-educational establishments, the two states mentioned have different ordinances. Pernambuco has 13 establishments distributed in eight municipalities in four of the five mesoregions of the state. The State of Ceará has 07 establishments, all located in Fortaleza. Even with the high percentage of capacity, the Northeast Region has 31 establishments with capacity above the planned, 16 of which are located in the states of Pernambuco and Ceará.

Most establishments in the Northeast Region are intended for the male public, which represents 77% of the hospitalization units. The units aimed at the female public do not have a structure in all states. Curiously, the State of Sergipe does not have a single adolescent within the socio-educational system of MSE of internment, although it has an exclusive unit to meet this demand.

The Brazilian Northeast has 25 municipalities with courts with exclusive jurisdiction (Table 2), a number well below that recommended by the National Council for the Rights of Children and Adolescents (CONANDA), of at least one court with exclusive jurisdiction in medium and large municipalities.

Table 2

Courts with Exclusive Jurisdiction by Federation Unit - Northeast - 2012

Federation Units	Number of municipalities with Courts of exclusive jurisdiction	Average number of municipalities per Court of exclusive jurisdiction	Number of municipalities with more than one hundred thousand inhabitants	Number of municipalities with more than one hundred thousand inhabitants without a Court with exclusive jurisdiction
Alagoas	2	56,0	2	0
Bahia	4	104,2	16	12
Ceará	1	184,0	8	7
Maranhao	4	54,2	9	5
Paraíba	2	111,5	4	2
Pernambuco	8	23,2	12	4
Piauí	1	224,0	2	1
Rio Grande do Norte	2	83,5	3	1
Sergipe	1	75,0	2	1
Total	25	71,7	58	33

Source: DMF/CNJ - Elaboration: DPJ/CNJ – 2012.

The CEPA has an overload of 217%, followed by the CEDB with 207%. The two centers have a satisfactory number of socio-educators, 128 and 90 respectively, although this number is apparently not enough to promote basic tools such as the preparation of the PIA and the pedagogical project to be adopted by the institutions.

The record of visits, an important tool to verify the frequency of the young person's family life during the hospitalization, is carried out only at CEPA. On the date of the visit, CEPA had 190 adolescents (capacity for 60), all of whom were classified as permanent hospitalization. The CEDB was responsible for 172 young people (capacity for 56), 94 of whom were permanent internment and 78 were sanctioned internment.

In this Panorama of the CNJ, as a conclusion to the problem presented, the following guidance was given: "The Judiciary, the Public Prosecutor's Office, the Public Defender's Offices and Public Security should be urged to exclude, specialize and regionalize their bodies and their actions, ensuring the creation, implementation and strengthening of: I) Specific Childhood and Youth Courts, in all districts that correspond to large and medium-sized municipalities or other proportionality by number of inhabitants, providing them with infrastructure and providing for them an on-call regime.

Among these divergences of the installation of a court with exclusive competence in relation to the population contingent, there are several situations that have not yet been resolved. The group of locations classified as large that do not have a court with exclusive

jurisdiction in the region reaches 33 (14 are inserted in the metropolitan regions of the capitals). With the worst regional average of municipalities per establishment, the Northeast Region suffers from the excessive centralization of the socio-educational and distributive system of the courts with exclusive jurisdiction.

According to Table 3, the states of Pernambuco, Alagoas, Sergipe and Ceará have the best average of municipalities per establishment. The states of Rio Grande do Norte, Paraíba and Piauí presented an average in accordance with the regional average. The states of Maranhão and Bahia, on the other hand, have the worst regional averages of municipalities per establishment.

Table 3

Averages of municipalities and total capacity by establishment and Federation Units

Federation Units – Northeast – 2012

Federation Units	Number of establishments	Average number of municipalities per establishment	Total capacity	Average total capacity per establishment
Alagoas	5	20,4	148	29,6
Bahia	3	139,0	236	78,6
Ceará	7	26,2	362	51,7
Maranhão	4	54,2	110	27,5
Paraíba	6	37,1	197	32,8
Pernambuco	13	14,2	743	57,1
Piauí	6	37,7	156	26,0
Northern R. G.	6	33,4	188	31,3
Sergipe	3	25,0	98	32,6
Total	53	33,8	2.238	42,2

Source: DMF/CNJ – Elaboration DPJ/CNJ – 2012.

The centralization of the socio-educational system in the Northeast made it difficult for new units to emerge in the interior of the states, as well as inhibiting the expansion of the number of places for MSE for internment. Ceará, Piauí, and Sergipe have a structure in only one municipality in the entire state geoFigureic network, a fact that corroborates the excessive centralization of the judicial sphere in a region that has full demoFigureic and geoFigureic conditions for the expansion and interiorization of the courts with exclusive jurisdiction.

The regional scenario revealed the need for expansion, in the short term, of courts with exclusive competence in various areas that constitute the Brazilian northeast. No state in the region has promoted the proper ordering of the specialized courts. Six states have a

maximum of two locations with courts of exclusive jurisdiction (Brasil, 2012). In 2012, the Brazilian Northeast still had several points devoid of structure for socio-educational measures of internment. The geographical distribution of the establishments largely follows the same line as regional colonization.

Other data provided by the CNJ show that in 2023, the National Socio-Educational Service System (SINASE) presented data regarding adolescents in compliance with socio-educational measures in the closed environment in all states. The survey showed a total of 11,664 adolescents inserted in the socio-educational system in the modalities of restriction and deprivation of liberty, of which 9,656 were in compliance with socio-educational measures of semi-liberty and internment, 222 in sanction hospitalization and 1,786 in provisional internment (Brasil, 2023).

In the State of Piauí, there were 128 vacancies available in the detention centers for children and adolescents in conflict with the law, located in the cities of Teresina, Parnaíba and Picos. In total, 110 adolescents were serving provisional internment or socio-educational measures. According to information extracted from official websites, the State intends to increase the number of vacancies by building another provisional detention center in Teresina (Brasil, 2023).

Currently, the current structure of the State of Piauí has the Male Educational Center (CEM), the Female Educational Center (CEF) and the Provisional Internment Center (CEIP). In addition, the state has three Citizenship Defense Complexes (CDC), which operate in the cities of Teresina, Picos and Parnaíba. In these complexes, the Initial Care Center (NAI) operates, which is the gateway for minors in conflict with the law in the socio-educational system (Piauí, 2024).

5 WRAPPING UP...

The Statute of the Child and Adolescent (ECA) is a fundamental normative framework for guaranteeing the rights of children and adolescents in Brazil. However, its effective implementation in the context of the education of adolescents in conflict with the law still remains limited. Analytical evidence indicates that the main problem does not lie in the legislative insufficiency, but in the operational fragility of its execution and in the lack of intersectoral public policies that integrate the areas of education, justice and social assistance.

It is urgent to develop humanizing pedagogical strategies, centered on the integral formation of adolescents, in which the school institution assumes a central role in the reconstruction of identities and life projects. The consolidation of robust public policies, supported by continuing teacher training and effective inter-institutional articulation, is an indispensable condition for the materialization of the transformative potential inherent to the ECA.

In the context of Piauí, there is a significant gap in the supply of specific policies aimed at adolescents in conflict with the law. State attention is predominantly focused on the care of children and adolescents who are victims of rights violations, such as negligence, abuse and mistreatment, thus marginalizing the segment in conflict with the legislation. This scenario is aggravated by multifactorial factors, such as: misinformation conveyed by the media; the lack of knowledge, on the part of families, society and the managers and operators of the system themselves, of the provisions of the ECA; political influences; and the insufficient capillarity of public policies in the state territory.

The guarantee of the right to education, although widely guaranteed at the legal level, is not fully realized in the socio-educational context, which contributes to the perpetuation of cycles of exclusion and vulnerability among adolescents. It is concluded that education should be understood beyond a legal obligation, configuring itself as an inalienable ethical and political commitment to the processes of human emancipation and the realization of social justice.

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**TRAINING OF EDUCATORS FROM THE PERSPECTIVE OF INCLUSIVE
EDUCATION IN NON-FORMAL CONTEXTS**

**FORMAÇÃO DE EDUCADORES NA PERSPECTIVA DA EDUCAÇÃO
INCLUSIVA EM CONTEXTOS NÃO-FORMAIS**

**FORMACIÓN DE EDUCADORES DESDE LA PERSPECTIVA DE EDUCACIÓN
INCLUSIVA EN CONTEXTOS NO FORMALES**

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ABSTRACT

Understanding that the inclusion of the Special Target Public Student (PAEE) must take place in all teaching environments, this work brings the inclusive reality in non-formal teaching organizations. The general objective of the study was: To analyze the impact of a proposal for continuing education regarding the process of inclusion of the PAEE student in a non-formal organization and as specific objectives: 1. To know how inclusion in a non-formal organization takes place 2 Design and develop a collaborative proposal for training on inclusion, based on current educational practices. 3. Evaluate the training proposal and its impacts. The research was carried out with a qualitative approach and was characterized as collaborative research. 19 participants from different non-formal education organizations participated, first answering a questionnaire characterizing and surveying training demands, later, in face-to-face meetings, a training program for educators was carried out. At the end of the meetings and after six months of the end of the training, evaluation instruments were applied, which aimed to know the impacts of the training in question. As a result, it was observed that the study that was developed contributed to the related areas of knowledge, encouraging greater discussions about the training of educators in non-formal teaching organizations.

Keywords Inclusion. Non-formal Teaching. Continuing Training.

RESUMO

Partindo do pressuposto de que a inclusão do aluno Público-Alvo da Educação Especial (PAEE) deva ocorrer em todos os ambientes de ensino, este trabalho aborda a realidade inclusiva nas organizações de ensino não formal. O estudo teve como objetivo geral: analisar uma proposta de formação continuada referente ao processo de inclusão do aluno PAEE em organizações não - formais. E como objetivos específicos: 1. Conhecer como acontece a inclusão em uma organização não formal; 2. Elaborar e desenvolver uma proposta colaborativa de formação sobre inclusão baseada nas práticas educativas vigentes; 3. Avaliar a proposta de formação. A pesquisa foi conduzida por meio de uma abordagem qualitativa e caracterizou-se como colaborativa. Participaram 18 educadores de 4 diferentes organizações de ensino não formal. Os participantes responderam inicialmente a um questionário de caracterização e perguntas sobre suas demandas formativas;

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posteriormente, em encontros presenciais foi desenvolvido um programa de formação dos educadores. Ao final dos encontros e após seis meses do término da formação, foi usado um conjunto de instrumentos de avaliação, a fim de conhecer os impactos decorrentes. Como resultado, observou-se que o estudo desenvolvido contribuiu com as áreas de conhecimentos afins, aprofundando as discussões sobre a formação de educadores em organizações de ensino não formal.

Palavras-chave: Inclusão. Ensino não Formal. Formação Continuada.

RESUMEN

Entendiendo que la inclusión del Estudiante Público Objetivo Especial (PAEE) debe darse en todos los ambientes docentes, este trabajo trae la realidad inclusiva en las organizaciones de enseñanza no formal. El objetivo general del estudio fue: Analizar el impacto de una propuesta de educación continua en el proceso de inclusión del estudiante PAEE en una organización no formal y como objetivos específicos: 1. Conocer cómo funciona la inclusión en una organización no formal. se lleva a cabo 2 Diseñar y desarrollar una propuesta colaborativa de formación en inclusión, basada en las prácticas educativas actuales. 3. Evaluar la propuesta de capacitación y sus impactos. La investigación se realizó con un enfoque cualitativo y se caracterizó como investigación colaborativa. Participaron 19 participantes de diferentes organizaciones de educación no formal, respondiendo primero un cuestionario caracterizando y relevando las demandas de formación, posteriormente, en reuniones presenciales, se llevó a cabo un programa de formación para educadores. Al finalizar las reuniones y luego de seis meses de finalizada la capacitación, se aplicaron instrumentos de evaluación, que tuvieron como objetivo conocer los impactos de la capacitación en cuestión. Como resultado, se observó que el estudio desarrollado contribuyó a las áreas de conocimiento relacionadas, fomentando mayores discusiones sobre la formación de educadores en organizaciones de enseñanza no formal.

Palabras clave: Inclusión. Enseñanza no Formal. Formación Continua.

1 INTRODUCTION

Initially, the importance of understanding the following is highlighted: 1st The concept of the Target Audience of Special Education and their right to inclusion in all environments, including those of Non-formal education; 2nd The importance of non-formal education environments; 3rd The relevance of the training of educators in these organizations. This theoretical path was elaborated with the purpose of justifying the importance of knowledge of inclusion in these organizations and the need for continuing education for educators who work with the Target Audience of Special Education.

The National Policy on Special Education in the Perspective of Inclusive Education (BRASIL, 2008) considers the Target Audience of Special Education (PAEE) to be students with disabilities, global developmental disorders and high abilities/giftedness.

In this sense, it is emphasized that transversal education, being transversal, needs to permeate all educational environments: formal, informal and non-formal. In relation to these terms, La Belle, 1976, states that formal education is the education present within school institutions, systematic and with a pre-defined curriculum. Informal is the permanent process by which all people acquire and accumulate knowledge, skills, attitudes, through daily skills in contact with the environment. And non-formal education is the educational activity, organized and systemic, to provide specific types of learning to certain groups of the population.

It is important to emphasize that inclusion should be based on the right that the PAEE apprentice has to attend and remain in all environments, including in non-formal education organizations, thus exercising their right to equality. It should be noted that the equality of all is provided for in the Federal Constitution (Brasil, 1988).

Non-formal education organizations seek to achieve these objectives in neglected populations, so that interactive environments and situations are collectively built, facilitating the participation of all those involved in the transmission and exchange of knowledge. In this sense, it is highlighted that the role of the educator to mediate the knowledge of the learner and his formation is extremely important to the schooling process of the students. This has been a concern of many researchers for centuries, mainly due to the fact that teacher training is closely linked to the quality of education (Pletsch, 2009)

According to Pletsch, 2009, the training of educators has been recognized as an essential factor for the quality of education in Brazil since 1827, when the concern with the education of the population took hold, due to the implementation of the first legislation aimed

at primary education in the period of the Empire. Thus, it is perceived that teacher training is not a recent subject; However, there are still a number of challenges to be overcome.

The educator's training is intrinsically linked to educational objectives, since one of the elements that will direct the way the teacher will act in the classroom. In other words, quality training directly influences the effectiveness of an educational intervention appropriate to the needs of students (Pletsch, 2009).

The authors Vitalino and Manzini, 2010 point to the training of the educator as a critical element to improve the quality of teaching in schools. They also emphasize that better training can benefit pedagogical practices that deal with diversity.

Thus, this work has as its thesis that the inclusion of children and adolescents with PAEE in non-formal education organizations faces some barriers and difficulties, due to the lack of specialized knowledge about inclusion on the part of their educators.

Thus, the research question was formulated as follows: Is it possible to reduce barriers and difficulties faced in the process of inclusion of the PAEE student, based on the development of a collaborative proposal for continuing education in a non-formal education organization?

The research seems legitimate in view of the lack of further information about the training of non-formal education educators with regard to inclusion, as well as the need to know what the structures of non-formal education are like with regard to the inclusion of the PAEE.

The relevance of this study is based on the importance of knowing the work of the educator in the non-formal teaching environment and offering continuing education in this area, to guarantee and enable equal opportunities for access and permanence of the PAEE apprentice in the non-formal teaching space.

Thus, this work has as its general objective to analyze a collaborative proposal of continuing education tangent to the process of inclusion of the PAEE student in five Non-formal education organizations and as specific objectives: 1. To know how inclusion occurs in a Non-formal organization 2. To elaborate and develop a collaborative proposal for training on inclusion, based on current educational practices. 3. Evaluate the training proposal.

2 METHODOLOGICAL PATHS TAKEN IN THE RESEARCH

This work has a qualitative - collaborative approach. Collaborative research proposes the joint work of its participants, being focused on investigations about the school reality, in

which the researcher and the educators work together in the implementation of changes and in the analysis of problems, sharing the responsibility in decision-making and in the performance of research tasks (Ibiapina, 2008).

Ibiapina (2008) considers three fundamental elements for carrying out this type of research, namely: the co-production of knowledge, training and professional development, and the change of educational practices. It is important to highlight that among the functions of the participants in the collaboration process, researchers and educators do not necessarily perform the same activities, but each one provides contributions to the project in the specificity of their part (Ibiapina, 2008).

Regarding the ethical procedures, the present research was sent to the Ethics Committee of the Universidade Paulista Júlio de Mesquita Filho, and its performance was approved: CAAE 21100819.7.0000.5400. The research participants received the Informed Consent Form, along with an explanation of the research objectives, risks, benefits, and data collection procedure. The educators signed the free and informed consent form with acceptance of participation in the research.

This study had as participants 18 social educators (workshop teachers, and not necessarily trained in pedagogy) from 4 different non-formal education organizations (organizations that serve children and adolescents in after-school hours offering workshops), in a city in the interior of the state of São Paulo

For data collection with the educators, the following instruments were applied, all documents were evaluated by peers in GEPEEI - Study and Research Group in Special and Inclusive Education.

- a) Initial Questionnaire: consists of an initial open questionnaire script, with the aim of gathering information about the participants, as well as assessing the educators' previous knowledge about inclusion and their expectations about the training program.
- b) Final Questionnaire: consisted of a questionnaire applied to the participating educators at the end of the training, in order to evaluate the intervention proposal.
- c) Questionnaire script for application after 6 months of collection: consists of a questionnaire script applied to the participating educators six months after the end of the research, with the aim of evaluating the intervention proposal after one semester of practice. It should be noted that the meetings were recorded and transcribed and that all meetings respected safety and health standards.

It is important to highlight the context of the collection of this work: This project was

approved by the ethics committee at the end of the second semester of 2019, after approval the researcher presented the project to one of the participating organizations and delivered the ICF (March 5, 2020), however the delivery of the other terms to the other organizations and the meetings could not be held due to the pandemic and the beginning of social isolation (March 16 2020).

It should be noted that in March 2020, the World Health Organization (WHO) declared the emergence of a new disease caused by a coronavirus-type virus – Covid-19. It was considered a public health emergency of international concern, which spread around the world. In March 2020, the WHO assessed that Covid-19 was characterized as a pandemic.

As a result, the most appropriate path was to follow the guidelines of health professionals, complying with social distancing, the use of masks and hygiene, to mitigate the increase in the number of cases of the disease and not overload the public health system. In this sense, for data collection, partial control of the pandemic and the return of face-to-face activities were expected.

In 2021, with the return of face-to-face activities, the researcher, seeking a better organization and dynamization of the collection, scheduled a meeting with the coordinators of the four participating organizations to present the project and collect information from the areas of interest.

The stages of the collection, thinking about the objectives of the collaborative research, the training sessions were divided into moments of awareness of the collaborators (meeting with the coordinators), the diagnosis of training needs (initial meeting with the social educators) and the reflective cycles of training (training meetings).

The course had a total workload of 20 hours (20 hours in person, divided into 4 training meetings). At the end of the course, participants received a declaration of participation. Vacancies were made available for all educators in the organization. The meetings took place during the last week of January 2021. In the last meeting, a final questionnaire was delivered that addressed the participant's personal view of the contribution of the course to their training and also an evaluation of the course.

Six months after the end of the research with the educators, an evaluation instrument was applied, which aimed to know the main positive and negative aspects of the training course in question and possible changes in inclusive practices after the training. To avoid any influence from the researcher, this last evaluation was sent via Google Form.

As it is a qualitative-collaborative research, the analyses were presented in a

descriptive way, considering the guidelines of Ibiapina (2008), we organized the procedures and analysis by phase:

- 1) Identification of the characteristics of the context: in this phase a detailed table of the characteristics of the organizations and participants will be presented.
- 2nd) development of the intervention process: understanding the training as a collaborative result, the phase seeks to analyze the answers of the initial questionnaire (which brought information for the elaboration of the training), initial questions of the educators, and finally description of each training meeting and analysis of the training
- 3) evaluation of the intervention process: in this phase, we sought to analyze the results of the final questionnaire and the longitudinal questionnaire (after 6 months of collection).

3 RESULTS AND DISCUSSIONS: ENABLING AND ENABLING EQUAL OPPORTUNITIES FOR ACCESS AND PERMANENCE OF THE PAEE APPRENTICE IN THE NON-FORMAL TEACHING SPACE

In the case of Non-Formal Education in Brazil, it is possible to see that its trajectory originated as a result of changes in the economy, society and the world of work. In this sense, non-formal education organizations, in order to set up their workshop schedule, follow criteria of solidarity and identification of common interests of the target population, part of the process of building the citizenship of this public (Santos, 2006).

Table 1 follows, in which we observe the vulnerable population targeted by the project, the number of students, the workshops offered and the number of PAEE students.

Table 1

Characterization of the participating organizations

Organização	Público em vulnerabilidade social atendido.	Quantidade total de educandos	Oficinas ofertadas	Quantidade educandos PAEI
n1	Atende adolescentes (sexo masculino entre 12 e 16 anos)	40	Reforço escolar Informática Educação para valores Esportes	6 (entre eles com e DI)
n2	Atende crianças (sexo masculino entre 06 e 16 anos).	30	Reforço escolar Esportes Teatro Educação para valores	5 (entre eles com e DI)
n3	Atende crianças e adolescentes (sexo masculino entre 06 e 17 anos).	70	Brincadeira dirigida Esportes Teatro Educação para valores Reforço escolar	4 (entre eles com e DI)
n4	Atende crianças e adolescentes (sexo feminino entre 06 e 17 anos).	70	Esportes Teatro Dança Educação para valores Reforço escolar	8 (entre eles TEA, DI e DF)

Source: Elaborated by the researcher.

The expressive, but not proportional, number of enrollments of PAEE students in non-formal organizations stands out: N1 - 15%; N2- 17%; N3: 6% and N4 11% of total enrollments.

In this sense, we observe that the 4 organizations seek to contribute to the access of these vulnerable children and adolescents to cultural and sports activities, school reinforcement and spaces to play.

However, we observed that the 4 organizations present the workshop "education for values", the present workshop with different names is present in several organizations throughout the country, in this sense Santos, 2006, says that at the same time that characteristics such as altruism, compassion, sensitivity, began to be part of the ideology of Non-Governmental Organizations, it is necessary to analyze how the projects of Non-Formal Education have been constituted.

It is questioned whether they are spaces for the emancipation of the people served or for social adaptation, complementing the problematic Machado, 2018, highlights that some workshops present in non-formal education, even today, have their origins in the charitable action of Christianity and in its implicit "evangelization" for the standardization of social conduct.

Regarding the characteristics of the participants, after the relative observations about

the organizations of the study, we will begin to look at the social educators, these participants of the research, accounting for 18.

It is noteworthy that social educators are teachers of the workshops, recent studies reveal that the work of the educator requires the construction of professional identity, based on processes that contemplate several interconnected elements such as: "the knowledge of experience, the knowledge of knowledge and the pedagogical knowledge", all historically contextualized (Pimenta, 2002).

In this sense, it is important to highlight the data in the table above, in order to better understand the people involved in the study.

Observing the picture, we realize that half of the educators are residents of the same region as the organization that works, according to Santos, 2006, this characteristic is common, it is good since educators are people who experience in many aspects the social reality of children and adolescents.

We must also take into account that the social environment where one lives is always covered with cultural meanings. But these meanings are only apprehended with participation and participating is not just being present at something, attending, being a number. Participating is an active, interactive process that is built. (Gohn, 2014).

Another characteristic is that the workshops and themes in the organization of non-formal teaching are usually not random, the choice of themes must meet the needs of the group mostly known in the dialogues. In this sense, it is necessary to have sensitivity to understand and capture the local culture, the other, the different, the region as essential (Gohn, 2017). Therefore, this educator being an active subject in his community is a very valuable characteristic.

It is also observed that the motivation of some participants is linked to the belief in "divine choice", "gift", "mission", among others. In this sense, Caliman, 2010, says that the profession of social educator should not be based on charitable desire, nor even on the gift or feeling of mercy towards people, but on organic formation that struggles to transform the oppressive conditions of these people.

The initial evaluation showed that the educators, for the most part, did not know the term PAEE, in this sense it is emphasized that using or not using technical terms correctly is not a mere semantic or unimportant issue, if we wish to speak or write constructively, from an inclusive perspective, about any subject of a human nature. And the correct terminology is especially important when we address issues traditionally full of prejudice, stigma and

stereotypes, as is the case of the disabilities that several million people have in Brazil.

Table 2

Characterization of the participants

No.	Age	Training	Workshop he conducts	How you found out about the organization	Why did you seek to work in a non-formal teaching organization?
P1	31	Pedagogy	Coordination/ School reinforcement	I live in the neighborhood	To make a difference
P2	44	Social services	School coordination / reinforcement	I was invited to participate in the project by a colleague	To help grow
P3	62	Social services	Education for Values	I live in the neighborhood	After retirement I accepted the invitation to start over
P4	57	Pedagogy	School reinforcement	I live in the neighborhood	I have always worked as a volunteer, I like it a lot
P5	32	Middle school	Dance	I was invited to teach a special class and I stayed.	I would like to pass on what I learned
P6	55	Elementary I	Education for Values	I worked at the home of the Founder of the Organization, I was a cleaner.	I was invited, I identified myself and fell in love with the work
P7	38	Middle school	Sport	I live in the neighborhood	Professional profile, I chose because of the social project.
P8	30	Physical education	Sport	I met through a fundraising campaign in the city	It generates meaning in my professional life
P9	32	Middle school	Theatre	I live in the neighborhood	Because I like to work with art education
P10	30	Pedagogy	Sport	A friend studied here	This whole environment captivates me
P11	27	Psychology	Education for Values	A colleague recommended me to meet and work here	Because of the interest in being able to work on important issues that are not addressed in formal environments.
P12	24	Middle school	Computer science	I live in the neighborhood and studied here	I find this environment very pleasant
P13	30	Pedagogy	Directed play	I live in the neighborhood	I consider myself chosen
P14	30	Physical education	Sport	I don't remember	I chose it because I believe in the social value of the third sector
P15	28	Right	Coordination/ School reinforcement	I met the founder of the organization and he invited me to work here	Because I like assistance to children with vulnerability
P16	49	Elementary School II	Education for Values	I live in the neighborhood	I knew it because the third sector helped my son
P17	55	Right	Coordination/ School reinforcement	I met the founder of the organization and he invited me to work here	I was enchanted by the seriousness of the work

P18	54	Pedagogy	Education for Values	I live in the neighborhood	The work enchants me
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Source: Elaborated by the researcher.

We consider the term PAEE to be the result of struggles and social movements, therefore, the terms are considered correct due to certain values and concepts in force in each society and in each era. Some participants answered:

P3 "They are children at risk"

P5 "Physical, cognitive and behavioral disability"

P9 "Preparatory education for special children"

P11 "I know that there are some special and specific needs of each group. People with physical or intellectual disabilities or some learning and behavioral disorders"

Thus, they become incorrect when these values and concepts are replaced by others, which requires the use of other words. These other words may already exist in the spoken and written language, but in this case they have new meanings. Or they are built specifically to designate new concepts. The biggest problem arising from the use of incorrect terms lies in the fact that obsolete concepts, misconceptions, and inaccurate information are inadvertently reinforced and perpetuated.

Another pertinent question of analysis was, precisely, the question that generates the research: Training. We found in the answers classic examples that agree with the works of Zanni 2005, Trajber 2010, Freitas 2011, Souza 2016, Soares and Araújo 2010, Nascimento, Rosa, Burnargui and Gagliardo 2018, Sousa and Palafox 2017, which discuss the importance of continuing education, and formative interventions for formal education teachers and social educators in the third sector on new educational demands. Some participants pondered:

P2 I hear about the importance of living with people without disabilities, but I know very little.

P6 I heard some things, nothing I understood much.

P11 I know very little. I know that there are some special and specific needs of each group.

P5 I don't know anything about that.

P7 I never had any training on the subject. I don't know.

P8 I never had training about people with physical and mental difficulties.

P9 I've never seen anything about it, I'd really like to.

Still in relation to the answers, we realized that training on the PAEE is still scarce, we soon realized that despite the legislative advance, the right to inclusion, knowledge on the

subject, unknown to many (Denari, 2008).

One of the educators brought an answer that shows that the social model of disability, even though it is materially unknown, already has a sociocultural meaning in its practice:

P16 I have no training, but I know that we cannot discriminate against children who have some physical, motor or cognitive problem, they have to have the same opportunities and have equal rights.

In this sense, it is important to bring the words of Rodrigues, 2006 when he says that Brazilian legislation aims at education for all, but it is still necessary to break cultural barriers of discrimination, educational environments must break attitudinal barriers, which sometimes occur involuntarily and irrationally, limiting learning.

Understanding the importance of the role of the social educator as an active agent of the students' learning, it was asked if they agree with the inclusive process in the organization where they work and the existing barriers. The following are some excerpts from the participants' speeches:

P4 Yes, but with conditions.

P5 Yes, but there would have to be more specific training.

P8 Yes! The challenge is to have strategies to know how to deal with it. That way it would not be a problem, but a solution. But it needs training.

P12 Yes, if there is training.

P13 The reality of the third sector is one of difficulty in training financial resources for training, structure reform and hiring of professionals with specific training.

P16 I'm not sure, I don't think so

P17 There is a lack of structure.

Q5: Yes because everyone is worthy of assistance

P 9: I'm not sure, I don't think so.

When asked about barriers to effective inclusion, educators highlighted the lack of training, we realized that despite the advances of the legislatures on the inclusive process, many educational institutions/organizations have not yet implemented actions that favor the training of their educators to work with inclusion. In this sense, it is important that they understand the socio-historical context of exclusion and that of the inclusion proposal. (Denari, 2008)

From the survey of interest, there was a thematic predominance in subjects clearly within the conception called "medical model", since some participants talk about cure and treatment, which makes us reflect on the development of Special Education, the services

provided to people with disabilities, aimed at teaching basic skills, and, as training is necessary, for the service offered to cross ableist barriers.

Therefore, one of the objectives of the intervention process became to offer educators assumptions that communicate with the social or educational model, according to Glat, 2007, who consider that the student's learning possibility is not exclusively linked to his biological condition, since his life experiences, stimuli, and socialization opportunities are equally important for his development and learning process.

It is evident that the suggestions for themes are in line with the difficulties experienced, since knowledge about teaching procedures and special methodologies and resources, the characteristics of the students in the organization, and the educational implications of the process of inclusion of these students were prioritized. Another issue raised was the issue of "limit" and punishment for inappropriate student behavior. In this sense, the researcher considered it pertinent to bring the theory of positive education because it is non-violent, focuses on solutions, seeks to be respectful and in accordance with the principles of human development. (Nelsen, 2015)

In addition, these themes are in line with the dimensions of the necessary knowledge indicated by researchers in the area for the process of training educators, aimed at the inclusion of PAEE students, as described (Rodrigues, 2006). Some doubts emerged to also be worked on in the training:

Q1 "How do I know if it's difficulty or laziness?"

Q2 "Are there any evaluation tools?"

Q3 "Do you have the right strategies to deal with?"

It should be noted that the contents that emerged in collaboration with the participants were those that were placed by the participants as necessary and important for learning. The construction of the course in a collaborative way was constituted from a process in which the participants put their experiences and knowledge, previously acquired or built, and interacted to create knowledge shared with all those involved.

In the formative meetings, the themes were divided into four meetings, each meeting took place in one of the organizations. Regarding time, each meeting lasted 5 hours, all of them were divided into four moments: 1st presentation of the theme by the researcher, 2nd exhibition of a video, 3rd coffee and 4th conversation circle.

The meetings had the following themes:

- The first training meeting was marked by introductory themes, related to the history of the exclusion of people with disabilities / history of the extinction of people in vulnerability – role of formal and non-formal education organizations, explaining the importance of non-formal education and its transformative role.
- The second meeting was dedicated to delving into inclusive, conceptual and social conception issues, aimed to bring the social approach to disability and the importance of inclusion EVERYWHERE.
- In the third meeting, in the first hour, the researcher dedicated herself to explaining the importance of getting to know each student, knowing their potentialities, tastes and difficulties, seeking to comment on everyday human differences and the importance of evaluation.
- In the fourth meeting, the researcher proposed a study on the concept of Universal Design (UD) that comes from architecture and was designed to provide accessible environments for the entire population (Nelson, 2014). Although this concept was initially developed to ensure accessibility for people in the most diverse conditions in physical structures, these principles have been applied to other areas of knowledge.

Regarding the meetings, after the explanation, the researcher showed the documentary "History of the Political Movement of People with Disabilities in Brazil", which reports a little of the historical struggle for social rights.

In this sense, the statements of some participants in conversation circles stand out:

P4 It is true that there was always a deficiency, my uncle himself was locked up
 P6 I had never seen anyone with disabilities, then it started to be shown in soap operas and they started to leave the house
 P7 the impression it gives is that it started to have only now, but they were hidden.

Observing the comments, it is emphasized how important it is to reflect on how the recognition of citizenship occurs when referring to people with disabilities, current social policies seek inclusion and guarantee the social participation of people with disabilities, so that, from the moment these people are able to have access to social rights, there is a guarantee of recognition of citizenship status. This recognition occurred late, but, as late as it was, it is undeniable that access to rights strengthened this movement to continue claiming space in society on an equal footing (Cabral Filho and Ferreira, 2013).

It is necessary to highlight that we live in a contradiction, because the same society that includes for equality, excludes for differences. In other words, the range of social exclusion is as wide as the mechanisms for imposing standards of normality to which humanity has been historically subjected, which advocate aesthetic models, intelligence, language, economic and cultural conditions, with which we must conform, at the risk of swelling the ranks of the socially excluded (Matiskei, 2004, p. 187).

In a historical-critical conception, according to Saviani, 2001, the role of the educator in this process of inclusion is fundamental, since he is the mediator of the teaching/learning process. In the words of (Carvalho 2004, p. 77):

The letter of the laws, the theoretical texts and the discourses we deliver ensure rights, but what guarantees them are the effective actions, to the extent that the legal provisions and all the deliberations contained in the texts of public policies are concretized. To this end, more than predicting, it is necessary to provide resources of all kinds, allowing human rights to be respected, in fact.

The researcher, by bringing up this historical theme, sought to make educators aware of their transformative historical role, not to exclude but to mediate inclusion based on the knowledge that we ALL have the rights of citizenship and belonging in different organizations of access to formal and non-formal education.

Regarding the social approach to the theme, seeking to answer the following questions asked by the group:

- Q4 - How do you do the Integration of the student?
- Q8 - How to forward it to the report?
- Q9 - How to read the report?
- Q11- How to deal with the student with a report?
- Q15 - Is there a "cure" type with the treatment of the report, right?

First, the researcher showed an image and asked the educators to answer what they saw, as the image can be seen in two ways, the researcher explained "that just as we can observe this reality in two ways, when we have any PAEE student we can observe the 'report' as a sentence or as the departure of the path".

After this moment, the researcher showed a slide with the speech of a journalist Mariana Rosa about the terminology "lidar" and the etymology of this word, seeking the reflection of educators on how words are linked to ableist conceptualizations. After the explanation on the theme, the researcher showed the short film: CUERDAS, which reports a

little about the different forms of "looking" for PAEE people. Here are some of the participants' speeches that took place in a conversation circle:

Q4: That's true, I talk about dealing with it all the time.

P6: It's very difficult not to see the disability, I end up saying "look if he who has difficulty can do it, you can do it too"

P15: True, I've always associated treatment with curing the disability, you know?

P18: Sometimes we are prejudiced and don't even realize it.

On the subject worked at the meeting, it is highlighted that the social model of disability comes from the social movement of people with disabilities in England, this conception of disability aims to foster the emancipation of people with disabilities so that they critically perceive the place they occupy in society (França, 2013). With its emancipatory message, the social model is a practical tool to confront the individualized and medianized experiences of disability, the social model has fostered the construction of a collective identity and a new sense of self-esteem among people with disabilities (Pinto, 2015).

In this sense, the social model of disability was decisive in the transformation of approaches to disability, moving from a conception based on welfare to a conception based on the affirmation of the rights of people with disabilities. Indeed, from the recognition that society is responsible for the creation of disability stems the notion that the people whom society constructs as disabled should ultimately be treated as equals and should have their needs met as a matter of rights, not charity (Pinto, 2015).

The researcher considered it extremely important to address this subject in a meeting, because it is from this view that the other formative meetings took place, in the view that is based on the assumption that we build social, architectural and attitudinal barriers, these barriers build exclusion.

Regarding the importance of knowing the learner and of evaluation, not as a sentence but as the beginning of the path of creating strategies, Saviani (2001) warns us that when working with the popular classes there is an inequality at the starting point, but equality at the point of arrival must be guaranteed by the educator's mediation. The author emphasizes that it is only possible to consider the educational process as a whole, under the condition of distinguishing democracy as a possibility at the starting point and democracy as a reality at the point of arrival.

In relation to the theme Universal Design of learning, it is highlighted that this is understood as a set of principles, strategies and actions that aim to make teaching accessible

and functional to all people. This concept is based on three principles: 1. provide multiple means of engagement; 2. Provide multiple means of representation; 3. Provide multiple means of action and expression (Meyer, Rose, Gordon, 2014).

In the second moment of the fourth meeting, the researcher opened the conversation circle by asking the participants to be free to ask about any subject related to the PAEE. Some issues related to sexuality and behavior emerged:

- P6 Do people with intellectual disabilities have a more pronounced sexuality?
- Q2: Do people with Down syndrome date?
- Q5: Can people with disabilities have children?
- P18 Why are people with disabilities more childish?
- P3 Are people with disabilities more violent?

The researcher, in her answers, sought to invite educators to a reflective process on "what is the emergence of sexuality?", "do we all emerge?", bringing questions about the denied sexuality of people with disabilities and the importance of sex education for ALL. "How do we talk to adults with intellectual disabilities?", "do we seek to understand what people are feeling? Do we teach them about working with emotions?", at all times the researcher sought to bring the attitudinal barriers that often generate behavioral consequences, barriers historically created in an ableist way.

It should be noted that there are several myths based on widespread conceptions that all behaviors and attitudes of people with intellectual disabilities, including sexuality, are considered potentially abnormal (Glat, 1992). Therefore, from this perspective, their sexuality is seen as problematic or pathological by nature (Maia; Camossa, 2003). An example of this is the conception that individuals with intellectual disabilities are not able to control their sexual impulses and need to be medicated.

For the authors, it is still common to believe that people with ID are asexual, when they are not seen in an infantilized way, as "eternal and angelic children", or, on the contrary, many believe that these individuals are hypersexual, with manifestations of aberrations and an aggressive and animalistic sexuality (Maia; Camossa, 2003; Freitas, 2011). Such conceptions come from the absence of the construction of the sexual role of individuals with intellectual disabilities throughout their development, which occurs due to the deprivation of social life, the lack and misrepresentation of the information received, as well as the social non-acceptance of their sexual desires, needs and capacities (Maia; Camossa, 2003).

During the training, educators were invited to reflect on how we are influenced by

ableist and stereotyped views of people with disabilities.

At the end of the fourth meeting, the researcher told the story "The snake and the frog", the story tells how differences can be something good or bad, depending on the other's look. From the story, the researcher brought reflections: "Why did you bring this story in the training?" "What is the relationship between history and inclusion?" "What is the relationship of the characters with the students served in the organization?". From the answers listed, the researcher began to recall the themes worked on throughout the training:

P1: I saw it as if it were someone else to deal with the child, in many moments, now I see that it is more the look.

Q3: We all learn from everyone.

Q2: Everyone is different.

Q5: Everyone learns more in a different way.

P9: Sometimes our students are discriminated against like the frog in the story.

P15: Sometimes, unintentionally, we discriminate and don't believe it.

During training, at times we find it difficult to lead educators to abandon their passive posture and become more active in the process, capable of perceiving that the complexity of the problems that are faced with inclusion today does not find solutions that have been previously tailored and routinely applied. On the contrary, it requires an ability to read events empathetically and interpret them as a means of finding the most appropriate strategic solution for them (Alarcão, 2001, p. 24).

But, as the meetings progressed, the conflicts were mitigated, and collaboration began to emerge, allowing "intentional mutuality and reciprocity and a common goal of making thought and action explicit, in order to understand problems of practice and develop it by making explicit the unity of theory and practice" (Albuquerque & Ibiapina, 2016, p. 83). It is important to understand the movement of reflection of the participants before the meetings. It is noteworthy that the intervention process was based on the premise that it is through reflection on practice based on theoretical knowledge that the training process takes place (Rodrigues, 2006).

Another instrument (questionnaire), applied 6 months after the last face-to-face meeting, was answered online, due to the new aggravation of the pandemic and guidance for new social isolation. Regarding the answers to the essay questions of the first evaluation instrument, it is highlighted that collaborative training research needs to be based on co-responsibility, sharing, trust, openness and security, in order to make the necessary changes,

adjustments and developments in educational practice (Ibiapina, 2008).

In this sense, it is important to bring the answers of the educators about the training, when asked in the questionnaire if they considered the training relevant for the improvement of their practice:

P1 Yes, a lot! Now we can work more clearly

P2 Yes, it helped a lot in matters of how to improve the activities and how to have contact with the PAEE, ways of acting, speaking and expressing oneself

P3 He contributed a lot. Inclusion is a challenge that comes to us and it is necessary to be prepared, more capable of including children

P14 Yes, totally. We in the third sector do not have support, nor access to continuing education to train new and old educators (due to lack of resources), this training was very rich.

P15 Yes, it contributed, however, given the great need for constant improvement aimed at qualifying the service provided by the entity, I feel that more moments like this are necessary

P16 Yes, because we learn to be better with children

P17 Yes, because it increased my knowledge and sharpened my curiosity to learn more about the inclusion area

P12 Yes... Very much! The course will enhance me at all times of my life, in all environments, at school, at home, etc.

P13 Yes, We educators need to always be training ourselves because we are experiencing many changes in the day.

The continuing education of educators is justified by the need for continuous professional development, critical reflections on the pedagogical practice itself and to overcome the distance between the contributions of educational research and its use for the transformation of teaching practice. In the same sense, the statements about the contribution of training stand out:

P18 It contributed a lot because we don't have training often, this was the first training we had on inclusion

Participants Suggestions and comments:

P3 I am very grateful for this opportunity to acquire more knowledge. I suggest more videos

P7 It would be interesting if other research was carried out in CSOs and had more training coming from the University.

P8 The course was very important, new knowledge of evaluation, learning, diverse content to better serve the PAEE in our work environment

P11 The course was good, I could have had more hours

P13 It was a new experience for the knowledge to prepare us and strengthen our profession, which I love.

García (2005) understands professional development as the set of processes and strategies that facilitate educators' reflection on their own practice and contribute to the generation of practical, strategic knowledge, and enable them to learn from their experience.

P14 Thank you, for your willingness and affection throughout the training. I realize that my practice and that of some colleagues had some characteristics that segregated, this moment of discovery and self-evaluation was good.

P15 The meeting provided reflection and learning about our educational conducts in relation to all children and adolescents, not just the PAEE.

P17 I would like more courses and lectures with you, I found it a simple, didactic speech that reached all levels.

P18 We hope to put the knowledge into practice. The positive points were: Integration of the 4 organizations conversation circle, I found the course excellent with easy language and practical examples. Negative point: I would prefer it not to be on consecutive days.

It is noteworthy that one of the interesting aspects was the use of an "easy language", but with a scientific character and the use of practical examples, it valued its contextual, organizational and change-oriented character. (García, 2005). It is noteworthy that (Nóvoa, 1992) also reinforces that teacher training is not constructed by accumulating courses, knowledge or techniques, but rather through a work of critical reflexivity on practices and permanent (re)construction of a professional identity.

It is important to bring that for some participants, the workload of the course and the meetings could be different from what was executed. It is believed that a course with a longer workload and more face-to-face meetings could be more beneficial for participants. However, due to organizational factors of the organization itself, it was not possible to carry out a training course with a longer workload. In view of the structure of the face-to-face meetings, it is clear that the content presented during the course was satisfactory and important for all participants.

Regarding personal participation as a student, it is noted that all educators pointed out that the contribution of the course to their teacher training was satisfactory and important. The exchange of experiences in a collaborative training course is essential so that participants can really establish a relationship of partnership and collaboration. For Helvig (2015), collaborative education is based on the joint construction of learning, in which each teacher is not only a transmitter of knowledge, but a subject able to learn and teach. The order of the activities and the clarity of the content in each class were considered satisfactory and important by most educators, as well as the discussion of the themes in each class.

The evaluation of the training course, in general, can be considered positive, since, on a scale of one to five, the lowest average was 4.8.

In relation to the last questionnaire applied, we noticed that most participants considered the training relevant and consider that their practice changed during the course of their work during the year.

It should be noted that in the essay question (if there was a change in teaching practice, and to share), we had some shorter answers, perhaps due to the questionnaire being online.

Q1: I had a more reflective practice.

P2: I try to evaluate more the things that the students already know how to do.

P3: I still have difficulty, but I had more clarity.

Q4: I haven't been able to put it into practice yet, due to several factors that have not yet been possible. But it sure made sure I have a clearer vision of how to work.

P 5: What I learned from the course has been helping a lot and the girls are being better understood.

P 17: In practice it is much easier to look at theory.

P18: My look and the way of teaching have contributed a lot to some girls.

It is observed with the reports that this type of collaborative reflective training is an important strategy for the training process of those involved, as it provides the acquisition of knowledge and joint reflection between educators and researcher/trainer, with no hierarchy, in which all subjects have a voice to contribute to the discussions.

4 CONCLUSION: WHAT WE FOUND AND WHAT STEPS WE CAN TAKE

The reported research started from the Thesis that the inclusion of children and adolescents with PAEE in non-formal education organizations faces some barriers and difficulties, due to the lack of specialized knowledge about inclusion on the part of their educators. From this, the research began by trying to know how inclusion occurs in a non-formal organization.

The results of the study showed that, according to the educators' reports, there are barriers in the inclusive process, the biggest being the lack of training on the subject. In this sense, it is noteworthy that the lack of training on "how to include" is pointed out in several studies related to teachers in the regular formal education network (Franco, 2001; Beyer, 2006; Pletsch, 2009; Bissoto, 2013; Bisol, 2017; Duarte, 2017; Merech, 2017), which makes us reflect that continuing education with an inclusive perspective is necessary in all

educational environments. Therefore, the importance of training is observed, not only as something conceptual, but that involves reflection of the educator in the face of the whole process and its importance in it.

One of the data found was the view of some participants about "educating", linking the profession to the belief in "divine choice", "gift", "mission", "act of love", among others. In this sense, we realize that even the professions related to education, in formal and non-formal education, still support the charitable vision, especially when we talk about vulnerable populations or children and adolescents PAEE.

From this reality, the study presented a proposal for continuing education in the collaborative perspective, in this context there was an opening of the researcher for educators to give suggestions of topics of interest, it was perceived the suggestions linked to the medical view of disability: report, treatment, "cure". It is noteworthy that research on collaborative training, in regular formal schools, cited in the work, also brings the statements of teachers who show how the model of medical approach is still widespread in schools, despite all the progress of legislation. Therefore, it is necessary to have training which considers that the student's learning possibility is not exclusively linked to his biological condition, since his life experiences, stimuli, and socialization opportunities are equally important for his development and learning process.

Another issue raised was the issue of "limit" and punishment for inappropriate student behavior. In this regard, it is observed that the learning models present in traditional education are still present, as well as in regular formal education schools, as well as in non-formal education organizations. It is then important to highlight the importance, even if it seems to be a subject that has already been much discussed, of working on the student's protagonism in an approach of mutual respect in learning situations in continuing education.

Throughout the training process, educators participated in conversation circles and brought stories of good practices for reflective actions, so the importance of the approach used for data collection and training is highlighted, since it was possible to get to know the participants and their demands, in addition to allowing training with the transmission of knowledge and joint production of knowledge.

In response to the question of the study: Is it possible to reduce barriers and difficulties faced in the process of inclusion of PAEE students, based on the development of a collaborative proposal for continuing education in a non-formal education organization?

The results of the study showed that the evaluation of satisfaction of the training

course, in general, can be considered positive, because, on a scale of one to five, the lowest average was four point eight.

In relation to the last questionnaire applied, we noticed that most participants considered the training relevant and consider that their practice changed during the course of their work during the year.

It is observed with the reports that this type of reflective collaborative training is an important strategy for the training process of those involved, it was observed that the present training brought within the collaborative proposal, the "movement of reflective practice" as well as the need to train for the construction and production of knowledge. Thus generating good results. In this sense, it was perceived that the present one made it possible to reflect on their practical reality, and helped educators to rethink their attitudes and redefine their practice.

In addition, the results clearly show that the training process must be linked to the needs that educators experience in their daily lives. We found that most participants positively evaluated the intervention process developed, in general, we considered the benefits of the methodological proposal of collaborative research, which, through studies, reflective practices and collaborative participation in the context of teaching, favored a training process in which the participants were active and reflected collaboratively and collectively on the issues that affected them.

It is noteworthy that the results presented allow us to glimpse that this research favored the perception of inclusion and educational practice in organizations, and to realize that many barriers found in formal education are also present in non-formal education.

Above all, the results obtained reinforce a point much debated by several researchers: that the educator is the key element for the construction of inclusive spaces of knowledge and that he must be prepared for this. Therefore, future research needs to pay attention to offering continuing education in order to meet the real demands of teaching professionals. Thus, the importance of a collaborative formative construction is emphasized.

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THE NARRATIVE OF A TEACHER AT THE NORMAL SCHOOL

A NARRATIVA DE UMA PROFESSORA NA ESCOLA NORMAL

LA NARRATIVA DE UN DOCENTE EN LA ESCUELA NORMAL

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ABSTRACT

Teaching represents a complex ethical, emotional, and intellectual endeavor, in which the teacher not only transmits knowledge but also shapes individuals capable of transforming their environment. The teacher is an essential agent in the motivation, self-esteem, and holistic development of students; their role becomes crucial when recognizing individual differences and promoting inclusive education. In this sense, the narrative of initial teacher training constitutes a process of personal and professional development that is enriched by experiences, reflections, and values acquired year after year of teaching practice. This work reflects on the trajectory of a special education teacher, Luis Antonio Rabadán Miranda, whose vocation was forged between initial doubt and the subsequent certainty of having chosen the right path. Through his experience at the Regional Center for Teacher Training in the State of Guerrero and his practice at a Support Unit for Regular Education (USAER) as his first workplace, the challenges and lessons learned from supporting students with disabilities and students facing Barriers to Learning and Participation (BLP) are highlighted. Teaching, in this context, is understood not only as instruction, but as accompaniment, inspiration and transformation, reaffirming that true teaching is built in daily practice and in the permanent commitment to diversity and educational justice.

Keywords: Education. Training. Special. Teaching. Profession.

RESUMO

O ensino representa um empreendimento complexo, ético, emocional e intelectual, no qual o professor não apenas transmite conhecimento, mas também molda indivíduos capazes de transformar seu ambiente. O professor é um agente essencial na motivação, autoestima e desenvolvimento integral dos alunos; seu papel torna-se crucial no reconhecimento das diferenças individuais e na promoção da educação inclusiva. Nesse sentido, a narrativa da formação inicial de professores constitui um processo de desenvolvimento pessoal e profissional enriquecido por experiências, reflexões e valores adquiridos ano após ano de prática docente. Este trabalho reflete sobre a trajetória de um professor de educação especial, Luis Antonio Rabadán Miranda, cuja vocação foi forjada entre a dúvida inicial e a certeza subsequente de ter escolhido o caminho certo. Por meio de sua experiência no Centro Regional de Formação de Professores do Estado de Guerrero e de sua atuação em uma Unidade de Apoio à Educação Regular (USAER), seu primeiro local de trabalho, são destacados os desafios e as lições aprendidas no apoio a alunos com deficiência e alunos que enfrentam barreiras à aprendizagem e à participação (BLP). Neste contexto, o ensino é entendido não apenas como instrução, mas como acompanhamento, inspiração e

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transformação, reafirmando que o verdadeiro ensino se constrói na prática diária e no compromisso permanente com a diversidade e a justiça educacional.

Palavras-chave: Educação. Formação. Especialização. Ensino. Profissão.

RESUMEN

La docencia representa una labor ética, emocional e intelectualmente compleja, en la que el maestro no solo transmite conocimientos, sino que forma personas capaces de transformar su entorno. El docente es un agente esencial en la motivación, la autoestima y el desarrollo integral de los estudiantes; su figura adquiere relevancia al reconocer las diferencias individuales y promover una educación inclusiva. En este sentido, la narrativa de la formación inicial docente constituye un proceso de construcción personal y profesional que se alimenta de experiencias, reflexiones y valores año con año de práctica docente. El presente trabajo reflexiona sobre la trayectoria de un docente “Luis Antonio Rabadán Miranda” de educación especial cuya vocación se forja entre la duda inicial y la certeza posterior de haber elegido el camino correcto. A través de su experiencia en el Centro Regional de Educación Normal del Estado de Guerrero y su práctica en una Unidad de Servicio de Apoyo a la Educación Regular (USAER) como primer centro de trabajo, se destacan los desafíos y aprendizajes derivados del acompañamiento a estudiantes con discapacidad y alumnos que enfrentan Barreras para el Aprendizaje y Participación BAP. La enseñanza, en este contexto, se entiende no solo como instrucción, sino como acompañamiento, inspiración y transformación, reafirmando que la verdadera docencia se construye en la práctica cotidiana y en el compromiso permanente con la diversidad y la justicia educativa.

Palabras clave: Educación. Formación. Especial. Docencia. Profesión.

1 INTRODUCTION

A teacher shares their knowledge, their experiences, their way of being, transmits values and has a great responsibility to provide an education of a high level of quality. One of the teaching functions is to facilitate the achievement of learning with their students. In this sense, the teacher must give a lot of himself in the classroom and recognize the value of his figure in the context where he develops, since he becomes a figure of respect. Teachers play an extremely important role in the motivation and self-esteem of students, therefore, they have the ability to lead their students to the achievement of learning, develop competencies through techniques and strategies so that they access the curriculum.

Teaching is an emotionally exciting, deeply ethical and intellectually demanding profession, whose complexity is only experienced by those of us who usually put our body and soul into the classroom (Fullan, 2016). The teaching profession could be understood as the action of educating others, but nevertheless it goes beyond transmitting knowledge and skills, the true teacher not only educates, his main task is to train the men and women of tomorrow.

In this way, education requires changes in the approach to the diverse characteristics of students and in educational practices, but above all in rethinking fundamental attitudes about education and the education of those students who have been excluded or marginalized for various reasons is to make the inclusion in education of all those students who for various reasons are excluded from the group to which they belong a reality.

A teacher is trained during his or her life path, according to his or her experiences and motivations, he or she manages to enter the world of education and if he or she has all the necessary characteristics to teach, it is when it could be said that this is his or her true vocation. To be a teacher everyone has a beginning and mine was when he decided to study the Bachelor's Degree in Special Education, it was not easy at the end of the studies at the high school level, it is very common as a student to have to consider selecting the career that has to be taken as a future profession, and that is where it was considered as a second option to be a teacher.

After having the results of approval of the careers I took and accrediting in the two institutions of higher education, I had to decide which one to enroll in since it was to be a Bachelor of Accounting or a Bachelor of Special Education. It is indisputable that the selection of the career was mainly based on recommendations and suggestions from my sisters and

my mother. At first I was not so sure and determined, since being a teacher was not a profession that motivated me to study.

In this sense, venturing into teaching was not an easy task at the time, studying at the Regional Center for Normal Education in the State of Guerrero was the beginning of a whole journey of training as a new teacher, where I had the opportunity to know, learn and have the experiences of what it would be like to be a teacher and even more so to be a special education teacher that requires greater commitment. ethics and great responsibility, this noble work that is teaching. In my initial training process in teaching, I shared the understanding and the way of being, of transmitting values and of inspiring to be a better teacher day by day. In addition to beginning to be responsible for facilitating learning and developing teaching skills. To be a teacher is to give a lot of oneself in the classroom and to recognize the value of the figure that one is going to represent to the society where we are.

Each teacher plays an extremely important role in the motivation and self-esteem of their students, therefore, they have the ability to make students feel competent through constructive messages and ways for them to learn the contents established in the educational programs. Being a teacher goes beyond just the duty to teach, it is not only about educating, nor about being the person who provides knowledge to the new generations. To be a teacher is to see education with good eyes and to know that you don't just teach for the sake of teaching, you don't just educate, but rather you guide, orient, prepare, listen, inspire, motivate and learn to be better every day.

In this sense, being a teacher today in Mexico is to know and recognize students as our main objective, as well as to identify the learning needs that each student presents and help eliminate each one of the barriers they may be facing, it is to accompany them in their learning process, and to seek the appropriate teaching strategies for each of the students.

I chose to be a teacher after the need to follow a dream, to be a professional, to have a degree and to give satisfaction to my family (mainly my mother), it is the dream of many young people and that was also mine and I achieved it. A dream that at first began as something insecure, and that when I started my professional training there was a lot of uncertainty, to know if the path I had chosen was the right one, today that decision was the most correct and that gave a great turn in my path that continues and continues to expand horizons in this great profession.

Teaching already in the educational work I faced with an enthusiasm like all graduates of a normal school, which most of them must have when they go to work and arrive at their

first educational center, leave your home and go to a new city and face new challenges in your daily life. but always considering the opportunity to bring teaching to those who required it, that is how I arrived in the city of La Unión, Guerrero, where I had the opportunity to start my work as a support teacher in the newly created USAER, corresponding to zone 03 of special education in the Costa Grande region. This new stage and beginning of my teaching work strengthens the mission of special education, which is to promote access and permanence and graduation in the educational system of children and young people who face barriers to learning and participation, giving priority to those with disabilities, providing the essential support within a framework of equity, relevance and quality, which allows them to develop their capacities to the maximum and integrate educationally, socially and professionally.

My journey as a support teacher was emotional and of many learnings, knowing in depth the educational situations of my first students that I attended and looking for the pertinent strategies for them to learn was and will be one of the most significant experiences of my work as a teacher, I still remember a student "J" who every day entered the classroom happy and motivated to learn, but with the instruments of observation and analysis of his case, which was a child who was repeating the first grade for the third time, I took on the task of carrying out a psychopedagogical evaluation where a probable intellectual disability was determined and this was one of my first experiences I had in the care of students, where the child was more motivated to learn, for all his participations, because he liked to participate but they were all wrong, but even so he did not stop trying again and again, and it is there where you realize the great importance of making the relevant curricular adjustments so that students can access learning and evaluate students according to their conditions and these can be accredited through its Intervention Plan (formerly Adapted Curricular Proposal), is where it gives meaning to the work that one must do for the benefit of the students who require it.

Therefore, keeping in mind the professional paths that I have experienced are what motivate me to move forward in this profession, one more that I had the opportunity to have was that I was only working as a support teacher for one year, since I was commissioned as a Pedagogical Technical Advisor where I had the opportunity to support the teachers of zone 03 of special education directed by Mr. Amando Dámaso N. who It gave me the opportunity to benefit the students from the support that the teachers received in their schools, with training and advice where it was required, an experience that I can mention that most of the

teachers were reluctant to receive support and even more from a teacher younger than them and that young man was me, since at twenty-three years old I had the responsibility of providing advice and some colleagues had many years of service and were reluctant to receive from someone younger, but with dedication and responsibility I was earning the respect and need of some in support, an experience that I had at the beginning of the rejection as an advisor was when a teacher resisted and in the statistics I reported a student with a disability in the Autism Spectrum Disorder and I told him that it was not like that, and he began to discuss and to the extent of reporting to the Supervisor and I trying to explain to him and he commented that it was and that if not it was already going to be and of course what he told me was not justified, since this disorder cannot be considered a disability, but it was one more experience that was recorded in my work career.

The educational policy in the care of a specific population group with respect to which the relationship of education systems has been modified is, without a doubt, that of the care of people with disabilities. The issue of exclusion is nothing new, students with disabilities had limited access to the educational system, on the way to a model of educational inclusion, different educational policies have been established in favor of the attention of this vulnerable population. Article 41 of the General Education Law states that special education must incorporate "the approaches of inclusion and substantive equality", adding that "This education shall include training and guidance for parents or guardians; as well as teachers and staff of regular basic and upper secondary schools that serve students with disabilities, with severe learning, behavioral, or communication difficulties, or with outstanding abilities" (LGE, 2018). In this sense, as teachers we cannot be oblivious to the new educational policies in terms of inclusion and as support teachers we have the responsibility to carry out inclusive practices and inclusive policies.

2 DEVELOPMENT

2.1 REFLECTION ON THE TEACHING PROFESSION

The central purpose of the 2004 Curriculum of the Bachelor's Degree in Special Education is for the student to acquire the desirable features of the graduate profile of the special education teacher. That is, to obtain a set of knowledge, competencies, skills, attitudes and values that allow them to exercise the teaching profession with quality and with a high level of commitment, in order to provide an adequate educational response to the specific needs expressed by students with disabilities, as well as those of those who have

specific educational needs derived from other factors. In this sense, as a student, I developed the disposition and capacity for lifelong learning, based on my own experience of the internships and the systematic study of the courses I took in my training. Therefore, he considered that I managed to achieve the desirable traits of the special education teacher that were grouped into five major fields: specific intellectual skills; knowledge of the purposes, approaches and contents of basic education; didactic skills; professional and ethical identity; and ability to perceive and respond to the social conditions of their students and the school environment.

My initial training as a Bachelor of Space Education was mainly to work in the comprehensive education of children and adolescents in basic education, but due to the need to continue preparing and providing a better service in the educational system, I began with the updating and preparation that every teacher must or should carry out. To study a master's degree and a doctorate strengthening my existing experiences, to expand a new set of knowledge, skills and values that would give attention to all children and adolescents who must acquire and develop, regardless of the entity, region, social condition, religion, gender, ethnic group to which they belong, or capacities they have, the achievement of learning.

When I began my teaching work at the Normal School, specifically at the Regional Center for Normal Education, in Iguala de la Independencia Guerrero, Mexico, I felt competent and with the necessary skills to be able to face this new professional stage, to work in the institution where I learned to teach and in which I graduated, I had many mixed feelings and a great satisfaction of now being a teacher who was going to have the great responsibility of being part of it. in the training of new teachers with principles of ethics and values that I had and continue to promote.

I began my work as a teacher in the normal school, putting my knowledge into practice and always looking for the necessary strategies to achieve learning in the normal schools, at the age of twenty-six I joined my teaching role in the normal school, where I met a profile to perform, with a Bachelor's Degree in Special Education, a Master's Degree in Professional Competencies for Teaching, and I was studying for a Doctorate in Educational Inclusion, in addition to always taking courses, workshops and diplomas that were useful for me to face my teaching work, not because I was more or felt superior, always with the conviction of learning something new and that would be useful to me in teaching practice.

Currently I can reflect that after thirteen years in which I have been in the normal school, I feel satisfied with what I have achieved in myself as a professional and in the training of generations of new teachers that I have been part of in its process, until this moment my professional profile does not make a difference but I have managed to achieve some goals that I set for myself to be an agent of change in education and what better way for this change to be reflected in the training of teachers who are more prepared and more committed to the principles of ethics and the values that teaching requires.

In this sense, I can mention that at thirty-nine years of age I have achieved a Bachelor's Degree in Special Education, two master's degrees; a Master's Degree in Professional Competencies for Teaching and a Master's Degree in Education, two Doctorates; a Doctorate in Educational Inclusion and a Doctorate in Higher Education, a Specialization in Projects in young people and adults for Social Development, and being the first teacher of the Regional Center of Normal Education to obtain the PRODEP Desirable Profile so far. All this does not make me better than other people and teachers, but without a doubt it has been an achievement that has helped me to generate movements of knowledge that have allowed me to be an agent of change in society by training better teachers to provide a quality education.

2.2 PEDAGOGY AND TEACHING METHODOLOGY

The concept of inclusion tries to address the different situations that lead to the social and educational exclusion of many students. This means that schools must be prepared to receive and educate all students and only those considered teachable. As Arnaiz (1996) mentions, inclusion must be defined from the same perspective as the meaning of the concept of inclusive education. The word include means to be part of something, to be part of the whole. In this way, Arnaiz points out that inclusive education is an attitude, a system of values and beliefs.

I consider that the cognitive theory based mainly on the processes through which man acquires knowledge is one that is related to the work of the normal school, since it is concerned with the study of processes such as language, perception, memory, reasoning and problem solving, something that is related to the development of the competencies that future teachers must achieve.

In this sense, cognitivists maintain that "meaningful learning occurs in a series of phases, which account for a progressive complexity and depth" (Díaz Barriga & Hernández, 2002), it is important to reflect on how normalistas should begin with the organization and

incorporation of the new information that teaching practice demands, and the reasons to give it meaning and be useful in educational practice. this will allow the acquisition of content for the achievement of significant learning.

All students act in relation to their level of development and knowledge they have. Jean Piaget's theory of cognitive development is one of the most important and we cannot ignore it in the process of teacher training, it divides cognitive development into stages already characterized in the knowledge of different branches of knowledge, which account for certain capacities and impose certain restrictions on children. This theory is of utmost importance that the normalistas know it and know how to identify in the students who are attended by special education what stage they are in order to know the advantage that the children can achieve or simply realize the gap that they may have at their chronological age with their thinking and knowledge.

I believe that as a teacher of the normal school we cannot limit ourselves to handling or considering a single theory and even more so we are the ones who have to work on them and that our students also recognize them as a learning process, meet different theorists and their contributions such as Jean Piaget with Intellectual Development by stages, Jerome Bruner with the management of Learning by Discovery, David Ausubel with his theory of Significant Learning, Robert Gagné through his Learning Levels, as well as Howard Gardner with his work on Multiple Intelligences, Lev Vigotsky with the theory we are commenting on that of cognitive development that takes place through social interaction and to mention others such as Erick Erickson in his work Society shapes the development of the human being. Each of the theories are represented by the different authors who have ventured and carried out their studies to generate knowledge and today they are a reference that all of us who are immersed in education should take.

All these theories that are discussed in previous lines are the main reference that support learning, and these same are reflected at the time we began our designs in the elaboration of our Work Plans of courses now with the name of Strategic Classroom Plan, where we design and consider the development of the activities and these are attached to the knowledge and reflection of each of the theories that We know and implement it by applying theoretical knowledge in practice. I can mention that in my short professional career I have obtained satisfactory experiences in the design of my plans to address the topics of the courses with which I work in my normal school students, which has allowed me to visualize and achieve the purposes that are presented.

All these experiences are reflected through the design of strategies that allow me to have control of the group and also motivate the development of learning in the normalistas, according to the course I teach, I design and program my teaching strategies so that the normalistas access learning, as in the course of Intervention Strategies in the Classroom for Students with Outstanding Aptitudes (AS). where I have implemented the strategy of a contest for the elaboration of didactic material, where in teams the students have to design a specific material to work with a student with AS and they have to imagine, design and innovate the material that can be used with the students who have this condition, immersed in this activity the students elaborate the material and are considering all the necessary knowledge, such as what type of material I need to elaborate, what type of aptitude they have to respond to, what expected learning I can work with and achieve, what are the characteristics of the students with whom they are going to work and all these considerations are mainly based on the theories that the student has already consolidated and knows.

All the strategies that a teacher must be aimed at motivating the student to generate knowledge and these can be active and participatory, as long as they have a productive purpose and strengthen learning. For example, when working with my students on the use of Mexican Sign Language, the student cannot be receiving information orally, in this course active teaching strategies have to be implemented where the student is involved in the development of learning and can access the management of the signs since it will be the main need of a student to establish communication and means to do it will be through the Language of Mexican Signs, in this sense the normalista must attend and respond to the strategies that are implemented of participation where they have to be involved and make the signs for their coding and knowledge.

Currently to work on the courses in the normal school I have implemented some innovative educational resources that have facilitated me as a teacher and that I have applied and I consider that they have been useful to me, among them are the use of memoramas of concepts with the topics that have to be addressed, where it is a resource that facilitates learning and makes the achievement of knowledge more enjoyable, as well as using the Classroom platform as a resource where it is carried out on a par with the activities in class but is fed back with activities at home or consider as a portfolio of evidence since students have to upload the products that are developed in the course and these are saved in the application.

In this sense, some work methodologies that I consider I have worked on in the development of the courses and are useful as resources is the Learning based on teaching cases where a real-life case is centered, it raises questions that lead to a problematization and analysis of its attributes that show its complexity and multidimensionality, where different views and knowledge present in the normalista group converge. This is precisely the case of those who teach students by demanding, on the one hand, other theoretical references that allow them to understand it and, on the other hand, making it possible to share collective construction processes, transform thought and build from situated criticism and reflection.

Detection and analysis of critical incidents, the critical incident (CI) is defined as a spatially and temporally determined event or occurrence that significantly affects the emotional state of the group (teachers and students) of the school, community or the world. Its consequence: it destabilizes pedagogical, social or emotional action and, in addition, generates insecurity and can cause disruptive behaviors.

Collaborative learning, as a learning strategy, whose main characteristic is the recognition of heterogeneity as a source of new learning, construction of new projects, among others. In it, students develop critical, reflective and analytical thinking in small teams. Collaborative work is characterized by a positive interdependence where interaction and intersubjective reciprocity are the facilitators of a co-construction of learning. Teachers teach learning within the framework of collective experiences through learning communities, as spaces that promote reflective practice through the negotiation of meanings and the solution of complex problems.

3 LEARNING ASSESSMENT

Taking into account what González (1999) mentions about learning assessment that "it is the activity whose objective is to assess the process and results of student learning, in order to guide and regulate teaching for the achievement of the training purposes" (p. 36). Therefore, we must understand that the validation of the achievement of learning, in the understanding, is to have evidence of the achievements and needs of the students of their teaching-learning process, which is one of the formative purposes that correspond to the purposes of education.

The role of the teacher in the normal school in the face of evaluation is one of the tasks that cannot be left out, since training teachers is to validate the process of results of the achievement of the competencies that students are achieving. We have to consider that,

"pedagogical success in this sense will depend, to a large extent, on the fact that the motives we achieve are associated with the object of the activity, that is, with the assimilation of knowledge that responds to their needs... Efficient learning of science requires a system of internal motivations" (Zilberstein, 2002).

The evaluation that should and should be carried out in the training process is formative evaluation, which is the continuous process that occurs during teaching and learning, seeking the interpretation of the evidence and achievements of the students must achieve in their training process. Formative assessment allows teachers to identify the weaknesses and learning that must be achieved, it is very important that as a teacher all the difficulties that can be faced in the teaching-learning process are identified and to be able to determine the appropriate methodology to address the topics of each course that the teacher teaches.

In this sense, we have to see formative assessment as a systematic process that collects all the evidence to be able to validate the achievement and advancement of the competencies that are worked on with the normalistas, it is necessary to determine the areas of opportunity and provide feedback to the students, in order to improve learning and these are useful to achieve professional competencies. Formative assessment opens a breath of reflection where the teacher can reflect on his teaching practice (what he does well, what he does badly or what he can improve), and thus he can adjust the didactic strategies and activities to implement them in his strategic classroom planning.

It is very common for some teachers to only perform summative evaluation, losing sight of the entire process involved in the process of training future teachers. Summative assessment allows us to evaluate considering quantitative parameters, where the student's performance is measured by the amount of work done. It is very common to only perform the summative evaluation at the end of the training process within the course, giving the numerical value that gives certainty of accreditation or failure by measuring the degree of knowledge acquired in its passage through a period. Both formative and summative assessment, applying it correctly, can be useful as a tool to measure learning.

My experiences in the design of evaluation instruments are significant, in most of the activities I carry out with my students I consider the use of different instruments to validate the work carried out by the students, this allowing to give an evaluation according to what is requested and that they have the characteristics that are requested.

The teacher in the normal school must set the example and comply with the design, the evaluation instruments are the means in which we can validate and record the necessary information to verify the achievements. In my teaching practice I develop my own evaluation instruments, likewise from the request for some specific works I present the instrument to validate the work such as a rubric, a checklist and others that are in tune with rescuing the knowledge of the subject.

Therefore, the evaluation of the learning of future teachers is one of the tasks that every teacher in a normal school must take as a task and that demands greater complexity in its performance since we are giving an example to future teachers, as well as the process that involves issuing the validation of the learning achievements of the students who will be seen reflected in their professional skills.

Evaluation in normal schools is a process that is carried out by teachers who validate learning and need to obtain evidence to know the achievements of the competencies or domains that govern the training of the future teacher, in this sense each teacher must define the evaluation strategy and select the instruments to consider the different elements that will be congruent with their learning that is scheduled.

or some authors, assessment strategies are the "set of methods, techniques and resources used by the teacher to assess the student's learning" (Díaz Barriga & Hernández, 2006). Methods are the processes that guide the design and application of strategies, techniques are the specific activities that students carry out when they learn, and resources are the instruments or tools that allow both teachers and students to have specific information about the teaching and learning process.

In a situation that I had as an experience in evaluation and that unfortunately on some occasions the effort and dedication that one makes as a teacher in the normal school and that one always seeks to give one's best, one occasion I had the unpleasant experience when I was teaching the course of Observation and Teaching Practice II, where I was able to verify that it is useless on some occasions to carry out a whole procedure (planning, carrying out the activities, scheduling practice days, evaluating, among others) since I still remember and will remember it all my working life, where a student failed the course, because he did not comply with the delivery of the work in class and did not comply with the practice day, Resuming the formative and summative evaluation in any way the student did not accredit, it was very interesting to have the knowledge that the student was accredited directly by the authorities, changing the grade not only of my course that I taught, because later I had the

knowledge that there were three courses that I had failed and the three teachers were never notified that they placed an accredited grade on the student, It was something frustrating, the whole process of teaching that one carries out is useless, and knowing that everything can be done when the authorities of the institution seek their convenience.

3.1 CLASSROOM MANAGEMENT AND DISCIPLINE MANAGEMENT.

Nowadays, society demands, in the areas of generating new experiences and the ability to adapt, build and reconstruct learning. The training processes in the normal school must respond to reality from the demands that are placed in the training of new graduates in education, in which the commitment to train with discipline must be assumed. "The issue, beyond bringing together knowledge in compact packages, requires that the most suitable mediating mechanisms be generated to access knowledge and achieve learning" (Vega & Bravo, 2016).

The management that must be carried out in the classroom is through the management of the groups with discipline, the normal school allows the procedures to be carried out to favor learning environments, where collaboration and respect for the entire community are allowed. Building accessible learning environments in my teaching practice has implied recognizing that the use of technological tools establishes new complex realities, the use of support materials, allows us to create environments that stimulate students, therefore, socio-affective processes must be linked for better management, to generate learning environments appropriate to the needs of students.

Learning environments must be created based on the teacher training processes, for this it is required that each teacher be inclusive, reflective and participatory. Therefore, it is suggested to take into account tools that allow access to the entire student population, establish mechanisms for access for all students regardless of their resources, suitable means that allow meeting educational needs in training, technological strategies, collaborative work and autonomous learning, »Products derived from the interdisciplinary work of different professionals, where the student has the possibility of strengthening their competencies with each of those who are part of a learning environment.

In the development of the courses that I take in my practice, I always consider promoting participation in students, at the beginning of each course I inform them of the importance of participation for the construction of knowledge and I specify that participation has a percentage in the evaluation, I also present a checklist to define the validation of

participation and that this is not only to raise your hand or talking for the sake of talking, trying to make participation active. Some criteria for assessing participation are that it is **Constant**, analytical, critical and propositional, **Constant**, generally enriching but not propositional, **Irregular** (sometimes very high, on other occasions it did not occur), not always enriching and not always propositional, **Scarce**, when it occurred it was disruptive or not enriching, it rarely led to the enrichment of the discussion or analysis, **Almost non-existent**, a certain apathy, disinterest, the assistant worked with the minimum necessary effort and **Nil**, disinterest and total apathy.

One of the most significant experiences in implementing strategies for inclusion in my students is when I had the opportunity to work with a student with motor disabilities who was enrolled in the Bachelor's Degree in Educational Inclusion, it began with the first generation of that degree and the normal school did not have the necessary conditions to be an inclusive school. there were not and are not still the spaces for a correct displacement for this disability, such as bathrooms, access ramps, among others, but that did not justify carrying out the relevant strategies to work, I had the opportunity to carry out a study trip project and strategies were sought for the student to attend and it was one of the most enriching experiences I have had, because the student gave us the example that when you want you can do it, I also had the opportunity to be her advisor and there was no barrier that limited her participation and achievement of obtaining her degree.

3.2 CURRICULUM DESIGN AND EDUCATIONAL PLANNING.

Curriculum design in the normal school is of utmost importance, in my teaching practice I have carried it out with a lot of responsibility, I have currently had the opportunity to be part of the national and state co-design teams, managing to contribute a little in the development of courses of the degree in Educational Inclusion, this has allowed me to have new experiences, Meeting fellow teachers from other normal schools in the Mexican Republic that has allowed me to get along and discuss the elaboration of the purposes, the units, topics that all students in training will access, being part of that curriculum design process.

The elaboration of curricular designs in previous programs, they were only presented and attended to in applying them, where many of us complained that some topics were not in accordance with reality or updated, today with the implementation of the new programs, both analytical and synthetic, the teacher of the normal school is part of the curricular design

that is applied in the work with students, There are no excuses for not making the necessary curricular adjustments considering the conditions of the normal school, the context and the needs of the students, which allows for flexibility in the application of teaching methodologies.

At the beginning of each school year or semester, you have the responsibility of developing the strategic classroom plans, where as a teacher you plan how to approach the learning units with the students, for me it is always essential that from the design of this planning the competencies to be developed in the course are specified, as well as specifying the activities and instruments that will be used to address the topics, since this has always allowed me to have a good organization in my sessions and the students from the beginning have knowledge of how we will approach the work. Therefore, in my experience of practice, having the planning and knowledge of the subject has allowed me to develop my activities with a good willingness to participate students.

The courses of the curricular Maya are in one way or another coherent, and the experience I have had is that we must make students see that the approaches of each course are related to others, making a transversality of theory with practice. In this sense, planning is designing a plan to develop or solve an activity, we have to keep in mind that educational planning will be the pillar to reach the purposes that are established.

3.3 EDUCATIONAL TECHNOLOGY AND DIGITAL TOOLS

Education in Mexico is limited and this is because it is not given with a high level of quality that is demanded today, the problem has been investigated by culprits, but it is not and will not be the way to solve the problem, it is necessary that all teacher trainers get involved and establish a route to achieve the graduation profile of the normalistas and this is of a comprehensive nature. One of my proposals in educational practice has been and is to consolidate virtual platforms in each of the Normal Schools, to offer a comprehensive approach, attached to the articulation of the basic education reform, promoting quality education and flexible academic programs, but mainly that each teacher training institution has at least one career that offers online, because there is a population that for different circumstances cannot access a bachelor's degree in person. If greater efficiency is achieved in the training of future teachers through flexible academic programs, quality teachers will be obtained who will do well in their profession.

The future teacher must be aware and critical, it is difficult for normal schools to deliver efficient and effective teachers to society. If we do not consider a comprehensive approach

and this has a philosophical, sociological, anthropological and pedagogical character, the graduate of the normal schools will not have the possibility of fully understanding the educational fact and it cannot only be limited to the educational offer today from an educational center, we have to evolve and capture citizens who have that conviction to train as teachers.

We have to achieve an articulation in the training of future teachers and teachers based on what they are inside the classrooms, we cannot be preparing future teachers based on policies that do not coincide in the educational practice of their training, in this sense the implementation of digital tools will not only benefit to attract future teachers, The population of the normal schools must continue to be strengthened with courses, workshops, diplomas and postgraduate courses that they can access online either in the process of their training or as graduates of the same.

Virtual teaching in teacher training is a great optimism for the normal school population, since, by training new generations of Bachelors in Education, we would be adding more professionals in the use of communication technologies. It is necessary to identify the barriers that limit the design and innovation of face-to-face and virtual learning in normal schools, promoting the implementation of the use of technologies to develop comprehensive learning.

Face-to-face Education has made significant contributions to Higher Education in the world. However, the paradigm of virtual education is at a key moment, since the rapid evolution of information and communication technologies allows adjustments to be made to the ICT-based Distance Education model with a view to strengthening the student's competencies. The use of digital tools in normal schools is a real and valid alternative that I have implemented in my teaching practice with students, in the face of the new normality that occurred in the last COVID-19 pandemic where we had to migrate courses from face-to-face to virtual.

The introduction and development of information and communication technologies (ICTs) pose new challenges of crucial relevance to the educational world of normal schools that force them to assume and decide on various responses and teaching-learning alternatives. In the twentieth century, Silvio (1999) pointed out that universities in developing countries face the challenge of serving a growing student population, more socially and culturally diversified, in a new, more dynamic and turbulent social environment.

The new interpretations and ways of seeing the work of the teacher demand the use and management of digital tools, introducing educational praxis to the pedagogical consciousness. Currently the teaching of technology management has become a need that has been faced all over the world and Mexico was not left out, in the normal schools different strategies have had to be implemented to migrate the courses of the different degrees that are 100% face-to-face modality and that in the face of the closure of the institutions due to the pandemic that occurred, education could not be offered in person.

The challenges of the normal school is to contribute today to achieving educational inclusion, and this can be achieved through the training of Graduates in Educational Inclusion with a high level of commitment. We often assume that students who graduate from the normal schools have the competencies to face the practice, but unfortunately this is not everything, because within the normal schools themselves there are barriers that limit the achievement of the graduation profile in its entirety, in this sense they must be prepared to be able to learn through virtual teaching and the use and management of digital tools. in this process of their training, but they would also have to be prepared so that in their professional performance they can also respond since as teachers in service, this means that this a modality of learning virtually is subject to the use of the technologies that are required in it, it is not only subject to be able to accredit the courses of the curriculum that they take to obtain the degree of Bachelor in Educational inclusion, this experience that all teachers face invited us and demanded us to handle technologies in order to direct the achievement of knowledge to access learning.

It is important to keep in mind that the state of Guerrero is going through a deficient educational gap. According to the studies on the Habits of Internet Users in Guerrero, version 2016. This study details the reasons why Mexicans do not use or access the Internet. In the first place, 47 percent of the population is the lack of connectivity in certain areas of the state, in addition to the low speed of Internet services. According to INEGI, in poor states of the country, such as Chiapas and Guerrero, only 20 percent of the population has access to the Internet at home; a sharp contrast with the 60 percent of households in Mexico City or Nuevo León that do have this service.

From my perspective, the use of Information and Communication Technologies (ICT) has allowed me to obtain a new competence in the implementation of activities of the courses I teach. This is possible thanks to the technological advance that has allowed me to explore and manipulate new applications that have helped me to nourish myself as a teacher and to

be able to apply it in different places, among which the normal school stands out. It was not easy to gain access to knowledge in the use and management of technologies, I had to participate in different courses and workshops to learn and not wait almost a year when the Secretary of Education of the state of Guerrero gave us a course where the presentation and teaching were experiences of other teachers. I managed those applications and programs and I had that experience as well.

On the other hand, the incorporation of ICT into education goes beyond the integration of electronic devices and technological resources into the classroom. Obviously, it requires the transformation of teaching practices and methodologies, having as a starting point a change in beliefs regarding the different environments where learning can be achieved (Hernández, 2017). "This shows that the use of Information and Communication Technologies can be used within the different learning environments, allowing new knowledge to be acquired for the benefit of the student community, in the face of teaching practices and methodologies and respecting the stipulated beliefs."

3.4 PROFESSIONAL DEVELOPMENT AND TEACHER LEADERSHIP

The professional development of teachers is a key point to increase effectiveness in normal schools. For this, the teacher needs knowledge, develop competencies and reconstruct what has been learned in the social context where he or she interacts for the process of new learning. The teacher's teaching is represented by the teacher's various interpretations of the context that surrounds him, in the same way it influences human development and the implications it has on learning. The most accurate and universal aspect of human experimentation is the phenomenon of him and knowing that education is essential for the formation and development of the consciousness that gives as a necessary condition the recognition of the other (Bruner, 2004).

The teacher, when interacting with others, develops individually and collectively, these social interactions allow him to develop intrinsic skills, which contrast with his experience and knowledge, since change in institutions is generated with assertive activities for school improvement and where within universal considerations the person is present, its status, its context and the way it develops. Although it is true that the individual is indivisible and unique and that a homogeneous treatment cannot be given to this diversity (Musaio, 2004).

From individual constructions and interpretative acts, the teacher enables reflection and it is from these processes that internal factors such as motivation, work responsibility, work awareness, moral values, the degree of satisfaction, attitude towards teaching and experience, among others, become present in the teacher's life.

Education should not contribute to the improvement of quality, and then intervene professionally, for this reason; the intrinsic interpretations that the teacher makes have an impact on his teaching work, and it is necessary that he has tools so that he can create with his student an environment of trust and cordiality that allows the latter to develop physically and intellectually with confidence and security (Dadzie, 2004).

Personal development, the meaning and interpretation of things for the individual, reflects the knowledge of a contextualized process, this being the background of development; The activity, the response of this context and of the inner impact on the individual is properly operationalized. But what characterizes human identity is the construction of a contextual system that is organized in an autobiographical memory that comes to be extrapolated with the past of the lived experience and its application to the future, internalizing itself within an affective value.

So the mistake is to give importance to preparation for future need, but the main stimulus is present effort. Because preparing for a life of continuous development is great and necessary, it generates energy for dedication and the richest and most meaningful present experience possible (Dewey, 2004).

The experience that is being built day by day in teacher training is through the application of strategies, it can be understood that since the teacher is being trained in a normal school, the student does not need to be updated, because everything that is supposed to be seen in the courses is updated, and that is not a truth, although co-designs are currently being carried out in the updating of the programs of the different degrees, it cannot be said that everything that is being worked on is with the most up-to-date documents, but what has happened with the past generations that work on the 2004 Curriculum of the Bachelor's Degree in Special Education, that fourteen years had to pass for the programs to be updated, it was at the time to apply different strategies for updating contents, topics, readings that would open up to the updating of the new educational policies referring to the work of special education.

In this sense, we should not take for granted that the normalistas do not need to update themselves when they are in their training process, likewise different course-workshops have

been implemented with new and updated topics that invite the normalista not to stay only with the learning that is acquired in the programs of the courses of the curricular mesh, These courses are designed according to the needs that are encountered in the development of the teaching practice. Some workshops that I have implemented are specific strategies for students with disabilities,

3.5 INCLUSIVE EDUCATION AND DIVERSITY IN THE CLASSROOM

The challenges currently faced in teacher training are mainly all the demands that are aimed at the new policies of inclusive education, currently different strategies are implemented to meet these demands of providing quality care to the entire population that is vulnerable to exclusion, but, as surprising as it may seem, This issue has not yet received the attention it deserves. At the 48th International Conference on Education, focused on working on inclusive education: the way to the future (UNESCO, 2008), teacher training is identified as a key area to lay the foundations for future development. In its call to the international community to embrace inclusive education as a pathway to achieving the goals of Education for All, the Conference recommended six specific actions for teacher training and professional development:

1. Strengthen the role of teachers and work to improve their position and working conditions, develop mechanisms to recruit suitable candidates and retain qualified teachers who are sensitive to different learning demands.
2. Train teachers by equipping them with the appropriate skills and materials to teach diverse student populations and meet the different learning needs of different categories of learners through methods such as school-level career development, initial inclusion training, and developmentally sensitive and developmentally sensitive teaching of the learner.
3. Sustain the strategic role of tertiary education with initial and professional training of teachers on inclusive education practices through the provision of adequate resources.
4. Promote innovative research on teaching and learning processes related to inclusive education.
5. Train school administrators to respond to the diverse needs of all learners and promote inclusive education in their schools.
6. Take into account the protection of learners, teachers and schools in times of conflict.

According to Booth (1996), inclusion is the process of identifying and responding to the diversity of needs of all students by increasing their participation in learning, culture, and community, and reducing their exclusion from and by education. Inclusive education refers to identifying and overcoming all barriers to effective, continuous and quality participation in education, particularly during the primary education cycle, where the human right to free participation is widely accepted and documented (UNESCO, 2003).

Inclusive education refers to all children and young people studying in the same schools; that no one is excluded, that everyone has a place and achieves the learning proposed. In this sense, children with different languages, cultures or characteristics study and learn together. Therefore, students with disabilities are considered when talking about inclusive education, but the latter is not limited only to the attention of these students, but also to the achievement of the educational purposes relevant to them.

According to UNESCO's Incheon Declaration, inclusive education ensures access, permanence, participation, and learning for all students, with special emphasis on those who are excluded, marginalized, or at risk of being excluded. This is done by implementing a set of actions aimed at eliminating or minimizing barriers that limit learning and participation. Such obstacles can arise from the interaction between students and their contexts: people, policies, institutions, cultures, and practices. In addition, inclusive education supports and favors the formation of equity, justice, equality and interdependence, which ensures a better quality of life for all, without discrimination of any kind, and a society that recognizes and accepts diversity as a foundation for social coexistence, which guarantees the dignity of the individual, his or her rights, self-determination, contribution to community life and full access to social goods.

In this sense, the concept of inclusive education does not refer exclusively to the type of education that should be received by persons with disabilities, with outstanding abilities, the indigenous population or those who belong to any other group vulnerable by the context; but also points out the need to foster educational communities where diversity is valued and appreciated as the prevailing condition. It also recognizes that all children and adolescents have the same rights, without any discrimination, and therefore seeks to generate equal opportunities for all by eliminating architectural, social, normative or cultural barriers that limit their participation or learning in the education system.

Inclusive education is directly related to quality education with equity, which respects the conditions, characteristics, needs, abilities, rhythms and learning styles of each person. Talking about equity in education implies ensuring that "all people have the same opportunities to exercise their rights and achieve the goals of education in conditions of equality," according to UNESCO's Regional Bureau for Education in Latin America and the Caribbean.

According to the Strategy for Equity and Inclusion in Basic Education: for Students with Disabilities, Outstanding Abilities and Severe Learning, Behavioural or Communication Difficulties (SEP 2018), inclusive education is based on the following principles:

1. Exclusion is not a problem of students but of schools; consequently, it is these that must be adapted to the students and their various needs.
2. Students must be attended in inclusive environments so that they participate and interact on equal terms with the rest of the school population. By promoting this form of coexistence, from an appreciation for diversity, students and the entire school community are offered opportunities to learn to relate to each other with respect for difference and to value everyone equally. This leads to the elimination of discriminatory practices such as stereotypes, prejudices, segregation or exclusion and thus contributes to the formation of supportive and tolerant citizens.
3. Differences in students' abilities should not represent a barrier, but a source of learning, since barriers to learning and participation (BAP) do not refer to characteristics inherent to the student, but rather to organizational, normative, administrative, pedagogical, physical, and attitudinal conditions.

Working on equity and inclusion in my teaching practice at the normal school has required important transformations, assuming that each one has a different starting point so the challenges may be common or each center will have to carry out different actions under the paradigm of educational inclusion that requires new policies. strengthen inclusive cultures and improve pedagogical practice by recognizing diversity. In the Regional Center for Normal Education we have had the experience of working in the Bachelor's Degree in Special Education with a student with visual impairment (Low Vision) where different strategies were implemented so that the student could solve their specific needs, likewise in the Bachelor's Degree in Educational Inclusion we worked with a student with Motor Disability. where we had the experience and the certainty that when a student wants and

has set his purposes, he can achieve them if we do not place the barriers that limit his participation ourselves.

Each teacher training school must promote environments in which future teachers permanently learn from diversity in order to effectively facilitate student learning: to have clarity of the goals; setting realistic objectives; provide the necessary support with existing resources and carry out the evaluation of their practices, policies and cultures in favour of inclusion.

The future teacher for inclusive education will allow the growth of the construction of inclusive cultures, given the need to have safe and collaborative school communities in promoting learning environments in which the diversity of the context they belong to is accepted, as well as carry out practices that ensure that children and adolescents learn and participate. considering their knowledge and their specific needs to make the necessary modifications and adaptations when required to guarantee a level playing field.

Therefore, the teacher must be inclusive, he must ensure the right to education of all children and adolescents, to guarantee equity and justice to receive education regardless of the conditions, with this he would be ensuring that no one is excluded from education and that learning is achieved regardless of the diversity that may exist in any context. For this reason, the normal schools are a pillar in these actions towards inclusion and the normal schools must reinforce the autonomy of the normalistas, promote the recognition of diversity to advance in the path of inclusive education.

In this sense, it is necessary to emphasize that the adoption of educational inclusion is gradual, so it is important to recognize and value each achievement of the actions undertaken by educational authorities, directors, teachers, families and students, without forgetting the challenges to achieve the inclusion of students who are still excluded. Therefore, the future teacher must not be oblivious to inclusion, he or she must generate the best possible conditions for children, adolescents and young people to exercise their right to education and to be able to be, learn and participate in school, in conditions of equity, without undermining the excellence of learning and seeking their integral human development as suggested by the national strategy for inclusive education.

4 PROBLEMATIZATION

Currently the teaching practice that I exercise in the Regional Center of Normal Education is a bit soporific, because they limit the development of activities and projects to

be developed with students, because the current authorities do not allow certain teachers in particular to exercise activities that promote the generation of knowledge, an example that colleagues design, they elaborate and present academic projects and these are not authorized by the academic sub-directorate of the institution, only teachers with common purposes are authorized to carry out the projects, this is one of the causes that limit the enthusiasm and interest in proposing new actions that benefit the normalistas.

Particularly, in my case being a teacher with an academic profile to develop or teach certain courses, I was limited, previously, I taught in two bachelor's degrees, in my interpretation being selected by students to be an advisor I was withdrawn from the degree and limited to being an advisor, where students were threatened to select or consider me to serve as a degree advisor, this is due to benefiting certain teachers or simply being affected as a teacher in the institution.

In this sense, the context of my practice in teaching was affected at a time when I withdrew certain courses, such as those of educational practice to consider other teachers, perceiving that this affected me to promote myself as a key or to insist on participating in processes of performance stimulation, which six-hour courses are better valued in score. New curricula were launched, such as the 2018 Plan of the Bachelor's Degree in Educational Inclusion, where I requested verbally and in writing to be considered to teach the Service Learning course for the seventh and eighth semester, justifying that I developed a project to carry out with the students, and taking into account that I had the profile to carry out the course with the normalistas, also considering that I am the only teacher with a PRODEP profile, but unfortunately I have been waiting for a favorable response for two years.

Therefore, teaching in the institution has been a little discouraging, demotivating at some point, because I suffer a direct chance in my person and because the work that one does is not recognized, unfortunately obtaining the desirable PRODEP profile in my normal has not been favorable at all, and at no time has I been supported or provided with any minimal benefit in obtaining it, on the contrary, I have been limited in my participation in events, limited in the delivery of certificates in a timely manner and denied any resource for the production of any work.

Every educational duty requires effort, dedication and perseverance, regardless of the conditions of each normal, teachers must carry out their educational work with students so that they can achieve the desirable profile as future teachers, regardless of cultures, contexts, pedagogical, political, ideologies and even the economy that one may have in their

particularity as a person. Teaching must be carried out and must be carried out with care and dedication to provide quality education, and to participate in the training of teachers with a high level of commitment to the learning demands of children and young people in Mexico.

One of the needs of the normal schools is to ensure that the normalistas are prepared, consolidate their competencies, so that they can enter the professional teaching service, they are two important situations that we cannot leave aside in our work as a teacher normalista, one is mainly that the student graduates and another situation that these same students can belong to the educational system and this is through the process of opposition where students they have to participate and be candidates for admission to the teaching service, this fact would be the satisfaction of all the personnel who in one way or another participated in teacher training and where the work done in the institution can be visualized.

Therefore, having knowledge that our graduates are already carrying out their pedagogical activities as active teachers in the educational system, should and makes us feel great satisfaction, not only because they represent a normal school where they were trained, but rather we were part of their process and the learning acquired in class, In the design of their plans, in the elaboration of their materials, in their work reports and many activities carried out in the Normal School, now you can see the results, where generations of new teachers who will be part of the transformation of education are delivered every year.

The ideology of believing that studying to be a teacher is the easiest, least valued and least paid, is one that has been introduced to many young people and even we ourselves have believed in it, but we must understand that if it is something that we like and are passionate about, we should not see it from that perspective. if not consider that studying for teachers can change the lives of many people, generate knowledge, preserve cultures and of course a person with studies will have a better economy than a person who does not have them, it is thus that teachers can be agents of change, of ideologies and detonate the economy of many families in society.

I am a teacher who in a short career of my teacher training process has had the responsibility of carrying out my teaching practice with responsibility and discipline, always complying in time and form in working on the contents, of inquiring to update issues related to education and specifically in educational inclusion. I feel happy, because knowing that I have performed in recent years with that commitment, I can say that I consider myself a good teacher, but it is not enough to feel it, it is better to hear it from other people, and the

satisfaction of some young people who dare to comment or express it is when you feel even more that satisfaction and it remains in a new commitment to be better every day.

5 CONCLUSIONS

Teaching is an emotionally exciting, deeply ethical and intellectually demanding profession, whose complexity is only experienced by those of us who usually put our body and soul into the classroom (Fullan, 2016). The teaching profession was carried out with the action of educating, transmitting my knowledge and skills, in order to train the best teachers of tomorrow.

Entering teaching was not an easy task at the time, studying at the Regional Center for Normal Education in the State of Guerrero was the beginning of a whole journey of training as a teacher, where I had the opportunity to know, learn and have the experiences of what it would be like to be a teacher and even more so to be a special education teacher that required greater commitment, ethics and great responsibility.

My journey as a support teacher was emotional and full of learning, knowing in depth the educational situations of my first students that I attended and looking for the relevant strategies for them to learn was and will be one of the most significant experiences of my work as a teacher.

Being a teacher today in Mexico is to know and recognize students as our main objective, as well as to identify the learning needs that each student presents and help eliminate each one of the barriers they may be facing, it is to accompany them in their learning process, and to seek appropriate teaching strategies to favor the achievement of learning.

The concept of inclusion tries to address the different situations that lead to the social and educational exclusion of many students. This means that schools must be prepared to receive and educate all students and only those considered teachable. As Arnaiz (1996) mentions, inclusion must be defined from the same perspective as the meaning of the concept of inclusive education. It is very important that normal schools also become inclusive normal schools and preach with inclusive practices.

All the strategies that a teacher must be aimed at motivating the student to generate knowledge and these can be active and participatory, as long as they have a productive purpose and strengthen learning.

The future teacher must be aware and critical, it is difficult for normal schools to deliver efficient and effective teachers to society. If we do not consider a comprehensive approach

and this has a philosophical, sociological, anthropological and pedagogical character, the graduate of the normal schools will not have the possibility of fully understanding the educational fact and it cannot only be limited to the educational offer today from an educational center, we have to evolve and capture citizens who have that conviction to train as teachers.

The challenges currently faced in teacher training are mainly all the demands that are aimed at the new policies of inclusive education, currently different strategies are implemented to meet these demands of providing quality care to the entire population that is vulnerable to exclusion.

This narrative has made me reflect on the educational practice that I have been carrying out in recent years, recognizing the relevant and most impactful processes that have benefited teacher training, as well as identifying the weaknesses and situations that limit participation and difficulties in continuing the path of excellence in academic work. We must understand that in the course of our career in the normal school we must commit ourselves to give our best professionally, since we are a key piece for the transformation of the society we want for tomorrow.

Working on equity and inclusion in my teaching practice at the normal school has required important transformations, assuming that each one has a different starting point so the challenges may be common or each center will have to carry out different actions under the paradigm of educational inclusion that requires new policies. strengthen inclusive cultures and improve pedagogical practice by recognizing diversity.

The future teacher for inclusive education will allow the growth of the construction of inclusive cultures, given the need to have safe and collaborative school communities in promoting learning environments in which the diversity of the context they belong to is accepted. Currently my teaching practice that I exercise at the Regional Center of Normal Education is a little unfavorable, because they limit the development of activities and projects to be developed with students, because the current authorities do not allow certain teachers in particular to exercise activities that promote the generation of knowledge.

The use of Information and Communication Technologies (ICT) in the normal school has allowed me to obtain a new competence in the implementation of activities of the courses I teach. This is possible thanks to the technological advance in exploring and manipulating new applications that have helped me to nourish myself as a teacher and to be able to apply it in different places, among which the classroom stands out.

Each generation of students is different in the sense of their ways of learning, of committing to work and of the expectations they have in their training as teachers, each year is a new experience in the development of activities and in the application of strategies that allow consolidating the competencies of future teachers. Each course I teach is an opportunity to contribute to the transformation of education, each class session is a new opportunity to learn as well, since not only students learn, but also as a teacher they will learn new ways of teaching, new ways of carrying out teaching practice.

It will always be necessary to learn and this requires that the teacher of the normal school is constantly updated, be able to identify their needs or problems that they present in practice and be competent in recognizing and attending to them, in order to solve them and to be able to give a better performance in practice, as we seek excellence in the performance of the practice, We will be benefiting the attention that is provided in the normal school, we must not lose our vision and mission that the normal school has, since we are responsible for achieving it.

I consider that my greatest need so far is to know the new policies of basic education (The New Mexican School) since the normal schools should not be oblivious to the work that is carried out with the schools where the normalistas will have to go to carry out educational practices, as well as where they will have to enter the teaching service at the end of their training. it is where we must meet that need, since as normal, we are not informed or trained by the authorities of the entity to take into account that we must be aware of the new programs that are in force, it is true that a teacher is not limited to researching and appropriating that information, but it should be on the part of the authority to train so as not to enter into the interpretations of each teacher to take them into account in teaching practice.

In my personal practice I get involved and try to be updated, and not be dependent on the authorities to provide us with training or information, it is one of the strengths that I consider that I have in my teaching practice in the normal school, always try to be informed and include new strategies that allow us to develop the activities, but even more so that they benefit learning in future teachers.

Many teachers do not carry out the reflection on the teaching practice that we carry out in the normal school and we submit to comply with a schedule, comply with the elaboration of strategic classroom plans, comply with the classes in front of the group, comply with addressing the contents of the courses that we are responsible for, comply with evaluating the students and this if we are one of the teachers who fulfill the functions (there are also

teachers that they do not fulfill in everything), but we must not only fulfill those functions, we can include and dare to make changes in educational practice and it is one of the actions that I consider myself to have carried out and it is a great personal satisfaction to know that with this narrative I can recognize that I am a teacher who does propose and dares to make changes in educational practice.

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**INTEGRATING ENVIRONMENTAL EDUCATION AND SOCIAL INCLUSION:
CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE LEARNING**

**INTEGRAÇÃO DA EDUCAÇÃO AMBIENTAL E DA INCLUSÃO SOCIAL:
DESAFIOS E OPORTUNIDADES PARA A APRENDIZAGEM SUSTENTÁVEL**

**INTEGRACIÓN DE LA EDUCACIÓN AMBIENTAL Y LA INCLUSIÓN SOCIAL:
RETOS Y OPORTUNIDADES PARA EL APRENDIZAJE SOSTENIBLE**

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ABSTRACT

Integrating Environmental Education into basic education is vital to fostering critical, sustainability-oriented citizenship. Active and interdisciplinary approaches enhance inclusion and environmental literacy, though limited resources and teacher training remain key challenges. Thus, this study aims to analyze how environmental education and social inclusion are integrated into basic education, identifying global strategies, national approaches, and challenges for achieving sustainable and inclusive learning through an integrative literature review. An integrative literature review was conducted using SciELO, CAPES, and official documents from the UN, UNESCO, MEC, BNCC, and CNE. Studies published between 2000 and 2025 were analyzed, focusing on recent discussions on environmental education, social inclusion, and the SDGs. Critical and interdisciplinary approaches guided the selection, enabling the identification of theoretical trends and challenges in integrating Environmental Education into basic education. The results show that integrating Environmental Education with Inclusive Education is essential to strengthen democratic and sustainability-oriented public schools. Interdisciplinary practices, accessible technologies, and partnerships between schools, communities, and public policies enhance meaningful learning and socio-environmental citizenship. However, progress in this integration depends on continuous teacher training, institutional support, and the effective inclusion of environmental themes in school curricula. It is recommended to reinforce education policies aligned with the SDGs to consolidate a sustainable, equitable, and transformative basic education system.

Keywords: Environmental Education. Social Inclusion. Sdgs. BNCC. Public Schools.

RESUMO

A integração da Educação Ambiental na educação básica é vital para o desenvolvimento de uma cidadania crítica e orientada para a sustentabilidade. Abordagens ativas e interdisciplinares promovem a inclusão e a alfabetização ambiental, embora a limitação de recursos e a formação de professores continuem sendo desafios cruciais. Assim, este estudo visa analisar como a educação ambiental e a inclusão social são integradas à educação básica, identificando estratégias globais, abordagens nacionais e desafios para alcançar

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uma aprendizagem sustentável e inclusiva por meio de uma revisão integrativa da literatura. Uma revisão integrativa da literatura foi conduzida utilizando as bases de dados SciELO, CAPES e documentos oficiais da ONU, UNESCO, MEC, BNCC e CNE. Estudos publicados entre 2000 e 2025 foram analisados, com foco em discussões recentes sobre educação ambiental, inclusão social e os ODS. Abordagens críticas e interdisciplinares orientaram a seleção, permitindo a identificação de tendências teóricas e desafios na integração da Educação Ambiental na educação básica. Os resultados mostram que a integração da Educação Ambiental com a Educação Inclusiva é essencial para fortalecer escolas públicas democráticas e orientadas para a sustentabilidade. Práticas interdisciplinares, tecnologias acessíveis e parcerias entre escolas, comunidades e políticas públicas promovem uma aprendizagem significativa e a cidadania socioambiental. No entanto, o progresso nessa integração depende da formação contínua de professores, do apoio institucional e da inclusão efetiva de temas ambientais nos currículos escolares. Recomenda-se o reforço de políticas educacionais alinhadas aos ODS para consolidar um sistema de educação básica sustentável, equitativo e transformador.

Palavras-chave: Educação Ambiental. Inclusão Social. ODS. BNCC. Escolas Públicas.

RESUMEN

Integrar la educación ambiental en la educación básica es fundamental para fomentar una ciudadanía crítica y orientada a la sostenibilidad. Los enfoques activos e interdisciplinarios mejoran la inclusión y la alfabetización ambiental, si bien la escasez de recursos y la falta de formación docente siguen siendo desafíos clave. Por ello, este estudio analiza cómo se integran la educación ambiental y la inclusión social en la educación básica, identificando estrategias globales, enfoques nacionales y desafíos para lograr un aprendizaje sostenible e inclusivo mediante una revisión bibliográfica integradora. Dicha revisión se realizó utilizando SciELO, CAPES y documentos oficiales de la ONU, la UNESCO, el Ministerio de Educación y Cultura (MEC), la Comisión Nacional de Cambio Climático (BNCC) y el Consejo Nacional de Educación (CNE). Se analizaron estudios publicados entre 2000 y 2025, centrándose en los debates recientes sobre educación ambiental, inclusión social y los ODS. La selección se basó en enfoques críticos e interdisciplinarios, lo que permitió identificar tendencias teóricas y desafíos en la integración de la educación ambiental en la educación básica. Los resultados muestran que integrar la educación ambiental con la educación inclusiva es esencial para fortalecer las escuelas públicas democráticas y orientadas a la sostenibilidad. Las prácticas interdisciplinarias, las tecnologías accesibles y las alianzas entre escuelas, comunidades y políticas públicas mejoran el aprendizaje significativo y la ciudadanía socioambiental. Sin embargo, el progreso en esta integración depende de la formación continua del profesorado, el apoyo institucional y la inclusión efectiva de temas ambientales en los currículos escolares. Se recomienda reforzar las políticas educativas alineadas con los ODS para consolidar un sistema de educación básica sostenible, equitativo y transformador.

Palabras clave: Educación Ambiental. Inclusión Social. ODS. BNCC. Escuelas Públicas.

1 INTRODUCTION

Integrating environmental education (EE) and social inclusion into basic education has emerged as a global priority for achieving sustainable learning and equitable development. International frameworks, such as the United Nations' 2030 Agenda and UNESCO's Education for Sustainable Development (ESD), emphasize that education must not only transmit knowledge but also foster critical awareness, ethical values, and the capacity to act responsibly in the face of environmental and social challenges (UNITED NATIONS, 2015; RIECKMANN, 2017; UNESCO, 2017). Effective integration of EE involves linking ecological literacy with inclusion, ensuring that all learners (regardless of background or ability) participate actively in sustainability-oriented education (SANTOS; OLIVEIRA, 2023; SHARMA, 2025).

Recent studies highlight that active, experiential, and community-based approaches strengthen students' engagement and sense of belonging, promoting both environmental responsibility and social justice (AZMI et al., 2024; CIOBOTARU & ANDRONACHE, 2024; CADENA & BELTRÁN, 2025). Within this global perspective, schools are increasingly recognized as key spaces for building sustainable mindsets and inclusive practices, capable of connecting environmental understanding to collective transformation (SHARMA, 2025).

In Brazil, the National Environmental Education Policy (Law No. 9,795/1999) established Environmental Education (EE) as a permanent, interdisciplinary, and participatory process. In parallel, the Brazilian Law for the Inclusion of Persons with Disabilities (Law No. 13,146/2015) and the National Common Curricular Base (BNCC) reinforced an educational model focused on equity and holistic development. Classical critical literature (JACOBI, 2003; LOUREIRO, 2004; SAUVÉ, 2005; MORIN, 2000) had already advocated for an emancipatory form of EE, intrinsically linked to citizenship. Recent studies have updated this debate by highlighting the central role of public schools in developing socio-environmental and climate-related competencies (BUSTAMANTE et al. 2025).

Accordingly, this literature review is justified by the growing need to understand how educational systems can bridge environmental and social dimensions to respond effectively to global sustainability challenges and promote equity in learning opportunities (Rieckmann, 2017). Thus, this study aims to analyze how environmental education and social inclusion are integrated into basic education, identifying global strategies, national approaches, and challenges for achieving sustainable and inclusive learning through an integrative literature review.

2 METODOLOGY

2.1 INTEGRATED LITERATURE REVIEW METHODOLOGY

An integrative literature review was conducted following the methodological framework proposed by Whitemore and Knafl (2005). The search was performed in the SciELO and CAPES databases, as well as in official documents from the United Nations (AGENDA, 2030), UNESCO, the Brazilian Ministry of Education (MEC), the National Common Curricular Base (BNCC), and the National Education Council (CNE). The selection included studies published between 2000 and 2025, with greater emphasis on the period 2020–2025, due to the growing international and national discussions on sustainability and inclusive education.

The search strategy employed the descriptors “environmental education,” “social inclusion,” “SDGs,” “BNCC,” and “public school,” combined with the Boolean operators “AND,” “OR,” and “NOT.” The inclusion criteria were: thematic relevance to the relationship between school education, environmental education, and inclusion; a critical or interdisciplinary approach; and both empirical and theoretical studies. The exclusion criteria were: studies with a technical or sectoral focus that lacked an educational interface.

The material obtained was organized by topic and year of publication to identify theoretical trends, main themes, and methodological approaches, enabling a comprehensive understanding of how environmental education and social inclusion have been discussed and integrated into basic education over the past two decades.

3 RESULTS AND DISCUSSION

3.1 INTEGRATING ENVIRONMENTAL EDUCATION INTO CURRICULA

3.2 A GLOBAL PERSPECTIVE

Integrating environmental education (EE) into basic education curricula has become a global priority for fostering sustainable learning and preparing students to confront environmental challenges in an increasingly complex world. This integration transcends the transmission of ecological knowledge, aiming to develop critical thinking, social responsibility, and active citizenship. Effective strategies identified in recent studies emphasize the adoption of pedagogical approaches grounded in active learning, interdisciplinary integration, and community engagement, which together contribute to a more comprehensive and transformative understanding of sustainability (AZMI et al., 2024; SRIHARTINI et al., 2025).

Problem-based and project-based learning methodologies, for example, engage students in real-world environmental issues and encourage them to develop practical

solutions. This process strengthens cognitive, affective, and psychomotor dimensions of learning, deepening students' comprehension of sustainability principles (Azmi et al., 2024; Srihartini et al., 2025). Participatory and experiential approaches, such as interactive games, fieldwork, and interdisciplinary projects, further connect theoretical content to lived experiences, fostering direct involvement in environmental protection (CIOBOTARU & ANDRONACHE, 2024).

From a curricular perspective, the interdisciplinary integration of sustainability across subjects enables the development of holistic and contextualized environmental literacy, bridging scientific, social, and ethical dimensions (Sharma, 2025). Moreover, incorporating indigenous and traditional ecological knowledge into educational frameworks provides students with diverse cultural perspectives and alternative pathways to understanding and addressing ecological challenges (SHARMA, 2025).

At the institutional and community level, successful integration of EE depends on strong partnerships. Community engagement in school-based environmental initiatives enhances social participation and strengthens collective responsibility for sustainability (CADENA & BELTRÁN, 2025). Equally important is continuous teacher training and capacity building, ensuring that educators are equipped with pedagogical tools and resources to effectively implement sustainability education (CADENA & BELTRÁN, 2025).

Despite these advances, significant barriers persist, including limited financial resources, curriculum overload, and institutional resistance to change. Overcoming these challenges requires policy advocacy, the strategic use of educational technologies, and ongoing monitoring and evaluation to ensure meaningful and lasting integration of environmental education into basic education systems worldwide (SHARMA, 2025).

3.3 A BRAZIL PERSPECTIVE

3.3.1 The development: from policy to critical pedagogy

The National Environmental Education Policy (Law No. 9,795/1999) established Environmental Education (EE) as a permanent, interdisciplinary, and participatory process aimed at building ethical values and promoting social transformation. Studies conducted by Jacobi (2003), Loureiro (2004), and Sauvé (2005) grounded EE in a critical perspective that seeks to overcome the conservationist and technicist model, articulating the social, political, and cultural dimensions of the environment.

According to Morin (2000), environmental education must address the complexity of reality, fostering individuals capable of thinking systemically and sustainably. Recent evidence reinforces the need to incorporate EE into basic education curricula. For instance, Graciani et al. (2025), in an integrative review of Brazil's New Secondary Education framework, highlight the importance of aligning EE with socioemotional competencies and the learning pathways defined by the BNCC, thus bringing education closer to everyday life.

Similarly, Oliveira and Souza (2025) and Becher, Tavares, and Bujes (2024) observe that the ecocentric approach to EE (centered on the relationship between humans and nature) promotes planetary citizenship and critical thinking. Therefore, the evolution of EE reflects a transition from isolated, content-based practices to a critical, interdisciplinary, and contextualized socio-environmental field, aligned with the Sustainable Development Goals (SDGs).

3.3.2 Inclusive Education and Sustainability

The Brazilian Law for the Inclusion of Persons with Disabilities (Law No. 13,146/2015) establishes that education is a right for all and must occur in inclusive, accessible, and collaborative environments. For Dubet (2008), a just school is one that recognizes differences and combats inequalities, transforming diversity into a formative element. Monteiro et al. (2024), in a systematic review, confirm that the integration between inclusive and environmental education enhances the sense of belonging and collective engagement by linking social and ecological themes.

This interface is also highlighted by Valle et al. (2013), who demonstrate how assistive technologies and digital platforms expand the participation of students with disabilities in environmental education projects. Based on this evidence, it is understood that educational sustainability encompasses ethical and social dimensions, in which inclusion is a key condition for consolidating a democratic environmental culture.

3.3.3 Interdisciplinary pedagogical practices and the SDGs

Interdisciplinarity is identified as a structural axis of contemporary Environmental Education (EE). Dias (2010) and Sorrentino (1998) emphasize that practices such as school gardens, waste sorting, ecological fairs, and field study projects are fundamental for developing ecological awareness and youth protagonism. According to Sanchez

(2023/2024), these initiatives strengthen the links between schools and communities, promoting social engagement and situated learning.

The integration between the Sustainable Development Goals (SDGs) and school curricula has advanced in Brazil. For example, Rosa and Silva (2024) identify that interdisciplinary projects contribute to the development of socio-environmental and technoscientific competencies, while Castro et al. (2025) report innovative experiences in climate education that connect teaching, service, and community engagement. These actions address SDGs 4 (Quality Education), 11 (Sustainable Cities), 12 (Responsible Consumption), 13 (Climate Action), and 17 (Partnerships for the Goals), consolidating schools as transformative centers of sustainability.

3.3.4 Structural and pedagogical challenges and future perspectives

Structural and pedagogical barriers continue to hinder the consolidation of Environmental Education (EE) and inclusion in schools. These include insufficient teacher training, fragmented curricula, and a shortage of didactic resources (Lima, 2021; Sanchez, 2023/2024). Studies highlight the “non-place” of environmental training in basic education and the need for institutional alignment with the BNCC and EE curricular guidelines (NEPOMUCENO, 2021; BECHER, 2024). Lima and Gonçalves (2021) reinforce the lack of specific teacher preparation in EE and the persistent gap between educational policies and daily pedagogical practice, exacerbated by limited resources, reduced instructional time, and lack of institutional support.

Health and climate impacts underscore the urgency of incorporating climate-focused EE into everyday school activities (particularly in light of recent extreme events in Brazil) to protect children and adolescents and strengthen community resilience (BUSTAMANTE et al. 2025). These authors emphasize that climate change directly affects child health, highlighting the crucial role of schools in promoting adaptive and sustainable responses.

In line with this perspective, Milagre et al. (2025) and Shiroma and Evangelista (2025) argue that educational policies should adopt interdisciplinary and climate justice approaches, engaging multiple actors and territories. International perspectives and Brazilian educational debates also point to curricular reforms, stronger partnerships, and pedagogical innovation as key strategies for scaling up inclusive EE (SHIROMA, 2025). Overall, evidence suggests that the effectiveness of inclusive Environmental Education depends on the articulation

between teacher training, public policies, and pedagogical innovation, combined with the appreciation of local culture and interinstitutional collaboration.

4 FINAL CONSIDERATIONS AND RECOMMENDATIONS

From a global perspective, integrating Environmental Education (EE) into basic education systems is essential for advancing sustainable development and preparing new generations to address interconnected environmental and social challenges. Countries that have progressed in sustainability education share common strategies (policy alignment, interdisciplinary curricula, teacher training, and community engagement) strengthening schools as laboratories of social and ecological transformation.

International frameworks such as the United Nations' 2030 Agenda and UNESCO's Education for Sustainable Development highlight that environmental literacy must be inclusive, participatory, and culturally relevant. Yet, disparities in resources, institutional capacity, and teacher preparation continue to create uneven implementation. Achieving global impact requires that EE move beyond isolated initiatives and become a systemic element of educational policy, linking environmental understanding with ethics, citizenship, and social justice.

Within this context, the Brazilian experience exemplifies both the challenges and the potential of aligning national educational reforms with global sustainability agendas. The integrated review indicates a convergence between legal frameworks, critical theory, and recent evidence: Environmental Education emerges as a structuring axis for an inclusive public school committed to sustainability.

The following recommendations are proposed in Brazil: (i) institutionalize continuous teacher training in EE and the SDGs; (ii) mainstream EE across the curriculum in alignment with the BNCC; (iii) ensure adequate material conditions and pedagogical time for project development; (iv) expand school–health–community partnerships; and (v) employ accessible technologies to enhance communication and student participation. The results indicate that when Environmental Education is integrated with Inclusive Education, it constitutes a field of convergence between ethics, citizenship, and sustainability.

The recent literature confirms that interdisciplinary practices, mediated by technology and guided by the SDGs, foster meaningful learning and community engagement, while also revealing ongoing implementation challenges. Therefore, strengthening public policies and

continuous teacher training is essential to consolidate a sustainable, democratic, and inclusive public education system.

5 CONCLUSION

The study demonstrated that integrating Environmental and Inclusive Education in basic education enhances meaningful learning, equity, and community engagement. The global analysis indicated that coherent policies, teacher training, and interdisciplinary practices are key to advancing sustainable educational models. In Brazil, despite legal and curricular progress, challenges remain regarding implementation, resource limitations, and ongoing professional development. It is concluded that strengthening public policies, encouraging pedagogical innovation, and valuing the social and environmental dimensions of schooling are essential to making basic education an effective driver of sustainability and inclusion.

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THE IMPLEMENTATION OF THE SCHOOL UNITS MANAGEMENT AUTONOMY PROGRAM – PAGUE – IN THE REGIONAL EDUCATION COORDINATION OF TEFÉ

A IMPLEMENTAÇÃO DO PROGRAMA DE AUTONOMIA DA GESTÃO DAS UNIDADES ESCOLARES – PAGUE – NA COORDENADORIA REGIONAL DE ENSINO DE TEFÉ

LA IMPLEMENTACIÓN DEL PROGRAMA DE AUTONOMÍA DE LA GESTIÓN DE LAS UNIDADES ESCOLARES – PAGUE – EN LA COORDINACIÓN REGIONAL DE ENSEÑANZA DE TEFÉ

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ABSTRACT

The School Units Management Autonomy Program (PAGUE) is a public policy of financial decentralization implemented in the State of Amazonas. This study analyzes its implementation in the Regional Education Coordination of Tefé (CRET), considering advancements, challenges, and the perceptions of the main actors involved, such as school principals and/or members of the APMCs/School Councils. The program is based on the development of application plans, community approval, and strict accountability procedures. The general objective of the research was to analyze the implementation process of PAGUE, identifying the main challenges faced by state schools in Tefé. The methodology used was a qualitative case study, and data were initially collected through documentary and bibliographic research characterized by an exploratory survey of the available literature. Subsequently, semi-structured interviews were conducted with current school principals, along with a structured questionnaire applied to former principals or APMC members. The participation of the APMCs or School Councils in the decision-making process revealed regional disparities, highlighting the need for greater community engagement and qualification. It is concluded that the success of PAGUE depends on alignment with regional demands, continuous training, and investments in basic and technological infrastructure, and that the program presents significant potential to modernize educational management in Amazonas, promoting greater equity and efficiency in resource allocation.

Keywords: PAGUE. Educational Management. State Schools. Amazonas.

RESUMO

O Programa de Autonomia da Gestão das Unidades Escolares (PAGUE) é uma política pública de descentralização financeira implementada no Estado do Amazonas. Este estudo analisa sua implementação na Coordenadoria Regional de Ensino de Tefé - CRET, considerando avanços, desafios e percepções dos principais atores envolvidos, como gestores escolares e/ou membros das APMCs/Conselhos Escolares. O programa baseia-se

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na elaboração de planos de aplicação, aprovação comunitária e prestação de contas rigorosa. A pesquisa teve como objetivo geral analisar o processo de implementação do PAGUE, identificando os principais desafios enfrentados pelas escolas estaduais de Tefé. A metodologia utilizada foi o estudo de caso de caráter qualitativo. Os dados foram coletados, inicialmente, por meio de pesquisa documental e bibliográfica, caracterizada por um levantamento de dados exploratório em materiais literários disponíveis. Posteriormente, foi utilizada a entrevista semiestruturada, aplicada junto aos atuais gestores escolares, além de um questionário com perguntas estruturadas aplicado junto a antigos gestores ou membros de APMCs. A participação das APMCs ou Conselhos Escolares no processo decisório revelou disparidades regionais, apontando a necessidade de maior engajamento comunitário e qualificação. Conclui-se que o sucesso do PAGUE está condicionado ao alinhamento com demandas regionais, capacitação contínua e investimentos em infraestrutura básica e tecnológica. O programa apresenta potencial significativo para modernizar a gestão educacional no Amazonas, promovendo maior equidade e eficiência na alocação de recursos.

Palavras-chave: PAGUE. Gestão Educacional. Escolas Estaduais. Amazonas.

RESUMEN

El Programa de Autonomía de la Gestión de las Unidades Escolares (PAGUE) es una política pública de descentralización financiera implementada en el Estado de Amazonas. Este estudio analiza su implementación en la Coordinación Regional de Enseñanza de Tefé (CRET), considerando los avances, desafíos y percepciones de los principales actores involucrados, como directores escolares y/o miembros de las APMCs/Consejos Escolares. El programa se basa en la elaboración de planes de aplicación, la aprobación comunitaria y una rigurosa rendición de cuentas. El objetivo general de la investigación fue analizar el proceso de implementación del PAGUE, identificando los principales desafíos enfrentados por las escuelas estatales de Tefé. La metodología utilizada fue un estudio de caso de carácter cualitativo y los datos fueron recolectados inicialmente mediante una investigación documental y bibliográfica caracterizada por un levantamiento exploratorio de la literatura disponible. Posteriormente, se empleó una entrevista semiestruturada aplicada a los actuales directores escolares, además de un cuestionario con preguntas estructuradas dirigido a antiguos directores o miembros de las APMCs. La participación de las APMCs o Consejos Escolares en el proceso de toma de decisiones reveló disparidades regionales, señalando la necesidad de un mayor involucramiento comunitario y capacitación. Se concluye que el éxito del PAGUE está condicionado al alineamiento con las demandas regionales, la formación continua y las inversiones en infraestructura básica y tecnológica, y que el programa presenta un potencial significativo para modernizar la gestión educativa en Amazonas, promoviendo mayor equidad y eficiencia en la asignación de recursos.

Palabras clave: PAGUE. Gestión Educativa. Escuelas Estatales. Amazonas.

1 INTRODUCTION

The debate on decentralization in Brazil is permeated by historical and structural challenges. Since the 1990s, the autonomy of public schools has been promoted as a solution to overcome the managerial difficulties of the education networks. Administrative and financial decentralization, as an educational management strategy, has been much discussed in the academic environment. Authors such as Arretche (2014) and Gadelha (2016) highlight that, although school autonomy can bring significant benefits, it also requires continuous support and adequate conditions for schools to fully exercise their responsibilities.

Programs such as the Direct Money at School Program (PDDE), implemented at the national level, and the School Unit Management Autonomy Program (PAGUE), in the state of Amazonas, reflect the search for alternatives that strengthen schools in facing local demands.

PAGUE was created with the objective of ensuring greater flexibility to school units in the application of financial resources, encouraging participatory management and the protagonism of managers and local communities.

The present study is justified by the relevance of understanding and analyzing the processes of implementation of public policies in the educational field. In theoretical terms, the research contributes to the debates on decentralization, democratic management, and school autonomy, topics that have been the subject of study by renowned researchers such as Amaral and Libâneo (2023) and Biccás (2020). In practice, the results of this work can support the formulation of strategies that improve support for schools in Tefé, promoting a more efficient management aligned with local needs. In this sense, the analysis of the implementation of PAGUE in Tefé can generate insights for educational management in general.

The central problem of this research can be summarized in the following question: what are the main challenges faced by the schools of the Regional Coordination of Education of Tefé in the implementation of PAGUE? To answer this question, it was necessary to investigate not only the perceptions of school managers and presidents of APMC's or School Council Members, but also the structural, organizational and cultural factors that impact the execution of the program in the local context.

To this end, the present study had the general objective of analyzing the process of implementation of PAGUE, identifying the main challenges faced by the schools of the Regional Coordination of Education of Tefé, in order to identify the main difficulties, from the perception of the different actors involved.

Based on the general objective, the following specific objectives were reached: to describe the implementation proposal adopted by SEDUC-AM, for PAGUE in state schools; to detect the perceptions of school managers and presidents of APMC's or School Councils about the process; identify the challenges faced in the local context during the implementation of PAGUE; to propose alternatives to overcome the factors that hinder the implementation of PAGUE in Tefé.

In the end, it is hoped that the results of this study can guide not only the practice of educational managers and policymakers, but also future academic research on decentralization and school management.

2 DEVELOPMENT

The State of Amazonas, located in the northern region of Brazil, is the largest in territorial extension in the country, characterized by its vast tropical forest, mighty rivers and rich biodiversity. This geographical reality directly influences the administrative and educational organization of the region. In the city of Tefé, the State Secretariat of Education and School Sports (SEDUC-AM) is represented by the Regional Coordination of Education (CRET). Like other municipalities, CRET is responsible for monitoring the implementation of the School Unit Management Autonomy Program (PAGUE).

School infrastructure varies considerably between urban and rural units. In the urban areas of Tefé, schools tend to have better structural conditions, such as internet access, regular electricity and more suitable buildings. In rural areas, the situation is somewhat different. Some schools operate with limited resources, especially with difficulties in accessing basic technologies, such as computers and the internet. This contrast underscores the importance of policies such as PAGUE, which seek to meet the specific needs of each location.

The region served by CRET de Tefé reflects both the potentialities and the challenges of offering inclusive public education in one of the most complex contexts in Brazil. The implementation of PAGUE is an example of a policy that attempts to respond to these demands, but its success depends on a deep understanding of local specificities and targeted investments to overcome regional inequalities.

2.1 ANALYSIS OF THE DECREES AND ORDINANCES THAT REGULATE PAGUE

The Program for the Autonomy of the Management of School Units (PAGUE) was regulated by a set of decrees and ordinances that establish clear guidelines for its implementation, application of resources and accountability. These normative instruments are essential to ensure compliance with the objectives of administrative and financial decentralization, promoting greater autonomy for school units in the State of Amazonas. Decree No. 36,732, of February 29, 2016, is one of the pillars of this regulation, providing for the criteria for transferring resources to state schools and detailing the responsibilities of the executing units. This document defined the basic structure of the program, guiding schools to develop specific application plans to meet local demands, duly approved in an assembly of the Parent, Teacher and Community Associations (APMCs) (AMAZONAS, 2016).

Another important milestone was Ordinance GS No. 879, of September 10, 2018, which updated the transfer criteria and established per capita values for the different categories of schools. This ordinance recognized the regional and cultural specificities of Amazonas, ensuring differentiated transfers to schools located in indigenous, rural and quilombola areas, as well as to those that serve students with special needs.

The obligation to approve the implementation plans in community assemblies reinforces the importance of democratic management in the context of PAGUE. The normative documents highlight that decisions on the use of resources must be made collectively, with the active participation of members of APMCs or School Councils and other members of the school community. This practice promotes greater transparency and co-responsibility, strengthening the bond between school and society (AMAZONAS, 2016).

Finally, the decrees and ordinances that regulate the program represent a significant effort to modernize and decentralize educational management in Amazonas. They provide a robust regulatory framework that, although it still faces operational challenges, has the potential to transform the reality of state schools, promoting greater autonomy, efficiency, and equity in the use of public resources.

2.2 THEORETICAL FOUNDATIONS ON EDUCATIONAL MANAGEMENT

Educational management is a field that involves the planning, organization, and coordination of resources and actions aimed at the development of the school environment. It is intrinsically linked to the promotion of quality education and the guarantee of equity in the access and permanence of students in educational institutions. Authors such as Libâneo

(2020) highlight that school management is a dynamic and complex process that requires the integration of pedagogical, administrative, and social aspects to achieve its objectives.

In Brazil, the Federal Constitution of 1988 establishes democratic management as a fundamental principle for the organization of public education, reinforcing the importance of collective participation. This orientation was later ratified by the National Education Plan (PNE) of 2014, which defines goals and strategies aimed at consolidating democratic management in all education networks (BRASIL, 2014).

Educational decentralization policies in Brazil have been the subject of extensive academic debate, with emphasis on programs such as the Direct Money at School Program (PDDE) and the School Unit Management Autonomy Program (PAGUE). According to Campos (2022), these initiatives aim to strengthen the financial autonomy of schools, allowing school managers to have greater control over the resources allocated to their units. However, the author observes that the lack of training and strategic planning are recurrent challenges that limit the effectiveness of these policies.

Amaral and Libâneo (2023), emphasize that the training of managers is a determining factor for the success of decentralization policies and for the consolidation of democratic management. Training should cover not only technical aspects, but also the development of skills related to leadership, decision-making, and problem-solving in the school context.

Educational management, based on the principles of democracy, autonomy, and equity, plays a crucial role in promoting quality education. The challenges faced in the implementation of these practices, although challenging, can be overcome through well-planned public policies and continuous support for school managers. These aspects, combined with the active participation of the school community, are essential for the construction of a fairer and more efficient educational system.

2.3 PUBLIC POLICIES FOR THE DECENTRALIZATION OF RESOURCES

The decentralization of resources in education is a strategy adopted to promote greater efficiency and equity in the use of public resources, allowing decisions and actions to be taken closer to school communities. In Brazil, this model is aligned with the principle of democratic management, consolidated by the Federal Constitution of 1988, which seeks to guarantee the autonomy of school units as a way to strengthen public education (BRASIL, 2014). This approach is reinforced in the National Education Plan (PNE), which establishes guidelines for the development of decentralized and participatory educational management.

Educational decentralization policies in the country are largely represented by programs such as the Direct Money at School Program (PDDE), implemented by the National Fund for Education Development (FNDE). According to Resolution No. 15/2021, the main objective of the PDDE is to enable the direct transfer of financial resources to public schools, ensuring greater flexibility in the application of these resources (BRASIL, 2021). This policy seeks to meet local specificities, allowing school managers to adapt their actions to the needs of their communities.

In the state of Amazonas, the Program for the Autonomy of the Management of School Units (PAGUE) is an example of public policy aimed at the decentralization of resources. According to the General Manual of the Todos pela Vida na Educação Program (AMAZONAS, 2023), PAGUE was created to promote greater administrative and financial autonomy for state schools, enabling the direct management of resources by school units. This initiative represents an attempt to address the logistical and structural challenges of the Amazon region, promoting greater efficiency in the allocation of resources.

The analysis of specific programs, such as PAGUE, reveals both the potentialities and the challenges of decentralization policies. According to Gadelha (2016), decentralization can promote greater engagement of school managers and the community, but requires an administrative structure capable of offering continuous technical and financial support. In the case of Amazonas, geographic dispersion and precarious infrastructure are factors that complicate the implementation of these policies, requiring adaptations to regional specificities.

However, in more isolated regions, school units often face additional difficulties, such as lack of connectivity, limited transportation, and a shortage of skilled labor. Biccass (2020) observes that, in contexts of high vulnerability, decentralization must be accompanied by redistributive mechanisms that ensure greater support for the most needy schools, promoting equity in the educational system.

The geographical dispersion of Amazonas also represents an obstacle to the supervision and monitoring of decentralized actions. Fernandes and Costa (2020) point out that, in states with characteristics such as Amazonas, central bodies face difficulties in closely monitoring the implementation of policies in all schools, which can compromise transparency and efficiency in the application of resources.

Despite these challenges, the decentralization of resources in Amazonas presents positive results, especially in strengthening democratic management and promoting

community participation. Libâneo (2020) highlights that, by involving school managers, parents, and the local community in the management of resources, programs such as PAGUE contribute to creating an environment of co-responsibility and engagement. This active participation is essential for the success of decentralized policies and for the construction of quality public education.

Another positive aspect is the strengthening of the bond between schools and local communities. Fernandes and Costa (2020) observe that the decentralization of resources creates opportunities for greater interaction between the different actors in the school community, promoting a sense of belonging and co-responsibility.

However, for the decentralization of resources to reach its full potential in Amazonas, it is necessary to overcome structural challenges and invest in public policies that promote equity and sustainability. This includes not only the continuous training of managers, but also the creation of specific support mechanisms for the most vulnerable schools, ensuring that all units are able to enjoy the benefits of decentralization.

Thus, the decentralization of resources in the state of Amazonas is a promising strategy to address regional challenges and promote more efficient and equitable education. Despite the limitations and obstacles, programs such as PAGUE indicate that, with adequate support, decentralization can transform school management, strengthening autonomy, community participation, and the quality of education.

However, it is important to highlight that the success of decentralization policies requires the existence of effective monitoring and evaluation systems. According to Bray (2021), decentralization will only be sustainable if it is accompanied by mechanisms that ensure accountability and transparency in the application of resources. For this, it is essential that school managers receive technical support and that evaluation processes are integrated with management practices.

2.4 PDE SCHOOL AND MORE EDUCATION PROGRAMS

The PDE School and More Education programs have emerged as important strategies to strengthen school management and expand educational opportunities, with a focus on improving the quality of teaching and reducing inequalities. Both are aligned with the guidelines of the Education Development Plan (PDE) and reflect the concern with the integration between pedagogical management and administration (BRASIL, 2014).

The PDE School was created with the objective of promoting a more efficient and participatory management in public schools. According to Oliveira (2014), this program encourages school units to develop action plans based on diagnoses of their needs, using educational performance indicators.

The More Education program was implemented as part of the comprehensive education policy, with the objective of extending the school day and offering complementary activities that enrich the students' curriculum. According to Gadelha (2016), the program seeks to integrate the different dimensions of human development, promoting a more holistic approach to education. To this end, cultural, sports and pedagogical activities are offered, which contribute to the integral formation of students.

However, both PDE Escola and Mais Educação faced challenges that limit their results. One of the main problems is related to the insufficiency of financial resources to meet the demands of the participating schools. Campos (2022) observes that, in many cases, the amounts transferred are not sufficient to cover the needs identified in the diagnoses, which compromises the implementation of the actions provided for in the action plans.

2.5 CHALLENGES AND PERSPECTIVES FOR THE IMPLEMENTATION OF PAGUE

The Todos pela Vida Educação Program (TPV-E), later called the School Unit Management Autonomy Program (PAGUE), was created through Law No. 4,184/2015 of 06/26/2015, and was later regulated by Decree No. 36,733/2016 of 02/29/2016 and is periodically regulated by Ordinances published by SEDUC.

From its essence, PAGUE carries the responsibility and challenge of providing greater financial autonomy for each school served.

The Todos pela Vida – Educação Program (TPV-E), with the objective of providing financial assistance, on a supplementary basis, to public schools of basic education and to the District/Regional Coordinators, in order to ensure their operation and improvements in physical and pedagogical infrastructure, as well as to encourage school self-management and the exercise of citizenship with the participation of the community in social control. (AMAZONAS, 2015, P1)

From the perspective of ensuring better operating conditions for schools and ensuring the correct use of resources from PAY, SEDUC-AM sought to regulate the program's guiding guidelines.

The resources of the PTV-E/PAGUE are intended to cover expenses

of the Own Executing Units, to be applied in:

- I – Maintenance of air conditioners and other equipment;
- II – Electrical maintenance;
- III – Hydraulic maintenance;
- IV – Building maintenance;
- V – Acquisition of consumables for activities and/or projects Teaching;
- VI – Contracting of services for pedagogical activities and/or projects;
- VII – Vegetable garden project;
- VIII – Acquisition of cooking gas;
- IX – Acquisition of water;
- X – Acquisition of fuel for the maintenance of power generators;
- XI – Acquisition of foodstuffs;
- XII- Cost of travel. (AMAZONAS, 2018, P14)

In order to ensure greater speed for the transfer of resources, SEDUC - AM created its own flow for the release of PAGUE resources.

The credit transferred at the expense of the PTV-E/PAGUE is subject to the approval of the Application Plan, prepared by the School Management and, after approval in the General Assembly of the Association of Parents, Teachers and Community Parents-APMC convened for this purpose, it will be sent to the District/Regional Education Coordinators, if any, for manifestation without reproach; finally, it will be endorsed by the Financial Resources Monitoring Management (GEARF). (AMAZONAS, 2018, P15)

The implementation of PAGUE in the state of Amazonas represents a pioneering initiative to promote the decentralization of resources and strengthen the autonomy of state schools. However, the execution of the program faces a series of challenges that limit its scope and impact, requiring continuous adaptations and innovative strategies to achieve the proposed objectives. The analysis of these challenges, as well as the prospects for improving the program, is essential to understand the role of PAGUE in the transformation of educational management in the region.

One of the main challenges faced in the implementation of PAGUE is the insufficient training of school managers, presidents of Parent, Teacher and Community Associations (APMCs) and members of School Councils. According to Campos (2022), the lack of adequate technical training compromises efficiency in the administration of decentralized resources, resulting in failures in planning, budget execution, and accountability. This problem

is aggravated by the high turnover of managers, which makes it difficult to continue actions and consolidate good management practices.

In addition to training, the infrastructure of schools is also a critical factor that affects the implementation of the program. In many school units, especially in rural and riverside areas of Amazonas, the precariousness of physical facilities, lack of internet access and the absence of basic resources, such as transportation and electricity, make it difficult to carry out the actions provided for by PAGUE (SEDUC-AM, 2019). These limitations highlight the need for complementary investments in infrastructure to ensure minimum conditions for the functioning of schools.

The integration between the objectives of PAGUE and other educational policies is also an important perspective for the improvement of the program. Biccás (2020) observes that the decentralization of resources must be accompanied by initiatives that promote equity and improve the quality of education, such as comprehensive education programs and actions to combat school dropout.

Thus, it would be essential to consider regional specificities in the formulation and implementation of PAGUE. According to SEDUC-AM (2019), the success of the program in Amazonas depends on its adaptation to local realities, taking into account factors such as cultural diversity, socioeconomic conditions, and logistical challenges.

2.6 ANALYSIS OF PAGUE AND THE SCHOOLS' FINANCIAL AUTONOMY CAPACITY

The School Unit Management Autonomy Program (PAGUE) is a relevant public policy in the state of Amazonas, aimed at the decentralization of financial resources with the objective of strengthening the autonomy of state schools. This initiative seeks to train schools so that they can directly manage their resources, meeting the specific demands of each unit in an agile and efficient way.

One of the pillars of PAGUE is the proposal to decentralize resources, allowing each school to develop strategies to deal with its specific needs. This approach facilitates the realization of small renovations, the acquisition of materials and the resolution of everyday problems, without the need to wait for answers from the central administration. According to Meireles and Mendonça (2020), this decentralized model has the potential to make schools more independent, but requires managers to be prepared to assume the associated administrative and financial responsibilities.

Regional particularities challenge the full implementation of PAGUE. The geographical uniqueness of the schools' locations and the difficulties of access to some communities limit the uniform applicability of the program. Biccás (2020) highlights that, in regions where basic infrastructure is insufficient, decentralization can be ineffective without complementary investments that guarantee minimum operating conditions. This reality requires adaptations from PAGUE to meet local specificities.

Financial autonomy, although desirable, requires technical training on the part of school managers and members of school councils. Medeiros (2008) points out that, without adequate training, there are risks of mismanagement of resources, resulting in inefficiency and even problems in accountability.

Another relevant factor is the ability of schools to integrate the school community into decision-making processes. The participation of APMCs or School Councils is a key point of PAGUE, as these aggregations help ensure transparency and co-responsibility in the use of resources. However, Fernandes and Costa (2020) warn that, in many communities, the low participation of parents and the lack of knowledge of the functions of the councils limit the positive impact that the program can achieve.

PAGUE also faces challenges related to accountability and supervision. In a state as extensive as Amazonas, monitoring decentralized actions is a complex task. Rondinelli and Cheema (2021) emphasize that, to ensure accountability, it is necessary to implement robust supervision systems that are capable of monitoring the execution of the program in all school units. The lack of digital management tools in Amazonas aggravates this difficulty, increasing the risk of misuse of resources.

Despite the challenges, PAGUE offers unique opportunities to promote innovations in school management. Freitas (2023) observes that, by granting greater autonomy to schools, the program encourages managers to adopt creative practices and local solutions to problems. This flexibility is especially relevant in contexts such as Amazonas, where the conditions of each school vary widely. However, innovation depends on an environment that encourages and values the search for new approaches.

In addition, the financial sustainability of PAGUE depends on its integration with other educational policies. Santos (2017) argues that the decentralization of resources should be complemented by programs that improve teacher training, the quality of the curriculum and the fight against school dropout. This integration is essential for PAGUE not only to meet the

financial demands of schools, but also to contribute to the strengthening of the educational system as a whole.

Thus, although PAGUE presents a promising model of financial decentralization, it faces structural challenges that limit its effectiveness. The training of managers, efficient monitoring, community participation and equity in the distribution of resources are fundamental elements for the success of the program. With adequate investments and an integrated vision, PAGUE can consolidate itself as a transformative policy, strengthening the financial autonomy of schools and promoting quality public education in the state of Amazonas.

3 FINAL CONSIDERATIONS

The study on the implementation of the Program for the Autonomy of the Management of School Units (PAGUE) in the context of the Regional Coordination of Education of Tefé revealed a multifaceted reality, with relative advances, but with some challenges. The decentralization of resources proposed by the program proved to be a powerful instrument to grant greater administrative and financial autonomy to schools, allowing the adaptation of actions to local needs. However, the regional and structural specificities of the state of Amazonas emerge as factors that limit the full effectiveness of this policy.

The results showed that financial autonomy promotes greater agility in the execution of school projects, such as the maintenance of infrastructure and the acquisition of pedagogical materials. However, the application of these resources still faces significant barriers in remote areas, where logistics, infrastructure, and connectivity make it difficult to take full advantage of decentralizing policies. This finding reinforces the need for complementary strategies that effectively address regional inequalities.

The involvement of APMCs in the decision-making process revealed advances in strengthening democratic management, but also exposed the lack of structure and community engagement in many schools, particularly in rural areas. This reality indicates the need to expand awareness and qualification actions for the members of these associations, so that they can act in a more effective and representative way.

The pedagogical projects encouraged by the program, such as the Vegetable Garden Project and the Fanfare Project, proved to be important tools to connect the school to the community and improve academic performance. However, the expansion and maintenance

of these initiatives face financial and operational limitations, requiring greater technical support and strategic planning.

The survey revealed that accountability, while essential for program transparency and integrity, presents significant challenges for managers, especially given its complexity and rigor. A simplification in administrative processes, without compromising oversight and transparency, could contribute to alleviating the workload of managers and allowing greater focus on pedagogical activities.

Transparency and accountability have been strengthened by the use of the computerized system, but adaptation to digital tools is still an obstacle in many schools, especially in hard-to-reach regions. Limited connectivity and the absence of regular technical support were factors that negatively impacted the implementation of the program in these locations.

Although PAGUE has provided significant advances in educational management, there is still room for improvement. The integration between the various administrative levels and the reduction of regional inequalities are crucial elements for the program to reach its maximum potential and promote quality education in all schools in the state network.

The proposed improvement actions were designed based on the entire analysis carried out and are related to the observed needs, which cannot be exhausted in this research. In it we have only a proposal for the beginning of a process of improving the implementation of future policies to be implemented by SEDUC-AM. The legitimacy of the questions presented was considered, knowing, however, that the implementation of any policy responds to a set of interests and power relations.

It is concluded that the success of a policy of decentralization of resources such as PAGUE depends not only on financial allocation, but also on the construction of a management system that considers local characteristics and challenges. The continuity and improvement of the program are essential to consolidate the progress made and overcome the obstacles identified, contributing to a more inclusive, democratic and efficient education.

It should be noted that the proposed discussion is not exhausted in this research. In fact, other studies and/or institutional actions should be sought so that the implementation of PAGUE is effectively successful.

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**RIGHT TO EDUCATION AND AGE CUT-OFF IN LIGHT OF THE
JURISPRUDENCE OF THE COURT OF JUSTICE OF MINAS GERAIS**

**DIREITO À EDUCAÇÃO E CORTE ETÁRIO À LUZ DO ENTENDIMENTO DO
TRIBUNAL DE JUSTIÇA DE MINAS GERAIS**

**DERECHO A LA EDUCACIÓN Y CORTE ETARIO A LA LUZ DEL
ENTENDIMIENTO DEL TRIBUNAL DE JUSTICIA DE MINAS GERAIS**

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ABSTRACT

Considering the ongoing controversy surrounding the age cut-off for entry into basic education, this study aimed to analyze the understanding of the Court of Justice of Minas Gerais (TJMG) regarding the application of Resolution CNE/CEB No. 02/2018, which established March 31 as the deadline for enrollment in preschool and elementary school. To this end, a qualitative, bibliographic, and documentary research was conducted, covering decisions rendered between 2023 and 2025. The findings indicate that the TJMG has consistently upheld the national guidelines and the position consolidated by the Federal Supreme Court (ADC 17 and ADPF 292), while admitting only limited exceptions, such as the transition rule and the theory of accomplished fact. It is concluded that the Court has sought to balance the child's best interests with legal certainty, reaffirming the importance of the age cut-off as an instrument of standardization and stability in educational policies.

Keywords: Age Cut-off. Case Law. Early Childhood Education. Minas Gerais Court of Justice. Right to Education.

RESUMO

Considerando a persistente controvérsia em torno do corte etário para ingresso na educação básica, o presente estudo objetivou analisar o entendimento do Tribunal de Justiça de Minas Gerais (TJMG) sobre a aplicação da Resolução CNE/CEB nº 02/2018, que fixou a data de 31 de março como limite para matrícula na pré-escola e no ensino fundamental. Para tanto, realizou-se pesquisa qualitativa, de caráter bibliográfico e documental, abrangendo julgados proferidos entre 2023 e 2025. Observa-se que o TJMG tem mantido posicionamento predominantemente alinhado às diretrizes nacionais e ao entendimento consolidado pelo Supremo Tribunal Federal (ADC 17 e ADPF 292), admitindo apenas exceções restritas, como a regra de transição e a teoria do fato consumado. Conclui-se que a Corte mineira tem buscado equilibrar a proteção integral da criança e a segurança jurídica, reafirmando a importância do corte etário como instrumento de padronização e estabilidade das políticas educacionais.

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Palavras-chave: Corte Etário. Direito à Educação. Educação Infantil. Jurisprudência. Tribunal de Justiça de Minas Gerais.

RESUMEN

Considerando la persistente controversia en torno al corte etario para el ingreso a la educación básica, el presente estudio tuvo como finalidad analizar la comprensión del Tribunal de Justicia de Minas Gerais (TJMG) sobre la aplicación de la Resolución CNE/CEB nº 02/2018, que estableció el 31 de marzo como fecha límite para la matrícula en la educación preescolar y primaria. Para ello, se realizó una investigación cualitativa, de carácter bibliográfico y documental, que abarcó sentencias dictadas entre 2023 y 2025. Se observa que el TJMG mantiene una posición predominantemente alineada con las directrices nacionales y con el entendimiento consolidado por el Supremo Tribunal Federal (ADC 17 y ADPF 292), admitiendo únicamente excepciones limitadas, como la regla de transición y la teoría del hecho consumado. Se concluye que la Corte ha procurado equilibrar la protección integral del niño con la seguridad jurídica, reafirmando la importancia del corte etario como instrumento de estandarización y estabilidad de las políticas educativas.

Palabras clave: Corte Etario. Derecho a la Educación. Educación Infantil. Jurisprudencia. Tribunal de Justicia de Minas Gerais.

1 INTRODUCTION

The right to education occupies a prominent position in the Brazilian legal system, being enshrined by the Federal Constitution as one of the fundamental pillars for the full development of the person and the exercise of citizenship. The effectiveness of this right, however, depends on the observance of normative parameters that ensure the organization and quality of education, among which is the so-called age cut-off, a criterion that establishes the minimum age for entry into the mandatory stages of basic education.

Law No. 9,394/1996 (Law of Guidelines and Bases of National Education) (LDB) established that early childhood education, in its pre-school phase, is mandatory from the age of four, and that elementary education must begin at the age of six. In order to standardize the application of this rule throughout the national territory, the National Council of Education (CNE) set March 31 as the deadline for calculating the minimum age required, through Resolution CNE/CEB No. 2/2018. Thus, only children who complete four or six years by that date can be enrolled, respectively, in preschool and in the first year of elementary school.

Before national standardization, the absence of a common framework for the age cut generated great legal uncertainty and inequalities between education systems. Each state and municipality established its own reference date, which caused disruptions in school transfers and even grade regressions, especially when families moved between networks that adopted different criteria. Such a scenario led to the recurrent judicialization of the matter, culminating in the decision of the Federal Supreme Court that recognized the constitutionality of the rule and conferred on the CNE the competence to define a single cut-off date at the national level.

Despite this, the controversy surrounding the application of the age cutoff still persists in state courts, especially in the Court of Justice of Minas Gerais (TJMG), which has been urged to decide on requests for enrollment of children outside the established standard.

In this context, this article aims to analyze the right to education from the perspective of the age cut, examining the understanding consolidated by the TJMG after the issuance of Resolution CNE/CEB No. 2/2018 and the decision of the Federal Supreme Court. It seeks to understand how the Minas Gerais Court has reconciled the full protection of the child, the pedagogical autonomy of the institutions and the necessary observance of the normative commands that govern basic education.

2 THEORETICAL FRAMEWORK

The Constitution of the Republic of 1988 established that education is a right of all and a duty of the State and the family, and must be promoted and encouraged with the collaboration of society (art. 205). Article 208, item I, ensures access to compulsory and free basic education from four to seventeen years of age, which covers both early childhood education and elementary education. In addition, article 227 imposes absolute priority on the full protection of children and adolescents, making education a central element of their protection (Brasil, 1988).

In this context, the Law of Guidelines and Bases of National Education (Law No. 9,394/1996) consolidated the normative structure of basic education and conferred on the Union the function of coordination and general standardization of educational policies (Brasil, 1996). Article 32 of the LDB, amended by Law No. 11,274/2006 (Brasil, 2006), determined that elementary education would last nine years, with compulsory enrollment from the age of six.

The definition of the age criterion and the respective cut-off date was regulated by the National Council of Education (CNE), which, in the exercise of its normative power (article 9, paragraph 1, of the LDB), issued Resolution CNE/CEB No. 1/2010 and, later, Resolution CNE/CEB No. 2/2018, setting the date of March 31 as the deadline for the child to complete four years (preschool) and six years (elementary school) (Brazil, 2010; 2018a). The Federal Supreme Court, in judging ADC No. 17 and ADPF No. 292 (Brasil, 2018b; 2018c), recognized the constitutionality of these rules, consolidating the uniformity of the age cutoff at the national level (Souza, 2018).

According to the Legal Bulletin of the Public Prosecutor's Office of Minas Gerais (Minas Gerais, 2024), the age cutoff is a standardization instrument that aims to ensure equal access and permanence in school, avoiding discrepancies between education systems. The document emphasizes that it is up to municipalities and states to observe the national parameter, under penalty of violating the normative competence of the Union and the principle of educational isonomy.

The discussion about the ideal age to enter elementary school goes beyond the legal level and enters the field of Historical-Cultural Psychology, especially from the contributions of Vygotsky, who conceives child development as a social and historical process, mediated by language and interaction with the environment (Silva, 2021). From this perspective, Patricia do Nascimento da Silva (2021) analyzes the age cut in the curricular policies of early

childhood education and observes that the establishment of a rigid age milestone may conflict with the assumptions of Historical-Cultural Psychology, according to which development and learning occur in areas of proximity and not in watertight stages.

Thus, educational legislation should consider that each age group has specific maturation characteristics, and the exclusive use of chronological age as a criterion for school admission is inappropriate (Silva, 2021). In this line, entry into the first year should occur when the child demonstrates sufficient socio-emotional and cognitive skills to face the demands of the new stage, reconciling respect for the natural development of childhood with the normative requirements of the educational system (Guglielmo; Stefanelli, 2022).

On the other hand, João Paulo Faustinoni e Silva (2015) defends the maintenance of the age cut as an instrument of protection for childhood, arguing that Early Childhood Education is an essential phase of human development, and should be valued as a space for integral education and not just as preparation for elementary school. Anticipating school entry, according to him, deprives the child of fully experiencing this stage and can cause emotional and pedagogical damage.

The expansion of lawsuits on the age cut reflects the phenomenon of judicialization of the right to education, in which the Judiciary is called upon to fill gaps or interpretative divergences between educational standards and the expectations of families.

As analyzed by Meire Cristina de Souza (2018), the early entry of children into elementary school has become one of the main judicialized issues in the educational field. The author examined court decisions in several states (Rondônia, Alagoas, Mato Grosso do Sul, São Paulo and Rio Grande do Sul) and concluded that there is no subjective right to early enrollment. On the contrary, the decisions that remove the age cutoff violate the principle of full protection and the pedagogical autonomy of the institutions.

Also according to Souza (2018), the excessive judicialization of these issues compromises legal certainty and disregards the normative role of the National Education Council. From a different perspective, Costa and Araújo (2020) argue that the age cut, by restricting access to elementary education for children who demonstrate cognitive readiness before turning six, can hurt the principle of the best interest of the child. For these authors, the application of the rule should be flexible and allow for a case-by-case analysis based on psychopedagogical reports. Judicialization, in this case, would be a legitimate instrument for the realization of the fundamental right to education (Costa; Araújo, 2020).

However, even acknowledging the role of the Judiciary in the realization of rights,

Souza (2018) warns that the judicial function should not replace the technical-pedagogical space of public policies and that jurisdictional control should be limited to situations of manifest illegality, under penalty of disorganizing the national education system and weakening the normative authority of the CNE and the state education councils.

The principle of the integral development of the child, provided for in article 227 of the Constitution (Brasil, 1988) and in article 4 of the Statute of the Child and Adolescent (ECA) (Brasil, 1990), requires educational policies that respect the specificities of each age group. The undue anticipation of schooling can compromise socialization, autonomy and playful learning, pillars of early childhood education.

The tension between chronological age and psychological development reflects the challenge of harmonizing educational policies with developmental theories. Historical-Cultural Psychology proposes that learning precedes development, which means that teaching should anticipate the child's already formed capacities, but always respecting the limits of their zone of proximal development (Silva, 2021).

The age cut, when applied inflexibly, ignores individual differences and disregards the complexity of the educational process.

However, the suppression of this rule can generate imbalances between the stages of education and emotional overload for children, since childhood must be lived to the fullest, and not shortened by external pressures from parents or private institutions (Faustinoni; Silva, 2015).

Guglielmo and Stefanelli (2022) reinforce this point by highlighting that school readiness is not only cognitive, but also affective and social. The authors observe that children exposed early to the demands of formal education may present emotional difficulties and loss of the pleasurable bond with learning. Thus, permanence in early childhood education until the appropriate age is fundamental for the balanced development of higher psychological functions (Guglielmo; Stefanelli, 2022).

The theoretical framework outlined here demonstrates that the debate on the age cut is not limited to the setting of a date, but involves a broader reflection on the right to childhood, the role of the State and respect for the stages of human development. It is from this perspective that the performance of the courts, especially the TJMG, the object of analysis of this study, should be understood through interdisciplinary dialogue, which is capable of reconciling legal certainty with pedagogical sensitivity.

3 METHODOLOGY

The research adopted a qualitative approach, of bibliographic and documentary character, with the objective of understanding the current understanding of the Court of Justice of Minas Gerais (TJMG) on the age cutoff for entry into compulsory basic education. The qualitative method was chosen because it enables the interpretative analysis of the grounds used in judicial decisions, valuing the legal, pedagogical and principled aspects that guide the judgment of these cases.

The data collection was carried out on the TJMG website, using the expression "age cut" as a search criterion, covering the period from 2023 to 2025, in order to reflect the most recent position of the Court after the consolidation of the jurisprudence of the Federal Supreme Court on the subject.

Exclusively civil appeals were selected, as they are appeals that directly address the merits of the controversy, aiming to review lower court judgments. Other types of judgments, such as interlocutory appeals, motion for clarification, internal appeals and monocratic decisions, were excluded because they are ancillary or merely procedural in nature, without substantial analysis of the right to education or the constitutional principles involved. The identified judgments will be tabulated and examined individually, considering variables such as the date of the judgment, rapporteurship, type of appeal, legal grounds and result, allowing the identification of argumentative patterns, convergences and divergences in the TJMG's understanding of the application of the age cutoff.

4 RESULTS AND DISCUSSIONS

24 TJMG rulings were located that deal with the age cutoff for entry into compulsory basic education, all classified as civil appeals and judged in the period from January 2023 to October 2025. The sample reflects the consolidation of the Court's understanding after the national deadline of March 31 was set by the National Education Council (Resolution CNE/CEB No. 2/2018) and by the Federal Supreme Court (ADC 17 and ADPF 292). The cases analyzed are systematized in Chart 1, with an indication of the number, rapporteurship and date of judgment:

Table 1

TJMG Civil Appeals Judgment Data (Period: 2023-2025)

	TJMG Number	Date of Judgment	Rapporteur
1	1.0000.25.073819-2/003	09/10/2025	Des. Milk Square
2	1.0000.25.103815-4/001	04/09/2025	Des. Fábio Torres de Sousa
3	1.0000.24.441008-0/002	26/08/2025	Des. Renato Dresch
4	1.0000.25.008411-8/002	14/08/2025	Des. Jair Varão
5	1.0000.25.205999-3/001	14/08/2025	Des. Carlos Henrique Perpétuo Braga
6	1.0000.24.446661-1/002	12/08/2025	Des. Renato Dresch
7	1.0000.25.040736-8/001	15/07/2025	Des. Juliana Campos Horta
8	1.0000.25.052478-2/003	26/06/2025	Des. Marcus Vinícius M. Valle (JD Summoned)
9	1.0000.24.230285-9/002	12/06/2025	Des. Leopoldo Mameluque
10	1.0000.24.189007-8/002	03/06/2025	Des. Júlio Cezar Gutierrez
11	1.0000.25.003552-4/001	29/05/2025	Des. Marcus Vinícius M. Valle (JD Summoned)
12	1.0000.24.422808-6/001	08/05/2025	Des. Áurea Brasil
13	1.0000.25.009134-5/001	24/04/2025	Des. Marcus Vinícius M. Valle (JD Summoned)
14	1.0000.24.199979-6/002	14/02/2025	Des. Armando Freire
15	1.0000.23.286733-3/003	04/02/2025	Des. Renato Dresch
16	1.0000.24.397077-9/001	23/01/2025	Des. Pedro Bitencourt Marcondes
17	1.0000.24.153114-4/002	12/12/2024	Des. Luís Carlos Gambogi

18	1.0000.22.288964-4/002	26/11/2024	Des. Márcio Idalmo Santos Miranda
19	1.0000.23.061053-7/003	13/06/2024	Des. Milk Square
20	1.0000.23.272073-0/001	22/02/2024	Des. Jair Varão
21	1.0000.23.222810-6/001	23/01/2024	Des. Peixoto Henriques
22	1.0000.23.189436-1/001	27/11/2023	Des. Áurea Brasil
23	1.0000.23.170536-9/001	23/11/2023	Des. Wagner Wilson
24	1.0000.23.162679-7/001	24/10/2023	Des. Renan C. C. Machado (JD Summoned)

Source: The authors with data from TJMG (2025).

In a preliminary analysis, there is a significant growth in the number of judgments over the period, evidencing the increase in the judicialization of the subject. In 2023, three judgments were identified (October and November); in 2024, the number rose to eight decisions; and, in 2025, already in October, thirteen rulings are registered. This progression demonstrates that the debate on the age cut remains alive in the state instances, despite the consolidation of the understanding by the Federal Supreme Court, possibly due to local controversies and specific parental demands.

With regard to the rapporteurship, there is a predominance of judgments conducted by Judge Renato Dresch, responsible for three judgments. Then, Judge Marcus Vinícius Mendes do Valle, acting as a summoned judge, appears in equal prominence with three cases under his rapporteurship. Other magistrates with more than one decision on the subject were Leite Praça and Áurea Brasil, which indicates a certain dispersion of the matter between different civil chambers.

Although the survey was not restricted to a single fractional body, the decisions are mostly concentrated in Civil Chambers with competence in Public Law and Education, especially the 7th and 8th Civil Chambers, which traditionally judge claims involving the state and municipal Public Power. This institutional recurrence suggests that the controversy remains associated with lawsuits against public entities, usually municipalities responsible for enrollment and compliance with the rules of the National Council of Education.

In summary, the initial results indicate that the TJMG has been maintaining increasing attention on the issue of the age cutoff, with a tendency to consolidate the understanding aligned with federal guidelines, although the multiplicity of decisions and reports reveals the persistence of specific debates on the concrete application of the age rule and its exceptions.

The reading of the syllabuses reveals a hard core of compliance with Resolution CNE/CEB No. 02/2018 and with ADC 17/DF and ADPF 292/DF of the STF, with majority application of the objective criterion (March 31) and rejection, as a rule, of attempts at flexibility based only on psychopedagogical reports or on the "proximity" of the anniversary. A paradigmatic example of this line are judgments 1 (Leite Praça), 6 and 15 (Renato Dresch), 11 and 13 (Marcus Vinícius Mendes do Valle, JD Conv.), 14 (Armando Freire), 16 (Pedro Bitencourt Marcondes), 17 (Luís Carlos Gambogi), 19 (Leite Praça) and 21 (Peixoto Henriques), all reaffirming the constitutionality of the cut and denying enrollment when the age requirement is not met.

From the procedural point of view, two vectors appear recurrently: (i) the requirement, in a writ of mandamus, of a liquid and certain right proven by pre-constituted evidence (e.g., 11 and 13), which makes discussions that depend on evidentiary delay (psychopedagogical aptitude, pedagogical peculiarities, etc.) unfeasible; and (ii) the correction of the cooperating authority, whose incorrect indication leads to the extinction of the *writ* (3). Still in the procedural dimension, there is a record of a lateral discussion on free justice in favor of children, with an objective parameter and an un rebutted presumption (6), without interfering in educational merit.

With regard to the exceptions, the Court recognizes three clearly delimited hypotheses. The first stems from the transition rule provided for in article 5 of CNE/CEB Resolution No. 02/2018, in the sense that, if enrollment prior to the effectiveness of the rule is proven, progression to elementary school is ensured even without meeting the minimum age (2). The second corresponds to the application of the *fait accompli* theory, when enrollment was guaranteed by an injunction and the child successfully completed the stage (or year), the pedagogical and emotional situation is stabilized, which justifies its preservation (5, 10, 22 and 24).

The Court, however, rejects the automatic use of the *fait accompli* theory when it comes to precarious and recent measures, without sufficient time lapse or pedagogical consolidation, as established in case 23, except for an unsuccessful vote.

Finally, very exceptional flexibility is admitted when there is a very close proximity to the cut-off date, prior integration of the child into the class and robust demonstration of non-existence of prejudice, in light of the best interest of the child (7) and, occasionally, reasonableness (9).

Such situations, as mentioned, are a minority and depend on strong evidentiary weight in very specific circumstances; they are not to be confused with an isolated psychopedagogical opinion (8, 11, 13, 17).

In analytical summary, the case law of the TJMG (i) consolidates the binding validity of the age cut-off; (ii) restricts flexibilities to the transition rule and to situations consummated with an effective school career, or to very well demonstrated exceptionalities (proximity of a few days, integration of the student, pedagogical or psychological risk); (iii) it rejects theses based only on "aptitude" without normative support; and (iv) values legal certainty and pedagogical continuity, mitigating risks of school regression and network disorganization.

5 CONCLUSION

The present study aimed to analyze the treatment given by the TJMG to the controversy involving the age cutoff for entry into early childhood education and elementary school, based on judgments handed down between the years 2023 and 2025.

The research, of a qualitative and bibliographic nature, showed that the Court has consistently and mostly applied the deadline of March 31, set by Resolution CNE/CEB No. 02/2018, in line with the understanding consolidated by the Federal Supreme Court in actions for concentrated control of constitutionality (ADC 17 and ADPF 292). The results indicate that, although the TJMG recognizes the constitutionality and the organizing function of the age criterion, it admits specific exceptions.

Such exceptions are limited to the application of the transition rule provided for in article 5 of the aforementioned resolution, to the application of the *fait accompli* theory in consolidated situations under judicial protection and to very rare cases in which the proximity of the cut-off date and the best interest of the child justify flexibility. Such hypotheses, however, are residual and require robust demonstration of pedagogical or emotional damage, without which technical and normative rigor prevails. The analysis also demonstrates that the Court has sought to balance the full protection of the child with the need for administrative uniformity and legal certainty. By reaffirming the validity of the age cutoff, the TJMG contributes to the stability of educational policies, avoiding distortions in school enrollment

and ensuring coherence between the federal system and state jurisdictional practice. In this way, the study confirms the consolidation of a jurisprudence that is in harmony with the national education guidelines, but sensitive to exceptional situations in which the strict application of the norm may compromise the child's integral development.

Future studies can deepen the investigation from a comparative perspective, examining decisions of other state courts or the STJ to verify the degree of national uniformity of jurisprudence, as well as to evaluate the practical impacts of these decisions on the educational management of municipalities and on the formulation of public policies aimed at early childhood.

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**THE POWER GAME IN SPECIAL EDUCATIONAL POLICIES IN RECENT
DECADES**

**O JOGO DO PODER NAS POLÍTICAS EDUCACIONAIS DE EDUCAÇÃO
ESPECIAL NAS ÚLTIMAS DÉCADAS**

**EL JUEGO DE PODER EN LAS POLÍTICAS EDUCATIVAS EN EDUCACIÓN
ESPECIAL DE LAS ÚLTIMAS DÉCADAS**

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ABSTRACT

The publication of numerous Brazilian government legislation in recent decades regarding inclusion highlights the persistent political and epistemological dispute surrounding special education in Brazil, as well as the materialization of these convictions in the training of teachers and professionals in special education. This article reviews legislative discourses from recent decades, aiming to clarify the political game in which special education finds itself. Using Foucauldian Discourse Analysis and the influences of Ball's Policy Cycle as methodology, we compare the various pieces of legislation, especially the two most recent decrees in this area (Decrees 10,502 of 2020 and 12,686 of 2025), which address the topic and its variants, such as the training of professionals working in the field. The resulting findings highlight many limitations and some advances in this political game, which should be aimed at promoting the inclusion of people with disabilities.

Keywords: Special Education Policy. Inclusion. Teacher Training.

RESUMO

A publicação de inúmeras legislações pelo Governo Brasileiro, nas últimas décadas, referente à inclusão, evidencia o persistente jogo de disputa política e epistemológica sobre a educação especial no Brasil, bem como a materialização de suas convicções na formação de professores e profissionais do AEE. Este artigo faz uma revisão dos discursos legislativos, das últimas décadas, objetivando explicitar o jogo político em que a educação especial se encontra. Tendo como metodologia a Análise do Discurso Foucaultiano e as influências do Ciclo de Política de Ball é feito aqui, um confronto entre as diferentes legislações, especialmente os dois últimos decretos na área (10.502 de 2020 e 12.686 de 2025) que abordam a temática e suas variantes, como por exemplo: a formação dos profissionais que

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atuam na área. O resultado que se percebe, explicita muitos limites e alguns avanços desse jogo político que deve ser em prol da inclusão das pessoas com deficiência.

Palavras-chave: Política Educação Especial. Inclusão. Formação de Professores.

RESUMEN

La publicación de inúmeras leyes por el gobierno brasileño en las últimas décadas con respecto a la inclusión, destaca el persistente juego de disputa política y epistemológica sobre la educación especial en Brasil, así como la materialización de sus convicciones en la formación de docentes y de profesionales en Educación Especial (AEE). Este artículo revisa discursos legislativos de las últimas décadas, con el reto de aclarar el juego político en el que se encuentra la educación especial. Se utilizan el Análisis del Discurso Foucaultiano y las influencias del Ciclo de Políticas de Ball como metodología, para comparar las diferentes leyes, especialmente los dos decretos más recientes en este área (Decretos 10.502 de 2020 y 12.686 de 2025), que abarcan la temática y sus variantes, como la formación de profesionales que actúan en el área. Los hallazgos resultantes revelan muchas limitaciones y algunos avances de ese juego político, que debe ser en favor de la inclusión de las personas con discapacidad.

Palabras clave: Política de Educación Especial. Inclusión. Formación Docente.

1 INTRODUCTION

The recent publication of Federal Decree 12,686 in October 2025 explains the arena of political dispute in which inclusive special education and the training of professionals to work in the area are found. Since the promulgation of the Federal Constitution in 1988, which placed education within the scope of social rights, until 2025, when the Ministry of Education took a position on its understanding of special education with the aforementioned Decree, the country has experienced political disputes to enforce convictions of this educational modality. Political agents, managers and others interested in the area manifest a cycle of influences on public educational policies, including those aimed at the training of professionals linked to special education, as is the case of both teachers and professionals linked to Specialized Educational Service - AEE. In this way, its policies make perceptible the different and diverse lines of interpretations on how to materialize inclusive special education, as we will see in this work.

In this sense, this article aims to make a reading of the official discourses, through legislation, on this theme and analyze it from Foucaultian epistemology, in order to explain this arena of dispute and its consequences in special education and in the respective training of its professionals. The time frame was made from the publication of the National Policy on Special Education in 1994, through Decree 10,502/2020 and ending with Decree 12,686/2025.

To achieve this objective, this article is divided into two parts, and at first, the arena of disputes and the developments of Policies aimed at Special Education, from the 1990s to 2020, will be addressed. In the second moment, the implications of teacher training in the field of inclusive special education will be addressed. The result that is expected to be shown concerns the place where these two themes interrelate and meet. To make the analyses, the theoretical assumption of the Ball and Mainardes (2011) Policy Cycle will be used; the relations of Biopolitics to Michel Foucault's Discourse Analysis (2008, 2014 and 2017); the clashes in the special education policies of Kassir, Rebelo, Oliveira (2019); and the ballast of Silva's teacher training for special education (2013 and 2018).

2 GAME OF DISPUTES AFTER 1990 AND IN THE DECREES IN 2020 AND 2025

On October 20, 2025, the Federal Government published Decree 12,686, on the National Policy for Inclusive Special Education. This is explicitly opposed to Decree 10,502 of the previous Government, published in September 2020, thus making official the political

and epistemological change of this modality in the country. This was just another chapter in the dispute to influence the direction of this educational modality in the country. What is behind this dispute says about the convictions of these groups about the place of special education, the space that its subjects should occupy, and the public resources allocated to them. So, before analyzing the aforementioned Decree 10,502/2020 and Decree 12,686/2025, it is necessary to briefly resume the place that special education has occupied in recent years, in order to better understand the arena of dispute and the scenarios that it has provided in the different governments of Brazil, since the 1990s.

The 1990s inaugurated this new international scenario that had repercussions in Brazil. The Conference that took place in New Delhi (1993) directed the "Education for All" Program in the national scenario, in addition to this, the following stand out: the Jomtien Declaration (1990) and the Salamanca Declaration (1994), which made special education stop being seen as something negative, harmful to the development of a country, and become part of the educational process as a whole. As examples of the harmony between this country's agenda and the international agenda, one can cite the Brazilian educational laws aimed at special education in this period, for example: the National Policy on Special Education - PNEE (1994); the Law of Guidelines and Bases of National Education - LDB (1996); and the National Guidelines for Special Education in Basic Education (2001).

In this sense, the enactment of LDB/1996 dedicates several articles to special education, among which Articles: 04; 58; 59 and 60 stand out. In article 4, item III, it is guaranteed that specialized educational service is "free of charge to students with disabilities, global developmental disorders and high abilities or giftedness, transversal to all levels, stages and modalities, preferably in the regular school network". (BRASIL, 1996, p. 1). Thus, by enumerating the duties of the State towards public education, it is evident who is the target audience of this education and points out that its educational process would preferably take place in regular schools.

Article 58 of the aforementioned Law, on the other hand, details not only the issues related to the place where the care for these people will be provided, but also about the training of the professionals responsible for these students in schools. It is necessary to emphasize that Article 58 explains that special education belongs to the focus of policies that intend to integrate people with some specific need, by stressing "(...) its integration into the common classes of regular education." (BRASIL, 1996, p. 24). In making this definition, the

LDB/1996 points to the existence of a process of articulation in which the group that defends this principle emerges

Another highlight is in Article 59 when it defines that, in order to serve people with disabilities, global developmental disorders and high abilities or giftedness, the following will be ensured: curriculum, method, techniques, resources, specialized professionals (the approach of these will be made later).

The arena of dispute is also present with regard to the service "preferably in the regular classroom", because until then this was not the practice, since students with some disability were not attended in regular classrooms, but in their vast majority, in non-public entities specialized in the care of people with some specific need. To meet them, the LDB/1996 inserted Article 60, guaranteeing that these private institutions would have access to technical and financial support from the State, since:

The normative bodies of the education systems will establish criteria for the characterization of private non-profit institutions, specialized and exclusively active in special education, for the purpose of technical and financial support by the Government (BRASIL, 1996, p. 26).

In this sense, the 1990s were marked by the integration of Brazilian special education, in accordance with the international agenda, of people with some specific need for society in general, and by the allocation of public resources to private institutions.

In the 2000s, the application of these resources continued, but changed the principle of integration to that of inclusion. This change can be illustrated with the alternation of power in the presidency of the country. In the 1990s, the country had as president Fernando Henrique Cardoso (1995-2003), who was a founding member of the Brazilian Social Democracy Party (PSDB), whose successor in the 2000s was Luiz Inácio Lula da Silva (2003-2011), a founding member of the Workers' Party (PT). In these governments (PSDB and PT), special education policies are included in the framework of public policies aimed at social issues, "whether in the managerial organization of the governments of Fernando Henrique Cardoso, or in the State as a protagonist presented in the plans of the governments of Luiz Inácio Lula da Silva and Dilma Rousseff" (KASSAR; BROOK; OLIVEIRA, 2019, p. 5), thus reaffirming that the country was in tune with the neoliberal agenda, including partnerships between public funding and the private sector being encouraged.

Showing that the national administration was also in tune with the international agenda, Decree 3.956/2001 was promulgated, in which Brazil adhered to the Inter-American

Convention for the Elimination of All Forms of Discrimination against Persons with Disabilities, in accordance with the provisions of the Guatemala Convention in 1999. Subsequently, already under Lula's command, Decree 186/2008 was promulgated, approving the text of the Convention on the Rights of Persons with Disabilities and its Optional Protocol, signed in New York. Decree 6.949/2009, on the other hand, was enacted in accordance with the International Convention on the Rights of Persons with Disabilities and its Optional Protocol, signed in New York, which took place in 2007.

Within this political game, the people who took over this management pointed out that it was not enough for students with some specific need to be integrated into society, they needed to be included. A major milestone of this change was the process of participation of organized groups and movements, of people with some specific need, which culminated in articulations with the Executive and Legislative branches.

In the national scenario, the following Decrees stand out in the legislative agenda: Decree 5.296/2004, which regulates Laws No. 10.048/2000 and 10.098/2000 with emphasis on the Promotion of Accessibility; Decree 5.626/2005, which regulates Law 10.436/2002, which provides for the Brazilian Sign Language - LIBRAS; Decree 6,214/2007, which regulates the benefit of continued provision of social assistance due to people with disabilities and Decree 6,571/2008, which legislates on Specialized Educational Service - AEE. These Legislative Discourses are reflections of a dispute for place, since these legislative documents, referring to special education, leave the principle of integration and move to the principle of inclusion.

It can be said that it was in this same context of influence (BALL; MAINARDES, 2011) that the Statute of Persons with Disabilities, Law 13.146, was enacted on July 6, 2015. Among the various articles that point to this change in principle, Article 1 stands out in this Statute, which establishes as the duty of the State to ensure and promote "conditions of equality, the exercise of fundamental rights and freedoms by people with disabilities, aiming at their social inclusion and citizenship" (BRASIL, 2015, p. 1). Article 28, on the other hand, emphasizes that the State is responsible for

ensuring, creating, developing, implementing, encouraging, monitoring and evaluating: [...]improvement of educational systems, aiming to ensure conditions of access, permanence, participation and learning, through the provision of accessibility services and resources that eliminate barriers and promote full inclusion. (BRASIL, 2015, p. 6).

This same article points to the need to modify the content referring to the training of professionals who work in this modality, so that their curricular contents reflect the "adoption of inclusive pedagogical practices by initial and continuing education programs for teachers and the offer of continuing education for specialized educational services" (BRASIL, 2015, p. 7).

In addition to these laws, in January 2008, the National Policy on Special Education in the Perspective of Inclusive Education (PNEEPEI) was launched. Prepared by a working group with different entities linked to the area. This policy marked the new guidelines for this educational modality, which includes issues related to students and professionals, family members and the Government, school and society, among other actors.

It can be said that on September 30, 2020, there was a milestone in the change of this political game, when the Executive branch publishes Decree 10,502, which pointed to a revision of the National Policy on Special Education in force since 2008.

In order to carry out the procedures for a legal review, the MEC launched a public consultation on its official website in November 2018, receiving more than 8.4 thousand contributions, but the content was not publicized, however this amount served to support the discourse of the legitimacy of the review, under the argument that the PNEEPEI of 2008, it had not provided what it aimed at, namely: the inclusion of people with some specific need. According to the MEC managers, the educational scenario pointed to a reality full of challenges that this Policy in force would not be able to overcome. Therefore, the revision was considered essential for special education to occur as they wished.

Among the various criticisms that this revision caused, those that agreed with the need for revision deserve to be highlighted, without the need to create a *new* Policy. The National Association of Graduate Studies and Research in Education - ANPED, reacted to this provocation, publishing in November 2018, an Open Letter, in which the entity reinforces positions of disagreement with the revision of the Policy in those terms and conditions of the Draft of the National Policy on Special Education: Equitable, Inclusive and Lifelong (Under discussion). ANPED also pointed out that the MEC should provide the necessary means for it to achieve its objectives. Therefore, he stated that the State should ensure that all schools have structural, didactic and professional conditions for Specialized Educational Service - AEE; greater investment in the training of teachers to work in special education, throughout the national territory; emphasis on the educational model of special education as a manifestation of the social model of inclusion; guarantee of intersectoral actions, including

those that favor the participation of the family, understanding this participation as a right and duty of the same, in the educational process of their children. However, despite this, the MEC made public the proposal of a "new" educational policy for special education. In an interview with Rádio Jovem Pan, then minister Milton Ribeiros showed his position against inclusive special education by saying:

[...] What do we want? We don't want inclusivism. They criticize my terminology, but that's the one I continue to use. Of course, there is a disability like Down Syndrome, which there are some degrees, which the child placed there in the middle, socializes. But 12% are not able to live there [in the classroom]."⁷

However, since 2017, the Government has already shown interest in reviewing and updating the National Curriculum Guidelines for Special Education, based on the state and national standards in force on Special Education, as attempted via Public Notice No. 1/2017, which due to the reactions of entities linked to Special Education, was unsuccessful.

Anped understood that this *new* Policy actually brought in its core, an old segregationist practice, which had been overcome for a long time. The aforementioned proposal brought comparative tables between those who defend special education *versus* the defenders of inclusive education, as two antagonistic proposals. It also reinforces the pronouncement of the then minister Milton Ribeiro, when he stated that the educational service to students with some special need would be done in: Specialized Classes and Specialized Educational Service Center – CAEE, which, according to each need (visual, intellectual, physical, motor, high abilities and giftedness, deafness) would have trained professionals, could be public or private and work "in the same physical space, services are offered for all areas of special education" (BRASIL, 2020, p. 67).

However, in September 2020, the Government of Jair Bolsonaro made known Decree 10,502, which then modified this Policy in force. The Secretary of Specialized Modalities of Education of the MEC, Ilda Ribeiro Peliz, stated that the Decree represented progress and the right to choose between inclusion in common classes and attendance in special classes. This is because, in his view, this "new" PNEE ensures the right of people with disabilities to choose the best place for their educational process to take place. In this perspective, the MEC argued that both the Special Classes and the CAEE were essential for those who needed this specific monitoring. Which, in fact, was consistent with the speech, Milton

⁷ Available at: <https://www.mpmt.mp.br/portalcas/news/1013/106692/comissao-vai-discutir-fala-do-ministro-da-educacao-contra-educacao-inclusiva/922> . Accessed on: 25 out. 2025.

Ribeiro, minister of education in a live interview on TV Brasil's Sem Censura program, in August 2020, in which he states that the inclusion of students with special needs "hinders" the learning of other children without the same condition.

The mobilization and clashes of the different actors to direct the actions of the Special Education policy are expected in a democratic society. However, such actors often seem to present themselves in the superficiality of the questions: "for or against inclusion"; "against or in favor of special schools"; "inclusive education or special education". The focus on the appearance of the debate does not help to grasp all the complexity of the issues involving the educational service of the Special Education population.

These issues include the right to public schooling, the right to public health, the right to leisure, the right to one's own choices and decisions, the right to the completeness of life, etc. The recognition of this complexity also involves the perception that such issues are immersed in the debates and clashes of policies that involve all other citizens.

In this sense, the STF signaled, as Kassar, Rebelo and Oliveira (2019, p. 14) had already said, that "ensuring attention to the specificity of the Special Education population without losing the scope of the look at the social rights of every citizen is a challenge to be faced in the area of Special Education". At that time, the MEC did not want to understand this, because its managers did not understand that the lack of school inclusion between children with specific needs and neurodivergent children would not compromise an effective education. On the contrary, this inclusion in school spaces with SEA helps in the inclusion process, in ensuring learning and in respect for diversity, and above all supplants some curricular contents.

Another fact is that the management team of this *"new"* PNEE, pointed to a training of literacy teachers with the use of new methodologies, which would create educational spaces of good practices with their peers. On the other hand, organized groups, regardless of political ideology, took a position against it, as is the case of the Unibanco Institute, which affirmed the need to "[...] continue on the path of evolution of Brazilian education, and for this we need to recognize the inclusive school as important for students with disabilities as for those who do not have disabilities". Among the different arguments against it, it is possible to highlight that this *new* PNEE has the following gaps:

1. Would there be some conceptual misunderstandings, e.g., specialized educational care? Two systems of education: inclusive and special?
2. Are people with disabilities not able to live socially, creating a true *apartheid*?

3. Would there be a "normative fraud"? For him, does the notorious intention of the text contradict all perspectives of inclusion and respect for diversity, combating prejudice, valuing citizenship and guaranteeing opportunities for people with disabilities, during or after the school cycle?
4. Is there an omission of adequate public policies for the realization of the rights of people with disabilities, such as prioritization in the budget and the appreciation of teachers and other school agents?
5. Is the existence of specialized schools contrary to the idea of truly inclusive education, which presupposes a whole change in the structure of the educational system? Can the existence of specialized schools be an excuse for private regular schools not to prepare to serve students with disabilities?

In January 2023, Brazil, governed by another political group, had this decree revoked, now under the guidance of President Lula, the National Executive Branch revokes Decree 10502/2020 and begins work to publish another policy that points out different situations, through the publication of Decree 12,686/2025. From this perspective, Ball and Mainardes (2011, p. 53) state that the context of practice is where the "[...] politics is subject to interpretation and recreation and where politics produces effects and consequences that can represent significant changes and transformations in the original policy".

Therefore, although the governments of the 1990s and 2000s diverged from the principle that special education should be implemented, they agreed that teacher training needed to be included in the agenda of this policy, whether it was integrative (in the FHC government), inclusive (in the PT government), or segregationist (in the current government).

In this sense, it is essential that in the face of this arena of dispute, teacher training is also part of this work exposed here, since we understand it as essential for special education to occur, regardless of the scenario. Also according to Ball and Mainardes (2011), policies come to exist within a cycle of influences, which permeates their entire agenda, from the process of delimiting their scope, their drafting process and their application. In other words, this training of professionals is at the mercy of the cycle of influences of those who manage the policies of this educational modality, as will be stated below.

3 TRAINING OF INCLUSIVE SPECIAL EDUCATION PROFESSIONALS

These three principles (integration, inclusion and segregation), described above, illustrate the need for training professionals in the area. This is because the more these professionals have clarity on how to work, the greater the effectiveness of those who direct the national policy on special education. In the arena of this dispute for influences is the definition of what is understood - and is intended to achieve, in this guiding principle of Brazilian education, which implies the definition and dissemination of concepts, practices, vision of the human being and all the implications of special education. Both Decrees, 10,502/2020 and 12,686/2025, addressed the issue of Specialized Educational Service, opening space for questions about how their training would take place.

In line with the international agenda, which pointed to the need for the State to focus on the training of these professionals, the LDB/1996 incorporated the use of technologies in this training. When dealing with this issue, in Article 62 of this law, it is stated that "[...] teaching professionals will be able to use distance education resources and technologies" (BRASIL, 1996, p. 42), and in 2013, Article 62-A, sole paragraph, was added to this article: "Continuing education will be guaranteed for the professionals referred to in the *caput* in the workplace or in basic and higher education institutions." (BRASIL, 1996, p. 43).

In the case of integrationist education, it is necessary to remember that it was in line with the international agenda that excelled in making explicit external evaluations by giving grades for the results presented, so that the teacher needed to provide that special education students should also pay attention to the manifestation of effective results in learning.

Within this scenario, the National Policy on Special Education was launched in 1994, bringing a revision of the concepts related to this modality, as there was an "inadequacy of the curricula developed by special education teachers with students with special educational needs" (BRASIL, 1994, 32). From then on, it was understood that the teacher is the one who should make all these adaptations so that the student with some specific need was integrated into the school, understanding it as:

A gradual and dynamic process that can take different forms according to the needs and abilities of the students. Educational-school integration refers to the process of educating and teaching, in the same group, children with and without special educational needs, during part or all of the time they stay in school (BRASIL, 1994, p. 18).

For this formation to occur, the State would start to

[e]stimulate partnerships with specialized NGOs, providing teachers from the government network and ensuring rehabilitation treatment for students enrolled in NGOs. [as well:] create and/or strengthen alternative distance learning mechanisms in the training and qualification of human resources for the area of special education. (BRASIL, 1994, p. 60).

In this way, the State emphasized the practice of applying public resources destined to private entities, which were accredited as the means for professionals to seek their training/qualifications in the various areas of special education, whether face-to-face or at a distance, with the use of technologies.

In the case of inclusive education, one can cite Law 10.436/2002, which dedicates one of its five articles to teacher training, in which it is stated that federated entities "[...] must ensure the inclusion in Special Education, Speech Therapy and Teaching courses, at their secondary and higher levels, of the teaching of Brazilian Sign Language." (BRASIL, 2002, p. 1). This Law was regulated by Decree 5.626/2005, and made explicit in the PNEEPEI, launched in 2008, in order to guide all professionals linked to inclusive special education, focused on attention to diversity and school inclusion, modifying the PNEE/1994.

Still on the legislative discourse, another important fact concerns the launch of the MEC, of the PNEEPEI in 2008 with regard to the attributions of the SEA. This Policy is presented with the explanation of who is the target audience of special education; makes a diagnosis of these students in the country, resumes aspects of the legislation interrelated with the theme (in addition to those mentioned above, the document also reports to CNE/CP Resolution No. 01/2012 and MEC Ordinance No. 2,678/2002, among others), etc.

Although it does not have a specific topic on the training of SEA professionals, this PNEEPEI reaffirms this issue present in previous laws, such as Law 10.436/2002 and Decree 5.626/2005, Ordinance 2.678/2002, among others, and addresses the issue by stating that one of its objectives is the "training of teachers for **specialized** educational service and other professionals in education for inclusion" (BRASIL, 2008, p. 14, emphasis added), which implies that this professional has "general knowledge for the exercise of teaching and specific knowledge of the area" (BRASIL, 2008, p. 16), which provides the inclusion of students with disabilities.

In relation to this aspect, research published by Jacaúna Neto (2021) shows that the vast majority of inclusive special education professionals do their training outside working hours and at home:

[...] the vast majority, 86%, took the course outside their working hours, that is, contrary to the provisions of Article 62-A, of Law 9.394/96: that this training should take place during working hours, the fact that this is not effective, explains the absence of the State in complying with the law. (JACAÚNA NETO, 2021, p. 144)

This makes explicit a transfer of responsibility to the inclusive special education professional, of a task that is/was of the State, with all the implications and burdens that this may entail. Thus, this research demonstrated that, regardless of who took over the Government of the Brazilian State, there was/is a transgression and an impropriety of its own legislation, or, in the words of Foucault (2017, p. 90), there was "[...] an action for silence [...]".

In this sense, what Foucault (2014, p. 50) says about the duality between legal discourse and government practice is kept in mind, because "[...] discourses must be treated as discontinuous practices that intersect, that sometimes juxtapose each other, but that also ignore or exclude each other." And, when it comes to teacher training for special education, the reality pointed out in the research indicates that these Governments ignore or exempt themselves from responsibility in the arena that includes public investment (human/technical and financial) in compliance with the Law for teacher training.

When carrying out their training outside the place and working hours, professionals face an extra and unpaid workday, which adds to the demands of their school routine. In addition, they often bear the costs of courses and training. In other words, the teacher dedicates additional hours - at home, at night or on weekends - to continuing education, sacrificing social and family relationships. This overload, although essential for professional improvement, has repercussions on physical and mental health, since the intellectual work required by studies intensifies the fatigue and exhaustion already present in the exercise of teaching.

By failing to comply with the sole paragraph of Article 62A, the management of the State causes the professional to end up having to become a "[...] entrepreneur of himself, being himself his capital, being for himself its producer, being for himself the source of [his] income" (FOUCAULT, 2008, p. 311), including managing his own schedules and resources to undertake the provision of special education. In the same direction, Araujo (2016) corroborates this idea by stating that

[...] generally, in emergency in-service teacher training programs, the government and educational institutions delegate to teachers the responsibility for their training, as they do not assume their task of ensuring real conditions so that they can achieve their

professional development with dignity. The teachers who attend the courses study at times that are stealthy to the obligations of teaching and domestic work, since they are mostly women, penalized by a double or triple workday. In this way, they are deprived of leisure and rest time. (Araújo, 2016, p. 95)

Although the authors point out only the teachers, it is seen that this is also a reality for other professionals, for example, those in the SEA. This points out that, in addition to the legislation, it is necessary to offer means and conditions for these professionals to carry out their training for special education within their working hours, mitigating the physical, affective, emotional and financial overload.

In the same direction, Silva (2013) highlights some aspects that evidence the entrepreneurial posture assumed by the teacher who seeks this type of training. This is because most of these professionals already work 40 hours a week, having little time to dedicate to their studies. Faced with this reality, the teacher ends up having to:

1. Give up their time for rest, leisure, family personal care;
2. Paying for *internet* access in their homes, or on their cell phones, which due to financial difficulties, can be of low quality, resulting in the non-viewing of some materials, such as videos.
3. Most of these professionals belong to a generation that still has little mastery of Information and Communication Technologies (ICTs), which can lead to the non-use of all the content that the tool/platform provides.
4. Because they take the course at night or on weekends, these teachers cannot get technical support, such as an online moderator.

As in the case of the special education professional, the teacher is also required to have a range of other knowledge, in addition to that studied in the undergraduate course, that is, it is not only up to the experience of the popular saying that says that "one learns to do by doing". Thus, it is necessary to know some specificities that go beyond practical learning, since the exercise of teaching in special education has not always been recognized and treated as such – because this dedication was erroneously understood as a donation, vocation, oblation mission, it is understood that their professional development is the result of a process that contemplates the experience of a theoretical formative itinerary.

If at another time in history, to work with special education students, it was enough to have good will and enjoy helping in the teaching and learning process of people with specific

needs, today, to exercise this profession, a minimum training in the academy is required, which also provides the mastery of pedagogical procedures and the necessary qualification for its exercise. Regardless of which principle is applied, this training is at the same time an obligation of the State, and it is also a right and a duty of the professional in education, because as Silva (2010, p. 15) points out,

[...] In addition to having the right to participate in continuing education programs and projects, they have at the same time the duty to carry it out, as a way of guaranteeing their students the possibility of enjoying a better quality schooling process, because the fact that they are in a permanent training movement keeps them up to date with the scientific and pedagogical advances that will support them in their daily school life.

In the publication of Decree 12,686/2025, it is clear that the gaps of the previous policies have not been fully overcome. Among them, the training of the SEA professional. This is because this new decree, which revoked the previous policy (Decree 10.502/2020) and reaffirms the inclusive model of the International Convention on the Rights of Persons with Disabilities, has generated heated debates. Some collectives of People with Disabilities claim on social networks that they were not invited to participate in the elaboration of this policy. Perhaps for this reason, it is possible to perceive some limits or setbacks in this Decree, among which the following stand out:

Possible weakening and uncertainty for Specialized Institutions, considering that the Decree, by focusing on inclusion in regular schools, restricts the performance of public or affiliated Specialized Educational Service Centers (CAEEs) (such as APAEs). Specialized Educational Service (SES) in these institutions can only occur in an "exceptional" manner (Art. 9). The Decree does not make it clear what the criteria will be to define what is "exceptional", generating insecurity.

Flexibility of SEA Teacher Training. Article 13 of the Decree defines that the SEA teacher must have initial training (licentiate) and "preferably" specialization in Special Education, with a minimum workload of 80 hours. By using the term "preferentially" and the low workload (80 hours), the Decree points to a possible devaluation of specialized training and the technical expertise necessary for inclusive special education.

Lack of Practical Guidelines. The Educational Service Plan (PAE), which should be the main instrument for personalizing education, is mentioned, but the Decree does not

bring clear objectives, responsibilities and detailed and rigorous monitoring mechanisms, which can result in a great lack of uniformity in its application.

Lifelong Education. This Decree preserved this premise present in the previous Decree (10.502/2020), which led Senator Flávio Arns, on 10/21/2025, to be a spokesperson for critics when he defended its suspension, claiming that it limits care to 17 years of age, disregarding the principle of lifelong education and the need for continuing education for people with disabilities.

Mainardes (2006), when resuming Ball's Policy Cycle, also touches on this issue by saying that it is not enough to have the publication of a law, because it is the context of the practice of the policy (of the application) of a law, which will provide its applicability. It is according to the place of the effects and consequences of the implementation, interpretation and recreation that a law is assumed, as in this case it can be seen that "[...] texts are products of multiple influences and agendas and their formulation involves intentions and negotiation within the State and within the process of formulating educational policy". (MAINARDES, 2006, p. 53).

In other words, the teacher who works in special education needs to have a theoretical and practical foundation that shares the demands of their students. In this way, it will be able to contemplate both the specificities and needs, as well as the particularities of the different forms of action of Inclusive Special Education. The researcher also states that, in addition to teachers having the right to participate in continuing education programs and projects, they also have the duty to carry it out, as a way of guaranteeing students the possibility of enjoying an educational process (SILVA, 2010), since these teachers are in a permanent movement of training.

Silva's (2010) position is contrary to what is practiced, which also contradicts the legislative discourse (LDB/1996). This is because the positioning of these researchers and data from special education teachers allow us to perceive that the official discourses of the Government constitute a dynamic process that points to a permanent improvement in education, in the appreciation of the teacher, in the quality of inclusive education, especially in the daily lives of people who have some type of disability, both for what they say/do, as well as for what they do not say/do. In this sense, Foucault highlights the importance of considering not only who speaks - whether a private education entrepreneur, politician, researcher or teacher - but also the institutional place that this person occupies (FOUCAULT,

2018). In the case analyzed here, an intentional gap between discourse and political practice was perceived, which reflects on teacher training, because even having legal means to train and promote the inclusion of all students, this does not occur according to the provisions of the official discourse present in the laws.

As previously described, the different levels of the country's Executive Branch did not pay attention to developing public educational policies of the State, which would go beyond the period in which their political groups were at the head of the country. One of the reasons for continuing education is to meet the needs, the gaps that initial training entails, since it does not have the obligation (and would not be able) to offer the training conditions for the different areas of action in special education. Thus, this State produces a discourse of professional valorization, publishing educational policies and providing the emergence of offers of courses from public and private entities simultaneously for the training of teachers in special education. At the same time, reality points to the non-compliance of the State itself, of Laws that it should be the first guardian, causing teachers who seek training in the area of special education to have to give up their hours of rest and family life, to train themselves.

4 CONCLUSION

The clashes of this arena of dispute over special education, involving different actors, are expected in a democratic society. However, such actors often seem to be more interested in defending their ideologies than the target audience of special and inclusive education, as is the case with Decree 10,502/20. In the superficiality of the questions: "against or in favor of inclusion"; "against or in favor of special schools"; "inclusive education or special education" etc.

This Decree disregarded the educational process (especially for students with some specific need), and all the complexity that involves the teacher of/in educational service, which aims at the growth of the student as a whole, including not involving entities from different groups linked to special and inclusive education.

As pointed out in this study, in the PSDB and PT governments, the issues of special education included the right to public schooling, the right to public health, the right to leisure, the right to one's own choices and decisions, and the right to the completeness of life. The recognition of this complexity also involves the perception that such issues are immersed in the debates and clashes of the policies that promoted Special Education, without losing the scope of the look at the social rights of every citizen, it is a challenge to be faced in the area.

From the 1990s to 2017, what was perceived was an arena of dispute that ended up promoting special education. However, in 2017 a proposal emerged that, materialized in 2020, goes backwards, especially because it signals that people with some specific need would not be able to live with the whole society. In 2020, a Decree appeared, whose discourse was for a "new" policy for Special Education, which did not take shape.

Now, in 2025, there is the publication of another Decree that points to a new policy in the area. The focus of special education must always remain on the student. Therefore, regardless of the disputes and changes in educational policies, it is their voice that needs to be heard in the daily school life for inclusion to happen effectively. In this sense, the training of professionals who work in the area becomes an essential element in the formulation and implementation of truly inclusive public policies.

For the inclusion of people to occur, it is essential that SEA teachers and professionals have specific training in the area, as provided for in Art. 62 and Art. 62A of LDB/1996, working conditions with didactic material, use of new methodologies and technologies, assistive technologies to create educational spaces of good practices, aimed at this inclusion.

In summary, it is necessary to reaffirm that inclusion is not only intended for students with specific needs, but for the entire academic community. It is about ensuring equal opportunities, recognizing and valuing diversity and promoting learning for all, with or without disabilities. The school must be consolidated as a space for coexistence and plural socialization, in which each subject is assured the right to belong. Although much has already been achieved, it is essential to maintain vigilance to avoid setbacks, as the dispute for a truly inclusive education still persists – especially in the face of those who resist the presence of those they consider "different" in the same spaces as those considered "normal". The struggle, therefore, continues!

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PEER TUTORING: A RESOURCE TO ENHANCE COLLABORATIVE LEARNING

MONITORIA ENTRE PARES: UM RECURSO PARA POTENCIALIZAR A APRENDIZAGEM COLABORATIVA

TUTORÍA ENTRE PARES: UN RECURSO PARA POTENCIAR EL APRENDIZAJE COLABORATIVO

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ABSTRACT

The present text describes a pedagogical experience of peer tutoring implemented in Middle School at SESI Dourados. It is a case study that demonstrates how interaction among classmates can enhance collaborative learning, student protagonism, and equity. The methodology consists of pairing students with greater mastery of the content with classmates facing difficulties, referred to respectively as “angels” and “mortals.” The experience revealed improvement in academic performance, especially in formative activities, and a reduction in status differences among students. The conclusions reinforce the importance of teacher mediation and the appreciation of multiple intelligences to promote more democratic and effective learning environments.

Keywords: Peer Tutoring. Collaborative Learning. Basic Education. Equity. Student Protagonism.

RESUMO

O presente texto descreve uma experiência pedagógica de monitoria entre pares implementada no Ensino Fundamental II da Escola SESI Dourados. Trata-se de um estudo de caso que evidencia como a interação entre colegas pode potencializar a aprendizagem colaborativa, o protagonismo estudantil e a equidade. A metodologia consiste na formação de duplas entre estudantes com maior domínio dos conteúdos e colegas com dificuldades, nomeados respectivamente de “anjos” e “mortais”. A experiência revelou melhora no desempenho acadêmico, especialmente nas atividades formativas, e redução das diferenças de status entre os alunos. As conclusões reforçam a importância da mediação docente e da valorização de múltiplas inteligências para promover ambientes de aprendizagem mais democráticos e eficazes.

Palavras-chave: Monitoria Entre Pares. Aprendizagem Colaborativa. Educação Básica. Equidade. Protagonismo Estudantil.

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RESUMEN

El presente texto describe una experiencia pedagógica de tutoría entre pares implementada en la Educación Secundaria de la Escuela SESI Dourados. Se trata de un estudio de caso que evidencia cómo la interacción entre compañeros puede potenciar el aprendizaje colaborativo, el protagonismo estudiantil y la equidad. La metodología consiste en la formación de parejas entre estudiantes con mayor dominio de los contenidos y compañeros con dificultades, denominados respectivamente “ángeles” y “mortales”. La experiencia reveló una mejora en el rendimiento académico, especialmente en las actividades formativas, y una reducción de las diferencias de estatus entre los alumnos. Las conclusiones refuerzan la importancia de la mediación docente y de la valoración de las inteligencias múltiples para promover entornos de aprendizaje más democráticos y eficaces.

Palabras clave: Tutoría entre Pares. Aprendizaje Colaborativo. Educación Básica. Equidad. Protagonismo Estudiantil.

1 INTRODUCTION

Although it is not exclusive to higher education, it is common to observe monitoring programs implemented in universities. Some of these initiatives take place on a voluntary basis, while others are structured with scholarships. This practice aims to strengthen peer learning, develop self-regulation, and promote student autonomy.

In this context, monitoring is understood as a teaching modality that enables the exercise of collaboration, student protagonism and metacognition, allowing the monitored to develop their autonomy based on horizontal interactions mediated by the more experienced colleague. As Frison (2016) points out, "monitoring enhances both the academic performance of the students served and the development of the teaching and learning skills of the monitors themselves" (p. 8).

Collaborative learning, according to Johnson & Johnson (2018), promotes not only cognitive development, but also socio-emotional skills, such as empathy, active listening, and co-responsibility. Dillenbourg (1999) reinforces that peer collaboration favors the joint construction of knowledge, while Laal & Ghodsi (2012) highlight its benefits for student motivation and engagement.

However, peer monitoring can also be used as an effective strategy for collaborative learning in basic education, as illustrated by the present experience report carried out at the SESI Dourados School. Based on the challenges observed in Portuguese language classes, the teacher of the discipline identified that the students' performance improved significantly when colleagues worked in partnership. This finding revealed an opportunity to value the heterogeneity present in the classroom, through equitable practices.

Inspired by this perception, the teacher began to invite students with a more advanced level of reading and interpretation of texts, and who also showed empathy and willingness to collaborate. These students were called "angels", a nomenclature already used by the school in its robotics tournament to designate monitors. Students who needed support — spontaneously named as "mortals" — were accompanied by these colleagues in specific activities.

This methodology has been applied for five years with classes from the 6th to the 9th grade of Elementary School, and in some periods it also had the participation of the Mathematics discipline. A relevant characteristic of this practice is the flexibility of the functions: a student can be an angel in one discipline and a mortal in another, promoting the balance of academic status in the classroom. This is in line with the proposal of Lotan (2006),

who argues that teachers should deliberately intervene in group interactions to reduce inequalities and expand opportunities for participation: "teachers successfully combat a crystallized socialization in an inverse way" (Lotan, 2006, p. 28).

The angel's role is to help his or her monitor during classroom activities, either through explanations, support in the creation of study schedules, or the suggestion of complementary materials with the guidance of the teacher. The constant monitoring of the teacher ensures the mediation of relationships and adjustments when necessary, ensuring an environment of trust and collaboration.

Although the results are mostly positive, some challenges are presented, such as the difficulties that some students face in offering or accepting help. In addition, the absence of commitment or low self-motivation can interfere with the success of the partnership. However, the benefits have been consistent, especially in the performance of students in formative assessments and in group dynamics, in which students show greater effort and confidence in their abilities.

This type of initiative is directly related to what Lotan (2006) calls the attribution of competence, a strategy that seeks to value relevant contributions from students with lower academic status, favoring participation and equitable engagement: "when students begin to understand that many different intellectual skills are necessary to complete the task [...] they come to trust each other as useful academic and linguistic resources for the group's effort" (Lotan, 2006, p. 37).

In addition, authors such as Mantoan (2015) and Aranha (2007) reinforce that inclusive and equitable practices must consider not only physical access to school, but also access to real learning opportunities. Peer monitoring, in this sense, acts as a tool for the democratization of knowledge, promoting fairer and more collaborative environments. As Mantoan points out,

The prospect of forming a new generation within an inclusive educational project is the result of the daily exercise of cooperation and fraternity, of recognition and the value of differences, which does not exclude interaction with the universe of knowledge in its different areas. With all this, I mean that a school for all does not ignore academic content, does not despise scientific, systematized knowledge, but is also not restricted to instructing students, to 'dominate' them at all costs (MANTOAN, 2015, p. 15).

This view reinforces that collaborative learning is not just a pedagogical strategy, but an ethical principle that guides the construction of more inclusive educational environments,

in which all students are recognized as subjects capable of contributing and learning together. In the same sense, Aranha (2007) states: "As a mediating instance, pedagogical action makes possible the relationship of reciprocity between individual and society. Unlike indoctrination, true education tends to dissolve the asymmetry between the educator and the student." (ARANHA, 2007, p. 51)

This perspective dialogues directly with the proposal of peer monitoring, which promotes horizontal and collaborative relationships, favoring the construction of bonds of trust and mutual respect among students.

2 EXPANSION PROPOSAL

The proposal to expand the project "Angels and Mortals of Portuguese Language" seeks to strengthen collaborative learning and student protagonism through peer monitoring, now also extended to High School. The initiative aims to mobilize students with greater mastery of the subject to support colleagues with difficulties in reading, writing, grammar and interpretation. In addition to offering academic support, the proposal seeks to develop socio-emotional skills such as empathy, responsibility, and leadership. The project is structured in two nuclei: the "Angels", students from the 8th and 9th grades who accompany the students from the 6th and 7th grades, and the "Mortals", students from the 2nd and 3rd years of High School who work with the 1st year students, both in person and in virtual environments.

The methodology includes after-school monitoring, continuous support via WhatsApp, thematic reviews, and academic monitoring with a focus on student autonomy. The selection process is detailed and seeks to identify committed and collaborative students. The evaluation of the project will take place through monthly meetings, self-evaluations and feedback from the participants, culminating in the certification of those involved. With this expansion, the school reaffirms its commitment to a democratic and solidary education, in which the students themselves become agents of knowledge and mutual care.

3 PARTIAL RESULTS IN ELEMENTARY EDUCATION

The implementation of peer monitoring in the 3rd bimester revealed significant impacts on the academic performance of students in the 6th and 7th grades of Elementary School. The program had the participation of 28 students, 16 from the 6th grade and 12 from the 7th grade, accompanied by "Angel" monitors previously selected based on criteria of empathy, mastery of the contents and willingness to collaborate.

The overall average of the classes went from 6.0 in the 2nd bimester to 7.2 in the 3rd bimester, showing a significant recovery. The analysis by performance ranges shows that 75% of the students showed an improvement in their grades, while 18% maintained stability and only 7% recorded a significant drop, which reinforces the effectiveness of the intervention.

Individual progress was also remarkable, with some students raising their averages by as much as 4.8 points. These results were observed in both the 6th and 7th grades, demonstrating that personalized monitoring contributed to the strengthening of the participants' learning and self-confidence.

In addition to the academic gains, the program promoted greater student engagement and created a more welcoming and collaborative environment. The presence of the monitors favored the construction of positive bonds and the valorization of multiple intelligences, as proposed by Lotan (2006), by reducing inequalities and expanding opportunities for participation.

Despite the mostly positive results, two specific cases require individualized attention, reinforcing the importance of continuity of monitoring and teacher mediation to ensure that all students benefit from the proposal.

4 FINAL CONSIDERATIONS

The practice of peer monitoring, as described in this report, is an effective pedagogical tool to promote collaborative learning, reduce inequalities and develop socio-emotional skills. By transforming students into active agents of the teaching and learning process, the school contributes to the integral formation of students and to the construction of a culture of cooperation and mutual respect. The possibility of expanding the project is a positive response to the methodology used and proof that there are many paths to follow and ensure autonomy in relation to the learning process.

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**THE ROLE OF THE EDUCATIONAL MODALITY YOUTH AND ADULT
EDUCATION – HIGH SCHOOL LEVEL**

**O PAPEL DA MODALIDADE DE ENSINO EDUCAÇÃO DE JOVENS E ADULTOS
- NÍVEL MÉDIO**

**EL PAPEL DE LA MODALIDAD EDUCATIVA EDUCACIÓN DE JÓVENES Y
ADULTOS – NIVEL MEDIO**

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ABSTRACT

Youth and Adult Education (EJA) stands as one of the fundamental pillars of contemporary Brazilian education, aimed at correcting historical inequalities and ensuring the universal right to schooling. This article seeks to analyze the role of EJA at the secondary level, discussing its historical foundations, legal frameworks, and public policies, as well as the methodologies and pedagogical practices that foster social inclusion and citizenship formation. The research adopts a qualitative and bibliographic approach, based on contemporary theoretical references and institutional documents such as the National Curriculum Guidelines and UNESCO reports, to understand the relevance of this educational modality within the Brazilian context. The theoretical analysis indicates that EJA represents more than a formal educational space, becoming an environment of emancipation and appreciation of popular knowledge, fostering autonomy, critical thinking, and social awareness. Furthermore, the effectiveness of EJA depends on the continuity of public policies, the strengthening of teacher training, and the expansion of structural investments. Therefore, EJA is reaffirmed as a key instrument for inclusion, equity, and social transformation, indispensable to building a more just and democratic society.

Keywords: Youth and Adult Education. Social Inclusion. Citizenship. Public Policies. Human Development.

RESUMO

A Educação de Jovens e Adultos (EJA) constitui-se como um dos pilares fundamentais da educação brasileira contemporânea, voltada à reparação de desigualdades históricas e à garantia do direito universal à escolarização. O presente artigo tem como objetivo analisar o papel da EJA no nível médio, abordando seus fundamentos históricos, marcos legais e políticas públicas, bem como as metodologias e práticas pedagógicas que favorecem a inclusão social e a formação cidadã. A pesquisa, de abordagem qualitativa e natureza bibliográfica, baseou-se em referenciais teóricos contemporâneos e documentos institucionais, como as Diretrizes Curriculares Nacionais e relatórios da UNESCO, buscando compreender a relevância dessa modalidade no contexto educacional brasileiro. Os resultados da análise teórica apontam que a EJA representa mais do que um espaço de

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ensino formal, constituindo-se como ambiente de emancipação e valorização dos saberes populares, ao possibilitar o desenvolvimento da autonomia, do pensamento crítico e da consciência social. Além disso, evidencia-se que a efetividade da EJA depende da continuidade de políticas públicas, do fortalecimento da formação docente e da ampliação de investimentos estruturais. Assim, reafirma-se que a EJA é instrumento de inclusão, equidade e transformação social, sendo indispensável à construção de uma sociedade mais justa e democrática.

Palavras-chave: Educação de Jovens e Adultos. Inclusão Social. Cidadania. Políticas Públicas. Formação Humana.

RESUMEN

La Educación de Jóvenes y Adultos (EJA) se consolida como uno de los pilares fundamentales de la educación brasileña contemporánea, orientada a reparar las desigualdades históricas y garantizar el derecho universal a la escolarización. Este artículo tiene como objetivo analizar el papel de la EJA en el nivel medio, abordando sus fundamentos históricos, marcos legales y políticas públicas, así como las metodologías y prácticas pedagógicas que promueven la inclusión social y la formación ciudadana. La investigación, de enfoque cualitativo y carácter bibliográfico, se basó en referencias teóricas contemporáneas y documentos institucionales, como las Directrices Curriculares Nacionales y los informes de la UNESCO, para comprender la relevancia de esta modalidad educativa en el contexto brasileño. El análisis teórico demuestra que la EJA es más que un espacio de enseñanza formal, convirtiéndose en un ambiente de emancipación y valorización de los saberes populares, al fomentar la autonomía, el pensamiento crítico y la conciencia social. Asimismo, se destaca que la efectividad de la EJA depende de la continuidad de las políticas públicas, del fortalecimiento de la formación docente y de la expansión de las inversiones estructurales. De este modo, se reafirma que la EJA es un instrumento de inclusión, equidad y transformación social, indispensable para la construcción de una sociedad más justa y democrática.

Palabras clave: Educación de Jóvenes y Adultos. Inclusión Social. Ciudadanía. Políticas Públicas. Desarrollo Humano.

1 INTRODUCTION

Youth and Adult Education (EJA) is a fundamental modality of the Brazilian educational system, aimed at guaranteeing the right to education to individuals who, for different reasons, did not complete their studies at the regular age. According to Haddad and Di Pierro (2023), EJA represents a historic achievement resulting from intense social struggles in favor of the democratization of education, acting as an instrument of inclusion and reparation of structural inequalities. In Brazil, from the Law of Guidelines and Bases of National Education (Law No. 9,394/1996), the modality officially became part of basic education, assuming the commitment to serve young, adult and elderly subjects who seek schooling as a means of social emancipation (BRASIL, 1996). In this context, EJA consolidates itself as a public policy that transcends the pedagogical dimension, articulating itself with processes of social, cultural and economic transformation.

The relevance of EJA lies in its role in promoting social justice, enabling equitable access to knowledge and valuing the individual and collective trajectories of students. According to Carvalho (2021), this modality should be understood not as a compensatory mechanism, but as an emancipatory strategy, aimed at critical and citizen education. This perspective dialogues with Freire's thought, by understanding education as a practice of freedom and as a process of collective construction of knowledge. Thus, EJA reaffirms the ethical and political commitment of public schools to ensure conditions for continuous learning, contributing to the consolidation of a more democratic and inclusive society.

Despite its advances, EJA still faces significant challenges in the contemporary educational landscape. Studies by Catelli Junior and Haddad (2022) show the persistence of high dropout rates, insufficient funding, and the precariousness of supply conditions. In addition, the absence of lasting public policies compromises the continuity of actions aimed at the modality, weakening the training of teachers and the quality of teaching. This reality reveals a social and political gap that needs academic investigation, since EJA, in its function of inclusion, still lacks effective recognition as a State policy and pedagogical strategies that ensure the permanence and success of students.

In view of this panorama, this article proposes to analyze the role of the Youth and Adult Education – high school teaching modality, discussing its theoretical foundations, its public policies and its social and pedagogical impacts. The research problem that guides this study can be summarized in the following question: how does EJA contribute to social inclusion and the citizenship formation of young people and adults in contemporary

Brazil? The choice of the theme is justified by the need to understand how educational practices and the legal frameworks that sustain EJA influence the exercise of citizenship and the democratization of knowledge, especially in a context of persistent inequality and intense social transformations.

As for the methodology, the study adopts a qualitative approach, of descriptive and analytical character, based on bibliographic research. Reference works, scientific articles, institutional reports, and official documents were consulted, such as the National Curriculum Guidelines for Youth and Adult Education (BRASIL, 2020) and the UNESCO World Report on Adult Learning 2022 (United Nations Educational, Scientific and Cultural Organization, 2022). The theoretical analysis was developed from the critical and comparative reading of authors who discuss EJA under the historical, political, pedagogical and social dimensions, allowing a comprehensive understanding of its relevance and its current challenges.

It is hoped that this research will contribute to the strengthening of the academic and political debate around EJA, by highlighting its transformative potential and its importance for the consolidation of education as a fundamental human right. According to Souza and Almeida (2021), valuing EJA implies recognizing the diversity of its subjects and the complexity of their demands, promoting an education that goes beyond the limits of formal schooling and achieves comprehensive education. Thus, the present work intends to broaden the understanding of the role of EJA in social inclusion and citizenship formation, reaffirming its centrality as an indispensable public policy for the construction of a more just, critical and egalitarian society.

2 CONCEPTIONS AND HISTORICAL FOUNDATIONS OF YOUTH AND ADULT EDUCATION (EJA)

Youth and Adult Education (EJA) has historically been consolidated as an essential modality to guarantee the right to education to those who, for various reasons, did not complete basic education at the regular age. According to Haddad and Di Pierro (2023), EJA emerges as a political and social response to the structural inequalities of the Brazilian educational system, being the result of popular struggles and social movements that claimed universal access to knowledge and citizenship. This modality is part of the broader context of democratization of education, especially from the second half of the twentieth century onwards.

According to Carvalho (2021), EJA represents more than a compensatory space for schooling; it assumes the role of an instrument of social and political emancipation. The author highlights that contemporary conceptions of EJA have been guided by principles of inclusion and equity, considering the cultural, social and economic specificities of its students. Thus, the modality consolidates itself as a pedagogical field committed to social transformation, which distances it from a merely assistentialist vision.

The legal framework of EJA was established by the Law of Guidelines and Bases of National Education (Law No. 9,394/1996), which recognizes the right to education for all at any age (BRASIL, 1996). This document legally consolidated EJA as a modality of basic education, defining its objectives, target audience and forms of offer. Subsequently, the National Curriculum Guidelines for Youth and Adult Education reinforced the need to build contextualized and socially significant pedagogical practices, aimed at the integral formation of subjects (BRASIL, 2020).

The trajectory of EJA in Brazil is marked by influences from critical pedagogical currents, especially the ideas of Paulo Freire. According to Machado (2020), Freire's thought contributed decisively to the understanding of education as a practice of freedom, defending the centrality of dialogue, critical awareness, and the valorization of popular knowledge. This perspective has become the foundation of policies and methodologies aimed at the education of young people and adults.

Catelli Junior and Haddad (2022) point out that the history of EJA reflects the contradictions of Brazilian social development. While it advances in the recognition of the right to education, it also faces setbacks resulting from political and budgetary discontinuities. The authors point out that, in recent decades, EJA has oscillated between inclusive policies and fiscal containment measures that compromise its continuity and effectiveness.

In the Latin American context, Rodríguez (2021) observes that youth and adult education is a strategic element for educational justice. The author highlights that EJA should be understood as part of a social project aimed at overcoming structural inequalities, promoting the inclusion of historically marginalized groups. This understanding broadens the horizon of EJA beyond formal schooling, incorporating social, cultural and economic dimensions.

The World Report on Adult Learning 2022, published by UNESCO, reinforces that lifelong learning is a human right and a fundamental requirement for sustainable development (UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION,

2022). This international understanding legitimizes EJA as an integral part of global education policies and as a tool for building more equitable and resilient societies.

The research by Freitas and Santos (2022) shows that EJA students carry trajectories marked by multiple forms of educational and social exclusion. These authors identify that late access to school, dropout and precarious teaching conditions reflect historical inequalities that the modality seeks to repair. The permanence of these subjects depends, therefore, on pedagogical practices that value their experiences and knowledge.

In this sense, Mendonça (2019) argues that EJA should be understood from the diversity of its participants, which requires a flexible and inclusive curriculum. The author proposes a curricular approach that considers the plurality of sociocultural contexts, recognizing that the educational process needs to dialogue with the concrete realities of the students and promote meaningful learning.

The pedagogical dimension of EJA also involves teacher training. According to Martins and Oliveira (2024), the EJA teacher must have specific skills to deal with the heterogeneity of classes and the demands of adult subjects. This training must articulate theory and practice, contemplating didactic, political and cultural aspects, in order to favor the protagonism of students and the collective construction of knowledge.

The use of innovative methodologies has been pointed out as a determining factor for the success of EJA. Lima (2023) argues that active methodologies, when adapted to the profile of the students, can favor autonomy and engagement, transforming the classroom into a space for sharing and critical reflection. This pedagogical perspective is close to Freire's conception of dialogical and participatory education.

Studies by INEP (2024) indicate that, although the number of enrollments in EJA varies over the years, the modality still plays a relevant role in reducing illiteracy rates and expanding access to basic education. Data from the School Census show that there is a higher concentration of enrollments in regions with lower human development indexes, evidencing the social and compensatory character of EJA in the national context.

Souza and Almeida (2021) point out that EJA plays an essential role in the social and economic development of the country, by enabling individuals previously excluded from the educational system to enter the labor market with greater qualification. For the authors, the valorization of EJA as a permanent public policy is an indispensable condition for the strengthening of citizenship and for the promotion of social justice, reaffirming its historical role in the consolidation of human and educational rights.

3 PUBLIC POLICIES AND LEGAL FRAMEWORKS FOR EJA IN BRAZIL

Youth and Adult Education (EJA) in Brazil is the result of a historical process of social struggles for the expansion of the right to education and for the inclusion of historically marginalized segments. According to Haddad and Di Pierro (2023), the consolidation of EJA as a public policy stems from a movement that involves both civil society and the State, being guided by principles of social justice and equal opportunities. The institutionalization of EJA occurs with the enactment of the Law of Guidelines and Bases of National Education – LDB No. 9.394/1996, which officially recognizes this modality as an integral part of basic education, ensuring the right to schooling at any stage of life (BRASIL, 1996).

The legal bases of EJA are reinforced by the National Curriculum Guidelines for Youth and Adult Education, approved by the National Education Council, which guide pedagogical practices and training principles aimed at the education of people who have not completed regular education (BRASIL, 2020). According to these guidelines, EJA must be anchored in the principles of equity, difference and proportionality, recognizing the particularities of adult subjects and their life trajectories. This conception breaks with the idea of a compensatory education and proposes an integral education aimed at emancipation and the full exercise of citizenship.

Carvalho (2021) highlights that EJA policies represent a field of ideological and political dispute, insofar as they involve different conceptions about the role of the State and education in society. For the author, EJA, over the last decades, has been tensioned between inclusion policies and practices of state unaccountability, which reduce education to an instrument of employability, disregarding its formative and liberating character. This duality reflects the very instability of educational policies in the country.

The studies by Catelli Junior and Haddad (2022) demonstrate that, even in the face of regulatory advances, EJA faces persistent challenges in financing and institutionalization. The authors point out that, after the end of federal programs such as Literate Brazil and ProJovem, there was a significant retraction in the supply and continuity of structuring actions. This discontinuity compromises the achievement of the goals established by the National Education Plan (PNE 2014–2024), which provides for the eradication of illiteracy and the universalization of basic education.

According to Machado (2020), public policies aimed at EJA should be understood from a human rights perspective and not as emergency actions. The author states that the current challenge is to articulate educational, social and economic policies in an integrated way,

ensuring material and symbolic conditions for meaningful learning. This approach requires valuing the protagonism of EJA subjects and recognizing their knowledge and life experiences as constitutive elements of the educational process.

In the international context, UNESCO has played an important role in the formulation of global guidelines and goals related to adult education. The World Report on Adult Learning 2022 reaffirms the commitment of signatory countries to lifelong learning, understanding it as a fundamental right and strategy for sustainable development (UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION, 2022). This document reinforces that public policies for EJA must articulate literacy, professional training and citizen participation, ensuring gender equity and cultural diversity.

The analysis by Freitas and Santos (2022) shows that, although Brazilian legislation ensures the right to EJA, there are discrepancies between what is provided for in the rules and the reality of the education networks. Many state and municipal systems lack adequate planning and resources, which results in regional inequalities and high dropout rates. For the authors, the effectiveness of the policies depends on the integration between the Union, states and municipalities, as well as the expansion of the financing mechanisms linked to Fundeb.

The 2023 School Census of Basic Education, published by INEP (2024), indicates a significant drop in the number of EJA enrollments, especially in high school. This scenario reveals not only difficulties in access, but also problems of permanence and quality of supply. Such data demonstrate the need for policies to encourage enrollment and actions articulated with other public policies, such as health, social assistance and work.

According to Paiva (2018), the formulation of effective public policies for EJA requires understanding the sociocultural profile of its students. The author points out that the diversity present in the classes — which includes workers, mothers, young people in vulnerability and elderly people — demands flexible and humanized policies, capable of responding to the real needs of the population. Valuing the life experiences of these subjects is a guiding principle of pedagogical and curricular policies.

Mendonça (2019) adds that EJA should integrate the concept of curriculum as a social practice, promoting dialogue between scientific knowledge and popular knowledge. Well-structured curriculum policies can contribute to reducing dropout and strengthening students' self-esteem. This understanding is in line with the guidelines of the national guidelines, which defend an education centered on plurality and respect for differences.

From the perspective of Souza and Almeida (2021), the consolidation of lasting public policies depends on valuing the professionals who work in EJA. The recognition of the specificity of this modality should be reflected in continuing education programs, adequate remuneration and improvement of working conditions. The lack of policies for valuing teachers is, according to the authors, one of the main obstacles to the effectiveness of actions in the field of EJA.

Lima (2023) argues that public policies also need to contemplate the methodological dimension of EJA. The incorporation of active methodologies and educational technologies can contribute to increasing the attractiveness of classes and promoting the protagonism of adult students. This pedagogical innovation must be supported by adequate training policies and technological infrastructure.

The analysis by Torres (2017) and Rodríguez (2021) shows that Latin American countries face similar challenges in consolidating youth and adult education policies. Both highlight that the sustainability of these policies depends on long-term institutional commitments and a conception of education focused on social justice. In this context, Brazil must reaffirm its commitment to EJA as a subjective public right, ensuring its continuity and strengthening as a State policy, and not just as a transitional government policy.

4 SOCIOCULTURAL CHARACTERISTICS AND CHALLENGES OF THE EJA PUBLIC AT THE HIGH SCHOOL LEVEL

The public served by Youth and Adult Education (EJA) at the secondary level is composed mostly of subjects whose educational trajectories were interrupted for socioeconomic, family or institutional reasons. According to Freitas and Santos (2022), these students are, for the most part, workers who face long hours, precarious employment conditions, and domestic responsibilities, which makes returning to school a daily challenge. The heterogeneity of the classes is a striking characteristic of the modality, composed of young people who have dropped out of regular education and adults who seek to resume their studies after long periods of absence.

According to Carvalho (2021), EJA should be understood as a plural and intercultural space, in which different identities, histories, and life experiences coexist. This diversity imposes on the educational process a need for constant curricular and methodological adaptation. The recognition of students' experiences is essential to promote inclusion and engagement, transforming the school environment into a space for valuing popular

knowledge and collective learning. Thus, the central challenge is to balance the formal contents with the knowledge acquired in social practice.

Mendonça (2019) states that the EJA curriculum should reflect the cultural and cognitive specificities of adult students, allowing dialogue between scientific knowledge and empirical knowledge. The author argues that the distance between the school content and the student's reality is one of the main factors of demotivation and dropout. Therefore, the contextualization of pedagogical practices is indispensable for the teaching-learning process to have meaning and social relevance.

The studies by Haddad and Di Pierro (2023) indicate that socioeconomic vulnerability remains one of the main obstacles to the permanence of EJA students. The precariousness of material conditions, unemployment and the absence of social support policies, such as transportation and school meals, aggravate the difficulties faced by students. This situation reinforces the need for intersectoral public policies that articulate education, social assistance and work, promoting real conditions for the exercise of the right to education.

According to Souza and Almeida (2021), EJA represents a concrete opportunity for social ascension and resignification of personal trajectories. For many students, returning to school means more than completing a formal stage: it is a way to regain self-esteem, belonging, and hope in new life possibilities. However, the authors warn that the absence of policies of valorization and psychosocial monitoring weakens the permanence of students, especially among the youngest.

Studies carried out by INEP (2024) show that, at the secondary level, the profile of EJA students is predominantly female and made up of people between 25 and 40 years old. Most are inserted in the informal labor market and have significant gaps in relation to the basic skills of reading, writing and arithmetic. Such data indicate that pedagogical practices should prioritize contextualized and flexible methodologies, capable of reconciling study time with the demands of professional and family daily life.

According to Lima (2023), the adoption of active and participatory methodologies is essential to stimulate the protagonism of the adult student. Strategies such as interdisciplinary projects, conversation circles, and the use of educational technologies favor meaningful and collaborative learning. However, the author notes that many teachers still find it difficult to adapt these methodologies to the structural conditions of schools, which often lack technological resources and institutional support.

Martins and Oliveira (2024) emphasize that teacher training focused on EJA must consider the complexity of the sociocultural relationships present in the classes. The teacher must act as a mediator sensitive to the particularities of each student, recognizing the individual and collective potentialities of the group. For the authors, the absence of specific and continuing education for these professionals is one of the main factors that compromise the quality of the educational offer.

At the international level, Rodríguez (2021) argues that the EJA audience reflects, throughout Latin America, the structural inequalities of the region. Conditions of poverty, gender inequality, and digital exclusion are recurrent challenges, which require educational policies that transcend the school space and promote social justice. The author argues that adult education should be seen as part of a broader strategy for inclusion and human development.

According to the World Report on Adult Learning 2022, prepared by UNESCO, the cultural and age diversity of the EJA audience is one of the greatest potentials of this modality (UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION, 2022). Valuing this heterogeneity favors the exchange of knowledge, intergenerational dialogue, and the construction of learning communities, provided that educational policies and curricula are adequately adjusted to these characteristics.

Machado (2020) observes that EJA, when guided by a humanizing perspective, contributes to the strengthening of students' intellectual autonomy and critical awareness. The author argues that the act of learning, for young people and adults, is also an act of recognizing oneself as a subject of rights and culture. In this sense, the pedagogical challenge consists of building practices that overcome the compensatory character and affirm EJA as a space for liberation and identity reconstruction.

Finally, Catelli Junior and Haddad (2022) state that the challenges faced by the EJA public at the secondary level are not limited to the educational dimension, but encompass structural aspects of Brazilian society. Overcoming these obstacles requires long-term public policies, supported by adequate investments, teacher appreciation and strengthening of school management. EJA, by serving a diverse and vulnerable public, reaffirms its importance as an instrument for the democratization of knowledge and the realization of the right to education, constituting one of the pillars for the construction of a more just and egalitarian society.

5 PEDAGOGICAL METHODOLOGIES AND PRACTICES IN YOUTH AND ADULT EDUCATION

The choice of methodologies and pedagogical practices in Youth and Adult Education (EJA) must consider the uniqueness of its subjects, who carry with them diverse social, cultural and professional experiences. According to Machado (2020), the teaching-learning process in EJA cannot reproduce the traditional model of regular education, as its students have life trajectories that require more flexible and dialogical approaches. The starting point should be the recognition that these subjects bring a repertoire of accumulated knowledge outside the school, which needs to be incorporated as a legitimate part of the educational process. The author emphasizes that the pedagogy focused on EJA should value dialogue, active listening and problematization, in line with Freire's principles of emancipatory education.

The methodologies applied to EJA should prioritize the collective construction of knowledge and the active participation of students. According to Lima (2023), active methodologies, when well adapted to the profile of the students, stimulate critical thinking, autonomy, and engagement. Among the most effective practices are project-based learning, conversation circles, and case studies, which promote the integration of theory and practice. However, the author observes that the application of these methodologies requires continuing teacher training and adequate infrastructure, since many institutions still lack material and technological resources for their full implementation.

According to Carvalho (2021), the role of the educator in EJA is that of mediator of knowledge, and not of transmitter. The teacher needs to develop strategies that arouse the interest and curiosity of adult students, promoting meaningful learning that is directly related to their experiences. Pedagogical planning must be contextualized, taking into account the sociocultural environment of the students, their learning times and their practical limitations. Evaluation, in this context, assumes a formative character, focused on individual progression and the development of cognitive, affective and social skills.

The EJA National Curriculum Guidelines, published by the Ministry of Education (BRASIL, 2020), guide that pedagogical practices must be based on the principles of equity, diversity, and autonomy. These principles reinforce the importance of methodologies that contemplate the learning pace of students and that promote respect for their cultural, generational and cognitive differences. In addition, the document highlights that the EJA

curriculum must be interdisciplinary and articulated with contemporary themes, in order to favor the construction of a critical view of social and economic reality.

The use of educational technologies is another essential component in contemporary pedagogical practices. According to Martins and Oliveira (2024), digital tools enable the creation of more dynamic and interactive learning environments, especially in blended or distance education courses. However, the authors warn that the use of technology should be at the service of learning, and not limited to the reproduction of content. For this, the teacher must be prepared to act as a facilitator and integrator of digital resources, exploring platforms, applications and social media as instruments of critical and collaborative teaching.

According to Paiva (2018), EJA must break with the banking conception of education and adopt a pedagogical practice based on problematization and reflection. Teaching must start from the concrete reality of the students, addressing generating themes that emerge from their daily lives and that allow the development of critical awareness. This methodology, inspired by Freire's pedagogy, stimulates dialogue between educator and student and contributes to the strengthening of the identity of the subjects. In this sense, learning becomes an act of liberation, through which the student is able to understand and transform his reality.

The study by Catelli Junior and Haddad (2022) emphasizes that EJA faces the challenge of reconciling innovative methodologies with precarious supply conditions. Many schools lack appropriate teaching materials and adequate spaces, which compromises the effectiveness of pedagogical practices. Even so, the authors point out that the creativity of educators has been a determining factor in overcoming these limitations, through the construction of strategies adapted to the local reality. Community projects, cultural workshops and interdisciplinary activities are examples of practices that strengthen the bond between school and community.

For Mendonça (2019), the curricular approach of EJA should articulate scientific knowledge with popular knowledge, recognizing that students are not empty containers, but bearers of experiences that enrich the educational process. The curriculum, therefore, must be flexible, open and contextualized, integrating themes such as citizenship, sustainability, work and culture. This curricular conception allows the student to understand knowledge as a historical and social construction, stimulating a critical posture in the face of reality.

Freitas and Santos (2022) highlight that school dropout is one of the main challenges faced by EJA, and its overcoming depends on pedagogical practices that give meaning to learning. The lack of a bond with the school often stems from previous experiences of failure

and exclusion. Thus, it is necessary to create welcoming and encouraging environments, in which mistakes are understood as part of the process and learning is seen as a personal achievement. The relationship of trust between teacher and student is, in this sense, fundamental for school permanence and success.

In the Latin American context, Rodríguez (2021) observes that EJA presents itself as a space of resistance and transformation, especially among vulnerable groups. The author emphasizes that methodologies should promote education as a practice of freedom, through active participation and intercultural dialogue. Pedagogical practices, when aligned with this perspective, become instruments of social and political emancipation, strengthening the role of EJA as a promoter of educational justice.

According to Souza and Almeida (2021), the integration between work and education is one of the most relevant dimensions of pedagogical practices in EJA. The proposal for a comprehensive education must include not only academic content, but also practical knowledge related to professional and community life. This approach enables the construction of socio-emotional and technical skills that expand employability and strengthen the sense of citizenship. In addition, it stimulates the student's protagonism and their critical insertion in the world of work.

The UNESCO report (United Nations Educational, Scientific and Cultural Organization, 2022) reinforces that methodologies aimed at adult education must adopt a lifelong learning perspective. This implies recognizing that the educational process does not end at school, but extends to social, family and professional spaces. The document recommends the strengthening of pedagogical practices that promote autonomy, collaboration and reflective thinking, in order to form conscious and participatory citizens.

Lima (2023) observes that the application of participatory methodologies requires a resizing of the role of evaluation. Evaluating in EJA should not only mean measuring results, but monitoring processes and recognizing individual progress. Formative assessment, in this context, favors the continuous development of the student and avoids the reproduction of exclusionary practices. Constant feedback and dialogue about performance become strategies to consolidate learning and value personal effort.

Carvalho (2021) adds that affectivity and pedagogical bonding are essential dimensions in the teaching work with young people and adults. The EJA teacher, by recognizing the symbolic value of education in the lives of these subjects, must act as a motivator and partner in the process of reconstructing interrupted trajectories. Affectivity,

when mediated by conscious pedagogical practices, becomes a structuring element of meaningful learning, creating an environment conducive to the intellectual and emotional growth of students.

According to Martins and Oliveira (2024), the continuing education of EJA teachers is an indispensable condition for the effectiveness of the methodologies. It is necessary for the teacher to understand the complexity of this modality, mastering didactic strategies that articulate theory and practice. Permanent updating allows the development of a reflective and critical posture, capable of facing the daily challenges of the classroom and adapting methodologies to social and technological changes.

Finally, Machado (2020) and Torres (2017) converge in stating that the pedagogical practices of EJA should be guided by ethics, social sensitivity, and commitment to human emancipation. Teaching young people and adults implies recognizing their stories, their difficulties and their potentialities, building bridges between school knowledge and the knowledge of life. EJA, when supported by participatory, humanizing and transformative methodologies, fulfills its historical role of giving back to the subject the right to learn, understand and intervene in the world with autonomy and dignity.

6 THE ROLE OF EJA IN SOCIAL INCLUSION AND CITIZENSHIP EDUCATION

Youth and Adult Education (EJA) plays an essential role in the consolidation of citizenship and in the promotion of social inclusion, by ensuring the right to education to those who, for various reasons, did not have access to or continuity in regular education. According to Haddad and Di Pierro (2023), EJA is a public policy that is configured as an instrument of historical and social reparation, aimed at overcoming educational inequalities that affect millions of Brazilians. Its function goes beyond the scope of literacy and formal schooling, constituting itself as a space for strengthening autonomy and social participation. In this sense, EJA reaffirms the constitutional principle that education is a right of all and a duty of the State.

Machado (2020) argues that EJA contributes significantly to integral human development, promoting not only access to knowledge, but also the expansion of the critical and ethical capacities of the subjects. The author argues that the educational process, in this modality, should value the life experience of students and stimulate social protagonism, enabling them to recognize themselves as agents of transformation. Citizenship education,

therefore, is not limited to the transmission of content, but involves the development of critical awareness and collective responsibility.

For Carvalho (2021), EJA represents one of the most concrete forms of social inclusion, as it welcomes subjects historically excluded by factors such as poverty, racism, gender inequality, disability, and age discrimination. The author emphasizes that inclusion in EJA should not only be physical access to school, but the effective participation of students in the teaching-learning process, with the recognition of their identities, cultures and knowledge. This conception is aligned with the paradigm of emancipatory education, which understands learning as a practice of freedom and not as an instrument of social adaptation.

According to Souza and Almeida (2021), EJA plays a decisive role in the social and economic reintegration of students, by expanding opportunities for employment, qualification, and social mobility. The authors observe that, when resuming their studies, many students begin to develop a new perception of their own capacity, which translates into self-esteem, self-confidence and community engagement. Citizenship education, in this context, is directly related to the achievement of autonomy and the expansion of political and social participation.

The EJA National Curriculum Guidelines (BRASIL, 2020) establish that the purpose of the modality is to guarantee not only the right to schooling, but also the exercise of full citizenship. The document emphasizes the need to promote pedagogical practices that encourage dialogue, respect for diversity, and appreciation of differences. In addition, it recommends the inclusion of cross-cutting themes — such as human rights, ethics, the environment, and cultural diversity — in the EJA curriculum, in order to strengthen the commitment to social justice and democracy.

Freitas and Santos (2022) highlight that EJA is also a space for reframing the life trajectories of students, especially those who have faced processes of exclusion and school failure. By providing rapprochement with the educational environment, the modality allows the reconstruction of affective and social bonds, stimulating the feeling of belonging and the recognition of the value of education as a tool of citizenship. The study of these authors shows that the EJA school often becomes a place of reception and identity reconstruction.

According to Lima (2023), the methodologies adopted in EJA should promote meaningful and participatory learning, centered on dialogue and critical reflection on social reality. The development of interdisciplinary projects and the use of generating themes are effective strategies to stimulate students' autonomous thinking and political awareness. In

this way, EJA contributes not only to academic training, but to the active exercise of citizenship and the strengthening of democratic culture.

UNESCO's report on adult learning (UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION, 2022) reaffirms that adult learning is one of the pillars of global social inclusion. The document defends lifelong learning as a human right and as a condition for building more equitable and sustainable societies. This perspective reinforces the role of EJA as a fundamental component of policies to combat poverty, social exclusion and structural inequalities, especially in Latin American and Caribbean countries.

Rodríguez (2021) observes that EJA, by acting on marginalized populations, takes on a character of social resistance and community reconstruction. The author points out that, in Latin America, the modality is a space of political empowerment, in which subjects learn to recognize themselves as citizens with a voice and power of action. The education of young people and adults, in this sense, works as a mechanism for democratizing knowledge and combating the concentration of symbolic and economic power.

Catelli Junior and Haddad (2022) reinforce that EJA is a strategic instrument for strengthening democracy. By providing access to information and critical thinking, the modality contributes to the formation of subjects capable of understanding and intervening in political, economic and social issues. The authors argue that the expansion of EJA is an indispensable condition for the consolidation of active and participatory citizenship, especially in contexts of inequality.

Mendonça (2019) adds that the social inclusion promoted by EJA must be articulated with the construction of a critical curriculum, which considers the students' life and work contexts. The author argues that the school should be a space for valuing cultural diversity and promoting educational practices that stimulate solidarity, mutual respect and collective thinking. This social dimension of the curriculum contributes to the formation of citizens who are aware of their rights and duties.

Paiva (2018) points out that EJA enables the integration between education, culture and citizenship, transforming the school space into an environment of democratic coexistence. For the author, the educational process in EJA is an opportunity to rebuild social ties and promote collective learning, valuing dialogue as a tool for inclusion and empowerment. This pedagogical practice contributes to reducing social isolation and strengthening the students' sense of belonging to the community.

According to INEP (2024), educational indicators show that EJA students face multiple forms of vulnerability, but also reveal significant advances in the expansion of schooling. Statistics show that the resumption of studies increases the rate of insertion in the labor market and strengthens the cultural capital of the participants. Such data confirm the role of EJA as a promoter of opportunities and as a way to overcome educational and social exclusion.

For Martins and Oliveira (2024), the development of citizenship in EJA is directly related to the training of teachers committed to ethics, inclusion, and equity. Teaching must go beyond the transmission of knowledge, incorporating a reflective and humanizing posture, which recognizes education as a right and as a transformative social practice. Thus, the teacher becomes an active agent in promoting inclusion and strengthening citizen awareness.

Finally, Torres (2017) argues that youth and adult education, by being guided by the principles of social justice and lifelong learning, contributes to the construction of more democratic and solidary societies. The author argues that EJA should be understood not only as a compensatory policy, but as a State policy aimed at the emancipation of subjects and the strengthening of collective citizenship. In this way, EJA reaffirms its essential role in social inclusion and in the formation of critical, conscious citizens capable of transforming the reality in which they live.

7 FINAL CONSIDERATIONS

Youth and Adult Education (EJA) is one of the most relevant public policies for the democratization of education in Brazil, as it guarantees the right to education for subjects who, for different reasons, did not have access to or continuity in the process of regular schooling. Its historical trajectory demonstrates that, more than a compensatory modality, EJA is a space for the reconstruction of trajectories, for valuing popular knowledge and for promoting human dignity. According to Haddad and Di Pierro (2023), the strengthening of EJA is intrinsically linked to the consolidation of citizenship and the reduction of educational and social inequalities that still persist in the country.

Throughout the analysis developed, it was found that EJA is based on a solid legal basis, expressed in the Law of Guidelines and Bases of National Education (BRASIL, 1996) and in the National Curriculum Guidelines (BRASIL, 2020), which guide its pedagogical practices and ensure its social function. However, the distance between legislation and

everyday reality is still present, manifesting itself in the insufficiency of resources, the discontinuity of programs and the precariousness of supply conditions. As Catelli Junior and Haddad (2022) point out, the sustainability of EJA depends on the implementation of State policies, and not on specific government measures, and must be accompanied by consistent investments in infrastructure, teacher training, and student support.

From the pedagogical point of view, it was evident that the methodologies applied to EJA must respect the sociocultural and cognitive specificities of the students. Learning needs to be meaningful, contextualized and based on the dialogue between school knowledge and life experiences. Authors such as Lima (2023) and Machado (2020) highlight that youth and adult education is, above all, a practice of humanization and emancipation, in which the teacher acts as a mediator in a process of collective construction of knowledge. This approach favors not only intellectual development, but also the strengthening of students' autonomy, self-esteem, and critical thinking.

In addition to its formative role, EJA fulfills a strategic social function by promoting inclusion, employability and citizen participation. Souza and Almeida (2021) and Rodríguez (2021) point out that the resumption of studies allows historically excluded individuals to reconstruct their identities, expand their professional opportunities, and recognize themselves as protagonists of their own history. Thus, EJA contributes to integral human development and to the construction of a more just, solidary and democratic society, in line with the UNESCO (2022) principles of lifelong learning and social equity.

In summary, the consolidation of EJA as an effective educational policy requires political commitment, institutional continuity and social recognition. It is essential to understand that investment in this modality does not represent a cost, but a strategic action of social justice and sustainable development. Strengthening EJA means ensuring that education is, in fact, an inalienable and permanent right, ensuring each citizen the possibility of learning, growing and transforming the reality in which they live. In this way, EJA reaffirms its role as an instrument of emancipation, inclusion and active citizenship, fundamental pillars for the construction of a more egalitarian and humane country.

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STRENGTH TRAINING WITH ADOLESCENTS IN COMPULSORY SECONDARY EDUCATION: AN EVIDENCE-BASED TEACHING AND METHODOLOGICAL GUIDE

TRABAJO DE FUERZA CON ADOLESCENTES EN LA EDUCACIÓN SECUNDARIA OBLIGATORIA: UNA GUÍA DIDÁCTICO-METODOLÓGICA BASADA EN EVIDENCIA

TRABALHO DE FORÇA COM ADOLESCENTES NO ENSINO SECUNDÁRIO OBRIGATÓRIO: UM GUIA DIDÁTICO-METODOLÓGICO BASEADO EM EVIDÊNCIAS

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ABSTRACT

This article develops an evidence-based, didactic-methodological guide geared towards the real classroom context for planning, implementing and evaluating strength training in Physical Education during Compulsory Secondary Education. Through a critical synthesis of studies on strength training in young people, the curricular elements are mapped out and the principles of strength training are operationalised in specific teaching decisions. The proposal integrates different methodological approaches, management strategies, organisation and control. Implementation models compatible with the school timetable and a set of resources and instruments for evaluation are described. The results suggest that strength training with adolescents in Physical Education is relevant and safe when it is rigorously planned, supervised and evaluated with valid evidence. The guide offers an operational and transferable framework for departments and teachers, aimed at improving the quality of the teaching-learning process and enhancing the motor skills and health of students.

Keywords: Physical Education. Strength Training. Teaching Methodology. Formal Education. Compulsory Secondary Education. Strength Capacity.

RESUMEN

Este artículo desarrolla una guía didáctico-metodológica, basada en evidencia y orientada al contexto real del aula, para planificar, implementar y evaluar el trabajo de la fuerza en Educación Física durante la Educación Secundaria Obligatoria. Mediante una síntesis crítica de estudios sobre el entrenamiento de fuerza en jóvenes, se mapean los elementos curriculares y se operacionalizan los principios de entrenamiento de fuerza en decisiones didácticas concretas. La propuesta integra diferentes enfoques metodológicos, estrategias de gestión, organización y control. Se describen modelos de implementación compatibles con el horario escolar y un conjunto de recursos e instrumentos para la evaluación. Los resultados sugieren que el trabajo de fuerza con adolescentes en Educación Física es

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pertinente y seguro cuando se planifica con rigor, se supervisa y se evalúa con evidencias válidas. La guía ofrece un marco operativo y transferible para departamentos y docentes, orientado a mejorar la calidad del proceso enseñanza-aprendizaje y a potenciar la competencia motriz y la salud del alumnado.

Palabras clave: Educación Física. Entrenamiento de Fuerza. Metodología Didáctica. Educación Formal. Educación Secundaria Obligatoria. Capacidad de la Fuerza.

RESUMO

Este artigo desenvolve um guia didático-metodológico, baseado em evidências e orientado para o contexto real da sala de aula, para planejar, implementar e avaliar o trabalho de força na Educação Física durante o Ensino Secundário Obrigatório. Através de uma síntese crítica de estudos sobre o treino de força em jovens, são mapeados os elementos curriculares e operacionalizados os princípios do treino de força em decisões didáticas concretas. A proposta integra diferentes abordagens metodológicas, estratégias de gestão, organização e controlo. São descritos modelos de implementação compatíveis com o horário escolar e um conjunto de recursos e instrumentos para a avaliação. Os resultados sugerem que o trabalho de força com adolescentes na Educação Física é pertinente e seguro quando planeado com rigor, supervisionado e avaliado com evidências válidas. O guia oferece um quadro operacional e transferível para departamentos e professores, orientado para melhorar a qualidade do processo de ensino-aprendizagem e potenciar a competência motora e a saúde dos alunos.

Palavras-chave: Educação Física. Treino de Força. Metodologia Didáctica. Educação Formal. Ensino Secundário Obrigatório. Capacidade de Força.

1 INTRODUCTION AND JUSTIFICATION

This guide aims to help Physical Education (PE) teachers in Compulsory Secondary Education to integrate the work on the ability of the force with adolescents in a safe and effective way, aligned with the curriculum and with the reality of the classroom. It is a practical manual, an evidence-based toolbox, for planning, implementing, and evaluating this content with clear criteria of progression, safety, and inclusion.

Adolescence is a key vital stage in establishing healthy lifestyle habits that are maintained in adulthood, including physical activity aimed at the development of strength (Smith et al., 2014; Lloyd et al., 2014, Arce-Larrory, Velasco, & Sáez, 2025). Incorporating the work of this ability in adolescents has been associated with improvements in motor performance and general physical condition, as well as better academic performance and psychosocial benefits (self-esteem, self-concept, and social skills), without increasing the risk when performed with good technique, progression, and adequate supervision (Behringer et al., 2010; Faigenbaum et al., 2009; Stricker et al., 2020). In addition, the improvement of muscle condition is related to more favorable cardiometabolic profiles and lower percentages of fat tissue in the school population, which supports its preventive value from an early age and plays a protective role against diseases associated with a sedentary lifestyle or obesity (Casas et al., 2018; Smith et al., 2014).

The false belief that strength training damages developing tissues or stops growth has been refuted by scientific evidence in the area of research; with qualified supervision, attention to technique, and progression, strength work is safe and effective in children and adolescents (Faigenbaum et al., 2009; Lloyd et al., 2014; Stricker et al., 2020). The most recent studies show that the variables that condition the dose (intensity, volume, frequency, etc.) explain the efficacy and safety with which this capacity is worked on and explain the physiological adaptations observed in young people, at ages compatible with the educational context (Wu et al., 2021).

In the curricular field, PE aimed at the development and improvement of physical condition is aligned with the curricular objectives, since, among others, they promote the comprehensive well-being of students (MEFP, 2022). In addition, the literature indicates that strength work is compatible with and positively affects other objectives and competencies, such as attention or commitment to the task (Robinson et al., 2022; Pérez-Ramírez et al., 2025). However, the management of methodological elements (contents, progressions, load control, assessment, etc.) continues to be a challenge for teachers of this subject, which

justifies the development of a teaching guide based on recent evidence (Lloyd et al., 2014; Wu et al., 2021).

2 THEORETICAL FRAMEWORK

The object of study is the methodology of the work of the capacity of the force in PE in Compulsory Secondary Education. Therefore, we begin by defining the main concept, strength. Muscle strength is understood as the ability of the neuromuscular system to generate tension and overcome or resist a load; it is a central component of health-related fitness at all life stages (Smith et al., 2014; Lloyd & Oliver, 2012). Bompa (1983), a pioneer of the theory of training periodization, defined strength as "the neuromuscular ability to overcome external or internal resistance, through a static or dynamic muscle contraction".

From a biological and motor learning perspective, the first adaptations in response to strength work in adolescents are predominantly neuronal, that is, they occur through improvements in intra- and intermuscular coordination, recruitment and synchronization of the central and peripheral nervous system. On the other hand, structural gains, such as hypertrophy (increased size of muscle fibers; Schiaffino et al., 2021), occur to a lesser extent and depend on the accumulated workload (Behringer et al., 2010; Faigenbaum et al., 2009). These stimulus-response mechanisms are framed in the basic principles of training (individualization, progressive overload, specificity...), which explain the improvement of neuromuscular function and validate the work on strength capacity as training content (Lloyd et al., 2014).

Once the content (the capacity of the force) has been defined, the methodology is defined. A distinction can be made between training methodology and educational or didactic methodology. In training sciences, methodology refers to the set of principles, methods, and ways of organizing work over time to bring about the desired adaptations (Bompa & Buzzichelli, 2019; Zatsiorsky & Kraemer, 2006; Haff & Triplett, 2016; Kiely, 2012). These principles are based on biological laws; They have established basic training pillars based on evidence on how the body responds. In the educational context, the methodology pursues the same rigour, but with a different purpose: the integral psycho-evolutionary development of the students. In research in the educational field, methodology refers to teaching-learning models and strategies, the pedagogical organization of tasks, feedback, evaluation... to promote curricular objectives. The objective is to learn; in the case of PE, not only the motor

or physical outcome, but also the cognitive, social, behavioral, and affective outcomes (Metzler, 2017; Mosston & Ashworth, 2008; Casey & Kirk, 2021).

Therefore, some differences can be seen between the training and educational methodology: while training seeks structural adaptation and improvement of performance, didactics prioritizes meaningful learning and competency development, which is why different evaluation systems, indicators and evidence are used to measure progress in each area (Metzler, 2017; Haff & Triplett, 2016). However, there are many points of convergence between the two, since the principles of sports training, developed below, are closely related to didactic elements present in the educational curriculum (MEFP, 2022).

2.1 PRINCIPLES OF STRENGTH TRAINING

These principles of training, specifically those related to strength training, have been researched and developed by authors such as Bompa (2019), who defined periodization as "the structure of training by phases to achieve specific objectives". The author also developed specific principles, such as progressive increase in burden or individualization. Vladimir Zatsiorsky and Kraemer (2006) contributed to the science of training from a biomechanics and physiology approach. He explained the principle of specificity, stating that adaptations are highly specific to the type of exercise performed (working strength generates hypertrophy adaptations, while practicing resistance induces other changes). These authors also studied the principle of variation, observing how when an athlete is always faced with the same stimulus, performance improvements are reduced over time, which they call *the "law of accommodation"*. These principles of training have been further researched and developed and vary depending on the author, however, 5 principles stand out that coincide in most of them:

Progressive overload: In order for adaptations to be generated, it is necessary to expose the body to increasing workloads (Bompa, 1983). If the load is constant, it may be stressful enough at first that the body needs to adapt, but if the body is able to cope with the same workload, it will have accommodated and gains will stagnate (Zatsiorsky and Kraemer, 2006). Therefore, the workload must be increasing, gradual and planned. In high performance, it is common to monitor this with technological tools that allow programming and measuring internal and external loads (speed-based training, VBT; perception of effort, RPE; automatic calculation of estimated maximum repetition...), which quantifies the real intensity and ensures the gradual increase of the load, respecting this principle (González-

Badillo and Sánchez-Medina, 2010; Foster et al., 2001). There are programs and applications designed, for example, to measure the speed of the bar or record and graph the evolution of training variables in order to check progress session by session (Balsalobre-Fernández et al., 2018; 2023; Silva et al., 2021).

Specificity: Adaptations to training are very specific (Zatsiorsky & Kraemer, 2006). This means that the body generates adaptations and improves in the direction of the stimulus it has received. If maximum strength is trained (high loads, low repetitions), the body will improve neuromuscular function, if resistance training is done (low loads, high repetitions) it will improve capillarization, cardiorespiratory capacity... not only in terms of intensity and duration, but also in terms of the movements performed, the muscles involved, ranges of motion, context... (Verkhoshansky & Verkhoshansky, 2011). Bompa (2019) warns that the misuse of this principle can generate imbalances, so he recommends combining it with compensatory work. In summary, training must be directed to the characteristics and context of the performance sought, while also respecting a balanced development through compensatory work.

Variation: While specificity is important, so is introducing changes or adjustments to continue stimulating the athlete's body and mind. As mentioned above, when the stimulus becomes routine, the body's response decreases (Zatsiorsky & Kraemer, 2006). This variation can occur by altering variables such as the volume or intensity of the load, exercises, order, breaks... Bompa (2019) highlights the role of this principle in the adherence and motivation of the athlete throughout the process, and again warns that variation should not be capricious, these changes should be consistent with the final goal and they must maintain or improve performance.

Individualisation: Each person responds differently to the same training, according to their genetics, age, sex, level, experience... Therefore, training programming must be adapted to the characteristics, limitations, and objectives of each person (Bompa, 2019). Consequently, each person should be treated according to their ability, potential, and experience in strength training. Self-regulation through indicators such as perceived exertion (RPE), repetitions in the chamber (RIR) or speed-based training (VBT) allow the load to be adjusted daily to the specific state of the athlete, modulating the intensity or volume of work of each session (Shattock and Tee, 2020; González-Badillo et al., 2017).

Progression and periodization: Related to the previous ones, this principle refers to the organization of training over time, following a logical sequence of contents and phases.

It's about understanding and respecting supercompensation. Haff and Triplett (2016) explain this phenomenon by pointing out that if a training load is not excessive and is compensated by sufficient recovery, the body first experiences fatigue/stress and then adapts by restoring and raising its capacity above the initial one. Bompa (2019) defines periodization as the structured application of supercompensation in training cycles. These cycles can be divided into macrocycles, mesocycles, and microcycles, each with its specific goals. In high throughput, digital records and longitudinal metrics are used to coordinate and readjust microcycles and mesocycles with supercompensation and avoid overloading. These tools make progression measurable and comparable (Foster, 1998; Foster et al., 2001). In short, this principle guarantees that the training progresses in a systematic and orderly manner, avoids overloads and allows a controlled management of the training variables.

2.2 TRANSFER OF THE PRINCIPLES TO THE EDUCATIONAL FIELD.

It is crucial in this guide to study how these principles of strength training can be transferred to the design of didactic programs in the PE subject. Although the objective in this context is not to achieve maximum competitive performance, for an adequate development of the work of physical capacities, specifically strength, the same physiological and pedagogical foundations must be applied with the students. As mentioned, strength work improves the general health of students (body composition, muscle strength, bone health, self-esteem, etc.), enhances their motor skills (running, jumping, throwing, etc.) and contributes to the development of transversal skills and competencies prescribed by the educational curriculum (Faigenbaum et al., 2009; Smith et al., 2014; American Academy of Pediatrics Council on Sports Medicine and Fitness, 2008; Chaabene et al., 2025). Evidence suggests that we should incorporate tasks that respect the principles of training (National Committee of Child and Youth Sports Medicine, 2018). For all of the above, when creating strong didactic programs in PE, the teacher must incorporate:

Overload and gradual progression: Like athletes, students need to face increasing challenges to improve their strength. This means that over the course of the sessions the difficulty should gradually increase, for example by slightly increasing the load through the external weight used, repetitions, speed of execution or technical complexity. It is essential to start with light loads that allow you to internalize the technique correctly and make it more demanding as you adapt. A common mistake in traditional teaching is to repeat the same exercises at the same intensity throughout the year; Planning a didactic program means

taking into account adaptations and ensuring progress. As indicated, there are applications to measure and record repetitions, loads, RPE, execution speed, or automatically calculate the estimated maximum repetition (Jastrow et al., 2022; Gil-Espinosa et al., 2022; Sousa et al., 2023). This facilitates the formative assessment of the teacher and connects with the digital competence and the Personal, Social and Learning to Learn Competence (CPSAA) of the curriculum (MEFP, 2022).

Sequencing: The logic of the periodization of the training variables can be adapted to a didactic program, structuring it by phases, each with emphasis on different physical and pedagogical aspects. For example, the didactic unit could begin with the anatomical adaptation phase (Bompa's term), where the objective is to prepare the organism and internalize the basic patterns of movement; then move on to a developmental phase, where the objective is to increase the intensity with more demanding exercises or gradual increase in load; and end with an application phase, where these strength improvements are integrated and manifested in activities or games to feel and measure progress. This type of cyclical structure allows logical continuity to be maintained. Bompa indicates that planning with phases with specific objectives optimizes strength development. To this end, the use of digital notebooks or tracking apps is associated with functional and physical condition improvements (Mateo-Orcajada et al., 2024). In addition, it is consistent with the pedagogical principle of gradualness in the curriculum.

Specificity: As in the previous point, it seems obvious that as with athletes, respecting the principle of specificity implies that, if we want to improve strength, we must focus on the specific work of this ability. But in traditional educational practice, it is usually worked on indirectly (for example, by playing games that involve jumping, carrying classmates, throwing...) Evidence suggests that we should incorporate tasks that respect the principles of training (National Committee of Child and Youth Sports Medicine, 2018).

Individualisation and attention to diversity: In secondary school students, the maturity, skills and physical condition of each student vary greatly. Bompa and Lloyd suggest adapting exercises and loads to these differences. In programming, this is reflected, for example, by offering different exercises in progression of a movement pattern. Instead of simply proposing a free squat with weight, you can propose a box squat, weightless free squat, weighted squat, jump squat, static lunge, Bulgarian squat... that is, to offer the possibility for each student to choose the degree of technical difficulty and intensity with which they are comfortable to start working on the same movement pattern. In this way, the whole

group will be working, progressing the squat pattern and reaching high degrees of effort, respecting the characteristics and limitations of each one (Lloyd & Oliver, 2012). Other aspects such as speed of progression should also be individualized: some students will progress faster, while others will stay on the same exercise or external load for more sessions (Lloyd & Oliver, 2012). To measure and adjust the process individually, scales such as the RPE, mentioned above, recorded through self-recording applications, are very useful, favoring inclusion, autonomy and metacognition (Foster et al., 2001; Jastrow et al., 2022). In short, respecting this principle not only favours the effectiveness of the programme at the performance level, but also coincides with the principle of attention to diversity and contributes to inclusion, elements that must be present in all didactic programmes according to the official curriculum (Ministry of Education and Vocational Training [MEFP], 2022).

Variety and motivation: Generating and maintaining interest in students is essential. The theory of sports training indicates that variation helps not only physically, but also psychologically, monotony and boredom can negatively affect motivation and performance (Bompa, 2019). In the classroom, games, circuits, seasonal work, team competitions, use of technologies or different materials can be used to work on this content in a dynamic and fun way (Ortiz-Zorrilla et al., 2023; Vanaclocha-Amat et al., 2025). However, this variety or dynamism should not be chaotic, because continuity must be maintained and practice must be systematic in order to achieve and measure progress (Viciana Ramírez, 2002).

Recovery and safety: On the one hand, it is essential to respect recovery. In elite competitors, days of absolute or active rest are planned to allow the tissues and nervous system to recover, thus producing supercompensation (Vargas Molina, 2024). Transferred to the school context, the PE subject is taught 2-3 days a week, which leaves intermediate days for recovery. Within the same session it is also important to alternate intense efforts with rest breaks. For example, strength circuits by stations in which upper and lower body movements alternate. On the other hand, safety is a priority, and more so in the educational field where the main objective is the teaching-learning process and performance takes a back seat. Most muscle and joint injuries are due to poor load management or improper methods, where you do not recover sufficiently after periods of stress and fatigue caused by training (Porta and Miquel, 1990). To avoid these overloads, the external load used in the exercises must be conservative and progressive, prioritizing the execution technique and respecting the anatomical adaptation phases proposed by Bompa (2019).

In conclusion, and as mentioned above, the training methodology and the educational methodology have several points of convergence. There is a direct relationship between the principle of progressive overload and the concept of "didactic gradualness"; the principle of specificity with curricular alignment; or the individualization of training with attention to diversity, so present in the education law (Lloyd & Oliver, 2012). Therefore, teaching strength in PE requires respecting the principles of training, applying didactic models or strategies that promote the teaching-learning process of students (Bompa & Buzzichelli, 2019; Casey & Kirk, 2021; Metzler, 2017).

3 CURRICULAR ALIGNMENT

This teaching guide, and specifically this section, aims to offer a transferable framework that allows any teacher to align their programming with the curriculum and regulations to which they have to adapt. The elements presented below are indicative and must be adapted and contextualized to each educational reality, taking into account the regional and school regulations (PCC/PEC), the availability of resources and times, the characteristics of the group and the specific needs of educational support. For this reason, it is based on current didactic approaches and recent evidence (proposals, interventions, reviews, etc.). on the work of the force in the PE subject, but it is not tied to a specific law. Consequently, competencies, contents, evaluation criteria and indicators are chosen as the four core curricular elements that form the universal structure applicable to any legal framework, as a common non-prescriptive framework of reference. The creation and organization of these four elements will depend mainly on the legal framework of the place where the programming is to be carried out and the methodology used in it: a teacher-led methodology, which consists of direct instruction and guided practice (Rosenshine, 2012), is not the same as the *flipped classroom*. that tries to get students to investigate outside the classroom and during school hours apply and transfer what they have learned (Bishop & Verleger, 2013; Abeysekera & Dawson, 2015), or cooperative learning, with groups, roles, peer feedback, etc. (Johnson & Johnson, 1999; Hellison, 2011). Each approach requires or prioritizes different competencies, contents, and evaluation criteria, even though they share a theme. Accordingly, the examples of competencies, content, criteria and indicators in this guide are customizable. That said, in order to work on strength in the PE subject, the following elements are proposed:

3.1 CURRICULAR ELEMENTS

3.1.1 Competencies

Competencies are performances (knowing, knowing how to do and knowing how to be), which, integrated and in a context, allow complex demands to be resolved through cognitive, procedural and attitudinal resources. They are formulated in terms of observable and transferable actions (OECD, 2005; Rychen & Salganik, 2003; UNESCO, 2015). In other words, what students should know how to do and what they are good for in their real lives. In the case of strength work in PE they can be:

- C1. Health and active habit.** Integrate force work regularly and safely.
- C2. Motor literacy.** Execute basic movement patterns (pushing, pulling, squats...) with technical quality.
- C3. Self-regulation and use of data.** Plan, measure, and adjust workload.
- C4. Collaboration and *feedback*.** Cooperate, communicates technical corrections in an assertive way.
- C5. Safety.** Applies warm-up, peer supervision, and space and material standards.
- C6. Physical culture and equity.** He values strength for all people, he questions stereotypes.
- C7. Digital competence.** Use tools to plan, record, and measure progress.

3.1.2 Contents

They constitute the set of knowledge, skills and attitudes necessary to build competencies. They are chosen based on their relevance to favor their transfer and are organized around key ideas that sustain the desired performance (Wiggins & McTighe, 2005). In other words, they are the bricks that build competencies. Strength work in PE can include:

- S1. Fundamentals and health.** Benefits, recovery, sleep.
- S2. Safety.** Warm-up/activation, execution technique, supervision, order, risk detection, first aid.
- S3. Principles of training.** Specificity, progressive overload, variation, individualization.
- S4. Load control.** Volume, intensity, frequency.
- S5. Planning.** Microcycle, logging, review.
- S6. Inclusion.** Adaptations, context, limitations, functional diversity.
- S7. Digital competence.** Performance logging, apps, data management.

3.1.3 Evaluation criteria

They are clear descriptors of what counts as a learning achievement. They should refer to the quality of performance (not just the task), be useful for formative assessment, and be anchored in expected learning outcomes (Black & Wiliam, 1998; Brookhart, 2013). The criteria must be aligned with the activities of the teaching-learning process to reinforce the coherence of the curriculum (Biggs, 1996). In other words, the criteria indicate how to know if the contents and competencies have been achieved. In the case of strength work in PE, they can be:

- E1. Plan** coherently and justify decisions.
- E2. Execute** the basic movement patterns with correct technique.
- E3. Apply** security measures.
- E4. Records** and adjusts the load based on self-managing data (RPE, RIR).
- E5. Evidence of** technical or functional progress.
- E6. Collaborate** and communicate feedback assertively.
- E7. Propose** inclusive adaptations.

3.1.4 Indicators of achievement

The indicators describe measurable and observable evidence consistent with the competencies, contents, and evaluation criteria. In PE, the literature recommends that these should not be limited only to assessing motor competence, but also contemplate processes and behaviours related to involvement, co-assessment, self-regulation, etc. to improve the teaching-learning process (López Pastor, 2006). For the work of this content in PE and in coherence with the rest of the curricular elements, they can be:

- I1. Coherent planning (E1):** plans sets, repetitions and load coherently according to the objective, justifying their decisions.
- I2. Proper Technique Playing (E2):** Maintains alignment, full range of motion, and confident rhythms; applies corrections listed in the rubric.
- I3. Safety in practice (E3):** Warms up, keeps the space and material tidy, supervises their classmates and corrects risky behaviors.
- I4. Load adjustment (E4):** Records the perceived effort and modifies the repetitions or load in the next series or session according to the data and teaching indications.
- I5. Technical or functional progress (E5, E2):** Evidence of improved performance or technical control.

16. Collaboration and feedback (E6): Actively participates in co-evaluation, provides specific and respectful feedback, and accepts corrections.

17. Inclusive adaptation (E7): Proposes and applies at least one effective and safe adaptation (of load, range, support or material) for themselves or for a partner.

3.2 CURRICULUM ALIGNMENT MATRIX

Table 1

Competencies (C)	Contents/knowledge (S)	Criteria (E)	Indicators (I)
C1, C3, C7	S3, S4, S5, S7	E1	11. Coherent planning (E1): plans sets, repetitions and load coherently according to the objective, justifying their decisions.
C2, C5	S2, S5	E2	12. Proper Technique Playing (E2): Maintains alignment, full range of motion, and confident rhythms; applies corrections listed in the rubric.
C5	S2	E3	13. Safety in practice (E3): Applies warm-ups, keeps the space and material tidy, supervises their classmates and corrects risky behaviors.
C3, C7	S4, S7	E4	14. Load adjustment (E4): Records the perceived effort and modifies the repetitions or load in the next series or session according to the data and teaching indications.
C2, C3	S3, S4, S5	E5, E2	15. Technical or functional progress (E5, E2): Evidence of improved performance or technical control.
C4	S2	E6	16. Collaboration and feedback (E6): actively participates in co-evaluation, provides specific and respectful feedback, and accepts corrections.
C6	S6	E7	17. Inclusive adaptation (E7): proposes and applies at least one effective and safe adaptation (of load, range, support or material) for themselves or for a partner.

Principles and methodological elements

Strength work in PE should be based on training principles, but always as a means to achieve educational ends. The methodology is the vehicle that transfers these principles while respecting the curricular objectives and the psycho-evolutionary characteristics of the students. The main methodological elements for the work of this content are developed below. In each section, the principles of training and didactic principles are related to concrete methodological decisions to be applied in the classroom. The objective is to build a methodological framework that connects theory with teaching practice and the curriculum.

3.2.1 Progression and loadouts

The **progression of loads** in the school context involves starting with moderate loads (even with one's own body weight) and gradually increasing them as students adapt and improve their muscle function. Proper load progression maximizes gains in strength and muscle function without increasing the risk of injury (Moreno-Torres et al., 2025). For example, on an 8-week schedule, progressively increasing the weight lifted or the number of repetitions produces similar improvements in strength and hypertrophy. Both strategies are effective in the short-medium term (Plotkin et al., 2022), so in a teaching unit of similar duration it can be a simple way to respect this principle.

Individualization plays a fundamental role, both at the training level and in the classroom. Each student starts with a different level, so the exercises and loads must be adapted to their abilities. The same increase in load can be appropriate for one and excessive for another, therefore, the teacher or the students themselves must adjust the demands in a personalized way. It is recommended to continuously assess the technique and response of each student to decide when and how much to increase the load or complexity of the exercise. This ensures that progressive overload is applied effectively and safely for all students (Moreno-Torres et al., 2025).

The way to apply the principle of **specificity** in the classroom is by respecting the fact that the adaptations we seek to generate are specific and in response to the stimulus we are giving to the body. In practice, and from the point of view of teaching methodology, it implies that, if the aim is to evaluate the progress of a specific movement, for example, the squat, students must systematically repeat that movement during programming. This does not mean that the entire student group must necessarily work on the same movement, nor that each student practices a single movement. It all depends on the methodology used, but for

example, in case of working in groups, each group can choose four movements, and work on them, each member with their respective exercises and loads, depending on the level. Alternatively, each individual chooses an exercise from each basic movement pattern (pushing, pulling, etc.) and progresses through these exercises during the lesson, to measure progress by comparing initial and final performance. In this way, the teacher applies the overload to the specific objective of each student, aligning the principle of specificity with the methodological progression.

Likewise, variation helps to avoid stagnation and maintain student motivation. Varying the exercises, the order or the type of stimulus throughout the sessions introduces new stimuli without losing progression. For example: vary the material with which we add external load (switch between elastic bands and weights), work with different ranges of repetitions (one week with low repetitions with a higher load and another with high repetitions with a lower load) or rotate between different exercises of the same movement pattern (to improve strength in horizontal thrusts, work with both push-ups and dumbbell flat press). This **periodization or sequencing**, in the school context and at the methodological level, entails dividing the programming into different phases, where each one introduces these increases in load, increases in difficulty, rotation between different exercises or variation of material (Moreno-Torres et al., 2025) to ensure that the principles of the training fit with the didactic ones, and this union is coherent with the curriculum.

3.2.2 Monitoring and Security

Guaranteeing supervision and security during the sessions of the subject is a priority. Recent evidence debunks past myths and confirms that supervised strength training is not only safe, but also beneficial in adolescents (Faigenbaum et al., 2016). In fact, it has been shown that strength programs in school-age children do not increase the risk of growth or injury if the training principles developed above are followed (Moreno-Torres et al., 2025). Therefore, the role of the teacher during the sessions, especially as a supervisor, is essential to guarantee safety.

The organization of the class has an influence. Various intervention studies indicate that PE teachers have difficulty providing individualized feedback to all students when working on this content. Therefore, with large groups it is important to plan how to monitor the whole group. An appropriate strategy for this is that the work is in pairs or trios, where while one executes the exercise, there is another or several equals observing and assisting.

This system increases security as it allows there to always be immediate supervision and support to the performer. It also encourages cooperation and responsibility. It is also advisable to instill a culture of active safety in students, teaching them to listen to the body, report discomfort and not compete with each other to lift more weight. All these measures, including safety rules (do not leave material on the floor, use of weights, maintain safety space...), must be clear and consistent; A climate of order and security helps to prevent accidents.

3.2.3 Didactic styles and approaches

The teaching style and pedagogical approach is key when programming a teaching unit, as it influences motivation, adherence and the achievement of the objectives set out in it. Everyone has a place, from traditional direct instruction to innovative approaches such as cooperative learning, project-based learning or gamification, each with its advantages and disadvantages. However, recent studies indicate that in PE, traditional teacher-centred models can generate monotony and limit student involvement, while innovative, more interactive approaches increase enjoyment, involvement and motivation (Ginanjari et al., 2024).

Direct instruction is the most traditional approach where the teacher can guide the group simultaneously, demonstrating the technique of executing the exercises, establishing repetitions or objectives and correcting from the front (Olate Pastén et al., 2022). The purpose of this approach is to secure the task through explicit instruction and constant support (Guzmán & Payá, 2020). It has the advantage of being able to assist and supervise the whole group at the same time and standardize certain minimum content that everyone does. It also allows a lot of influence on the technique of execution of the exercises and that the students quickly live the experience of following a technical progression or a progressive overload. So it can be an appropriate approach for the start of programming. However, in order to achieve meaningful learning, and once a technical basis has been consolidated, it is recommended that students be given the leading role in the process through approaches that require greater involvement (Murrieta Ortega, 2023). This involvement can be promoted by encouraging peer-to-peer interaction.

In the **cooperative learning** model, work is done in groups to achieve common goals and has been shown to be effective in improving motor and social skills in PE, as well as increasing interest in activities (Zhou et al., 2023; Stanne et al., 1999). In strength work, this

model could be applied, for example, and in a summarized way, through the following challenge for the whole group: in trios, each member chooses four exercises (two lower body and two upper body). In the first session, each group should learn about the correct technique of their movements and help each other to perfect it, and during the next 3 sessions the sum of improved repetitions among all the members of the group and, in turn, among the whole class, should be greater than in the previous session. So that the whole group works together to overcome the improved total repetitions of the previous session, they help each other so that their group mates execute the movements well and we avoid monotony because each session becomes more demanding than the previous one. In addition, the training principles (individualization, progressive overload, specificity and variety) have been respected.

Project-based learning (PBL) consists of involving students in projects where they must apply the content to solve a problem or create a product (Ginanjar et al., 2024). In this case the project could be to design a strength training routine for someone who wants to improve their vertical jump, for example. Then carry out that routine by all the members of the group and finally present the whole process and the results. This approach increases autonomy and generates more significant learning, enhancing motivation. Studies have shown that PBL in PE increases students' sense of purpose and engagement compared to more traditional approaches (Ginanjar et al., 2024).

Gamification is an approach that incorporates playful or gameplay elements (challenges, rewards, levels, points, stories) into sessions to make them more engaging. This style has gained momentum in the last decade, as abundant evidence has emerged on its effectiveness in improving motivation and commitment (Arufe-Giráldez et al., 2022). For example, a strength circuit can be gamified, like a gymkhana, by groups, where points are obtained or missions are unlocked through the correct technical execution of different exercises. And in relation to the training principles, gamification favors variation, since by converting the exercises into games, different dynamics are introduced (the degree of effort, the exercises or the context varies). It also favors progressive overload, for example, if by accumulating progress you get points and level up. The principle of individualization must also be taken into account, since a good gamification design allows different ways to achieve the final goal of the game and guarantee inclusion (Castelo Barreno, Aguilar Quevedo, & León Intriago, 2025).

In short, to work on the capacity of strength in PE, styles and methodological approaches must be chosen or combined according to the objectives set and the

characteristics and limitations of the group. Research shows that student-centred models (cooperative, PBL, gamification) enhance autonomy, interaction and enjoyment (Guzmán & Payá, 2020; Ginanjar et al., 2024; Arufe-Giráldez et al., 2022), but this does not imply ruling out direct instruction, since, as seen above, it can be optimal for certain moments of programming.

3.2.4 Load Control

Load control in strength sessions in PE is an essential methodological element to ensure that the appropriate intensity is being applied without increasing the risk. In the educational field, it is not convenient to handle maximum loads nor is it easy to make measurements of 1RM (maximum repetition). Therefore, it is preferable to use more practical indicators such as time under tension, the external load used, the number of repetitions performed or effort perception scales to measure and dose the workload.

To dose the load over **time**, the durations for performing the exercises or work intervals must be established. For example, instead of prescribing 15 repetitions, it can be doing push-ups for 20 seconds. Time is a variable and easy to manage for both teachers and students. In addition, it allows each student to adjust the intensity to their level in certain exercises (in 20 seconds someone stronger will do more repetitions of squats than someone less strong), both having worked the same time and without feeling singled out for not having reached a number of repetitions. Studies of interventions with adolescents show that working on strength in circuits with gradual increases in working time generates significant adaptations at the level of strength (Moreno-Torres et al., 2025).

The classic and most common dosage format for work in strength training is **external loading** and **repetitions**. In the school context, defining a number of repetitions helps to simplify and specify the task. The external load is also easily manageable to intensify the work based on the teacher's supervision or through the effort perceived by the students: if the 10 scheduled repetitions have been completed easily, we increase the external load; If, on the other hand, the exercise technique cannot be performed properly or a certain loss of control of the movement is felt, we lower the external load. After measuring the initial performance of each student, a progression in repetitions with the same loads can be proposed in the following sessions. In addition, this dosing route can be combined with systems of **subjective perception of effort** such as RPE or RIR.

Ratings of Perceived Exertion (RPE) and Repetitions In Reserve (RIR) scales are subjective ways of quantifying intensity. On the one hand, the RPE consists of the performer himself identifying the effort involved in performing the exercise, scoring on a scale from 0 to 10 (RPE 0 zero effort and RPE 10 maximum effort). On the other hand, the RIR is the additional repetitions that the performer estimates that he could have completed before failing (if he could not have done any repetitions plus RIR 0, and if he could have done 4 repetitions plus RIR 4). The use of these tools in young people has proven to be as effective as working with fixed percentages of the 1RM, in addition, they promote reflection, self-perception and autonomy (Plotkin et al., 2022).

In short, by using the most appropriate method for each case or combining the control methods developed in this section, the teacher has an arsenal of tools to dose the training load during the sessions.

3.2.5 Integration of technological resources

The integration of technology enriches PE sessions in general, but especially in strength work (Macedo et al., 2024). As explained above, the methodology of strength training is based on mechanisms of adaptation of the body. This makes their practice a systematic process where quantification of work and measurements are important (Rong et al., 2025). In the RT4T program, strength training in the educational context, a core and successful element was to have a mobile application with exercises, demonstration videos and recording of the evolution of performance, which was very attractive among students and encouraged adherence to the process (Kennedy et al., 2021). The use of apps in PE has been shown to promote autonomy and motivation (Martínez Martínez, 2019). These tools facilitate self-regulation and monitoring of the process, as they allow loads, repetitions or different indicators to be recorded, allowing students to be the protagonists of their own process and measure and compare their evolution (Sousa-Basto & Ferreira, 2025).

These apps allow you to carry out teaching units of a different methodological nature. For example, individually each student could create their own training schedule and carry it out in subsequent sessions to evaluate its effectiveness, which would be a challenge-based learning approach. Another option is in pairs, each one fulfills the role of coach and athlete of their partner at the same time. In the first session, it is explained how the body works in relation to strength training; in the second, couples are formed and routines are created; in the following sessions, half of them, one acts as a coach and the other as an athlete; in the

second, the roles are reversed. In short, the use of apps, a priori designed for the professional work of coaches, can be a great ally for the teacher to increase student motivation and adherence, use innovative methodological approaches that promote meaningful learning and ensure compliance with the principles of strength training.

Deployment models

Intervention programs on force work in the educational framework have used various implementation models. The success of the intervention does not depend (within certain limits) on the dose format, the materials used or the methodological approaches, but on compliance with the didactic and strength training principles mentioned in the previous sections. A determining factor, according to Moreno-Torres (2023), is the training of teachers in these principles; therefore, it is key to have tools to manage these variables and their applications in the classroom.

3.2.6 Dosage Formats

In terms of the frequency, duration, volume and intensity of the sessions, 6-8 weeks of intervention are recommended to obtain sustained adaptations (Moreno-Torres, 2023). The optimal weekly frequency is between 2 and 3 sessions per week, preferably on non-consecutive days to facilitate recovery (Peinado-Rincón, Mora-Murillo, & Hutchison-Salazar, 2024). In each session, the usual and effective volume ranges from 2 to 4 sets of 6 to 15 repetitions per exercise (Peinado-Rincón, Mora-Murillo, & Hutchison-Salazar, 2024; Moreno-Torres, 2023) and the number of exercises depends on the duration of the session. Recent studies, such as Wan et al. (2025), implemented it in 10-minute microblocks (rubber bands, self-loading and dumbbells) during PE classes and obtained significant improvements in physical condition. Other studies used blocks of 15-20 minutes and also found increases in muscle strength (Mateos-Martín et al., 2025), so short or intermediate blocks are effective. Other models propose specific teaching units dedicated exclusively to this content (Mateos-Martín, Prieto-Prieto, & López-Rodríguez, 2025; Moreno-Torres et al., 2023) with comparable results. Finally, the recommended intensity varies approximately between 60% and 85% of 1RM or a medium-high perceived exertion (Peinado-Rincón, Mora-Murillo, & Hutchison-Salazar, 2024).

3.2.7 Phased sequencing

The evidence is clear in this aspect, the order of the contents is important. It is recommended to prioritize technique and movement patterns, and then incorporate loads. Mateos - Martín, Prieto-Prieto and López - Rodríguez (2025) concludes that in the initial phase, motor learning is prioritized, that is, internalizing the technique of executing basic movement patterns with one's own body weight and with low-moderate intensity. Then, an intermediate phase in which light loads can be introduced to increase the intensity, with special emphasis on teacher or peer supervision. Finally, a development phase where the goal is to raise the intensity gradually, in which higher loads at low repetitions can be combined with more moderate loads at high repetitions. This sequencing (mobility and basic patterns → progressive overload) facilitates the gradual acquisition of physical skills and abilities.

3.2.8 Progression by course

The National Committee of Child and Youth Sports Medicine (2018) emphasizes that when planning strength programs, age and maturity should be taken into account, due to the physiological characteristics of each stage. Therefore, the curricular progression of this content throughout secondary education must be adjusted to the maturity and experience of the students. At 12-13 years old, it is recommended to prioritize work focused on motor and coordination skills, with emphasis on body self-awareness exercises. Studies agree that in this period the technique should be taught in a progressive and playful way, emphasizing postural control and body self-perception before adding high loads (León-Reyes et al., 2025). At 14-16 years of age, loads can be incorporated progressively, taking advantage of the students' greater ability to adapt and after having consolidated their coordination skills and basic technique. For the same reason, in addition to increasing the intensity, the frequency of work can be gradually increased (Mateos-Martín et al., 2025). In summary, the progression of the contents and variables (volume, frequency, intensity) depending on the educational stage is based on the same principles by which the content is programmed for any athlete, adjusting to the physiological and maturational characteristics of the students.

3.2.9 Annual programming and departmental coordination

To consolidate the work of this content, it is recommended to integrate it longitudinally into the annual planning of the department of the subject. A periodized approach with force blocks distributed throughout the course can maximize the benefits. Coordination between

PE teachers is essential to ensure the didactic coherence of the programmes. Likewise, evidence indicates that programs carried out by teachers trained in the work of strength training improve student results and satisfaction (Mateos-Martín et al., 2025). Finally, working on strength has been shown to have a positive transfer to students' academic performance in the rest of the areas (Robinson et al., 2023; Pérez-Ramírez et al., 2025; Fraile-Martínez et al., 2024). For all of the above, it is essential to coordinate strength programs in order to work on them in an orderly way and that they are integrated into the curriculum, facilitating their implementation and their transfer to healthy lifestyle habits in students.

Evaluation Resources

Assessment must be supported by tools that allow assessing both technical performance or physical progress, as well as comprehensive conduct during the student's teaching-learning process, including self-regulation and teamwork. The elements to be evaluated depend directly on the objectives, competencies and content of the curriculum design. Therefore, instruments and indicators of achievement are proposed below, mainly related to the content and practice of the force's capacity.

4 ASSESSMENT INSTRUMENTS

The use of detailed **rubrics** focused on the technical quality of movements, the application of security measures or assertive communication in cooperative activities is recommended. These instruments facilitate formative assessment and coherence with the competencies, contents, and criteria provided (Black & Wiliam, 1998; Brookhart, 2013). Rubrics have been shown to be effective in promoting self-assessment and understanding of the expected standard (Gil-Espinosa et al., 2022).

Digital tools for recording performance and effort make it easier for students to self-assess and allow teachers to objectively measure the degree of involvement and individual progress in real time, and can be used for continuous assessment. In addition, the use of these tools enhances digital competence (Gil-Espinosa et al., 2022; Mateo-Orcajada et al., 2024).

Observation **lists** allow the teacher to measure the presence or absence of specific elements of student behavior. For example, identifying if a task is fulfilled and if you actively participate in a dynamic. Although it is more difficult to quantify the degree of mastery, it is an agile instrument for making an initial and/or final diagnosis and for conducting formative and summative follow-up (Heras et al., 2020; Caballero Martínez & López del Castillo, 2024).

Another instrument to objectively assess the evolution and degree of individual involvement are **performance tests**; simple tests can be used to assess the difference in performance between the beginning and end of the unit (Ramírez-Rubio et al., 2019).

And finally, self-assessment and co-assessment tests through **questionnaires** or rubrics are presented as effective systems to encourage self-regulation and reflection by students in PE, as they promote awareness and control of their own learning (Cañadas, 2022; González Cabrera, 2024). In addition, if they include assessments of perceived effort and session fatigue, they are useful for regulating the workload continuously (Rodríguez-Núñez et al., 2019).

5 CONCLUSIONS

This guide offers a didactic-methodological framework, aligned with the evidence to integrate force work in PE in a safe, inclusive and curricularly coherent way. Strength is not a competitive end in the school context, but a means to promote health, motor competence and meaningful learning when the principles of training are respected and translated into concrete pedagogical decisions. The basic principles of progressive overload, specificity, variation, individualization and periodization find their educational equivalent in didactic gradualness, alignment with learning outcomes, diversity of tasks, attention to diversity and phase sequencing. These convergence points allow the design of units with clear progressions, phased structures and options adapted to the level of each student, without compromising security or formative and summative assessment. The proposed curricular alignment provides a structure that can be transferred to different regulatory frameworks and realities. Methodologically, the guide shows that traditional approaches can be combined with innovative student-centred models, provided that supervision, load control and technical quality are ensured. Educational success is determined by fidelity to principles and the teaching capacity to create motivating and orderly contexts.

Regarding the limitations of this work, more studies are required in real school contexts that compare approaches, validate indicators and analyze the academic and psychosocial effects. However, the implementation of units focused on this content can face various difficulties such as the misperception of the suitability of strength training at an early age that persists in some educational contexts, limitations of space and material, as well as the lack of teacher training. Added to this is the heterogeneity of the students, both in their physical

condition and in their level of motivation with respect to this content. All of the above requires more flexible and differentiated methodological approaches.

In conclusion, strength work with adolescents in PE is relevant and safe when rigorously planned, supervised, and evaluated with valid evidence. This guide provides the key pieces for each teacher to build a program adapted to their context.

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**COGNITIVE DEVELOPMENT THEORY AND CONTRIBUTIONS TO
PEDAGOGICAL PRACTICE IN EARLY ELEMENTARY EDUCATION**

**TEORIA DO DESENVOLVIMENTO COGNITIVO E CONTRIBUIÇÕES PARA A
PRÁTICA PEDAGÓGICA NA EDUCAÇÃO BÁSICA ANOS INICIAIS**

**TEORÍA DEL DESARROLLO COGNITIVO Y CONTRIBUCIONES A LA
PRÁCTICA PEDAGÓGICA EN LA EDUCACIÓN BÁSICA EN LOS AÑOS
INICIALES**

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ABSTRACT

The study analyzes the Theories of Cognitive Development and their contributions to teaching practice in Basic Education, specifically in the Early Years of Elementary School. Educational practice in classrooms today is considered a challenging task due to the complexity of factors related to space, materials, methodologies, and learning, given that each child is a unique individual within their social environment. The approach adopted in this research is descriptive and based on previous studies, with a qualitative perspective. The theoretical foundations are based on the theories of Piaget (1896) and Wallon (1975), as well as other authors who address mental, emotional, and motor development, which are linked to interactions with the physical and social environment and are essential for the child's development. The study concludes that developmental theories present complexities both in understanding and in practical application in the classroom, since children develop biologically in different ways, influenced by their physical and social environment and by their living conditions. Therefore, it is essential that educators, based on studies of developmental theories, carefully observe children during their school activities. It is important to assess their intellectual particularities and activity patterns, as well as ensure that teaching practices, curriculum, environment, time, and didactic resources are appropriate to effectively meet the different stages of development and promote the child's overall progress.

Keywords: Cognitive Development. Pedagogical Practice. Early Years of Basic Education.

RESUMO

O estudo analisa as Teorias do Desenvolvimento Cognitivo e suas contribuições para a prática docente na Educação Básica, Anos Iniciais do Ensino Fundamental. A prática educacional nas salas de aula atualmente é considerada uma tarefa desafiadora pela complexidade dos fatores relacionados ao espaço, materiais, metodologias e à aprendizagem, dado que cada criança é um ser singular em seu ambiente social. A abordagem adotada nesta pesquisa é descritiva e baseada em estudos anteriores, com uma

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perspectiva qualitativa. As bases teóricas são fundamentadas na teoria de Piaget (1896) e de Wallon (1975), e outros autores que abordam o desenvolvimento mental, emocional e motor, que estão ligados às interações com o ambiente físico e social, sendo fundamental para o desenvolvimento da criança. O estudo conclui que as teorias de desenvolvimento apresentam complexidades tanto na compreensão quanto na aplicação prática em sala de aula, uma vez que as crianças se desenvolvem de maneiras diferentes biologicamente, e isso é influenciado pelo ambiente físico, social e nas condições de vida em que se encontram. Portanto, é essencial que os educadores, com base em estudos sobre as teorias do desenvolvimento, observem cuidadosamente as crianças durante suas atividades escolares. É importante avaliar suas particularidades intelectuais e momentos de atividade, assim como assegurar que as práticas de ensino, o currículo, o ambiente, o tempo e os recursos didáticos sejam adequados, de forma a atender de maneira eficaz as diferentes fases do desenvolvimento e a promover o progresso integral da criança.

Palavras-chave: Desenvolvimento Cognitivo. Prática Pedagógica. Educação Básica Anos Iniciais.

RESUMEN

El estudio analiza las Teorías del Desarrollo Cognitivo y sus contribuciones a la práctica docente en la Educación Básica, específicamente en los Años Iniciales de la Enseñanza Primaria. La práctica educativa en las aulas actualmente se considera una tarea desafiante debido a la complejidad de los factores relacionados con el espacio, los materiales, las metodologías y el aprendizaje, dado que cada niño es un ser singular dentro de su entorno social. El enfoque adoptado en esta investigación es descriptivo y basado en estudios previos, con una perspectiva cualitativa. Las bases teóricas se fundamentan en las teorías de Piaget (1896) y Wallon (1975), además de otros autores que abordan el desarrollo mental, emocional y motor, los cuales están vinculados a las interacciones con el entorno físico y social y son fundamentales para el desarrollo del niño. El estudio concluye que las teorías del desarrollo presentan complejidades tanto en la comprensión como en la aplicación práctica en el aula, ya que los niños se desarrollan biológicamente de diferentes maneras, influenciadas por su entorno físico, social y por las condiciones de vida en las que se encuentran. Por lo tanto, es esencial que los educadores, basándose en estudios sobre las teorías del desarrollo, observen cuidadosamente a los niños durante sus actividades escolares. Es importante evaluar sus particularidades intelectuales y momentos de actividad, así como garantizar que las prácticas de enseñanza, el currículo, el ambiente, el tiempo y los recursos didáticos sean adecuados para atender de manera eficaz las diferentes etapas del desarrollo y promover el progreso integral del niño.

Palabras clave: Desarrollo Cognitivo. Práctica Pedagógica. Educación Básica Años Iniciales.

1 INTRODUCTION

This study analyzes the Theories of Cognitive Development and their contributions to teaching practice in Basic Education, Early Years of Elementary School. It is widely recognized that the pedagogical work in the classroom with children presents several challenges for educators, since the conditions in the school environment are full of phenomena that demand advance planning, attentive and careful observation of the child, their needs and learning disorders.

Advances are perceived in fundamental public education, taking into account the dimensions of access, but the achievements are still restricted; Quality and equity are the biggest challenges to be faced in education by teachers, managers, children and young people. Basic education is marked by inequality in terms of quality and equity, although it is visible that the right to learning, access and permanence are not always present in the school life of all Brazilian children, especially from disadvantaged classes.

There are several factors that can negatively influence the child's cognitive development, and these factors are related to the environment and living conditions in which they find themselves. Therefore, an appropriate, structured school with motivated teachers in their activities is one of the ways in which the child can achieve full mental and emotional development, in addition to promoting significant progress in learning, benefiting their physical, psychological and social well-being. For this, the analysis of theories related to children and their cognitive capacities serves as a tool to help educators and the school in carrying out this task, which is quite challenging.

Initially, the Theories of Cognitive Development are presented with emphasis on the stages of development according to the theorists Piaget and Wallon. Consecutively, analyses of the theories and contributions to school education are carried out. The results indicate that theories related to human development are fundamental for understanding the circumstances that influence the cognitive development of children, as well as the development of learning. However, the practical implementation of these theories is complex and with several challenges, since the school environment demands knowledge and practices that go beyond the educational curriculum and teacher training.

2 METHODOLOGY

This work is classified as a descriptive and bibliographic research. According to Gil (2002), descriptive research is defined by the technique of describing the characteristics of a

specific phenomenon and is similar to explanatory research. In this sense, this study aims to describe and analyze not only the theory, but also the authors and the contexts in which they were developed. Simultaneously, the researcher's perceptions form a value judgment based on his position as a teacher and his familiarity with the school environment, the students and the phenomena observed in the classroom.

For this Gil (2002), descriptive investigations are not limited to the mere identification of the presence of relationships between variables, but seek to establish the nature of this relationship. In this case, it is a descriptive research that is similar to the explanatory one. Thus, the author emphasizes that "research that, although defined as descriptive based on its objectives, ends up serving more to provide a new view of the problem, which brings it closer to exploratory research" (Gil, 2002, p. 42).

The present study, which is based on a qualitative approach, aims to interpret relevant contents of the theories discussed; Thus, immersion in theoretical sources was essential, including a rigorous analysis of bibliographic research, taking into account the professional experiences and relevant perceptions of the researchers.

For Sampieri et al., (2013) qualitative research

It is to understand and deepen the phenomena, which are explored from the research of the participants in a natural environment and in relation to the context. The qualitative focus is selected when we seek to understand the participants' perspective [...] on the phenomena that surround them, to delve into their experiences, points of view, opinions and meanings, that is, the way in which the participants subjectively perceive their reality (SAMPIERI et al., 2013, p. 376).

Research with a qualitative focus mainly seeks to analyze data in depth, being specific to each situation. The data is thoroughly examined for the case in question, taking into account the historical and social perspective during the analysis process.

Regarding the analysis of the texts built from the theoretical basis, the following author says that:

To analyze means to study, to decompose, to dissect, to divide, to interpret. The analysis of a text refers to the process of knowledge of a given reality and implies the systematic examination of the elements; Therefore, it is to decompose a whole into its parts, in order to be able to carry out a more complete study, finding the key element of the author, determining the relations that prevail in the constituent parts, understanding the way in which they are organized, and structuring the ideas in a hierarchical way. It is the analysis that will make it possible to observe the components

of a set, to perceive their possible relationships, that is, to move from a key idea to a set of more specific ideas, to generalization and, finally, to criticism (LAKATOS, 2023, p. 28).

The researcher plays an essential role in carrying out a scientific study, assuming the responsibility of clearly bringing to light the ethical, philosophical and political dimension, aiming to promote social changes and contribute to the generation of new knowledge.

Thus, scientific research should not only be informative and critical of political and social particularities. It is necessary to recognize the deficiencies in the political and administrative spheres, as well as to present solutions for improvements and new directions to be explored.

3 RESULTS

3.1 STAGES OF DEVELOPMENT ACCORDING TO JEAN PIAGET

Based on psychological theories of development, theorists Jean Piaget (interactionist) and Henri Wallon (sociointeractionist) propose different phases of a child's cognitive growth. These theories provide the educator with a perspective on the child's development and its phases, which are not fixed, but dynamic, complex and require careful attention to structure teaching in order to meet cognitive specificities. Thus, these are significant factors to be taken into account with regard to human development, among other areas. To adapt teaching so that they help the child in their development and advancement, educators can modify the methods and contents according to the child's ability to understand, starting by identifying their needs, difficulties or learning disorders, which will allow the implementation of appropriate interventions.

Understanding the factors of child development is of paramount importance for the educator who works with the teaching of children from early childhood education. However, it is essential to emphasize that these theories should not be seen as teaching methods, nor did the authors discuss education; the focus of the study was exclusively on mental development according to Piaget and Wallon and influences from the physical and social environment. In this regard, Goulart (2015, p.161) points out that "many specialists in Pedagogy have appropriated Piaget's ideas and elaborated well-defined teaching proposals, among which Hans Furth, Hans Aebli and Ruth Berd stand out".

Next, we discuss the two very influential theorists in research on children's cognitive development: Piaget and Wallon. The authors conducted research that connects on various

aspects of the stages of cognitive development in childhood and the conditions necessary for the progress of intelligence at each stage. Thus, it is essential to highlight how each of them determines the child's mental development, which the educator must evaluate what to consider from this theory for practical teaching and the relevant contributions to education.

Biologist Jean Piaget, considered an interactionist, and also an epistemologist, was born in Switzerland in 1896 and died in 1980. The central objective of his research was to analyze how the human being develops knowledge, that is, how the child transitions from an initial stage, in which he still does not have mastery of language, motor skills and understandings of the physical world. Thus, his theory is inserted in the area of genetic epistemology, since he investigated the internal origin of human knowledge.

One of the essential aspects of Piaget's theory is the understanding that mental development goes through a process of progressive equilibrium, which goes through a smaller state to a state of higher equilibrium.

Thus, Piaget presents in his studies that:

Mental development is a continuous construction, comparable to the erection of a large building which, as something is added, will become more solid, [...]. However, an important difference must be introduced between two complementary aspects of this balancing process. From the outset, variable structures defining the successive forms or states of equilibrium must be opposed to a certain constant functioning that ensures the passage from any state to the next level (PIAGET, 1896, p. 14).

Xavier (2015) says that Piaget called the balance of these assimilations and accommodations, because mental development will take place in the sense of promoting a more precise adaptation to reality. Thus, mental development is a continuous process that begins in childhood and extends into adulthood, going through several stages and being influenced by internal biological processes and the external environment. Piaget's view suggests that the human mind is active, and growth encompasses the physical, mental, and emotional state.

Piaget observed his own children and classified structures that are formed through four stages of cognitive development, which are distinguished from each other and chronological development depends on each child. Each phase is marked by unique characteristics that differentiate it from previous phases, so each following phase depends on the previous one. The essence of these structures is maintained in the following stages

and the processes of accommodation, development and mental processes evolve more and more as the individual interacts with the physical environment.

Stage (*sensorimotor*), from birth to two years of age, which according to Piaget (1896, p. 15), are of reflexes, or hereditary mechanisms, as well as of the first instinctive tendencies (nutritious) and the first emotions. This period from birth to language acquisition is marked by an important development. For Piaget (1996-950), this stage is decisive for the entire course of psychic evolution, in which the child conquers perception and motor movements.

Moreira (2023, p. 76) points out that in the sensorimotor stage, according to Piaget, "the child does not differentiate his self from the environment in which he is. The motor functions are not yet coordinated, but isolated, and the only reference is the child's own body, hence egocentrism.

Stage (*preoperative*), from 2 to 6 or 7 years old, with the emergence of language, symbols and mental images, begins a very important stage in the child's mental development, motor habits and the first organized perceptions, as well as the first differentiated feelings.

Moreira (2023, p. 76) warns that at this stage the child's thinking begins to organize, but it is not yet reversible. He says that "the child's thinking is not capable of following a cognitive path and then mentally following it in the opposite direction in order to find the unmodified starting point". At this stage, the child remains self-centered, seeing reality as he experiences, whether coherent or not. The child usually falls into contradiction when faced with situations of conservation of the whole, such as (changing the shape, changing the quantity, weight, etc.), as well as a tall and thin container and a low and wide one containing the same amount of water. The child chooses the height of the container, sometimes the width, and in the direction of it the taller and thinner one has more water.

Stage (*concrete operative*) occurs around 7 to 11 years of age, is of sensory-motor or practical intelligence, prior to language. Piaget attributes that this stage is of the elementary affective regulations and the first external fixations of affectivity. These first three stages constitute the period of lactation, that is, prior to the development of language and thought. According to Moreira (2023, p. 77), "the child's thinking is more organized, it has the characteristic of a logic of reversible operations. [...] During this period, the child gains precision in contrast and comparison of real objects and becomes able to predict which container has the most water."

Eleven-twelve-year (*formal operative*) stage of intuitive intelligence, spontaneous interindividual feelings, and social relations of submission to the adult. From there the

concrete intellectual operations, the beginning of logic and moral and social sentiments of cooperation. As well as the stage of abstract intellectual operations, the formation of the personality and the affective and intellectual insertion in the society of adults (adolescents). Moreira (2023, p. 78), expresses that in the adolescent, the individual is capable of "making hypothetical-deductive reasoning, he starts to seek general hypotheses that can explain observable facts that have occurred". At this stage, the adolescent is able to manipulate mental constructs and correlate.

For Piaget (1999, p. 15) each stage is characterized by the appearance of original structures, whose construction distinguishes it from previous stages. [...]. Piaget points out that at each stage there are modifications due to the previous development, due to the need for better organization. Thus, he designated that each stage constitutes, by the structures that define it, a particular form of balance, and mental evolution takes place in the sense of an ever more complete balance.

3.2 STAGES OF DEVELOPMENT ACCORDING TO HENRI WALLON

The Frenchman Henri Paul Hyacinthe Wallon (1879-1962) was a psychologist, philosopher, physician and politician. He became known for his scientific work on Developmental Psychology and with experience in the medical field of psychiatry. He focused his studies on understanding the field of the human psyche, directed to the child, so his theory is about the genesis of psychic processes. Wallon sought to understand the person in a dynamic and complete process, for this he investigated the child in his psychic evolution and in cognitive, affective and motor development, elaborating this development by different stages and the interconnections between each field and its implications in the development of personality.

Wallon (1968, p. 13), studied the material conditions of the child's development, both organic and social conditions, and to see how, through these conditions, a new plane of reality is built, which is the psyche, the personality.

Galvão (2023), points out that Wallon developed an integrated study of development:

The various functional fields in which children's activity is distributed (affectivity, motor skills, intelligence). Seeing the development of man, being "genetically social", as a process in close dependence on the concrete conditions in which it occurs, he proposes the study of the child contextualized, that is, in his relations with the environment. (GALVÃO, 2023, p. 29).

The author defines Wallon's theoretical project as the elaboration of a psychogenesis of the complete person. This means that Wallon went beyond just studying the psychogenesis of intelligence development, which is related to how the child's learning develops. In short, Wallon (1968) observes that in the face of the development process there are impacts that modify behavior according to the conditions of the environment. That is, both internal development and personality are influenced by the social environment and this occurs in different ways in children.

In this regard, Wallon explains that:

For those who do not arbitrarily separate the behavior and conditions of existence proper to each period of development, each phase constitutes, between the possibilities of the child and the environment, a system of relations that makes them mutually specific. The environment cannot be the same at all ages. It is composed of everything that makes possible the procedures available to the child to obtain the satisfaction of his needs. But for this very reason it is the set of stimulants on which its activity is exercised and regulated. Each stage is at the same time a moment of mental evolution and a type of behavior. (Wallon, 1968, p. 48).

Thus, each phase represents a moment in which the organic element (internal skills) and the social aspect (cultural context) connect to facilitate the child's total growth. It is evident that children of the same age, but from different social backgrounds, can perform a complex task, while another child of the same age group may not be able to perform the same activity. That doesn't mean that one can be considered smarter than the other. They present experiences with the environment in which the interaction was most stimulated. The child who can perform the complex task had more opportunities, or a means that stimulated and enabled the development of those specific skills necessary for the activity.

It is not a matter of superior intelligence, but of a richer or more targeted social experience. In this way, Wallon explains that:

The psychic development of the child presents oppositions as are observed in any process of transformation, but which, owing to its breadth and the diversity of its conditions, must give rise to important problems here. [...]. In this way, in the child, factors of biological and social origin are opposed and mutually implicated. At the same time that at each stage a stable equilibrium is achieved between the present possibilities and the corresponding conditions of life, changes tend to take place whose cause is foreign to this exact functional relation. This cause is organic. (Wallon, 1968, p. 49).

Wallon dismisses the artificial division between what is internal (the child's actions and capacities) and what is external (life circumstances and environment). For him, in each phase of growth, the child and the environment constitute a set of interactions that can modify his maturation.

Gratiot-Alfandéry (2010, p. 34) says that "Wallon's psychogenetic theory of personality development integrates affectivity and intelligence. [...] this dynamic is marked by ruptures and overlaps, [...] the changes of phases do not occur by linear succession, as understood, for example, by Piaget".

Gratiot-Alfandéry (2010, p. 37), Henri Wallon points out that:

Affectivity is central in the construction of knowledge and of the person. The biological helplessness that characterizes the first two years of human life, due to the precarious conditions of organic maturity, determines a long period of absolute dependence of the child on the care of an adult in order to survive. This makes emotionality the force that guarantees the mobilization of the adult to meet his needs. Thinking like this, Wallon states that emotional expression is fundamentally social, as it precedes and surpasses cognitive resources.

It is known that children, from a very young age, interact with the world mainly through emotions, such as "crying" when they feel hungry, or seeking attention, and throwing a "tantrum" when they want something as an object. Dependence on an adult to meet their needs results in deep emotional bonds with parents. In this context, Wallon states that emotional development is essentially social, and precedes cognitive skills.

Wallon proposes that the child goes through six stages of development, which occur as follows: *Impulsive-emotional* stage, covers the first year of a child's life, emotion is a privileged instrument of interaction. (Galvão, 2023, p. 39).

It is through emotions that the child forms his first social interactions and with the environment around him. The baby's movements are initially disordered and gradually become more coordinated as different emotions manifest themselves.

Sensory-motor and projective *stage*, lasts until the third year of age, the child's interest turns to the sensory-motor exploration of the physical world. (Galvão, 2023, p. 39). It is mainly characterized by external interactions and the development of intelligence. This internship is practical and experiential, as the functional fields are interconnected; Generally, thought manifests itself through motor actions. During this period, the presence of symbolic elements and imitation is noted, which support the advancement of language.

Personalism Stage, from three to six years old, the central task is the process of personality formation. The construction of self-awareness, which takes place through social interactions, reorienting the child's interest in people, the return of affectivity (Galvão, 2023, p. 39-40). In the personalism stage, it is observed that the child is influenced by affective factors, demonstrating that he already has preferences in relation to what he wants and interests in different types of food.

According to Gratiot-Alfandéry (2010, p. 35), for Wallon this stage extends until the age of six; During this time, the child's personality and self-awareness develop. In this process, the child begins to oppose the adult with whom he lives and, simultaneously, the adults become models to be imitated, both in motor skills and social characteristics.

Categorical Stage, around the age of six, consolidation of symbolic functions and the differentiation of personality and advances in the level of intelligence. (Galvão, 2023, p. 40). The child starts to think conceptually, advancing to abstract thinking and symbolic reasoning, favoring functions such as voluntary memory, attention and associative reasoning.

Adolescence Stage, from the age of eleven. The puberty crisis breaks the affective "tranquility" that characterized the categorical stage and imposes the need for a new definition of the contours of the personality. (Galvão, 2023, p. 40).

In this period, physical and emotional changes predominate in the affective dimension. At this stage of adolescence, due to hormonal changes, it is common for internal and external conflicts to arise. The individual turns to himself, seeking to assert himself and deal with the transformations related to his sexuality and emotional crises.

The understanding of the development theories of the authors addressed is fundamental for the field of school education and teachers to build their pedagogical and curricular practices aligned with issues involving development (mental, physical, emotional) and the human essence.

4 DISCUSSION

4.1 THEORY OF COGNITIVE DEVELOPMENT AND CONTRIBUTIONS TO SCHOOL EDUCATION

The stages of development discovered by Piaget are important for the teacher to understand the conditions that affect the child's cognitive progress. The classroom environment is not limited to a passive position of spectator. It is a space for childcare,

interaction, dynamism and creative experiences that favor and stimulate the gradual development of the child.

Regarding Piaget's clinical method, the following author corroborates that:

The extension of the clinical method to school situations can be interpreted as this attitude of observation. In fact, teachers are often so preoccupied with teaching that they do not have enough patience to wait for children to learn. For this reason, they hardly wait for the child's answers and thus lose the opportunity to follow, through spontaneous answers, the reasoning structure of their students (GOULART, 2015, p.161).

The more there is imbalance in the mental schemes, new assimilations and adaptations occur with the child. According to Goulart (2015), Piaget's thesis is that cognitive development is a sequential process marked by stages characterized by mental structures.

The author then says that, "[...] In each of the stages, the way to understand the problems and solve them depends on the mental structure that the child has at that moment". Goulart (2015, p. 163). In this context, the teacher could carefully observe the moment in which the child is in his development. In addition, it could use the readiness probing instruments proposed by Piaget, and the pedagogical work could start from where the child needs to develop.

It is observed, as Piaget presents, that mental development is a process that occurs concomitantly with physical development.

Just as a body is evolving until it reaches a relatively stable level, characterized by the completion of growth and the maturity of the organs, so mental life can be conceived of as evolving toward a form of final equilibrium, represented by the adult spirit. [...] Thus, from the point of view of intelligence, it is easy to oppose the relative instability and incoherence of children's ideas to the systematization of adult reasoning. In the field of affective life, it has often been noted how much the balance of feelings increases with age. And finally, social relations also obey the same law of gradual stabilization. (PIAGET, 1999, p. 13).

According to Piaget, the mental development of the child is a continuous and progressive process that increasingly requires the need for the child to interact with the physical and social environment. This understanding is of paramount importance for the school to organize strategic spaces and materials to undertake the advancement of the child's learning, as it depends on this contact with the physical context (materials) and language for the process of assimilation, imbalance and accommodation.

In this regard, Piaget understands that:

By assimilating objects, action and thought are compelled to accommodate themselves to them, that is, to readjust themselves on the occasion of each external variation. It can be called "adaptation" to the balance of these assimilations and accommodations. This is the general form of psychic equilibrium. Mental development will then appear in its progressive organization as an ever more precise adaptation to reality. (PIAGET, 1999, p. 17).

In this sense, the child in his physical growth evolves his intelligence gradually, being able to gradually perform complex tasks of the previous stage, such as: expanding vocabulary through language, moving, thinking abstractly, manipulating objects, among other various skills. However, this evolution occurs in conjunction with mental, motor and emotional schemes.

Piaget characterizes the scheme of Assimilation as the way the organism (mind) acts in the face of reality. In this way, the mind is seen as a set of schemas that apply to reality. They tend to incorporate exterior elements compatible with their nature and to assimilate each other in increasingly larger, mobile and stable structures.

Moreira (2023, p. 80) attributes that Piaget's theory is about mental development, and not about learning, for him, "there is only learning (increase in knowledge) when the assimilation scheme is accommodated". Teaching/Educating means causing imbalance in the child's mind so that he seeks rebalance (major balance), restructures himself cognitively and learns.

Therefore, teaching must activate this mechanism through tasks that are increasingly overcoming the child's potential. This activation must be compatible with the level of mental development (cognitive stage) in which the child is. It is a common mistake to try to teach content that presupposes conservation and reversibility to children who do not yet have it, or to teach it at a purely formal level to children who are in operational-concrete reasoning in many areas.

Like so. Moreira (2023, p. 81) points out that for Piaget, "there is only learning when there is accommodation, that is, a structuring of the cognitive structure (existing assimilation scheme) of the individual that results in new assimilation schemes". Thus, the mind, as a cognitive structure, seeks to maintain balance, continuously raising its level of internal organization and adapting to the environment.

The implications of the theory of mental development demonstrate that teaching must be through actions and demonstrations. The child must have the opportunity to act (practical work). The action must be integrated with the teacher's argumentation to generate knowledge.

Piaget defends active methods:

The transformations of action resulting from the beginning of socialization are not only important for intelligence and thought, but also have profound repercussions on affective life. [...]. In all conduct, the motivations and energetic dynamism come from affectivity, while the techniques and the adjustment of the means employed constitute the cognitive aspect (sensor-motor or rational). There is never a purely intellectual action (multiple feelings intervene, for example: in the solution of a mathematical problem, interests, values, impression of harmony, etc.), just as there are no acts that are purely affective (love presupposes understanding). Always and everywhere, in behaviors related to both objects and people, the two elements intervene, because they imply each other. (PIAGET, 1999, p. 33).

In this process, the teacher is indispensable to create initial situations and devices that raise problems and to organize examples that lead to the control of hasty solutions. The teacher should stimulate research and effort, instead of transmitting ready-made solutions. He needs to be well informed about the peculiarities of the development of intelligence. If the environment is poor in unbalanced situations, the educator should produce them artificially, avoiding imbalances that do not lead to greater equilibrium.

Wallon, like Piaget, sought to understand how mental development occurs in the child, both agreeing that intelligence is not something that comes from birth. According to these authors, at birth, the child begins to develop the mind as he grows and has experiences with the physical and social environment. In this way, the development of intelligence occurs progressively until adulthood, its evolution deduces from the contact that the individual has in his social and cultural environment. From this perspective, however, development is not a straight and hierarchical line (as in Piaget), but rather a sequence of crises and conflicts that result in a dialectical transformation.

Galvão (2023, p. 29) clarifies that Wallon understands that the development of intelligence is driven by biological, cognitive factors and social and affective influences. In this way, Wallon's proposal is considered a Psychogenetics of the whole individual. This is because it is evident that the human being is interconnected with biological (cognitive/motor) and psychological (emotional/social) factors.

In this regard, Galvão (2023) argues that

Wallon progressively cedes space for determination to the social. Present from the acquisition of basic motor skills, such as grasping and walking, the influence of the social environment becomes much more decisive in the acquisition of higher psychological behaviors, such as symbolic intelligence. It is culture and language that provide thought with the instruments for its evolution. The simple maturation of the nervous system does not guarantee the development of more complex intellectual skills. In order for them to develop, they need to interact with "cultural food", that is, language and knowledge. Thus, it is not possible to define a terminal limit for the development of intelligence, nor of the person (GALVÃO, 2023, p. 36).

Wallon understands that there are no boundaries for the development of human intelligence; Our skills are endless, because by interacting with aspects of culture, we are able to absorb knowledge. This varies according to the environment in which the person is. For Galvão (2023), mental functions can continue their development in a continuous and complex process, even after they have already reached maturity.

The development of the child, for Wallon, is a process that can be continuous or discontinuous, as each phase brings transformations from the stage that precedes it. However, the actions of the previous process can be maintained in the subsequent process, which infers that the advancement depends on the circumstances in which the person lives. Therefore, affectivity is a motivating factor for learning and must be directly linked to pedagogical practice, ensuring that the bond and the emotional environment of the classroom are prerequisites for cognitive advancement.

Piaget proposes that mental development goes through a process of progressive equilibrium, according to the stages, it goes through a lower state to a state of higher equilibrium, while Wallon emphasizes that development is characterized by functional alternation and by conflicts and crises that promote a dialectical transformation of functions, not following a continuous linear and hierarchical trajectory of overcoming, but rather a sequence of reorganizations motivated by this alternation between the affective and the cognitive.

Wallon, for example, emphasizes the interconnection between the affective, motor and cognitive fields, with affectivity being central in the construction of knowledge and the sociocultural context. Development is a continuous and discontinuous process, as opposed to Piaget's "progressive equilibrium" and hierarchical, as each phase brings transformations, but the actions of the previous process can be maintained in the subsequent one

Piaget (Cognitive Psychogenetics) with the main focus on cognition (Intelligence). Thus, the nature of the Stages is sequential and hierarchical (the previous stage is a prerequisite for the next). The mechanisms of change occur through Equilibrium (constant search for balance between assimilation and accommodation).

Wallon (Functional Psychogenetics) his main focus was the integration of affective (emotion), motor and cognitive dimensions. The nature of the Stages persists in functional alternation (sometimes affective predominance, sometimes cognitive predominance). The mechanism of change is conflicts and crises (dialectical transformation of functions). Finally, the moment of greatest convergence is in the idea that development is an active construction that occurs through interaction, but Wallon complements Piaget by integrating affectivity as a central factor, especially in the first years of life.

Therefore, for Wallon, pedagogical practice should be a constant invitation to functional interconnection (affect, motor and cognition), promoting an environment rich in social and cultural stimuli (the "cultural food") that meets the crises and conflicts of each stage. This constitutes Wallon's mechanism of change.

In general terms, although Piaget and Wallon present foci and structures of different stages, the main intersection between their theories lies in the emphasis they both give to action and the interaction of the individual with the environment, this as essential engines of development. Piaget focuses on the interaction of the subject with the object (the physical environment) for the construction of knowledge, where the child's action leads to the assimilation and accommodation of new mental schemes. Wallon emphasizes the importance of interaction with the social and human environment, highlighting the mediating function of emotion and affectivity for the development of intelligence and personality. Both see the child as an active being in the process of building their development and not just a passive receiver of information.

In view of the theories presented, it is understood that the teaching performance increasingly requires competencies that go beyond the transmission of information or just keeping the child as a spectator/listener in the classroom. It includes processes of interaction of instruments that constitute the internal development and construction of knowledge and the consolidation of the evolution of learning.

5 CONCLUSION

Piaget's interactionist theory and Wallon's socio-interactionist theory offer important contributions to understanding that child development is a dynamic process, which depends on biological (internal) and environmental (social) conditions, which is continuously altered and transformed by human actions. The stages proposed by the two theorists, in a way, contribute to educators and psychologists having bases for recognizing the stage in which the child is. Because it allows the possibility of creating meaningful strategies to help her progress or, at the very least, not interfere negatively. Understanding the stages of development helps to clarify the child's internal conflicts, emotions, and personality formation, in addition to highlighting how much he depends on the adult for his survival and evolution.

In view of the complexity of teaching and learning, it is concluded that it is essential for the teacher to have self-formative and continuous alternatives in studies on theory and practice. This search is essential for understanding the necessary conditions for the development of the child's learning, which also depends on biological and emotional development.

In short, although the theories of cognitive development presented are the "scientific" basis for understanding the child, the success of teaching and the progress of learning depends on the continuous effort of the teacher and the school to adapt this knowledge to the singular and dynamic reality of their classroom, promoting didactic situations with significant interactions and instruments for the constitution of the imbalance, balance and cognitive accommodation defined by (Piaget), and the integration of the complete person according to (Wallon). However, it is essential to continue research that, based on these theories, develops new effective knowledge that meets current social needs, as behaviors change and alter over time.

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ORAL REPORTS OF TEACHERS ON THE IMPLEMENTATION OF DIGITAL TECHNOLOGIES IN PUBLIC HIGH SCHOOLS IN COLINAS DO TOCANTINS

RELATOS ORAIS DOS PROFESSORES NA IMPLEMENTAÇÃO DE TECNOLOGIAS DIGITAIS NAS ESCOLAS PÚBLICAS DE ENSINO MÉDIO EM COLINAS DO TOCANTINS

INFORMES ORALES DE DOCENTES SOBRE LA IMPLEMENTACIÓN DE TECNOLOGÍAS DIGITALES EN LAS ESCUELAS PÚBLICAS DE SECUNDARIA EN COLINAS DO TOCANTINS

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ABSTRACT

The implementation of digital technologies in public high schools is a relevant challenge, especially in regional contexts marked by socioeconomic inequalities, such as Colinas do Tocantins, Brazil. This study aims to analyze teachers' perceptions regarding the use of these resources in everyday school practices, based on Thematic Oral History. Semi-structured interviews were conducted with three teachers from different public institutions in the city. The interviews were transcribed, validated, and analyzed through thematic categorization. The findings revealed three main issues: limited school infrastructure, restricted teacher training, and students' unequal access. These factors constrain the pedagogical effectiveness of digital tools and show that merely providing equipment or punctual training does not ensure methodological innovation. It is concluded that the meaningful integration of digital technologies depends on the articulation of adequate infrastructure, continuous teacher training, and public policies committed to social equity. The study contributes to broadening the debate on digital inclusion in basic education and provides insights to support educational policies aligned with local realities.

Keywords: Digital Technologies. High School. Public Schools. Oral History.

RESUMO

A implementação de tecnologias digitais nas escolas públicas de Ensino Médio constitui desafio relevante, especialmente em contextos regionais marcados por desigualdades socioeconômicas, como Colinas do Tocantins. Este estudo tem como objetivo analisar as percepções de professores acerca do uso desses recursos no cotidiano escolar, com base

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na História Oral Temática. Foram realizadas entrevistas semiestruturadas com três docentes de diferentes instituições públicas da cidade, cujos relatos foram transcritos, validados e analisados por meio de categorização temática. Os resultados evidenciaram três eixos centrais: infraestrutura escolar precária, formação docente restrita e desigualdade de acesso dos estudantes. Tais fatores limitam a efetividade pedagógica das tecnologias e demonstram que a simples entrega de equipamentos ou treinamentos pontuais não assegura inovação metodológica. Conclui-se que a integração significativa das tecnologias digitais depende da articulação entre infraestrutura adequada, formação docente contínua e políticas públicas comprometidas com a equidade social. O estudo contribui para ampliar a reflexão sobre inclusão digital na educação básica e para subsidiar políticas educacionais mais alinhadas às realidades locais.

Palavras-chave: Tecnologias Digitais. Ensino Médio. Escolas Públicas. História Oral.

RESUMEN

La implementación de tecnologías digitales en escuelas secundarias públicas plantea un desafío significativo, especialmente en contextos regionales marcados por desigualdades socioeconómicas, como Colinas do Tocantins. Este estudio tiene como objetivo analizar las percepciones de los docentes con respecto al uso de estos recursos en la vida escolar diaria, con base en la Historia Oral Temática. Se realizaron entrevistas semiestructuradas con tres docentes de diferentes instituciones públicas de la ciudad, cuyos relatos fueron transcritos, validados y analizados mediante categorización temática. Los resultados destacaron tres ejes centrales: infraestructura escolar deficiente, capacitación docente limitada y acceso desigual de los estudiantes. Estos factores limitan la efectividad pedagógica de las tecnologías y demuestran que simplemente proporcionar equipos o brindar capacitación específica no garantiza la innovación metodológica. La conclusión es que la integración significativa de las tecnologías digitales depende de la articulación de una infraestructura adecuada, la capacitación docente continua y las políticas públicas comprometidas con la equidad social. El estudio contribuye a ampliar el debate sobre la inclusión digital en la educación básica y a apoyar políticas educativas más alineadas con las realidades locales.

Palabras clave: Tecnologías Digitales. Escuela Secundaria. Escuelas Públicas. Historia Oral.

1 INTRODUCTION

The implementation of digital technologies in public high schools has been a recurring challenge in Brazil. Technological advancement has brought new pedagogical possibilities, but it also imposes structural difficulties, teacher training and student access to digital resources.

In this context, understanding the use of digital technologies from the oral reports of teachers becomes essential to evaluate the effectiveness of educational policies and point out alternatives appropriate to the local reality.

Digital technologies offer a variety of resources that can be used as pedagogical tools in the classroom. Its incorporation into the school environment is increasingly essential to enhance the teaching-learning process. According to Kenski (2021), there is no doubt that new communication and information technologies have brought considerable and positive changes to education.

In this way, the use of technologies in education can contribute significantly to student learning, promoting greater interaction with the environment and people around them.

In addition, they make the classroom a more dynamic, attractive and interactive space, favoring the engagement of all those involved in the educational process. In this context, the guiding question of this study is: what are the perceptions and expectations of teachers in the use of digital technologies as a methodological resource in high school in public schools in Colinas do Tocantins? From this question, it is intended to investigate how the presence of digital technologies influences the daily life of teachers, what are the barriers faced and what strategies can be adopted to optimize their use in the local educational context.

High school teachers who work in public schools in Colinas do Tocantins, who are part of the researched sample, have diverse perceptions about the use of digital technologies in teaching. While some recognize its potential to make classes more dynamic and interactive, others face difficulties due to the lack of infrastructure, adequate training, and inequality in access. Expectations revolve around improving infrastructure, increasing student engagement and quality in the teaching-learning process.

To solve these challenges, it is essential to invest in teacher training for the efficient use of technologies, ensure adequate infrastructure (quality internet and equipment), in addition to promoting a digital culture in schools, encouraging the pedagogical use of these tools in an inclusive and accessible way.

This study aims to analyze the implementation of digital technologies in public high schools in Colinas do Tocantins, based on the oral reports of teachers. Specific objectives; conduct interviews with three teachers from different public schools, collecting their points of view on the implementation of digital technologies in the school context in which they are inserted; reflect on public policies and educational actions aimed at the integration of digital technologies in teaching; to investigate the main challenges faced by teachers in the use of digital technologies as a pedagogical resource, including aspects of training, infrastructure and student access.

The research is justified by the need to analyze the impact of technologies on school dynamics, considering the socioeconomic specificities of the region of Colinas do Tocantins. As Lévy (2018) points out, the information society demands a new look at the role of the school in the education of students, emphasizing collaborative and critical learning mediated by digital technologies.

From the analysis of the oral reports of educators, this work contributes to the reflection on the effectiveness of public policies for digital inclusion, providing subsidies for the construction of more effective strategies aligned with the real needs of schools. In this way, the research seeks not only to understand the current scenario, but also to foster discussions that can influence future actions to improve the quality of education in the public network, promoting reflections that can subsidize more effective educational policies aligned with the needs of teachers and students.

The study is limited to teachers who work in high school in the public network of Colinas do Tocantins. The research is based on oral reports of teachers, seeking to understand their experiences, challenges and expectations in the use of digital technologies in the classroom. Only the perceptions of teachers who have previous experience with these tools or who show interest in their implementation were considered.

However, the survey did not address the perspective of students, school managers or broader public policies related to the adoption of digital technologies in education. In addition, the study did not set out to technically evaluate the digital tools used or to quantitatively measure the impact of the use of these technologies on students' school performance. The methodology used was the qualitative approach, through interviews and oral reports of the participating teachers. The research also did not propose technological solutions or training for teachers, but rather to understand their perceptions and expectations regarding the implementation of these tools in the local educational context. With this delimitation, it was

sought to ensure a precise cut for the investigation, allowing an in-depth analysis of the teachers' perceptions without extrapolating the initially proposed objectives.

2 METHODOLOGY

This research is characterized as qualitative and is based on Thematic Oral History (Alberti, 1998; Santiago, 2008), for valuing the experiences, perceptions and memories of teachers about the use of digital technologies in the classroom. The chosen approach allows us to understand how teachers construct meanings and face challenges in daily pedagogical practice.

Semi-structured interviews were conducted with three teachers who work in high school from different public institutions in Colinas do Tocantins: the Federal Institute of Tocantins (IFTO), the João XXIII Military College and the Francisco Pereira Felício State School. Participants were selected considering the diversity of school contexts, previous experience with digital resources and time of teaching experience.

The interviews were audio-recorded, fully transcribed and returned to the interviewees for validation, ensuring the fidelity of the reports and ethics in the use of the information. For the analysis, thematic categorization was adopted (Bardin, 2011), from which three axes of discussion emerged: school infrastructure, teacher training and inequality of access for students. These axes were confronted with the theoretical framework, allowing the triangulation between speeches, documents and scientific literature.

The research is limited by the restriction of the sample to three teachers and the absence of the perspective of managers and students. Thus, it does not intend to generalize the results, but to offer an in-depth analysis of teachers' perceptions in different school contexts in the city.

3 THEORETICAL FOUNDATION

3.1 THE IMPLEMENTATION OF DIGITAL TECHNOLOGIES IN THE SCHOOL

The participants of the research are high school teachers from public schools in Colinas do Tocantins, selected based on their geographic location, aiming to provide a comprehensive understanding of the use of technologies in the classroom and their multiple contexts. The interviews aim to explore the experiences of these professionals regarding the use of digital technologies in their pedagogical practices in the teaching-learning process.

In this sense, the following is the presentation of the professors selected for the interviews: Professor at the Federal Institute of Education, Science and Technology of Tocantins – IFTO, which is a technical and higher education institution with diversified training offer, has its Campus in Colinas do Tocantins located in a rural area. Thus, it is important to understand how the institution, whose teacher works with an exclusive workload, with its focus on professional education, integrates digital technologies into the curriculum and the learning environment.

Teacher at the Military College of the State of Tocantins João XXIII – School that serves students from Elementary School II and High School, only during the day, located in the central part of the city, has a differentiated educational approach, with a strong emphasis on discipline and organization. The interview with this professional, who has a full workload only at this institution, aims to explore how digital technologies are incorporated into the military context, taking into account the particularities of this teaching environment.

Teacher at the Francisco Pereira Felício State School – School that also receives students from Elementary School II and High School, located in a neighborhood close to the central part of the city, serves at maximum capacity in terms of number of students, plays an important role in high school in Colinas do Tocantins, as it receives students who have not adhered to full-time or military education. Context in which the report is essential to understand the difficulties and possibilities experienced in the use of digital technologies in a state educational institution, with a peripheral location, addressing the reality of a professional who works in two educational institutions to complete the workload.

The implementation of digital technologies in public schools has been a recurring theme in education studies, mainly due to its potential to transform the teaching-learning process. The integration of digital tools in the school context not only offers new teaching possibilities, but also promotes a more dynamic, collaborative and accessible environment. However, its adoption in public schools faces structural challenges, such as the lack of adequate infrastructure, continuous teacher training and resistance to the use of new technologies (Valente, 2000).

Technologies have accompanied humanity since the earliest times. According to Kenski (2021, p. 15), "[...] technologies are as old as the human species." Since the Stone Age, humans have developed tools and techniques to adapt to their environment, ensuring their survival. Initially, innovations were linked to physical strength and the ability to manipulate elements of nature to hunt, build shelters, and produce fire. Over time, human

needs have diversified, driving the creation of new technologies that have made life easier in different aspects. Today, although tools and devices have become more sophisticated, their purpose remains the same: to improve processes, optimize tasks, and contribute to the individual and collective development of society.

Digital technologies play a fundamental role in daily life, influencing both interpersonal relationships and educational and professional processes. According to Kenski (2021), technology can be understood as the set of tools and techniques used according to the needs of each era. Today, we live in a highly technological society, in which these resources are integrated into various day-to-day activities.

In the field of communication, for example, it is possible to keep in touch with family and friends instantly through devices such as cell phones and computers. In addition, the dissemination of information occurs quickly and affordably through televisions, computers, and other digital media, allowing people to stay up-to-date on global events. In education, the presence of technology is also remarkable. The use of equipment such as computers and projectors (Datashow) has transformed the school environment, enabling the exhibition of videos and audiovisual materials that enrich learning. These resources facilitate the understanding of the content, making the classes more dynamic and interactive, which contributes to a more efficient and attractive teaching for students.

According to Valente (2020), the use of digital technologies in schools requires more than the simple inclusion of equipment. It is essential that teachers and students develop a new way of interacting with the content and with the technological means available, which requires a reformulation of pedagogical practices. Technologies are not neutral instruments, they have a direct impact on teaching methodologies and relationships within the classroom.

Luck (2013) highlights that the implementation of technologies in the school environment must be linked to a well-structured pedagogical strategy, which considers the reality of the school and the needs of the students. The author warns of the risk that the simple introduction of technologies will not be enough if there is no continuous monitoring and effective integration with educational curricula. In addition, an important aspect is the training of teachers, which must be continuous and accompanied by practical experiences, so that they can explore technologies in a critical and creative way. The work of Almeida (2019) reinforces that teacher training is one of the pillars for the successful implementation of digital technologies in schools. For the author, without the appropriation of technological

knowledge by educators, the use of digital tools does not result in an effective improvement in teaching.

According to Moran (2020), contemporary society is in a continuous process of adapting to the new possibilities offered by technological advances. This transformation directly influences communication and teaching, promoting integration between human beings and technology, as well as between the individual, the group and society. Given this scenario, it is essential to understand the need to adapt to the use and handling of technological devices in the educational environment. The incorporation of these tools in the classroom can facilitate learning, providing new, more dynamic and interactive teaching methods. In addition, technology contributes to reducing the barriers imposed by physical distance, expanding access to knowledge and promoting an increasingly connected and innovative education.

Technology is deeply integrated into various aspects of human life, influencing eating habits, daily routines, ways of working, health services, and educational processes. As its presence expands in society, it becomes essential to discuss its definition, impacts, and theoretical and critical implications (Silva, 2020, p.2). Technological advancement drives constant innovations that transform the way we live, facilitating our daily and professional activities. In the field of education, these innovations play a key role in the modernization of teaching, providing new tools and methodologies that enhance learning and pedagogical practice.

The implementation of digital technologies in public schools is a complex process, but essential for the advancement of education in Brazil. For this process to be successful, a joint effort by governments, schools, and teachers is needed, focusing on improving infrastructure, continuous training, and overcoming resistance. In this way, it will be possible to ensure that all students have access to quality education and that technologies can be used effectively for the development of essential skills for the 21st century.

3.2 PUBLIC POLICIES AND EDUCATIONAL ACTIONS AIMED AT THE INTEGRATION OF DIGITAL TECHNOLOGIES IN EDUCATION

The integration of digital technologies in education has been a central theme of public educational policies in recent decades. The use of these technologies not only expands the possibilities of learning, but also requires a reconfiguration of pedagogical practices and the structural conditions of schools. The analysis of public policies aimed at digital integration in

education allows us to understand the State's intentions to improve educational quality and social inclusion, while challenging schools to adapt to the new demands of the contemporary world.

According to the National Education Plan (PNE) (2014-2024), one of the fundamental guidelines is the promotion of digital education, highlighting goal 7, which seeks to "expand access to and use of information and communication technologies in schools". However, the mere introduction of these technologies in schools is not enough to guarantee their effectiveness. Levy (2000) points out that the digitization of knowledge profoundly alters educational processes, making knowledge more accessible, but at the same time more fragmented. In this context, he argues that digital technologies should be used to create a new learning environment, in which the student is more autonomous, capable of seeking information collaboratively. However, this transformation requires continuous training of teachers, as pointed out by Valente (2009), who emphasizes the need for specific teacher training for the pedagogical use of technologies, without which digital teaching can only result in the mere application of technological tools, without a real impact on learning.

The Law of Guidelines and Bases of National Education (LDB), in its article 10, item V, reaffirms that teaching must incorporate digital technologies, but this integration must be done in a contextualized and meaningful way for the learning process. Sacristán (2000), in turn, argues that educational policies need to be accompanied by a critical reflection on the use of these technologies, avoiding an uncritical adherence to technological innovations that can transform schools into "digital spaces", but without effectively transforming the pedagogical model.

Finally, it is important to note that the implementation of digital technologies in Brazilian schools faces significant challenges, such as the lack of adequate infrastructure, teacher training, and resistance to change. However, as pointed out by Teixeira (2014), public policies that favor digital inclusion have a transformative potential, not only in the pedagogical aspect, but also in access to information and citizenship. The key to the success of this integration lies in the ability to transform technologies into tools that enhance teaching, making it more inclusive and efficient.

Therefore, public policies and educational actions aimed at the integration of digital technologies must be planned and implemented in a way that respects the specificities of each school context and seeks not only the insertion of technological tools, but also a

transformation in the pedagogical processes and in the training of all those involved in the educational process.

4 RESULTS AND DISCUSSION: TEACHERS' REPORTS

The analysis of the interviews was organized into three thematic axes – *school infrastructure*, *teacher training* and *inequality of access for students*. This categorization emerged from the oral reports and was articulated with the theoretical framework, making it possible to understand the tensions and challenges of the implementation of digital technologies in public schools in Colinas do Tocantins.

The use of digital technologies as a pedagogical resource has become an important point of debate in the contemporary educational scenario. However, the effective implementation of these technologies faces a number of challenges. These obstacles directly impact the quality of teaching and the integration of digital technologies in the school environment.

4.1 SCHOOL INFRASTRUCTURE

The testimony of teacher Núbia Dias Correa Dantas (Francisco Pereira Felício State School) reveals that "(...)technology has to be part of our lesson plans much more often." However, he reports the precariousness of the technological infrastructure:

"(...) use of televisions, notebooks and chromebooks that the state provides and even so we bump into the school's internet access because the school is a large environment. There would have to be routers in each room (...)" (Dantas, 2025).

Report shows that the equipment reaches schools, revealing the investments made in technologies, but the absence of connectivity makes its effective pedagogical use unfeasible. As Pinto (2020) points out, insufficient digital infrastructure compromises the potential of technologies and widens inequalities between public and private schools, which generally have more favorable conditions.

The interviewee points out as one of the main problems the lack of routers sufficient to cover the entire school, which compromises the effective use of these technologies in the classroom. This scenario reflects a structural deficiency that limits the full use of digital resources in education, especially in regions further away from large urban centers.

School infrastructure is a crucial factor for the implementation of digital technologies. In Brazil, many educational establishments still face difficulties related to the lack of adequate equipment, poor internet connection, and the absence of technological maintenance (Pinto, 2020).

These problems significantly limit the possibilities of pedagogical use of technologies. According to Salgado (2020), insufficient infrastructure compromises the use of digital resources and widens inequalities between public and private schools, in addition to demotivating educators who cannot see the positive results of investment in technologies.

According to Silva (2021), the lack of adequate technological resources compromises the effectiveness of the use of digital tools, resulting in a fragmented and often inefficient experience for students and teachers. The quality of the internet, the availability of computers and the updating of systems are issues that directly impact the implementation of innovative pedagogical strategies.

In this sense, teacher Núbia Dias Correa Dantas (Francisco Pereira Felício State School) reinforces that:

"(...) as for infrastructure, because in many schools the technological infrastructure ends up being insufficient, for example, some internet connection points, everywhere it is so good, which ends up making us always have a plan B when we decide to use it, and this makes us a little frustrated, when we prepare a class that will insert the use of technology there and then, for this reason, in the case of a bad internet, not being able to give that content (...)" (Dantas, 2025)

In this regard, Professor Aletícia Rocha da Silva (Colégio Militar João XXIII) reported that:

"So I would have to have routers in each classroom, we don't have them, so we have this problem to use certain technologies because of this infrastructure that is still very deficient here in the interior of Tocantins. We have an internet that is restricted to access, when it says a restricted bandwidth, it is not high-speed, so we end up being disappointed with some uses." (Silva, 2025).

Kenski (2012) also emphasizes that technology in education should not be reduced to a technical resource, but articulated with material and pedagogical conditions that ensure its functioning. In this way, the lack of adequate internet transforms the advances promised by technological innovation into a frustrated expectation. This gap pushes teachers to improvise, compromising both the quality of teaching practice and the equity in students' right to learn.

Professor Luiz Alberto Libânio Lima (Federal Institute of Tocantins – IFTO), even emphasizing that there are no infrastructure problems in the educational institution that is an impediment to the use of digital technology as a teaching tool, reports that technical situations occur.

“(...)Speaking for the institution where I work, where I work, I have no problem with infrastructure. I believe that the computers are very good, the internet network too. But like any technology, sometimes it happens that there is a bug, something or other, but like, something very insignificant for a process as a whole.” (Lima, 2025).

In this sense, it is possible to affirm that the challenges imposed by reality regarding the infrastructure for the use of digital technologies, observed in public schools so that they become opportunities, in a strategic role in improving teaching and learning, require a collective commitment that involves not only educators, but also school managers and, especially, public policy makers.

Thus, the oral reports of the research participants highlight a common problem faced by teachers when trying to implement digital technologies in education: inadequate infrastructure. The report brings to light the urgency of investments in technology and infrastructure in schools, to ensure that teachers can use technological resources effectively and without obstacles.

4.2 TEACHER TRAINING

Professor Núbia Dias Correa Dantas (Francisco Pereira Felício State School) pointed out the importance of teacher training for the use of digital technology resources:

“I see as one of the great challenges that we, as teachers, face about the use of technological resources within the classroom, first, the issue of training, which not all teachers have (...) has the necessary training to use technology effectively.” (Dantas, 2025).

Silveira (2021), corroborates that all social strata need to invest in qualification to keep up with the advancement of intellectual technologies, as this is what it is about when we talk about inclusion in the information society, he also emphasizes that overcoming poverty will not come only through emergency aid, but through the creation of intelligent social collectives, which train people for the new economy and for new forms of coexistence. Thus, it argues

that it is possible to use knowledge sharing tools to claim rights, expand citizenship and transform living conditions.

Teacher Núbia Dias Correa Dantas (Francisco Pereira Felício State School) reported on the absence of teacher training in order to collaborate for the use of digital technology resources:

“(...) for the use of digital technologies in school, basically, I had no training. What I really do have is previous knowledge that we try to seek and use within the classroom. But I didn't have training as a teacher within schools. (Dantas, 2025).

In this sense, the teacher pointed out that the government makes the tools available, referring to the receipt of Chromebooks at school, but the training to use them takes place, for the most part, in a virtual environment. But it is incompatible with the routine of teachers, who even manage to set aside some time, but end up overloaded with other activities. As a result, the training process ends up being impaired.

According to Moran (2013), teacher training is a decisive factor for the proper use of digital technologies. Many teachers, despite being familiar with digital tools in their daily lives, do not have the necessary training to use them in a pedagogical and critical way. This is reflected in the resistance of some educators to the incorporation of technologies in their practices, as they feel insecure or unprepared to deal with these tools in the teaching process.

Professor Luiz Alberto Libânio Lima (Federal Institute of Tocantins – IFTO) highlighted limitations in the training offered:

“(...) We had some training focused on the use of digital tools at school. But the training was precisely in the tools, specifically Google Classroom (...)” (Lima, 2025).

The criticism present in the report shows that, although there is an offer of training, it is fragmented. This limitation ends up reducing pedagogical innovation to instrumental training, without contemplating the complexity of educational practice. the interviewee points out that, during the training offered, the focus was on the digital tools used in the school, but the training offered focused specifically on Google Classroom. This suggests that while there was an intention to work with diverse digital tools, training was limited to that particular platform, which may indicate a lack of a broader approach to other digital tools that could be useful in the educational context.

Almeida (2019) argues that training should be continuous and contextualized, aimed at strengthening teachers' autonomy, enabling them to understand and choose, in a critical way, the resources that best dialogue with the needs of students and pedagogical objectives. In a complementary way, Moran (2013) reinforces that pedagogical innovation is not limited to technique, but involves the creation of critical and creative practices.

The case reported by Professor Luiz Alberto Libânio Lima (Federal Institute of Tocantins – IFTO) confirms Valente's (2020) criticism that policies that focus on a single digital tool do not promote significant methodological changes. On the contrary, they end up stifling the pedagogical work and limiting the possibilities of exploring technologies.

Teacher training is, without a doubt, one of the biggest challenges. Silva (2021) points out that many teachers do not receive adequate training to use technologies effectively in their pedagogical practices. Although teachers are increasingly familiar with digital tools in their daily lives, the transposition of this knowledge into educational practice requires specific preparation.

Continuing education, therefore, is essential to ensure that teachers can explore the potential of technologies in a critical and creative way. According to Almeida (2019), teacher training must be continuous and contextualized, taking into account the specificities of each school reality and the various digital tools available.

In this context, teacher training needs to be conceived in a broader way, articulating the technical domain with the pedagogical, methodological and critical dimensions. This means preparing the teacher not only to operate tools, but to plan, evaluate and reinvent educational practices, exploring the diversity of digital resources available. Only then can technology be meaningfully integrated into the curriculum, strengthening students' right to learning and the quality of education.

4.3 UNEQUAL ACCESS FOR STUDENTS

Professor Aletícia Rocha da Silva (Colégio Militar João XXIII) emphasized the social inequality that crosses the adoption of digital technologies:

“(...) This very diverse audience impacts the use of technologies because I cannot assume that all my students have access to the internet, notebook or cell phone. Often the family shares a single device (...)” (Silva, 2025).

The professor's report explains a crucial aspect of the debate on digital inclusion: students' unequal access to technologies. At the same time that educational policies encourage the use of digital resources, the socioeconomic reality of many families makes it impossible for such proposals to reach all students in an equitable way. Silva's speech shows that the assumption that everyone has the internet, notebook or cell phone is wrong, as it disregards the context of vulnerability in which many live.

This report brings to light the social dimension of digital inclusion. The assumption that all students have access to the internet and individual equipment configures what Moran (2015) calls the *illusion of technological universality*, that is, the idea that it is enough to make digital tools available for everyone to have the same learning opportunities. In practice, this view ignores structural inequalities, such as the lack of family income, the division of a single device between several members of the house, and the lack of adequate connectivity. In addition, Silva (2020) warns that the absence of policies sensitive to socioeconomic differences means that technologies, instead of reducing inequalities, end up expanding them, creating new barriers in the educational process.

In this sense, the teacher's speech denounces that the digital inclusion policy needs to go beyond the walls of the school, also involving home access and support for families. Otherwise, the risk is the reproduction of historical exclusions in an environment that is now "digitized", but not necessarily democratic. It is necessary to have a broader view, which includes home access and policies to support families, ensuring basic conditions for students to follow digital activities outside the classroom. This involves everything from public investments in universal connectivity programs to partnerships with private companies to expand free or subsidized access to data packages and devices.

If such measures are not implemented, the risk is the perpetuation of historical exclusions in a scenario that is now "digitized", but still marked by social inequality. Digitalization, in these terms, can become a false promise: the discourse is modernized, but the structural problem remains untouched. Therefore, the challenge is to transform digital inclusion into an effectively democratic policy, which considers the different social contexts and actually promotes equity in the right to learning.

Another point raised was the need to educate students for the conscious use of technologies. As Professor Luiz Alberto Libânio Lima (Federal Institute of Tocantins – IFTO) points out, students do not always have adequate skills to use digital tools productively. Distraction and misuse of devices are challenges that compromise learning: "(...) my students

are not trained, qualified to use digital tools in their entirety, (,,,) the student has to be educated to use these tools (...)

Moran (2015) highlights that it is essential to establish a digital culture in the school, in which technologies are incorporated with clear objectives and well-defined didactic strategies.

In this sense, the teachers interviewed recognize that the insertion of technologies in teaching is an irreversible trend. However, there is a critical view of its effective implementation in the context of public schools. Inequality in access to the internet is a challenge that needs to be addressed. Reflection on the socioeconomic diversity of students is essential for Brazilian education to fully use technological advances as tools for inclusion and improvement of teaching.

5 FINAL CONSIDERATIONS

The research on the implementation of digital technologies in public high schools in Colinas do Tocantins, based on the oral reports of three teachers, showed that the integration of these resources still faces significant limits. The testimonies analyzed allowed the identification of three central axes: school infrastructure, teacher training and inequality of access for students.

In the first axis, it was observed that the distribution of equipment, although relevant, is insufficient in view of the precariousness of connectivity and the absence of technological maintenance. Such a scenario confirms that public policy based only on the delivery of resources does not ensure pedagogical effectiveness, as the absence of adequate infrastructure makes it impossible to take full advantage of digital tools.

In the second axis, teacher training appeared as a recurring challenge. Although the teachers participated in training, these were fragmented and excessively technical, being restricted to specific platforms. The analysis confirms what Almeida (2019) and Moran (2013) defend: training should be continuous, critical and diversified, in order to expand pedagogical autonomy and not just equip teachers to use isolated tools.

In the third axis, the inequality of access of students emerged as a structuring barrier. Many students do not have individual equipment or home internet, which generates digital exclusions within the school itself. This data corroborates the criticism of Silva (2020), for whom digital inclusion policies must be articulated with the socioeconomic reality of families, at the risk of reinforcing existing inequalities.

Thus, the research indicates that the implementation of digital technologies in public high school in Colinas do Tocantins cannot be understood only as a technical process, but as a pedagogical and social phenomenon. The reports reveal the need for more integrated public policies, capable of articulating quality infrastructure, critical teacher training and equal access for students.

In terms of contribution, the study shows that listening to teachers, through Thematic Oral History, is a fundamental source to evaluate the effectiveness of educational policies. The teachers' reports not only describe difficulties, but also point out ways to overcome challenges, such as the expansion of face-to-face training, continuous technical support, and the construction of a digital culture in schools.

Finally, the absence of perspectives from students and school managers is recognized as a limitation of the research. For future investigations, it is suggested to expand the empirical corpus, contemplating different subjects and institutional contexts, which may enrich the understanding of the phenomenon. Despite these restrictions, the research reaffirms that digital technologies have the potential to transform the educational process, as long as they are inserted in a broader pedagogical project, committed to the quality and democratization of public education.

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**INCLUSIVE TEACHING PRACTICES: CHALLENGES AND POSSIBILITIES FOR
ACHIEVING EDUCATION FOR ALL**

**PRÁTICAS DE ENSINO INCLUSIVAS: DESAFIOS E POSSIBILIDADES PARA
ALCANÇAR A EDUCAÇÃO PARA TODOS**

**PRÁCTICAS DE ENSEÑANZA INCLUSIVAS: DESAFÍOS Y POSIBILIDADES
PARA LOGRAR LA EDUCACIÓN PARA TODOS**

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ABSTRACT

Inclusive education constitutes a fundamental right that aims to guarantee full access to knowledge for all individuals, regardless of their physical, cognitive, or sensory characteristics. This study analyzes inclusive teaching practices implemented in Brazilian schools, identifying the main challenges faced by educators and the concrete possibilities for achieving accessible education for all. The research is characterized as qualitative, applied in nature, and with descriptive and analytical objectives, adopting systematic literature review as a technical procedure complemented by documentary analysis of educational public policies. Data collection includes Brazilian publications conducted between 2021 and 2024, selected from national and international scientific databases. The results show that inclusive education faces multidimensional challenges related to structural inadequacy, insufficient material and human resources, gaps in teacher training, and persistence of attitudinal barriers. Simultaneously, concrete possibilities for inclusion are identified through the use of assistive technologies, differentiated methodologies, and continuing education programs. It is concluded that the implementation of inclusive education requires articulated investments in infrastructure, professional training, pedagogical resources, and cultural transformation of educational institutions, representing an essential ethical and political commitment for building democratic and equitable societies.

Keywords: Inclusive Education. Pedagogical Practices. Teacher Training. Assistive Technologies.

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RESUMO

A educação inclusiva constitui direito fundamental que visa garantir o acesso pleno de todos os indivíduos ao conhecimento, independentemente de suas características físicas, cognitivas ou sensoriais. Este estudo analisa as práticas de ensino inclusivas implementadas nas escolas brasileiras, identificando os principais desafios enfrentados pelos educadores e as possibilidades concretas para a efetivação de uma educação acessível a todos. A pesquisa caracteriza-se como qualitativa, de natureza aplicada e com objetivos descritivos e analíticos, adotando como procedimento técnico a revisão sistemática da literatura científica complementada pela análise documental de políticas públicas educacionais. A coleta de dados contempla publicações brasileiras realizadas entre 2019 e 2025, selecionadas em bases científicas nacionais e internacionais. Os resultados evidenciam que a educação inclusiva enfrenta desafios multidimensionais relacionados à inadequação estrutural, insuficiência de recursos materiais e humanos, lacunas na formação docente e persistência de barreiras atitudinais. Paralelamente, identificam-se possibilidades concretas para a inclusão mediante o uso de tecnologias assistivas, metodologias diferenciadas e programas de formação continuada. Conclui-se que a efetivação da educação inclusiva exige investimentos articulados em infraestrutura, capacitação profissional, recursos pedagógicos e transformação cultural das instituições educacionais, representando compromisso ético e político essencial para a construção de sociedades democráticas e equitativas.

Palavras-chave: Educação Inclusiva. Práticas Pedagógicas. Formação Docente. Tecnologias Assistivas.

RESUMEN

La educación inclusiva constituye un derecho fundamental cuyo objetivo es garantizar el pleno acceso al conocimiento para todas las personas, independentemente de sus características físicas, cognitivas o sensoriales. Este estudio analiza las prácticas de enseñanza inclusivas implementadas en las escuelas brasileñas, identificando los principales desafíos enfrentados por los educadores y las posibilidades concretas para lograr una educación accesible para todos. La investigación se caracteriza como cualitativa, de naturaleza aplicada y con objetivos descriptivos y analíticos, adoptando la revisión sistemática de la literatura como procedimiento técnico, complementada por el análisis documental de políticas públicas educativas. La recopilación de datos incluye publicaciones brasileñas realizadas entre 2021 y 2024, seleccionadas en bases de datos científicas nacionales e internacionales. Los resultados muestran que la educación inclusiva enfrenta desafíos multidimensionales relacionados con la inadecuación estructural, la insuficiencia de recursos materiales y humanos, las brechas en la formación docente y la persistencia de barreras actitudinales. Paralelamente, se identifican posibilidades concretas de inclusión mediante el uso de tecnologías asistivas, metodologías diferenciadas y programas de formación continua. Se concluye que la implementación de la educación inclusiva requiere inversiones articuladas en infraestructura, formación profesional, recursos pedagógicos y transformación cultural de las instituciones educativas, representando un compromiso ético y político esencial para la construcción de sociedades democráticas y equitativas.

Keywords: Educación Inclusiva. Prácticas Pedagógicas. Formación Docente. Tecnologías Asistivas.

1 INTRODUCTION

Inclusive education is one of the fundamental pillars for the construction of a democratic and equitable society, in which all individuals, regardless of their physical, cognitive, sensory or social characteristics, have full access to knowledge and the development of their potential. In the Brazilian educational context, school inclusion represents not only a legal imperative, but also a pedagogical challenge that requires profound transformations in teaching practices, institutional structures and conceptions about the teaching-learning process. This study analyzes inclusive teaching practices, investigating the challenges faced by educational agents and the concrete possibilities for the realization of an education that is truly accessible to all.

The relevance of this research is justified by the urgent need to understand the obstacles that still prevent the full implementation of inclusive education in Brazilian schools, as well as to identify effective pedagogical strategies that can contribute to overcoming these barriers. As highlighted by Almeida *et al.* (2024, p. 1983), "teacher training is a central element for the promotion of diversity and inclusion in schools, since teachers act as fundamental mediators in the process of welcoming and developing students with special educational needs". This statement shows that the professional qualification of educators represents a determining factor for the success of inclusive practices, demanding continuous investments in training programs that address both the theoretical and practical aspects of school inclusion.

In addition to teacher training, the social attitudes of education professionals exert a significant influence on the quality of care offered to students with disabilities. Benitez *et al.* (2021, p. 15) state that "the attitudes of educational agents in relation to inclusion reflect not only their pedagogical conceptions, but also their personal values and their previous experiences with human diversity". This finding reveals that school inclusion transcends the technical dimension, involving subjective and cultural aspects that need to be considered in training processes and educational policies. The transformation of teaching attitudes requires, therefore, approaches that integrate scientific knowledge, critical reflection on discriminatory practices and the development of socio-emotional skills for working with diversity.

In the field of technological innovations applied to inclusive education, there is a growing interest in the development of resources that expand the possibilities of access to knowledge for students with special needs. Araujo *et al.* (2024, p. 4582) point out that "brain-computer interface technologies represent significant advances for the inclusion of students

with severe motor limitations, allowing new forms of interaction with the educational environment and expanding their opportunities for active participation in the learning process". This perspective demonstrates that school inclusion benefits substantially from scientific and technological advances, which can be incorporated into pedagogical practices to promote greater autonomy and participation of students with disabilities.

In view of this scenario, the general objective of this study is to analyze the inclusive teaching practices implemented in Brazilian schools, identifying the main challenges faced by educators and the concrete possibilities for the realization of an education accessible to all. As specific objectives, it is proposed: to investigate the factors that hinder the implementation of inclusive practices in school daily life; to examine the pedagogical strategies that have demonstrated effectiveness in promoting inclusion; to evaluate the role of teacher training in the qualification of inclusive practices; and to identify technological and methodological resources that can contribute to the expansion of access to knowledge by students with special educational needs.

This work is structured in four main sections, in addition to this introduction and final considerations. The first section presents the theoretical framework, addressing the conceptual foundations of inclusive education, Brazilian public policies aimed at school inclusion and the main pedagogical theories that underlie inclusive practices. The second section describes the methodology used in the research, explaining the procedures for data collection and analysis. The third section presents the results obtained, organized into thematic categories that contemplate the challenges identified and the possibilities envisioned for inclusive education. The fourth section discusses the results in the light of the theoretical framework, establishing relationships between the empirical findings and the contributions of the scientific literature on the subject. Finally, the final considerations summarize the main conclusions of the study and point out recommendations for future research and for the improvement of inclusive educational practices.

2 THEORETICAL FOUNDATION

Inclusive education is based on philosophical, political and pedagogical principles that recognize human diversity as a constitutive element of society and defend the inalienable right of all individuals to full access to quality education. This educational paradigm emerges as a response to the historical practices of segregation and exclusion that have marked the care of people with disabilities, proposing the radical transformation of education systems so

that they become capable of welcoming and promoting the development of all students, regardless of their individual characteristics. The theoretical understanding of school inclusion requires, therefore, the analysis of multiple dimensions that involve everything from legal frameworks to daily pedagogical practices, including social conceptions about disability and the training of education professionals.

In the Brazilian context, educational legislation has made significant progress in guaranteeing the rights of people with disabilities, establishing clear guidelines for the implementation of inclusive policies in educational institutions. Broering and Broering (2024, p. 11370) state that "legal strategies to promote equity and accessibility are fundamental instruments for the effectiveness of inclusive education, since they establish institutional obligations and ensure mechanisms for monitoring and accountability of public agents". This perspective shows that normative frameworks represent important achievements for the inclusive movement, although their practical implementation depends on material conditions, consistent public policies, and profound cultural transformations in educational institutions. Legislation, by itself, does not guarantee inclusion, but creates the necessary legal bases for discriminatory practices to be fought and educational rights to be ensured.

In addition to the legal aspects, inclusive education requires the overcoming of attitudinal barriers that manifest themselves through prejudice, stigma and misconceptions about the capabilities of people with disabilities. Carvalho and Ximenes (2022, p. 8) argue that "the dimensions of prejudice and stigma in education transcend the explicit manifestations of discrimination, also materializing in subtle practices of exclusion that limit the opportunities for participation and development of students with special needs". This finding reveals that school inclusion faces obstacles that go beyond structural and pedagogical issues, involving subjective and cultural aspects deeply rooted in social relations. The transformation of these attitudes requires training processes that promote critical reflection on the values and beliefs that sustain exclusionary practices, as well as the development of skills to work with diversity.

In the field of pedagogical and technological innovations, there is a growing interest in the development of resources that expand the possibilities of access to knowledge and active participation of students with disabilities in the educational process. Carneiro *et al.* (2024, p. 5182) highlight that "assistive technology represents an essential tool for the promotion of autonomy and school inclusion, allowing students with physical, sensory, or cognitive limitations to overcome barriers and develop their potential to the fullest". This statement

demonstrates that technological resources, when properly planned and implemented, can contribute significantly to the democratization of access to knowledge, favoring the personalization of teaching-learning processes and the creation of more accessible and welcoming educational environments.

The articulation between legal frameworks, the overcoming of attitudinal barriers and the development of pedagogical and technological resources is, therefore, a fundamental condition for the effectiveness of inclusive education. This multidimensional perspective recognizes that school inclusion is not limited to the physical presence of students with disabilities in regular classrooms, but involves the guarantee of effective conditions for their participation, learning and integral development. The specialized literature has emphasized that the quality of inclusive education depends on the combination of structural, pedagogical, cultural and political factors, which must be considered in an integrated way in intervention proposals and educational policies.

In this sense, teacher training emerges as a central element for the qualification of inclusive practices, since teachers play a fundamental role in mediating the teaching-learning processes and creating welcoming and stimulating educational environments. The training of educators should include not only technical knowledge about the specificities of different disabilities, but also the development of pedagogical skills for working with diversity, critical reflection on one's own conceptions and attitudes towards inclusion, and mastery of differentiated methodological strategies that meet the individual needs of students. The literature points out that continuing education programs, based on collaborative and reflective approaches, have demonstrated greater effectiveness in transforming teaching practices and promoting inclusive school cultures.

Finally, it is worth noting that inclusive education represents a process under constant construction, which requires the collective commitment of all educational agents, investment in consistent public policies, and the transformation of school structures and cultures. The challenges are significant, but the concrete possibilities for the realization of an education that is truly accessible to all demonstrate that school inclusion is not only an ideal to be pursued, but a possible and necessary reality for the construction of more just and democratic societies.

3 METHODOLOGY

The present research is characterized as a study with a qualitative approach, of applied nature and with descriptive and analytical objectives, aimed at understanding the inclusive teaching practices implemented in Brazilian schools, as well as identifying the challenges faced by educators and the concrete possibilities for the realization of an education accessible to all. The choice for the qualitative approach is justified by the need to investigate complex phenomena that involve subjective, cultural and contextual dimensions, which cannot be adequately apprehended through exclusively quantitative methods. This methodological perspective allows for an in-depth analysis of the experiences, perceptions and practices of educational agents, favoring the understanding of the meanings attributed to school inclusion and the factors that influence its implementation in the daily life of educational institutions.

The research adopts as a technical procedure the systematic review of the scientific literature, complemented by the documentary analysis of educational public policies and normative frameworks related to inclusive education in the Brazilian context. Systematic review is a rigorous method of investigation that allows the identification, selection, evaluation and synthesis of available scientific evidence on a given topic, following explicit and replicable criteria that ensure the transparency and reliability of the process. Ferreira *et al.* (2023) highlight that the systematic review represents a fundamental methodological strategy for understanding the current state of knowledge about the inclusion of children with disabilities, allowing the identification of gaps, contradictions, and trends in scientific production in the area. This methodological procedure therefore enables the construction of a comprehensive and critical overview of inclusive practices, based on empirical and theoretical evidence produced by researchers from different contexts and perspectives.

Data collection was carried out through a systematic search in national and international scientific databases, including platforms such as SciELO, CAPES Journal Portal, Google Scholar and institutional repositories of Brazilian universities. The inclusion criteria established for the selection of studies included: publications in Portuguese, carried out between 2019 and 2025, which addressed inclusive teaching practices, teacher training for inclusion, public policies for special education, assistive technologies, attitudinal barriers, and pedagogical strategies for serving students with special educational needs. Studies that did not present adequate methodological rigor, duplicate publications, and studies that did not have a direct relationship with the research objectives were excluded from the analysis.

The search resulted in the initial identification of 17 publications, of which 09 were selected for full analysis after applying the inclusion and exclusion criteria.

The documentary analysis complemented the systematic review, including the investigation of official documents that regulate inclusive education in Brazil, such as the Law of Guidelines and Bases of National Education, the National Policy on Special Education in the Perspective of Inclusive Education, the Statute of Persons with Disabilities and specific curriculum guidelines. Dalapicolla and Santos (2024) argue that the analysis of public policies for inclusive education is an essential methodological procedure for understanding the challenges and perspectives of public educational management, since it allows the identification of normative advances, contradictions between discourses and practices, and gaps in the implementation of legal guidelines. This documental analysis was conducted through a systematic reading of the normative texts, identification of principles, guidelines and proposed strategies, and confrontation between the legal prescriptions and the empirical evidence presented in the scientific studies analyzed.

The collected data were submitted to thematic content analysis, a technique that allows the identification, codification and categorization of recurrent patterns in the information obtained, enabling the construction of analytical categories that synthesize the main findings of the research. The analysis process involved the following steps: exploratory reading of the selected material, identification of units of meaning related to the research objectives, coding of relevant information, grouping of codes into preliminary thematic categories, refinement of categories through critical and comparative analysis, and interpretation of the results in the light of the adopted theoretical framework. Coelho and Coelho (2024) emphasize that the qualitative analysis of teaching challenges in the classroom and continuing education requires methodological procedures that contemplate the complexity of educational practices and the multiple dimensions that influence the implementation of inclusive education.

The thematic categories emerging from the analysis were organized into four main axes: structural and pedagogical challenges for the implementation of inclusive education, teacher training and development of skills for working with diversity, technological and methodological resources for the promotion of accessibility, and attitudinal and cultural barriers that hinder the implementation of inclusive practices. Marcondes *et al.* (2023) emphasize that the analysis of the constitutive elements of an inclusive school must consider

multiple dimensions, articulating pedagogical, structural, cultural, and political aspects that influence the quality of educational service offered to students with special needs.

As for the ethical aspects, the research respected the principles of scientific integrity, ensuring the proper citation of all sources consulted, transparency in the description of methodological procedures and reliability in the presentation of results. As this is a bibliographic and documentary research, there was no direct involvement of human participants, dispensing with the submission to a research ethics committee. The methodological limitation of the study is the time constraint of the publications analyzed and the concentration on Brazilian scientific productions, which may limit the generalization of the findings to other educational contexts. Nevertheless, the methodological procedures adopted guarantee the reliability and validity of the results obtained, providing consistent subsidies for the understanding of inclusive teaching practices and for the proposition of strategies to improve Brazilian education.

Table 1

Synoptic of Academic References and Their Contributions to Research

Author	Title	Year	Contributions
BENITEZ, P.	Social attitudes of educational agents in relation to inclusion and training in applied behavior analysis	2021	It investigates the attitudes of education professionals in relation to school inclusion and discusses how training in Applied Behavior Analysis can influence these attitudes, pointing out advances and resistances.
CARVALHO, M.	Dimensions of prejudice and stigma in education	2022	It analyzes how prejudices and stigmas manifest themselves in school contexts, discussing psychological and social dimensions of discrimination and its impacts on educational inclusion.
PEREIRA, A.	Special education from the perspective of inclusive education: challenges and possibilities	2022	It discusses special education within the paradigm of inclusive education, presenting structural, formative and pedagogical challenges, as well as possibilities for a more inclusive practice.
FERREIRA, K.	Inclusion of children with intellectual disabilities in Brazil: a systematic review	2023	It conducts a systematic review on the inclusion of children with intellectual

			disabilities in Brazil, identifying main barriers, pedagogical strategies and gaps in research.
MARCONDES, R.	Elements of an inclusive school from the perspective of the fourth sustainable development goal: a Brazilian panorama	2023	It relates the theme of inclusive school to SDG 4 (Quality Education), mapping elements of inclusion in Brazilian schools and discussing advances and challenges to ensure equitable education.
SILVA, P.	The new information and communication technologies in the inclusive education of visually impaired students: a look at challenges and potentialities	2023	It analyzes the use of ICTs in the education of visually impaired students, pointing out tools, accessibility challenges and opportunities to expand participation and learning.
ALMEIDA, R.	The importance of teacher training for the promotion of diversity and inclusion in schools: an integrative literature review	2024	It makes an integrative review of how initial and continuing teacher training impacts the promotion of diversity and inclusion, highlighting necessary skills and training gaps.
ARAÚJO, E.	The importance of developing brain-computer interface (CCI) technologies for students with special needs	2024	It discusses the potential of brain-computer interfaces as assistive technology for students with special needs, pointing out educational applications and ethical and technical challenges.
BROERING, G.	Inclusive Education in Focus: Legal Strategies to Promote Equity and Accessibility	2024	It analyzes legislation related to inclusive education, highlighting legal and normative strategies to promote equity, accessibility, and guarantee of rights.
CARNEIRO, R.	Assistive technology: prototype of a pedagogical application for a school in Mato Grosso	2024	It presents the development of a prototype of a pedagogical application as an assistive technology for a school in Mato Grosso, describing functionality, objectives and potential for inclusion.
COELHO, D.	Inclusive education from the perspective of teaching challenges in the classroom and continuing education	2024	It investigates the challenges faced by teachers in the practice of inclusive education and discusses the importance of continuing education as a support to deal with diversity in the classroom.
DALAPICCOLLA, É.	Analysis of public policies for inclusive education in the state of Rondônia: challenges and	2024	It examines public policies for inclusive education in Rondônia, highlighting weaknesses and potentialities, as well as

	perspectives for public management		implications for educational management and for the effective implementation of inclusion.
SANTOS, A.	Contributions of multifunctional resource rooms in the care of special education students: challenges and perspectives	2024	It discusses the role of multifunctional resource rooms in serving special education students, pointing out contributions, limits in practice and possibilities for improvement.
SANTOS, S.	Inclusive pedagogical practices and technologies: the path to the learning process	2024	It addresses inclusive pedagogical practices mediated by technologies, highlighting how digital resources can favor the learning of students with different needs.
SANTOS, T.	Music workshops for children with autism at CAIS in Contagem/MG: a look from the subject's demand	2024	It analyzes music workshops for children with ASD, showing how musicalization can be articulated with the subjective demands of children, contributing to inclusion and development.
SEABRA, M.	Inclusive education in Brazil: a reflection on educational challenges	2024	It makes a broad reflection on inclusive education in the Brazilian context, discussing pedagogical, structural and political challenges to ensure access, permanence and learning.
SILVA, R.	Continuing education of teachers and the teaching of science: implications for the use of digital technologies	2024	It relates the continuing education of science teachers to the use of digital technologies, discussing how this training impacts pedagogical practices and can favor inclusive processes.

Source: Elaborated by the author.

The table organized in chronological order of publications offers a clear and evolving view of discussions on inclusive education, allowing us to identify how the themes – from social attitudes and prejudices in 2021-2022 to advances in assistive technologies and teacher training in 2023-2024 – have deepened over time, facilitating comparative analyses and the selection of the most relevant references for research on emerging technologies in education.

4 RESULTS AND DISCUSSION

The systematic analysis of the scientific literature and normative documents allowed the identification of four main thematic categories that synthesize the findings of the research: structural and pedagogical challenges for the implementation of inclusive education, teacher

training and development of professional skills, technological and methodological resources for the promotion of accessibility, and attitudinal and cultural barriers that hinder the effectiveness of inclusive practices. These categories emerged from the thematic content analysis applied to the 43 selected studies, revealing recurrent patterns that characterize the current scenario of inclusive education in the Brazilian context and point to both persistent obstacles and concrete possibilities of overcoming.

The results showed that structural and pedagogical challenges constitute significant obstacles to the effective implementation of inclusive education in Brazilian schools. Seabra *et al.* (2024) identify that educational difficulties related to inclusion range from the inadequacy of physical structures to the insufficiency of material and human resources necessary for qualified care for students with special educational needs. This finding corroborates the findings of Pereira *et al.* (2022), which highlight the existence of multiple challenges that permeate special education from an inclusive perspective, including overcrowding in classrooms, the lack of adapted pedagogical materials, and the absence of sufficient support professionals. These results demonstrate that, despite the normative advances, the practical implementation of school inclusion still faces concrete limitations that compromise the quality of the educational service offered.

With regard to teacher training, the results revealed that teacher training represents a determining factor for the quality of inclusive practices, although initial and continuing education programs still have significant gaps. Silva and Fernandes (2024) argue that the continuing education of teachers, especially with regard to the use of digital technologies in science teaching, has direct implications on the ability of educators to develop differentiated and accessible pedagogical strategies. This perspective is in line with the findings that indicate the need for consistent investments in training programs that contemplate not only the theoretical aspects of inclusive education, but also the practical and reflective dimensions of teaching work with diversity. The results suggest that collaborative and contextualized approaches to training demonstrate greater effectiveness in transforming pedagogical practices and developing professional skills for inclusion.

The analysis of technological and methodological resources revealed that pedagogical innovations represent concrete possibilities for expanding access to knowledge and promoting the active participation of students with disabilities. Santos *et al.* (2024) emphasize that inclusive pedagogical practices articulated with technologies constitute fundamental paths for the learning process, allowing the personalization of teaching and the overcoming

of barriers that traditionally limit the development of students with special needs. Silva and Nogueira (2023) complement this perspective by analyzing the potential of new information and communication technologies in the inclusive education of students with visual impairment, highlighting that technological resources, when properly implemented, favor student autonomy and participation. These findings demonstrate that the incorporation of assistive technologies and differentiated methodologies is an essential strategy for the qualification of inclusive practices.

The results also showed the importance of specialized educational service spaces, such as multifunctional resource rooms, to support special education students. Santos *et al.* (2024) identify significant contributions of these spaces in the care of students, although they recognize the existence of challenges related to the articulation between specialized care and regular education. This finding suggests that inclusive education requires the integration of different modalities of care, combining teaching in regular classes with specialized support that meets the individual needs of students. The analysis also revealed that specific pedagogical practices, such as music workshops for children with autism, as investigated by Santos and Sampaio (2024), demonstrate significant potential for the development of social, communicative, and cognitive skills, evidencing the importance of methodological diversification in inclusive proposals.

Regarding attitudinal and cultural barriers, the results confirmed that prejudices, stigmas and misconceptions about the capabilities of people with disabilities constitute persistent obstacles to the effectiveness of inclusive education. The analysis revealed that these barriers manifest themselves both in explicit practices of discrimination and in subtle forms of exclusion that limit the opportunities for participation and development of students with special needs. These findings reinforce the need for training processes that promote critical reflection on values, beliefs, and attitudes that sustain exclusionary practices, as well as the development of socio-emotional skills for working with diversity.

The limitations identified in this study include the time constraint of the publications analyzed and the concentration on Brazilian scientific productions, which may limit the generalization of the findings to other educational contexts. Nevertheless, the results obtained provide consistent subsidies for the understanding of the current scenario of inclusive education in Brazil, evidencing both the persistent challenges and the concrete possibilities for the implementation of truly inclusive pedagogical practices. The implications of these findings point to the need for integrated public policies that include investments in

infrastructure, teacher training, pedagogical and technological resources, as well as awareness-raising and cultural transformation actions in educational institutions.

5 FINAL CONSIDERATIONS

This study aimed to analyze the inclusive teaching practices implemented in Brazilian schools, identifying the main challenges faced by educators and the concrete possibilities for the realization of an education accessible to all. The investigation started from the recognition that inclusive education is a fundamental right and ethical imperative, although its practical implementation still faces significant obstacles that compromise the quality of educational care offered to students with special educational needs. The systematic analysis of the scientific literature and normative documents allowed the construction of a comprehensive overview of the current scenario of school inclusion in the Brazilian context, evidencing both the achievements achieved and the challenges that persist.

The main results obtained reveal that inclusive education faces multidimensional challenges that involve structural, pedagogical, cultural and political aspects. The difficulties related to the inadequacy of physical structures, the insufficiency of material and human resources, the overcrowding of classrooms and the lack of adapted pedagogical materials are concrete obstacles that limit the effectiveness of inclusive practices. At the same time, it was identified that teacher training represents a determining factor for the quality of school inclusion, although the initial and continuing training programs still present significant gaps in terms of preparing teachers to work with diversity. These findings demonstrate that overcoming the challenges of inclusive education requires consistent and articulated investments on multiple fronts of action.

The interpretation of the findings allows us to understand that inclusive education is not limited to the physical presence of students with disabilities in regular classrooms, but involves the guarantee of effective conditions for their participation, learning and integral development. The results show that technological and methodological innovations represent concrete possibilities for expanding access to knowledge, favoring the personalization of teaching and overcoming barriers that traditionally limit the development of students with special needs. The analysis also revealed that attitudinal and cultural barriers, manifested through prejudices, stigmas and misconceptions about the capacities of people with disabilities, constitute persistent obstacles that demand training processes aimed at transforming values, beliefs and excluding practices.

The contributions of this study to the area of inclusive education are located in different dimensions. From a theoretical point of view, the research offers an updated and critical synthesis of Brazilian scientific production on inclusive teaching practices, identifying trends, gaps and contradictions that characterize the field of studies. From a practical point of view, the findings provide subsidies for the formulation of more consistent educational public policies and for the planning of teacher training programs that contemplate the real needs of educators in working with diversity. In addition, the identification of concrete possibilities for the effectiveness of school inclusion, especially with regard to the use of assistive technologies and differentiated methodologies, offers valuable guidance for educational managers and teachers committed to the construction of truly welcoming and accessible educational environments.

The limitations of this research are the time constraint of the publications analyzed, which covered the period from 2021 to 2024, and the concentration on Brazilian scientific productions, which may limit the generalization of the findings to other educational and cultural contexts. The option for a systematic review of the literature and documentary analysis, although adequate to the proposed objectives, did not allow the direct investigation of the pedagogical practices developed in the school daily life, nor the analysis of the perceptions and experiences of the students with disabilities themselves about the inclusion processes. These methodological limitations, however, do not compromise the validity and relevance of the results obtained, but indicate ways to deepen investigations on the subject.

It is suggested, for future studies, the realization of empirical research that directly investigates the inclusive pedagogical practices developed in different school contexts, contemplating the diversity of Brazilian educational realities. It is also recommended to conduct longitudinal studies that follow the processes of teacher training and their impacts on inclusive practices over time, as well as investigations that analyze the perceptions and experiences of students with disabilities themselves about the processes of school inclusion. Conducting comparative studies between different national and international contexts can also contribute to the identification of successful strategies and to the understanding of the factors that favor or hinder the implementation of inclusive education in different cultural and political realities.

The reflection on the impact of this work leads to the understanding that inclusive education represents not only a technical or pedagogical challenge, but fundamentally an ethical and political project to build more just, democratic societies that respect human

diversity. The findings of this research show that, despite the persistent obstacles, there are concrete possibilities for the implementation of truly inclusive educational practices, which depend on the collective commitment of all educational agents, investment in consistent public policies and the transformation of school structures and cultures. Inclusive education is, therefore, a process under constant construction, which requires permanent vigilance against exclusionary practices and continuous investment in the qualification of education systems.

Finally, it is highlighted that the relevance of this research in the broader context of the area of studies on inclusive education lies in the contribution to the critical understanding of the challenges and possibilities that characterize the contemporary Brazilian educational scenario. The results obtained reinforce the need for integrated and multidimensional approaches to the promotion of school inclusion, which articulate investments in infrastructure, teacher training, pedagogical and technological resources, transformation of attitudes and values, and strengthening of public policies committed to guaranteeing the right of all to quality education. The construction of a truly inclusive education represents, therefore, a possible and necessary horizon for the realization of democratic principles and for the promotion of human dignity in its fullness.

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**THE (RE)INVENTION OF MATHEMATICS TEACHING IN DIGITAL CULTURE:
PERSPECTIVES FOR TEACHER EDUCATION**

**A (RE)INVENÇÃO DO ENSINO DE MATEMÁTICA NA CULTURA DIGITAL:
PERSPECTIVAS PARA A FORMAÇÃO DOCENTE**

**LA (RE)INVENCION DE LA ENSEÑANZA DE LAS MATEMÁTICAS EN LA
CULTURA DIGITAL: PERSPECTIVAS PARA LA FORMACIÓN DOCENTE**

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ABSTRACT

This article, "The (Re)Invention of Mathematics Teaching in Digital Culture: Perspectives for Teacher Education," addresses the crisis of school Mathematics, which still uses traditional and mechanistic methodologies in a world dominated by Digital Culture. It proposes that Digital Culture should be the lens through which pedagogical practice is re-signified, shifting the focus from transmission to the production and application of mathematical knowledge. The new epistemology of mathematical activity values Modeling, Inquiry, and Computational Thinking. The success of this transformation depends unequivocally on Teacher Education, which must be structured around the development of the TPACK model (Technological Pedagogical Content Knowledge) and based on reflective and collaborative practice. The new teaching perspective is hybrid and ubiquitous, manifested in Active Methodologies such as the Flipped Classroom, which optimizes face-to-face time for collaborative problem solving, with the teacher acting as a mediator. In addition, teaching should embrace Mathematical Modeling and the use of real data to develop Data Literacy, essential for the 21st-century citizen. In this redefinition, the teacher becomes a Pedagogical Designer and Knowledge Curator, enabling students to use Mathematics critically, ethically, and as a tool for investigation and digital citizenship.

Keywords: TPACK. Digital Culture. Teacher Education. Mathematical Modeling.

RESUMO

Este artigo, "A (RE)INVENÇÃO DO ENSINO DE MATEMÁTICA NA CULTURA DIGITAL: PERSPECTIVAS PARA A FORMAÇÃO DOCENTE", aborda a crise da Matemática escolar, que ainda utiliza metodologias tradicionais e mecanicistas em um mundo dominado pela Cultura Digital. Propõe que a Cultura Digital deve ser a lente para resignificar a prática pedagógica, deslocando o foco da transmissão para a produção e aplicação de conhecimento matemático. A nova epistemologia do fazer matemático valoriza a Modelagem, a Investigação e o Pensamento Computacional. O sucesso dessa transformação depende inequivocamente da Formação Docente, que deve ser estruturada no desenvolvimento do modelo TPACK (Conhecimento Tecnológico e Pedagógico do

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Conteúdo) e baseada na prática reflexiva e colaborativa. A nova perspectiva de ensino é híbrida e ubíqua, manifestada em Metodologias Ativas como a Sala de Aula Invertida, que otimiza o tempo presencial para a resolução colaborativa de problemas, com o professor atuando como mediador. Além disso, o ensino deve abraçar a Modelagem Matemática, utilizando dados reais para desenvolver a Data Literacy (Alfabetização em Dados), essencial para o cidadão do século XXI. Nessa redefinição, o professor se torna um Designer Pedagógico e Curador do conhecimento, capacitando o aluno a usar a Matemática de forma crítica, ética e como ferramenta de investigação e cidadania digital.

Palavras-chave: TPACK. Cultura Digital. Formação Docente. Modelagem Matemática.

RESUMEN

Este artículo, "La (Re)Invención de la Enseñanza de Matemáticas en la Cultura Digital: Perspectivas para la Formación Docente", aborda la crisis de la Matemática escolar, que aún utiliza metodologías tradicionales y mecanicistas en un mundo dominado por la Cultura Digital. Propone que la Cultura Digital sea la lente para resignificar la práctica pedagógica, desplazando el foco de la transmisión hacia la producción y aplicación del conocimiento matemático. La nueva epistemología del hacer matemático valora la Modelización, la Investigación y el Pensamiento Computacional. El éxito de esta transformación depende inequívocamente de la Formación Docente, que debe estructurarse en el desarrollo del modelo TPACK (Conocimiento Tecnológico Pedagógico del Contenido) y basarse en la práctica reflexiva y colaborativa. La nueva perspectiva de enseñanza es híbrida y ubicua, manifestada en Metodologías Activas como el Aula Invertida, que optimiza el tiempo presencial para la resolución colaborativa de problemas, con el profesor actuando como mediador. Además, la enseñanza debe incorporar la Modelización Matemática y el uso de datos reales para desarrollar la Alfabetización en Datos (Data Literacy), esencial para el ciudadano del siglo XXI. En esta redefinición, el profesor se convierte en un Diseñador Pedagógico y Curador del conocimiento, capacitando al estudiante para usar las Matemáticas de manera crítica, ética y como herramienta de investigación y ciudadanía digital.

Palabras clave: TPACK. Cultura Digital. Formación Docente. Modelización Matemática.

1 THE DIGITAL REVOLUTION AND THE SCHOOL MATHEMATICS CRISIS

Mathematics, historically fundamental for scientific and technological development, is today in a crucial dilemma in the school environment. If, on the one hand, the world has become essentially algorithmic, data-driven and permeated by digital devices, on the other hand, the teaching of the discipline still carries the weight of **traditional** and **mechanistic methodologies**, which have little dialogue with the reality of **Digital Culture** (MORAN, 2015a).

The contemporary student is a digital native, exposed to continuous flows of information and very powerful calculation and visualization tools. In this context, the excessive emphasis on the repetition of algorithms and the memorization of formulas, without proper contextualization and investigative exploration, results in disinterest, evasion and, frequently, aversion to Mathematics (KAWASAKI, 2008). The crisis does not lie in the content, but in the **pedagogical perspective**.

Our proposal, in this chapter, is that Digital Culture should not be seen as a mere *addendum* to the curriculum, but rather as the lens through which the entire practice of teaching Mathematics should be **resignified**. The presence of Digital Information and Communication Technologies (DICT) imposes a **new perspective** on the discipline, shifting the focus from transmission to the **production** and **application** of mathematical knowledge in a critical, collaborative and creative way (SCHLEMMER, 2006).

The National Common Curricular Base (BNCC), by introducing **Computational Thinking** and requiring students to use, understand and create digital technologies in a critical way (BRASIL, 2017), reinforces the urgency of this change. However, for this curricular requirement to materialize in the classroom, the focus of our attention needs to be turned, unequivocally, to **Teacher Training**.

2 DIGITAL CULTURE AND THE NEW EPISTEMOLOGY OF MATHEMATICAL DOING

Digital Culture transcends the simple possession of *hardware* or *software*; it refers to a set of social practices, values, and ways of thinking shaped by the ubiquity of technologies (LÉVY, 2010). When integrated into the teaching of Mathematics, this culture modifies the very nature of knowledge and mathematical work in the classroom.

2.1 FROM LABOR TO EXPANDED INTELLECTUAL LABOR

Historically, the mastery of Mathematics has been linked to agility in manual calculation. Today, digital tools (scientific calculators, spreadsheets, *software* such as GeoGebra or Python) take over operational tasks with unattainable precision and speed.

"Technological resources alone will not bring contributions and will be insufficient if used without adapting to the needs of each teacher in line with those of their students" (GAUTÉRIO & RODRIGUES, 2017, p. 89).

This observation moves the teacher from the position of *executor* or *inspector of calculations* to that of **architect of problem-situations**. The new epistemology of mathematical practice values **Modeling**, **Research** and **Communication of Results** (BNCC, Specific Competence 5). For example, instead of just calculating the area of a figure, students can use Dynamic Geometry software to **investigate** the relationships between sides, angles and areas, **conjecture** properties and, only then, formalize the concept. This promotes **active, constructive and self-regulating** learning (SCHLEMMER, 2006).

2.2 ALGORITHMIC THINKING AND CODING

Digital Culture emphasizes the importance of **Computational Thinking** as a fundamental skill (BNCC, Specific Competence 2). Programming and algorithmic logic are not exclusive to Computer Science; they are manifestations of logical-mathematical reasoning.

In teaching from this new perspective, Mathematics is now used to **implement algorithms** in simple programming languages. Not only does this make mathematical concepts tangible, but it also empowers the student to:

1. **Decompose** complex problems into smaller logical steps.
2. **Abstract** patterns and create models.
3. **Test** and **debug** solutions, promoting critical thinking.

This approach, by integrating the knowledge of Numbers, Algebra and Geometry with programming, establishes a solid bridge between school Mathematics and the professional practices of the twenty-first century.

3 TEACHER TRAINING FOR CURRICULAR INTEGRATION: THE TECHNOLOGICAL AND PEDAGOGICAL KNOWLEDGE OF CONTENT (TPACK) (PP. 6-9)

If the paradigm shift is indispensable, the **teacher** is the catalyzing agent of this transformation. The training of the Mathematics educator in the digital culture cannot be limited to technical instruction in the use of tools, but must be structured in the development of **Technological and Pedagogical Content Knowledge (TPACK)**, a theoretical model that helps to understand how technology is intertwined with pedagogical and content knowledge (MISHRA & KOEHLER, 2006).

3.1 THE THREE PILLARS OF TPACK IN MATHEMATICS

Table 1

Component	Definition for the Mathematics Teacher
Content Knowledge (CK)	Deep mastery of mathematical concepts (Algebra, Geometry, Statistics, etc.) and their interrelationships.
Pedagogical Knowledge (PK)	Knowledge about the processes of teaching, learning, classroom management and evaluation.
Technological Knowledge (TK)	Ability to use and manage digital technologies and tools (software, applications, platforms).
Pedagogical Content Knowledge (PCK)	Know <i>how</i> to teach specific content (e.g., methods for teaching functions).
Content Technology Knowledge (TCK)	Know <i>which</i> technologies are best suited to represent and exploit content (e.g., GeoGebra for Geometry).
Pedagogical Technological Knowledge (TPK)	Understanding how technology can be used to change teaching and learning methods (e.g., using online <i>quizzes</i> for immediate feedback).
Pedagogical Technological Knowledge of Content (TPACK)	The full ability to integrate technology to transform the teaching of specific content, choosing DICT for pedagogical purposes that enhance the learning of a mathematical concept (e.g., using a simulator to model exponential growth).

Training should ensure that the future teacher not only knows DICT, but knows how to **integrate them** to **transform** practices (CIRIÁCO; AZEVEDO; CREMONEZE, 2021). The challenge, as pointed out by some studies, is that many teachers still find it **difficult**

to adapt **Mathematics content to technologies**, seeking specific training to overcome this gap.

3.2 TRAINING BASED ON COLLABORATIVE PRACTICE

TPACK development is most effective when training is based on **reflective practice** and **collaboration**. Online or face-to-face **Communities of Practice (CoP)**, where teachers (in initial or continuing education) meet to plan, execute, and evaluate didactic sequences mediated by DICT, emerge as powerful spaces for professional development (SANTOS, 2021). In these communities, the exchange of experiences and the resolution of problems together promote an enriched environment, expanding the experience of future teachers

4 TEACHING MATHEMATICS FROM A NEW PERSPECTIVE: THE HYBRID AND THE UBIQUITOUS

The new perspective of teaching Mathematics is **hybrid** and **ubiquitous**.

4.1 BLENDED LEARNING AND THE TRANSFORMED DYNAMICS OF THE CLASSROOM

Today's teaching and learning are increasingly **blended** or **hybrid**, mixing the physical space of the classroom with the multiple digital spaces of everyday life (MORAN, 2015a). This programmatic integration is not random, but rather a pedagogical strategy that aims to maximize engagement and the depth of learning, breaking with traditionalism. This implies the use of **Active Methodologies**, such as the **Flipped Classroom** or the Rotation by Stations, **where the student assumes a central role in the construction of their own knowledge**.

In Mathematics, the operational translation of *Blended Learning* is clearly manifested in the intentional separation of moments of contact with the content:

- **Online Moment (At Home – Initial Exploration):** The student accesses **video classes** curated by the teacher, **interactive tutorials** or **simulators** (such as those of Phet Interactive Simulations) to have the first contact with the new concept (e.g., the graphical and parametric analysis of **quadratic** functions). This phase allows each student to advance at their own pace, revisiting the material as many times as necessary. This step **frees up** the in-person time of passive exposure.

- **Face-to-face Moment (At School – Application and Problem Solving):** The teacher uses the time in the classroom, now valuable, not for frontal transmission, but for the **collaborative resolution of complex problems**, the **debate** of mathematical models and the **mediated interaction** with *software* that allows **in-depth experimentation** and **dynamic** visualization (GeoGebra, for example). This is where the teacher acts as a **mediator**, facilitating *insights* and correcting conceptual misconceptions in real time, dedicating focused attention to those with the greatest difficulties. The physical environment becomes a laboratory for construction and argumentation (SCHLEMMER, 2006).

This approach not only optimizes class time, but also caters to the **different learning styles and rhythms of** students, fostering **autonomy** and **responsibility** over the process itself. The flexibility of blended learning is therefore a key element for the **personalization** of Mathematics teaching, making it more inclusive and effective. Mathematics is no longer a set of rules to be followed and becomes a **research tool** (MORAN, 2015b).

4.2 MATHEMATICAL MODELING AND *DATA LITERACY*: THE MATHEMATICS OF THE DATA SOCIETY

Digital Culture has transformed society into a **data society**. The ability to collect, process, and interpret massive volumes of information is the engine of contemporary economics and science. Consequently, the new perspective of teaching Mathematics must embrace **Mathematical Modeling** as a central axis, using the **real data** (socioeconomic, environmental, health, etc.) available in abundance on the internet. This practice gives **immediate meaning** to the concepts studied, linking the abstract to the concrete.

By working with **electronic spreadsheets** (Excel, Google Sheets) and statistical **software**, students not only calculate results, but are compelled to **critically analyze reality**, interpret rates, growth rates (exponential, logistic) and produce **arguments based on quantitative evidence**, as required by the BNCC (EM13MAT104). For example, analyzing population growth or the unemployment rate using public data turns the role or progression class into a **basic data science exercise**.

In this process, **Data Literacy** is developed, which is the essential ability to read, analyze, argue and communicate with data, critically and ethically. This includes understanding how data is collected, how it can be biased, and how graphical representations can distort reality. This skill, which mixes statistics, probability and logical-

mathematical reasoning, is **indispensable for the citizen of the twenty-first century**, ensuring that he not only passively consumes information, but questions it and actively uses it to intervene in his world. Modeling and *Data Literacy* are the fertile field where **Computational Thinking** meets the **social application** of Mathematics.

5 FINAL CONSIDERATIONS: THE MATHEMATICS TEACHER AS CURATOR AND PEDAGOGICAL DESIGNER IN DIGITAL CITIZENSHIP

The **(Re)inventing of the teaching of Mathematics in Digital Culture** is a continuous and challenging process, a true pedagogical infrastructure project that requires courage, investment and constant training on the part of teachers. It is not just about updating tools, but about redefining the didactic contract established in the teacher-student-knowledge relationship (BASILAIA & KVAVADZE, 2020).

In summary, the journey outlined in this chapter allows us to conclude that:

- Digital Culture imposes the **definitive overcoming** of the teaching model centered on transmission and memorization. Mathematical knowledge, now easily accessible, requires the school to focus on **know-how** and **know-how**.
- The new perspective prioritizes **investigation, modeling, algorithmic reasoning and collaboration**, all enhanced and intermediated by Digital Information and Communication Technologies (DICT).
- **Teacher Training**, based on the **TPACK** model (MISCARA & KOEHLER, 2006), emerges as the determining factor for the success of integration. The teacher urgently needs to be trained to be a **Pedagogical Designer** of hybrid and rich learning experiences.

The Teacher as Designer and Curator

The concept of **Pedagogical Designer** implies that the teacher is not only a consumer of didactic material, but the **architect** of the learning paths. It selects, adapts, and combines digital and non-digital resources to create environments that encourage mathematical exploration. This role is complemented by the role of **Curator** of knowledge in the age of informational overload. It is up to the teacher to filter the vast universe of data and resources available, choosing those that are pedagogically valid, conceptually rigorous, and aligned with learning objectives (NASCIMENTO et al., 2024).

Ethics, Criticism and Digital Citizenship

However, the new perspective of Digital Mathematics goes beyond the development of technical skills. It touches on the sphere of **ethics** and **citizenship**. Teaching Mathematics in Digital Culture is also enabling the student to:

1. **Question** the origin and manipulation of data (Modeling and *Data Literacy*).
2. **Understand** the inner workings of the algorithms that govern their lives, demystifying the technological "black box".
3. **Evaluate** the social and political impact of technologies, using mathematical reasoning to analyze inequalities and propose solutions.

It is at this point that teacher training reaches its highest level: by integrating technology in a **critical, meaningful, reflective and ethical** way, as recommended by General Competence 5 of the BNCC (BRASIL, 2017).

Despite the challenges related to infrastructure (which can make classes in digital molds unfeasible, according to some reports, Source 2.1) and inertial resistance to changing practices (NUNES & GROSSI, 2022), the possibilities of building a more **alive, critical, and deeply relevant Mathematics** are vast. Collaboration **networks** and **emancipatory and practical training** are, therefore, the most promising ways for the Mathematics teacher to become, in fact, the curator and mediator of knowledge in the algorithmic era.

Only a well-prepared teacher, who integrates technology, pedagogy and content, ensuring the full development of **TPACK**, will make Mathematics a discipline that not only prepares for the job market, but that, above all, actively contributes to the **formation of digital citizenship** and to the construction of a fairer and more conscious society.

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**INCLUSIVE EDUCATION IN BRAZIL: REFLECTIONS ON THE INCLUSION OF
YOUTH AND ADULTS IN THE REGULAR EDUCATION SYSTEM**

**EDUCAÇÃO INCLUSIVA NO BRASIL: REFLEXÕES SOBRE A INSERÇÃO DE
JOVENS E ADULTOS NO SISTEMA REGULAR DE ENSINO**

**EDUCACIÓN INCLUSIVA EN BRASIL: REFLEXIONES SOBRE LA INSERCIÓN
DE JÓVENES Y ADULTOS EN EL SISTEMA REGULAR DE ENSEÑANZA**

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ABSTRACT

This article presents a reflection on the practice of inclusive education within the Brazilian regular school system, focusing on the integration of children, youth, and adults with disabilities. The study, qualitative and reflective in nature, is based on legal frameworks, theoretical references, and public policies that support the right to education for all. It examines the role of schools, families, and local governments in implementing inclusive pedagogical practices, highlighting challenges related to access, permanence, and meaningful learning. The findings indicate that, despite advances brought by policies such as the National Policy on Special Education from the Perspective of Inclusive Education (2008) and the Brazilian Law for the Inclusion of Persons with Disabilities (2015), structural, pedagogical, and attitudinal barriers remain. The study concludes that building a truly inclusive school requires continuous teacher training, democratic management, and collaboration among schools, families, and communities, aiming for equitable and socially relevant education for all.

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Keywords: Inclusive Education. Educational Practice. School for All. Public Policies. Educational Equity.

RESUMO

O presente artigo propõe uma reflexão sobre a prática da educação inclusiva no contexto do ensino regular brasileiro, com foco na inserção de crianças, jovens e adultos com deficiência. A pesquisa, de natureza qualitativa e caráter reflexivo, fundamenta-se em documentos legais, referenciais teóricos e políticas públicas que sustentam o direito à educação para todos. Analisa-se o papel da escola, da família e do poder público municipal na efetivação de práticas pedagógicas inclusivas, evidenciando os desafios de acesso, permanência e aprendizagem significativa. Os resultados indicam que, apesar dos avanços promovidos por políticas como a Política Nacional de Educação Especial na Perspectiva da Educação Inclusiva (2008) e a Lei Brasileira de Inclusão (2015), persistem barreiras estruturais, pedagógicas e atitudinais. Conclui-se que a construção de uma escola verdadeiramente inclusiva exige formação docente continuada, gestão democrática e a colaboração entre escola, família e comunidade, visando a uma educação equitativa e de qualidade social para todos.

Palavras-chave: Educação Inclusiva. Prática Educativa. Escola para Todos. Políticas Públicas. Equidade Educacional.

RESUMEN

El presente artículo propone una reflexión sobre la práctica de la educación inclusiva en el contexto de la enseñanza regular brasileña, con enfoque en la inserción de niños, jóvenes y adultos con discapacidad. La investigación, de naturaleza cualitativa y carácter reflexivo, se fundamenta en documentos legales, marcos teóricos y políticas públicas que respaldan el derecho a la educación para todos. Se analiza el papel de la escuela, la familia y el poder público municipal en la implementación de prácticas pedagógicas inclusivas, evidenciando los desafíos de acceso, permanencia y aprendizaje significativo. Los resultados indican que, a pesar de los avances promovidos por políticas como la Política Nacional de Educación Especial en la Perspectiva de la Educación Inclusiva (2008) y la Ley Brasileña de Inclusión (2015), persisten barreras estructurales, pedagógicas y actitudinales. Se concluye que la construcción de una escuela verdaderamente inclusiva exige formación docente continua, gestión democrática y la colaboración entre escuela, familia y comunidad, con el objetivo de garantizar una educación equitativa y de calidad social para todos.

Palabras clave: Educación Inclusiva. Práctica Educativa. Escuela para Todos. Políticas Públicas. Equidad Educativa.

1 INTRODUCTION

In recent decades, inclusive education has consolidated itself as one of the main challenges and commitments of Brazilian educational policies. Although legal advances guarantee the right to education for all people, regardless of their physical, sensory, cognitive or social conditions, universal access still does not necessarily translate into permanence, participation and quality learning. The distance between what is established in the legislation and what is materialized in the school routine highlights the need for new studies, analyses and proposals that contribute to strengthening education as a fundamental human right and as an instrument of social justice.

With the enactment of the Federal Constitution of 1988, the Law of Guidelines and Bases of National Education (1996) and subsequent policies, such as the National Policy on Special Education in the Perspective of Inclusive Education (2008) and the Brazilian Law of Inclusion (2015), Brazil officially assumed the commitment to overcome segregating models and to build educational systems guided by the principle of equal opportunities. However, the implementation of these policies has revealed persistent barriers: lack of specific teacher training, absence of architectural and communicational accessibility, scarcity of adapted pedagogical resources, and weaknesses in the articulation between school, family, and public management.

Inclusive education is not limited to student enrollment, but implies reviewing pedagogical conceptions, reorganizing evaluation practices, rethinking school management models, and promoting cultural changes that value diversity as an educational foundation. Thus, more than an institutional arrangement, it is an ethical, political and epistemological displacement that recognizes the person with disabilities as a subject of rights and not as an object of assistance.

In this scenario, the inclusion of children, young people and adults who have historically been excluded or marginalized from the educational system emerges as an urgent agenda. The presence of students who are the target audience of special education in regular schools does not only represent an administrative change, but also a break with a school logic that, historically, has naturalized inequalities, failures and dropouts. The most recent research reinforces that the effectiveness of inclusive education depends not only on legal reforms, but also on transformations in pedagogical practices, school culture, and the participation of families and communities.

Thus, this article proposes a critical reflection on the factors that influence the effectiveness of inclusive education in Brazilian regular education, analyzing, in an articulated way, the role of the school, the family and the municipality in the construction of a truly democratic school. By problematizing the advances, limits and contradictions of public policies, we seek to understand not only what has already been achieved, but also what still prevents the consolidation of the principle of a school for all.

Although there are legal frameworks that ensure the right to access and permanence, official data reveal that this process is gradual and still insufficient. In recent decades, there has been a significant increase in the enrollment of students with disabilities, but this growth is not evenly distributed among regions, education networks or educational segments. The numerical evolution signals advances, but also reveals structural inequalities that must be considered to guide future actions.

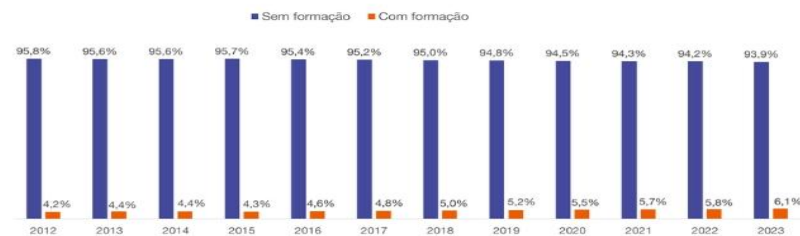
When we observe the statistical behavior of school inclusion in Brazil, we realize that the number of enrollments of students from the target audience of special education in regular classes has grown progressively, indicating the national adherence to the inclusion paradigm. However, this quantitative increase does not guarantee, by itself, an improvement in the quality of schooling, nor does it ensure that pedagogical practices are aligned with the principles of educational equity. This movement can be seen below:

Figure 1

Evolution of enrollment of students from the target audience of special education in regular education – Brazil (2008–2024)



Professores regentes com formação continuada sobre educação especial - Brasil



Fonte: Painel de Indicadores da Educação Especial do IRM

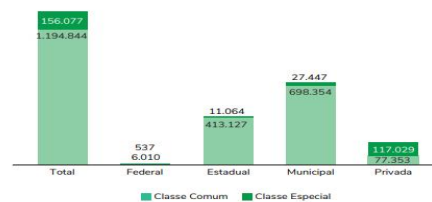


GRÁFICO 30
NÚMERO DE MATRÍCULAS DE ALUNOS COM DEFICIÊNCIA, TRANSTORNOS GLOBAIS DO DESENVOLVIMENTO OU ALTAS HABILIDADES EM CLASSES COMUNS E EM CLASSES ESPECIAIS EXCLUSIVAS, SEGUNDO A DEPENDÊNCIA ADMINISTRATIVA – BRASIL – 2021
Fonte: Elaborado por Deed/Inep com base nos dados do Censo Escolar da Educação Básica.

Source: INEP – School Census.

2 THEORETICAL FOUNDATIONS OF INCLUSIVE EDUCATION

Inclusive education is an international movement that was consolidated from the defense of the school as a space of rights, diversity and social justice. The concept breaks with segregating educational models and replaces the logic of adapting the student to school with the idea of reorganizing the school to serve all students. This paradigm shifts the focus from individual disability to the social, pedagogical, and institutional barriers that limit participation, learning, and human development.

Unlike the integration model, in which the student needed to adapt to the pre-existing school system, inclusion is based on the principle that it is the school that must be transformed, recognizing that diversity is constitutive of the educational process. Thus,

inclusion is not only a policy of serving the target audience of special education, but a conception of social quality of education based on equity, accessibility and participation.

2.1 FROM INTEGRATION TO INCLUSION: PARADIGM SHIFT

The contemporary debate distinguishes two historical models of schooling:

Table 1

Model	Logic	Place of schooling	Responsibility
Integration	"The student adapts"	Special school/special class	Student and family
Inclusion	"The school adapts"	Regular school, regular classroom	Educational system as a whole

Educational inclusion represents, therefore, an epistemological change: the student is no longer seen as a problem to be corrected and is now recognized as a subject of rights, whose difference should not be normalized, but welcomed as part of the human condition.

2.2 INTERNATIONAL DOCUMENTS THAT UNDERPIN INCLUSION

Inclusive education is based on a set of international frameworks that defend the universalization of the right to education:

- **Salamanca Declaration (1994)** — a global framework for school inclusion
- **Convention on the Rights of Persons with Disabilities (UN, 2006)** — incorporated in Brazil with constitutional status
- **2030 Agenda and SDG 4 (UN)** – ensure inclusive and equitable education
- **UNESCO Reports (2008–2024)** – inclusion as an indicator of education quality

These documents state that inclusive education is not an optional goal, but a legal duty of States.

2.3 LEGAL FRAMEWORKS FOR INCLUSIVE EDUCATION IN BRAZIL

Brazil has one of the most advanced legal frameworks in Latin America with regard to the right to education for people with disabilities. Among the main regulatory frameworks, the following stand out:

Table 2

Year	Document	Contribution
1988	Federal Constitution	Education as a right for all
1996	LDB No. 9,394	Specialized educational service (SES)
2008	National Policy on Special Education from the Perspective of Inclusive Education	Schooling in regular education
2015	Brazilian Law of Inclusion (Statute of Persons with Disabilities)	Education as an unconditional right
2017	BNCC	Socio-emotional skills and the right to learning

These provisions reinforce that enrollment in regular schools is a priority, and the offer of special classes or institutions can only occur on an exceptional basis, never as a substitute.

2.4 INCLUSION AS A PRINCIPLE OF EDUCATIONAL JUSTICE

Inclusive education goes beyond the technical-pedagogical field: it is an ethical, political and social principle. It is not limited to guaranteeing access, but also involves permanence, participation and meaningful learning. In this sense, talking about inclusion implies recognizing that educational inequalities are not natural, but historically constructed, and, therefore, can, and should, be transformed.

Thus, the theoretical framework of inclusion is articulated with:

- Critical theories of education
- Studies on social justice and equity
- Conception of school as a territory of citizenship
- Sociocultural approach to human development
- Idea of curriculum as a social and dialogical construction

3 METHODOLOGY

The present study is characterized as a qualitative research, with a theoretical-reflective approach, articulated with documentary procedures and descriptive statistical analysis of secondary data. This methodological choice allows us to examine inclusive education in Brazil both from a conceptual and political-legal perspective and from educational indicators that show advances, setbacks and inequalities in the schooling process of students from the target audience of special education.

3.1 NATURE AND TYPE OF RESEARCH

This is a qualitative study, developed in the form of an analytical essay, focusing on the critical interpretation of documents, legislation, public policies and statistical data. The qualitative approach allows us to understand inclusive education as a social, historical and political phenomenon, whose analysis goes beyond numerical explanations and requires reflection on values, practices, disputes and conceptions of education and society.

3.2 SOURCES OF DATA AND MATERIALS CONSULTED

The study used three main groups of sources:

1. **Normative and legal documents** that regulate inclusive education in Brazil (1988 Constitution, 1996 LDB, 2008 National Policy on Special Education, 2015 Brazilian Inclusion Law, 2017 BNCC, etc.).
2. **National and international scientific production** published in journals in the area of Education, Public Policies and Special Education.
3. **Statistical data in the public domain** made available by official bodies such as:
 - INEP – School Census (2008–2024)
 - MEC – Secretariat of Continuing and Inclusive Education
 - IBGE – Surveys on education and disability
 - UNESCO and UN (Global Reports on Educational Inclusion)

These sources allow the crossing of theoretical foundations with concrete educational indicators, ensuring analytical consistency.

3.3 DATA COLLECTION, ORGANIZATION AND ANALYSIS PROCEDURES

The investigation followed the following steps:

1. **Documentary survey** of legislation, educational plans, guidelines and official reports.
2. **Selection and reading of theoretical works and studies published between 2000 and 2024**, related to inclusive education and the right to education.
3. **Extraction, tabulation and organization of official statistical data**, used later in the construction of the Figures presented throughout the article.
4. **Interpretative analysis of a critical-reflective nature**, articulating theoretical foundations, public policies and numerical evidence.
5. **Argumentative writing of the results in thematic sections**, articulating school, family and public power.

The Figures used in the article do not have an illustrative function, but an analytical one, that is, they reinforce the arguments discussed in the text and serve as empirical evidence of the Brazilian educational reality.

3.4 METHODOLOGICAL JUSTIFICATION

The adoption of a hybrid, theoretical method, through quantitative indicators, is also not restricted to philosophical reflections detached from the educational reality. Thus, the combination of conceptual analysis and official data allows us to understand both the principles that guide inclusion and their materialization in Brazilian schools.

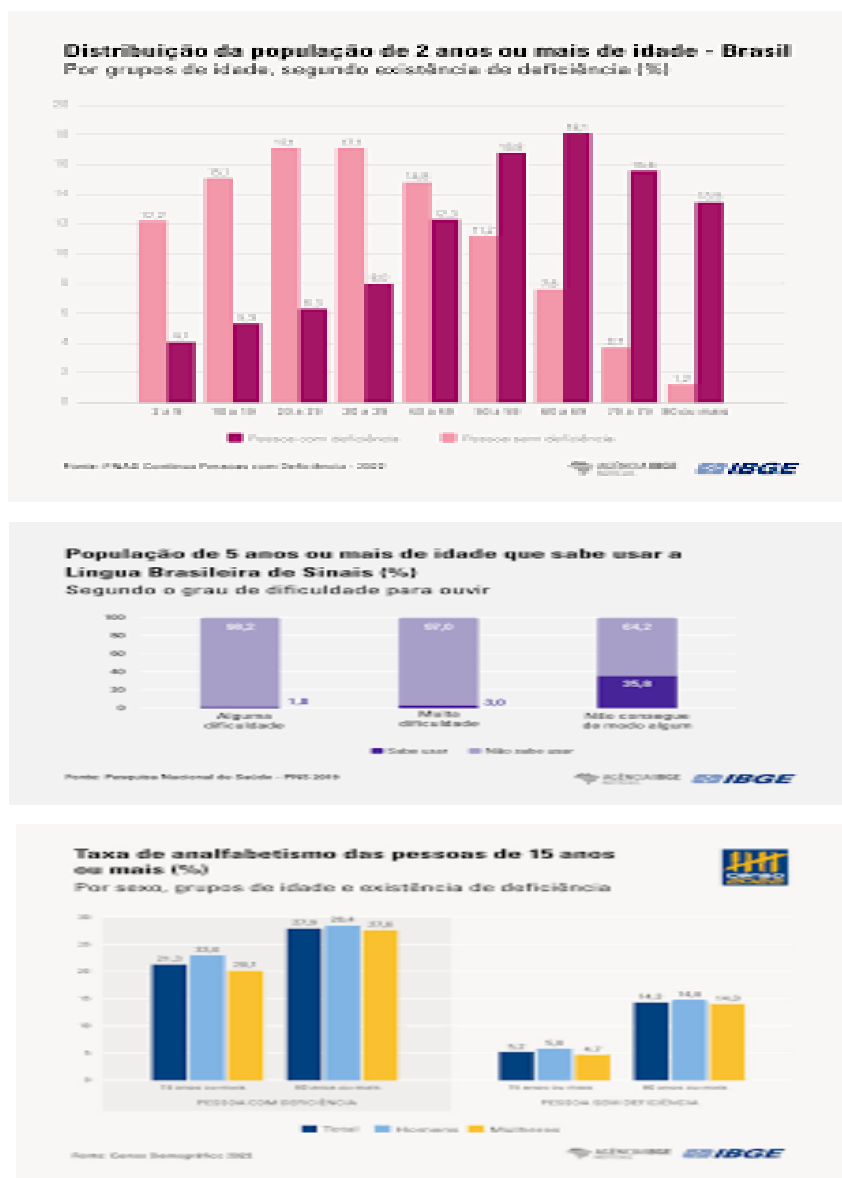
3.5 STUDY LIMITATIONS

This study does not involve primary data collection, such as interviews, questionnaires, or participant observation, which limits the investigation to the analysis of documents and data in the public domain. In addition, the available statistical data depend on periodic updates from official agencies, which can generate a time lag in some indicators. Such limitations, however, do not compromise the rigor of the analysis, since the objective of the article is not to describe a specific local reality, but to problematize policies and practices on a national scale.

Documentary and statistical, it is justified by the complexity of the object of study. Inclusive education cannot be analyzed only

Figure 2

Title: Distribution of enrollments of students targeted by special education according to type of disability – Brazil (most recent year available)



Data source: Brazilian Institute of GeoFigurey and Statistics (IBGE) – PNS 2019.

6 RESULTS AND DISCUSSION

The results presented below were organized into three main axes of analysis, according to statistical data collected in official databases (INEP, IBGE, MEC) and articulated with the theoretical review and inclusive education policies. The Figures constructed allow us to visualize not only the historical evolution of inclusion, but also the structural limits that still prevent the full implementation of the principle of "education for all" in the regular education system.

6.1 EVOLUTION OF ENROLLMENT OF YOUTH AND ADULTS WITH DISABILITIES IN BASIC EDUCATION

The first Figure shows the growth in the number of students from the target audience of Special Education enrolled in regular classes in the regular network. Although the data reveal a percentage increase over the last few years, it is observed that the progression does not occur in a linear way, being affected by structural variables, such as financing policies, the supply of Specialized Educational Service (SES) and teacher training.

The numbers confirm that inclusion has been advancing in the normative sphere, but still faces practical barriers in everyday school life, reinforcing the argument that simple enrollment does not represent effective inclusion, but only formal access.

6.2 SCHOOL DROPOUT AND PERMANENCE RATES IN INCLUSIVE EJA

The second Figure reveals a critical point of inclusive educational policy in Brazil: the school dropout of young people and adults with disabilities who enter Youth and Adult Education (EJA). Although the legislation guarantees the right to permanence with learning, the data show a mismatch between the entry and completion of schooling, indicating gaps in pedagogical monitoring, school infrastructure, curricular adaptation, and dialogue between school, family, and public services.

The analysis shows that dropout does not result from the disability itself, but from pedagogical, methodological and social barriers, as already highlighted in the theoretical framework. Thus, school inclusion remains conditional on the creation of intersectoral support networks, and not only on enrollment compliance.

6.3 DISTRIBUTION OF ENROLLMENTS BY TYPE OF DISABILITY

The third Figure shows the composition of enrollments by four predominant categories: visual, hearing, motor and intellectual disabilities. The greater concentration recorded in the field of intellectual disability reinforces the need for teacher training in differentiated pedagogical practices, in the use of assistive technologies and in adapted literacy and literacy methods.

In addition, the lower representation of students with hearing impairment in regular classes shows that the inclusion of these subjects still depends heavily on the presence of Libras interpreters, linguistic accessibility resources and institutional policies for communication in two languages — something still restricted to a few municipalities.

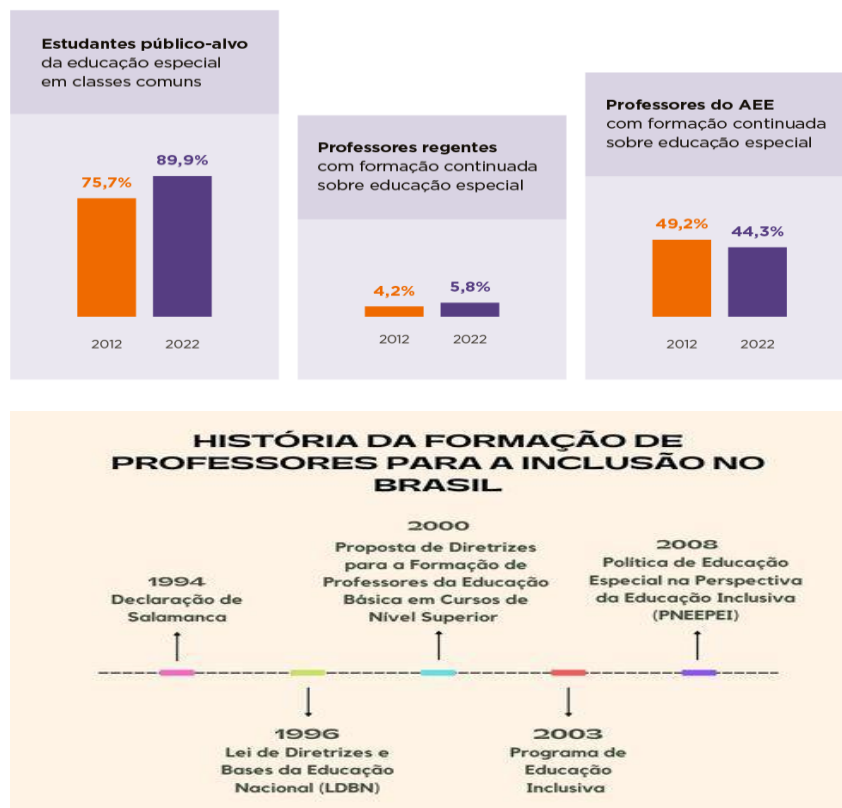
Summary Discussion

The data presented confirm that inclusion in Brazil advances in a fragmented way: while policies affirm the universal right to access, the indicators of permanence and learning reveal structural inequalities. This distance between legislation and practice reinforces the central thesis of this article: there is no real inclusion without curricular transformation, continuous teacher training and active participation of the family and the school community.

The results also demonstrate that inclusion is not only a pedagogical challenge, but also a political, social and economic one. The school, in isolation, cannot handle the complexity of human diversity if the municipality, the family, the managers and the State do not act in an articulated way.

Figure 3

Suggested title: Percentage of basic education teachers with continuing education in special/inclusive education – Brazil (recent years)



Data source: Reports from the Ministry of Education (MEC) and the Special Education Indicator Panel, which indicate that approximately 94% of the regent teachers do not have specific continuing education in special/inclusive education.

7 CONCLUSION

The analysis carried out throughout this article shows that the inclusion of young people and adults in the regular education system, although supported by a broad legal framework, is still partially and unequally materialized in the Brazilian school routine. The data reveal that the advance in the number of enrollments does not necessarily correspond to the guarantee of permanence, learning and full participation, which confirms the existence of a gap between the normative discourse and the pedagogical practice.

The presence of structural, pedagogical, communicational, and attitudinal barriers demonstrates that inclusion cannot be understood as a mere administrative act of enrollment, but as a continuous process of school reorganization, curriculum review, and teacher training based on human diversity as a pedagogical principle and not as an exception. The Figure referring to professional teacher training confirms this condition: most teachers do not have specific training to work with students from the target audience of special education, which has a direct impact on school dropout rates and low school performance.

It is concluded that the construction of an inclusive school depends on three interdependent pillars: the political commitment of the municipality, the pedagogical action of the school and the active participation of the family. Overcoming school exclusion requires sustainable public policies, adequate funding, permanent teacher training programs and intersectoral articulation with health, social assistance and culture. Without this basis, inclusion tends to be restricted to a legal ideal that has not been fulfilled.

This study contributes to reinforce that Inclusive Education is not a policy aimed only at people with disabilities, but an ethical, social and democratic project to guarantee the right to education as a common good. Thus, it is reaffirmed that **a school for all only exists when it is organized for each one**, and not when it imposes unique standards of learning and development.

Limitations and Recommendations for Future Research

This work used exclusively secondary data and theoretical review, which means that it does not yet address the perception of the subjects involved (teachers, students and families). It is recommended, therefore, that future studies include field research, interviews and analysis of concrete pedagogical practices, in order to broaden the understanding of the mechanisms of permanence and school success of young people and adults, from an inclusive perspective.

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THE PRESENT TIME, THE SAMBA-ENREDO, AND THE TEACHING OF HISTORY

O TEMPO PRESENTE, O SAMBA ENREDO E O ENSINO DE HISTÓRIA

EL TIEMPO PRESENTE, EL SAMBA ENREDO Y LA ENSEÑANZA DE LA HISTORIA

 <https://doi.org/10.56238/sevened2025.038-043>

Fabio Henrique Monteiro Silva¹

ABSTRACT

This article seeks to analyze the importance of music, especially samba, for Teaching History in the Present Time. Abstract In this way, we will discuss the creation of uniformity in samba schools, especially in the Vargas Era, as well as the use of this musical genre to build a national identity. Furthermore, we situate sambas from the perspective of the Present Time and their use for History Teaching.

Keywords: Samba. Samba Schools. Teaching History.

RESUMO

O presente artigo busca analisar a importância da música, em especial o samba-enredo, para o Ensino de História do Tempo Presente. Desse modo, discutiremos a elaboração de uma uniformidade das escolas de samba, em especial na Era Vargas, bem como a utilização desse gênero musical para a construção de uma identidade nacional. Além disso, situamos os sambas a partir da perspectiva do Tempo Presente e sua utilização para o Ensino de História.

Palavras-chave: Samba. Escolas de Samba. Ensino de História.

RESUMEN

El presente artículo busca analizar la importancia de la música, en especial del samba-enredo, para la Enseñanza de la Historia del Tiempo Presente. De este modo, discutiremos la elaboración de una uniformidad en las escuelas de samba, especialmente durante la Era Vargas, así como la utilización de este género musical para la construcción de una identidad nacional. Además, situamos los sambas desde la perspectiva del Tiempo Presente y su utilización para la Enseñanza de la Historia.

Palabras clave: Samba. Escuelas de Samba. Enseñanza de la Historia.

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1 INTRODUCTION

Every year, the sympathizers of the Samba Schools, as well as researchers and admirers, are waiting for the new samba-enredo that the School will present on the avenue. This cyclical ritual, since it takes place every year, is easily perceived nowadays, when all the groups launch a theme, make a contest with several qualifiers until the grand finale, a moment of delirium in which the fans organize themselves to dance and exalt the samba of their sympathies.

However, it was not always like this: the samba we know today, sung in samba circles, on the radio, consumed by the population of lovers of this art, had to show its competence and resistance to become one of the main representatives of our nation. The journey was long and crossed by a series of mishaps for the bambas and their sambas to be accepted by society.

To achieve this dimension and characterization of the plot, samba had to come a long way, crawl with rural samba, seek its gestation in samba circles, departmentalize its special type of batuque, after all, "in the past, travelers called batuque any manifestation that brought together dance, singing and the use of black instruments" (DINIZ, 2008, p. 13). In this way,

The batuque has no age. This primitive act of making a rhythmic noise with the simplest and most improvised percussion instruments appeared with the conscious man. The Brazilian batuque was our first musical movement. The slow drumming of the Indians was transformed and dominated by the strong and rhythmic beat of the Africans, marked initially by nostalgia for the lands from which they came and, later, by the strength of the new airs until the euphoria of the conquest of freedom, and the equality of a people that was formed happy and playful. (MUNIZ JUNIOR, 1976, p. 14).

This is how urban samba began to derive in the forms of batuque, the batuque of African joy, from the slow rhythm of the indigenous people until it reached a series of elaborations such as the samba-canção, the samba de breque, the samba-choro and the samba-enredo. This comes from the neighborhood of bambas Estácio de Sá, the birthplace of this type of samba, as well as the samba de quadra and the samba de partido alto, more accelerated, which in a few years reached the carnival parades of Praça Onze and contributed to the making of the largest audiovisual show in the world.

2 THE SAMBA-ENREDO: ORIGIN AND CONSOLIDATION OF A PULSATING BRAZIL

Because it is often characterized as any form of batuque, samba was still, at the beginning of the twentieth century, considered a manifestation of blacks, poor, from the lowest stratum of society, often seen as a manifestation that contributed to perpetuate Brazil outside the civilized world - for this reason a series of manifestations against this form of leisure are expressed by representatives of Brazilian politics. It is enough to observe the testimony of Ruy Barbosa, in the Federal Senate at the beginning of the twentieth century:

One of yesterday's sheets printed in facsimile the presidential reception program in which, in front of the diplomatic corps, of the finest society in Rio de Janeiro, those who should give the country the example of the most distinguished manners and the most reserved customs raised the "Corta-jaca" to the height of a social institution. But the "Corta-jaca" that I had heard about a long time ago, what is he, Mr. President? The lowest, the most foul, the coarsest of all wild dances, the twin sister of batuque, cateretê, and samba. But at presidential receptions the "Corta-jaca" is performed with all the honors of Wagner's music, and we do not want the conscience of that country to revolt, for our faces to blush and for the youth to laugh! (EFEGÊ, 1974, p. 161).

The aforementioned pejorative description of Ruy Barbosa is only one of the prejudiced representations that refer to the expressions of musicality of the poor layers of the population of Rio de Janeiro, characterized by him as short, wild and foul. This discourse allows us to understand the universe of samba, which in the nineteenth century was the twin brother of cateretê² and batuque³. Therefore, the aforementioned discourse delivered on November 7, 1914, it mentions the performance of Corta-jaca, a song composed by Chiquinha Gonzaga.

It is true that part of the Brazilian elite was content to listen to the European lyrical genre that was part of the repertoire of their meetings, hailed as a privileged model of artistic representation, a model copied and graced even by

Ruy Barbosa. However, what interests us is the fact that even at the beginning of the twentieth century, samba was "the twin brother of batuque and cateretê" (OLIVEN, 1985, p. 38), something that still lacked its consolidated representativeness and that, therefore, was still often confused with maxixe, tango and other manifestations that musically seemed to be the same thing.

² The catira or cateretê is a genuinely Brazilian dance. According to Maia (2005, p. 1) "It has been known since colonial times. Father José de Anchieta, between the years 1563 and 1597, included it in the feast of São Gonçalo and Nossa Senhora da Conceição, to which he was devoted".

³ According to Muniz Júnior (1976, p. 13) the batuque has no age, it is the primitive act of making noise.

That samba can be considered today as one of the most important and creative elements capable of enabling the understanding of Brazilian society by Brazilians themselves is something current in Anthropology, Sociology and History. However, for this, it is necessary to understand his formation until reaching what we know as samba-enredo, one of his most representative expressions, expressing his way of making music and enabling his body discourse.

One of the first appearances of the word samba, according to Muniz Júnior (1976, p. 19), took place in the magazine *Carapuceiro*, from Recife in 1838, in which "Friar Miguel do Sacramento Lopes Gama raged indignantly against the samba d'almocreves." The same religious also published curious verses about the term samba in 1842 that said: Here in our bush / Which was then very tatamba / Nothing else was known/ Otherwise the dance of samba (MUNIZ JÚNIOR, 1976, p. 22).

Dating back to the nineteenth century and, because of this, with a still shifting definition, samba was associated with any type of batuque and could happen at any time of the year. The interesting thing about the criticism made by Friar Miguel do Sacramento is that this term has its appearance in the Northeast, more specifically, in Pernambuco.

This allows us to affirm that in the nineteenth century samba was danced in various parts of Brazil. As the term samba was associated with the condition of batuques and these batuques sounded in the four corners of Brazil, samba, in this way, was played and danced in several provinces of the Brazilian Empire. Of course, because Rio de Janeiro was the capital of Brazil in the imperial period, this fact attracted many people and their customs to this location – among these, batuque and samba dance. However, we agree with Muniz Júnior (1976) when he states that it was danced in Maranhão, Pará and Pernambuco since the nineteenth century, and was also adopted in Bahia, where it became bold and melodious, "samba came to Rio de Janeiro, and he joined his brother, the lundu and with the no less famous maxixe, definitively consecrating himself in Rio de Janeiro" (MUNIZ JÚNIOR, 1976, p. 23).

There are countless testimonies about the origin of the word samba. Muniz Júnior (1976. p. 36) states that researchers who have studied the etymology of the word samba have reached three conclusions.

The first states that samba comes from Zambo, which in Spanish and Portuguese, defines the mestizo of black and Indian. Samba or semba would therefore be the dance of these mestizos. Samba comes from semba, an Angolan word that means

umbigada, a euphemism with which the touch of the sexual parts is expressed, in certain passages of the dance. Samba really comes from samba, an African term that has the meaning of dance, only as a choreography to the sound of a certain rhythm.

In 1967 the II Samba Symposium was held and it was at this Symposium that the historian Francisco Martins dos Santos declared that "although it appears in Pernambuco, since 1842, in quotations such as dance, it is in Rio de Janeiro, in 1890 that it appears as written music and title" (MUNIZ JÚNIOR, 1976, p. 33). For Hildegardes Vianna, samba

[...] is almost the same age as Brazil. It has always been samba depending on the way it is danced and the way of the dancer. That is why samba is the creole drum of Maranhão, the samba de roda of Bahia, the batuque of São Paulo, the bambelê of Rio Grande do Norte, the virado of Alagoas, the samba of the hill, and this lundu that they now call samba duro. It is samba, no matter how it is sung, of the variation that they always want to give it, always with that rhythm that only it has. Samba is national dance, it is national singing. It is in the north and in the south, in the east, in the west. Depending on the place or according to the time, it is dressed in different clothes. (VIANNA apud MUNIZ JUNIOR, 1976, p. 45).

The definition of Hildegardes (1973) highlights the statement that samba is a national song. It is a national dance, an expression that is often cited by us and, therefore, shared with the aforementioned author. However, the word samba still generates a number of controversies.

Because it came from Africans, the batuque, or even any festive manifestation of black Brazilians, caused a lot of astonishment in imperial society and at the beginning of the Republic. After all, in order to be accepted as a cultural manifestation, representative of our condition of being and our nationality, samba went through a series of

tortuous paths. The testimony of Donga, considered the author of the first Samba, *Pelo Telefone* is elucidative, stating that:

Until 1916, samba was considered undesirable music, but not by the people. The presence of a samba musician at that time almost always meant the presence of the police, as samba was prohibited by the Penal Code. And what to do to undress the samba of bad reputation that it had acquired by certain people? Because it was necessary to make him a good guy, varnish him, comb him, use these maneuvers so that he imposed himself without any concession. (MUNIZ JUNIOR, 1976, p. 24).

This statement was made in 1956, when samba had already acquired some acceptance by society. However, Donga's memories serve as a substrate to demonstrate the

strategies that the samba dancers used to reach Rio de Janeiro society at the beginning of the twentieth century.

Sandroni (2001) shows us that the word samba is found in different places on the American continent, and in all of these, with the exception of Argentina, it has always had a strong connection with the black world. Although the etymology has been much discussed by researchers from various areas, the word samba, according to the Dictionary of Brazilian Music, comes from the Kimbundo semba, which would mean umbigada. For Sandroni, (2001, p. 85)

In general terms, they consisted of the following: all participants form a circle. One of them stands out and goes to the center, where he dances individually until he chooses a participant of the opposite sex to replace him (the two can perform a choreography – as a separate pair – before the first rejoins the group). All participants clap their hands and repeat a short chorus, in response to the improvised singing of a soloist.

The accompaniment of the umbigada was on account of the palms of the hands, violas and tambourines, which, over time, contributed to some researchers characterizing such manifestations, with the descriptions made above, of samba-de-umbigada, a description made in an article entitled precisely Samba-de-umbigada, written by Edison Carneiro in 1961. The samba-de-umbigada described by Carneiro has a great similarity with our well-known samba circles, which, for Moura (2004, p. 35) were a

A ritual of encounter, a moment of strengthening bonds of identity and reciprocity, a meeting of equals, and, at the same time, a locus of exchanges with other social groups. Alongside the music and the conversation, two elements are fundamental for the pagode's unfolding: the drink (often beer, some cachaça, a lemon smoothie) and something to eat, whether it's a soup – rubble, lentils, peas – or a stronger dish or even a meal, a fish, a pasta, a mocotó.

Although in the second description the ritual of batuque was present with drink and food, in the umbigada this practice was no different, as the blacks gathered to practice their rituals, among which the meal was necessary so that the bodies could continue singing and dancing. From this perspective, the batuque was the element that enabled the rhythmic understanding of Brazil, after all, the description above is very similar to other forms of black men and women dances in various parts of our country.

Among the rhythmic forms that can fit the description of the umbigada, we can highlight the Tambor de Crioula, a typical manifestation of Maranhão in which men play the drums and

women in a roda practice a ritual that has a series of characteristics similar to the umbigada described by Sandroni (2001). This manifestation has not lost its traditional characteristic, in which women dance and men sing and drumming. In this way, the Creole drum, in its origin, is part of the rhythmic group that served as the root for the current modern samba, since

The creole drum is a popular dance of Afro-descendants. It is an umbigada dance similar to others of the genre existing in the country. In Maranhão it has specific characteristics and only here it is known with that name. It has external similarities with the Afro-Maranhão manifestation of the Tambor de Mina, with which it is sometimes confused. The main differences are in the instruments and religiosity of the Tambor de Mina. (FERRETI, 2002, p. 22).

Tambor de Mina, Tambor de Crioula, manifestations of black men and women who, when they landed on the Brazilian coast, introduced in this land their wide range of rhythmic varieties, their dances and their songs. Therefore, after exhaustive work in the

sugar plantations and then coffee, as well as a series of other activities, the blacks danced and drummed their rude instruments in the slave quarters of the farms.

From this exhibition, despite numerous quotes about the origin of samba, what we think is most interesting is how a dance and a batuque became symbols of national identity. Who or which groups were interested in the rhythmic transformation that was once seen as a thing of people without culture, of uninformed blacks, and becomes, in the middle of the twentieth century, proud of our sense of nation?

This nationalized samba went through a series of transformations until it spread throughout Brazil. If before it was considered batuque, dance, umbigada, Tambor de Crioula, from the 1930s onwards, samba already has an established definition, it is already known and recognized as a national rhythm. In this way, we corroborate the definition of Vasconcelos (1958 apud MUNIZ JÚNIOR, 1976, p. 36) when he states that

Samba was born in Praça Onze, several explanations have emerged to explain the origin of the word samba. There were even those who sought it in the Tupi language, as did Teodoro Sampaio. Samba would be a chain made hand in hand by people in merrymaking; circle dance. This interpretation, defended, by the way, by Silvio Romero, is opposed by those who, with more coherence, sought the word in African dialects. These, in general, say, like Arthur Ramos, that samba comes from semba, umbigada. We consulted Professor Mozart Araújo, an authority on Afro-Brazilian music and who declared to us that he preferred to accept samba as coming from samba itself, that is, from an identical word and which, in African dialect, means to worship

the divinity through dance (Serra Frazão). This version also seems to us the most plausible, since samba, in its origin, is linked to the cult of the terreiros.

Despite returning to the question of the origin of the term samba, the definition of Vasconcelos (1958 apud MUNIZ JÚNIOR, 1976, p. 36), when he states that the term samba comes from samba itself, interests us because we agree with the author, when he states that samba was born in Praça Onze, the square of the samba musicians of Rio de Janeiro, cradle of bambas, which on Carnival days was full of sympathizers. If samba has its origin in choreographic diversity, in the variety of dance and music, assuming, in its origin, various names and forms throughout the national territory, it was in Rio de Janeiro and only there that it reached the aesthetics we know today.

Bahia, Maranhão, Pernambuco and other Brazilian states had their rhythmic manifestations of batuque, no doubt, but samba, as we know it

Currently, this one is from Rio de Janeiro, he is from the hills, he goes down to the city, he has in his dance, in his swing and in his ballet the aesthetics of the carioca way of being. In addition, the batuque that contributed to the origin of samba continued, as in the case of Maranhão, with the same characteristics.

If the Tambor de Crioula and the Samba de Roda da Bahia, in their genesis, can be considered batuques that could be called samba, from the first half of the twentieth century this is no longer possible, since both the Tambor de Crioula and the Samba de Roda were part of a series of Brazilian manifestations, of the so-called Batuque Dance. We think that Zé Keti's samba is one of the great rhythmic definitions of samba with which we are concerned in this work. From this perspective, *A Voz do Morro* represents the aesthetics of samba, the samba we hear today, with its rhythmic feature already defined.

I am the samba / The voice of the hill is myself yes sir / I want to show the world that I have value / I am the king of the terreiro / I am the samba / I am from here in Rio de Janeiro / I am the one who brings the joy / To millions of Brazilian hearts / Save the samba, we want samba / Who is asking is the voice of the people of a country / Save the samba, we want samba / This melody of a happy Brazil (KETTI [n.d]).

It was by showing his value that the samba musician from the hill came down and transformed the rhythmic pulse of samba into national music. The samba that we see as an element of identification for a portion of the population of Rio de Janeiro is from Rio de Janeiro

and expresses, especially in the 1930s, the desire, values and dimension of a portion of the population that is often marginalized.

Although samba gains expressiveness when it descends from the hills of Rio de Janeiro and reaches the city, it is the voice of the hill that is present in part of the samba society. At first, samba was associated with vagrancy and trickery, however, the voice of the hill became, over the course of a few years, the voice that reached an entire country. Thus, samba is natural in Rio de Janeiro, in the hill, and when it descends the city it goes through a series of transformations until it reaches the form of a plot and is played and danced throughout the Brazilian territory.

Despite the controversy about samba, its naturalness and originality, the samba of the Samba Schools, known as samba-enredo or samba de enredo, it needed to develop its own structural characteristics, so that it could be able to meet the purposes of a parade, which contributed to becoming a singular genre of samba. Associated with the Samba School, the samba de enredo also represents the voice of the hill, the desire to be heard and accepted by passers-by on the asphalt, since, although this form of samba goes beyond the limits of carnival associations, it was with the Samba Schools of Rio de Janeiro that samba gained greater visibility.

Samba de enredo or samba-enredo, it doesn't matter. What interests us is how the rhythmic expression of the Samba Schools contributed to the nationalization of samba and became one of the symbolic elements of the construction of our identity, that is, since identity is a symbolic elaboration, the samba-enredo became a symbol of national identity.

Like samba, with its definition and rhythmic consolidation, samba-enredo traveled a long rhythmic trail to be accepted as a rhythm and symbol of national identity. It had to be born and grow up to be able to establish itself as the rhythm of our condition of Brazilianness, expressing, once again, the voice and the way of the carioca, or at least the voice, the dance, the way and the pride of part of the carioca society, because the samba-enredo is intrinsically linked to the Samba School, which has its roots in the hill, in the space of sociability of humble but noble people, noble in the condition and wisdom of making themselves accepted. From this perspective, a samba made by the composer from Maranhão, Cristóvão, in the 1970s illustrates well what we propose to defend.

Oh oh oh, I'm going to go down to the city / I'm going to show these people / What real samba is / There is / There is too much samba / There in the village there is / Real samba / Oh, oh, oh, oh, oh, I'm going down from the village to the city⁴

The samba of Cristóvão, one of the great composers of the Turma do Quinto de São Luís, serves as a substrate for the demonstration that the samba-enredo is from the hill, and it was from the hill that it descended to the city. In this case, as in São Luís there are no hills, the samba is from the Village. Vila in São Luís is, just like the hill in Rio de Janeiro: the space of sociability of simple people, poor people, but who have samba on their feet, who sweat inspiration and makes this some beautiful sambas. In this way, when consolidated as a musical genre that expresses our condition of nationality, the samba-enredo can be one of the tools for understanding the history of the present.

3 SAMBA-ENREDO AND TEACHING OF HISTORY OF THE PRESENT TIME

To think about the present in history, or the present of history, is to fall into the uncertainty of time. Time does not belong to the historian. Time, as Augustine (2000) had rightly stated, is a psychological conception, time does not exist, it is emptying itself into our hands. Time does not in fact belong to us, that is, what we do is an attempt to time time, we give it a meaning, but we cannot make it concrete.

So, does the present exist in history? What are the criteria used to cut out the present time? When does contemporaneity begin? How far will the postmodern, when it comes to time, survive? These questions are extremely important for the historian who uses what they call the history of the present time, even because, if the past does not exist, can we say the same about the present? The present, when it is narrated, is no longer present, for this reason, "Thompson states that, to the historian, it would be up to the historian to work on the past, the present would be pertinent to the studies of sociology" (MULLER, 2007, p. 17).

We will not be concerned here with defining which is the object of sociology or history, or what differentiates the object of both; Our concern, in fact, is to try to understand the place of the present in contemporary historiography. Is the present a safe field for the historian? If the past is simply what has already happened, is there a history of the present? What is the importance of memory for us to tell the story?

This is still a tenuous aspect, because if history is the narrative of the past, the present is only narrated when that same present has become the past. The present is immediate, it

⁴ Available at www.letras.mus.br. Accessed on: 3 mar. 2024.

is constructed, it is passage, it is movement. Therefore, we can say that it is practically impossible to narrate the present, as it is extremely ephemeral. In order for it to be narrated, at least in the eyes of historians, it must become the past, not because the past is our object of study, but only because we can only say something, from the historical point of view, of what has already passed, not of something that is happening. This "happening" may even belong to historical knowledge, however, we can only narrate about what happened when

the same become happen. Even so, even in the treatment of what has passed, it does not mean to affirm that the elaboration of the past can be constructed as it actually was, because what we do is a discursive signification about events that occurred in the past, whether it is close or distant from our earthly time, whether it is remembered or remembered, collectively and individually, because even though it is collective, memory is an individual faculty. In this way, history is an object of construction whose place is not the present time, but the elaborations made by men of their time and about events that occurred in the past – whether recent or distant.

If this happening does not belong to us, what is the way out for those who make history of the present time? Exactly the present time is a retreat from history. In this sense, how far can we go back to perceive the present in history? What are the temporal spaces to define the present time in history? Where does it begin? To what extent do we remember events so that they can become history?

If we take into account those who define history from a modern paradigm, giving it a place of progress, the Second World War would be "the mark of distinction between what would be the past and the present time in historical research" (MULLER, 2007, p. 18). In this sense,

We call attention to two institutions that have been working with the notion of History of the Present Time. They are the Institut d'Histoire du Temps Présent (IHTP), created in France in the 70s and linked to the CNRS, with a body of researchers and publications mostly dedicated to studies on post-war French history as well as on theory and method; the Institute of Contemporary British History, linked to the University of London, which has been organizing conferences and seminars on British history in the twentieth century, especially after World War II. (MULLER, 2000, p. 19)

These are some of the concrete examples of institutions that have been concerned with the present time as an object of study of history and, if the present is for these institutions

an object of history, it is up to us historians to inquire what is the criterion that could define what can be considered as the history of the present time.

Thus, Muller (2007) defines the present time in history as steeped in questions: When does the present time begin? With the First World War? With World War II? Or with the fall of the Berlin Wall? In addition to these elements that may define the

At the beginning of this new field of history, another no less significant question would be: what is the method used to construct the history of the present, or, can the history of the present time be a discipline? What is the importance of memory for the resignification of contemporary history? Is the present time a time of post-contemporaneity or is it part of the contemporary world? In the case of samba, the interesting thing is to demonstrate that even though the world was going through a war of global dimensions, part of the plots of the Samba Schools of Rio de Janeiro were not concerned with these issues of a political nature. We advance that this does not mean that the samba dancers were oblivious to what was happening, but rather, they were part of a spatiality that was not present in a practical way as a country that was effectively at war. In the period of World War I, the samba schools were not yet consolidated in the carnival of Rio de Janeiro. In 1917, the first samba in the history of popular music was recorded. Composed by Ernesto dos Santos (Donga) and Mauro Almeida.

By Phone
Donga and Mauro Almeida
The head of the revelry
By phone Sends me to warn
That with joy
Do not question yourself
To play

This first samba reflects everyday issues of part of the society of Rio de Janeiro. The title itself by phone, alludes to the intense movement to combat games that was recurrent in the central regions of Rio de Janeiro. During this period, Dr. Aurelino Leal was the chief of police, who in the samba of Donga, is called the head of the revelry, but who, the warning, concerns the restrictive measures to this type of leisure.

Historiography shows that the population's leisure, even at the beginning of the twentieth century, was watched on a daily basis. For this reason, the pernadas, capoeiras and batuques, elements that will influence the samba genre, were seen as a trickster's thing,

which is why the places of consumption practices of the first carnival parties, watered by samba, were policed. Samba was a thing of vagabonds, rascals, and frowned upon by the elite. This conjuncture was that worried the first composers of the future genre of music that would cross our identity.

In this interval of two wars, the samba schools, the great societies, the corsos, competed for space and importance within the carnival party. When the Second World War broke out, which took place between 1939 and 1945, the samba schools were already consolidated in the carnival of Rio de Janeiro, as the most important manifestations of popular culture in the state. Certainly the world conjuncture contributed to a series of debates about the carnival of the federal capital. At the height of the Pan-Americanist policy, especially during the III Meeting of Consultation of American Foreign Ministers in Rio de Janeiro, the first demonstrations against the holding of the carnival party took place. The article in the *Jornal do Brasil* of 1942 questioned:

What judgment can be made of us by the elite spirits (it is evident that each country will take care to select its representation) who, coming from distant lands, to deal with matters of extreme gravity and magnitude, had their steps choked by a howling, sweaty and smelly crowd on Avenida Rio Branco, or on any other street, screaming carnival songs, which they will not understand, with dancers in the hundreds and thousands breaking the vast hips and trembling the Somatic facades in rhythms of sensual music? (*JORNAL DO BRASIL*, Rio de Janeiro, January 1, 1942)

Still in 1942 it is possible to perceive the prejudiced tone of the news. First, because the prohibition would be directed to the street carnival, the carnival of the people, of sweaty and smelly people, because the carnival practiced in clubs and private associations would have its manifestations assured. Voices from the Catholic Church also criticized the holding of the party. What is certain is that the party took place and Portela sang "A vida do Samba" becoming two-time champion in 1942.

The samba was a festival of the Indians We perfected it more
It is a reality
When he comes down from the hill To live in the city
Samba you are very well known
Worldwide
Samba pride of Brazilians
You went abroad
And you achieved a lot of success
We are very proud of your progress

As the lyrics of Alvaide say, samba in this period was already consolidated within its spatiality, which in this period was Praça Onze, the square that in that same year becomes immortal from the verses of Herivelton Martins and Grande Otelo. The people of Rio de Janeiro, as was common on these days of celebration, got involved with all possible vigor, demonstrating.

We emphasize that this is the Getúlio Vargas period, crossed by a solid relationship with samba and the samba schools. Although the Second World War is an element of conjunctural analysis, a deeper question about carnival was being posed: the relationship between samba dancers and the State. When Vargas took power, he made his nationalist issues clear, and, without going into the merits of the discussion of nationality, since what interests us is the history of the present time and samba, we emphasize that samba begins to gain new meanings, because "samba was no longer, therefore, a mere musical expression of a marginalized social group, but an effective instrument of struggle for the affirmation of black ethnicity in the framework of Brazilian urban life" (SODRÉ, 1998, p. 20). From this perspective, we must remember that among our competencies, we elaborate questions, build hypotheses, arguments, and propositions in relation to documents, interpretations, and specific historical contexts, using different languages and media, exercising empathy, dialogue, conflict resolution, cooperation, and respect (BNCC, 2017, p. 400)

Among our competencies, we must also be secure in relation to our episteme, and, in this horizon, samba is extremely important for us to perceive our current conjuncture, or what we treat as the history of the present time or immediate history. In this way, we highlight, among the various artistic productions, the plot of Mangueira of 1919, for the simple fact of drawing attention to our knowledge. The plot of the mango tree entitled "story to lullaby big people" dealt with a story that history did not tell, giving prominence to the characters often silenced in historiography. In this way, we take the liberty of quoting the entire lyrics of the samba, which, in our understanding, tries, among other things, to give voices to those who may have been suffocated by an official historiography for centuries.

Story to lullaby big people Brazil, my
 Let me tell you
 The story that history does not tell The reverse of the same place
 In the struggle is that we meet Brazil, my dengo Mangueira arrived With verses that
 the book erased
 Since 1500 there has been more invasion than discovery There has red blood trampled
 on

Behind the framed hero Women, tamoios, mulattoes I want a country that is not in the
 portrait
 Brazil, your name is Dandara And your face is cariri
 It didn't come from heaven
 Not even from Isabel's hands
 Freedom is a dragon in the sea of Aracati
 Save the caboclos of July
 Who was steel in the years of lead
 Brazil, it's time
 To listen to the Marias, Mahins, Marielles, Malês
 Hose, dust the cellars
 Oh, make way for your heroes in the sheds
 From the Brazils that make a country of Lecis, jamuns Are green and pink, the crowds.

Certainly these verses are already sung and told in this way. But it is still important to understand the samba-enredo to tell the Brazil of the present. The Brazil that was invaded and not discovered, the abolitionist Brazil from the slaves themselves, and not by the will of a princess, the Brazil that fought for its independence in the Northeast, from the Revolt of the Malês, from feminism, democracy and freedom still awaited by many. It is the Brazil of the present time, that the samba schools historically sing and tell from their desires and versions

4 FINAL CONSIDERATIONS: WHAT HISTORY TO TEACH?

The historian, when writing about history, makes his own the image of the work of an artisan of the present, always seeking new forms of art in order to be able to build new products in search of new markets. Thus, the historian and history teacher must seek new forms of approaches so that he can build his knowledge. But, from the perspective of teaching history, what is the relationship between history and the present? Can we think of the present as a new way of constructing the teaching of history? If so, one of the tools for the construction of this knowledge must have as a concern the prospection of memory. Thus, the use of memory is of vital importance for understanding the current world.

This is a coherent idea in the characterization of the task of History. Not because it admits a mission crossed by the commitment to the construction of a current history, but, above all, because, like a craftsman of the present, the historian needs to work with the elements that constitute the current world. In this way, the memorization of a recent past can be a more pleasurable task for students who, many times, are not interested in subjects that are not part of their context, which, in fact, are not part of their history.

From this perspective, the historian and teacher should never forget that we are objects of history, and as such, we are influenced by the environment in which we are inserted. Thus, recent memories will be our sources that will allow us to understand current conjunctures to the extent that we are violators of memory and manipulators of these sources.

On the other hand, a series of elements serve as an obstacle to thinking about teaching focused on the present, ranging from the need to follow a curriculum imposed by educational institutions, as well as the ineptitude of most professionals who still think about a history that has as its objectivity the understanding of the past. Certainly we are not questioning history as a past, however, we do not share the idea of the possibility of understanding past facts as if they could come to light from the historian's writing.

In this way, the present here was treated as a recent past, which is still the past, but not with the looks and perspectives that were given to the past as an object of history. Therefore, the retreat from the past treated here as present must be one of the tools used to build a history that is truly concerned with the changes that are to come.

How many times have we taken up the idea that we are builders of a more critical and coherent society! Several times, historians and history teachers claimed to be responsible for the construction of a conscious society. Hence, nothing more plausible and coherent than thinking and using the present in order to reach a certain level of consciousness.

If history is a discipline that has as an element of concern the knowledge about the past, so that a more critical and conscious society can be built, there is nothing more coherent than thinking about this recent past, here treated as the present. If we can understand the present, treat it as an object of history and manage to diagnose problems and even try to find some solutions to the social chaos in the new millennium, then we will have achieved the true goal of historical knowledge.

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**THE IMPORTANCE OF INTEGRATING THEORY AND PRACTICE IN NURSING
EDUCATION: A REPORT OF AN INTERNSHIP IN PRIMARY HEALTH CARE**

**A IMPORTÂNCIA DA INTEGRAÇÃO TEÓRICO-PRÁTICA NA FORMAÇÃO DE
ENFERMEIROS: RELATO DE EXPERIÊNCIA EM ESTÁGIO NA APS**

**LA IMPORTANCIA DE INTEGRAR LA TEORÍA Y LA PRÁCTICA EN LA
FORMACIÓN EN ENFERMERÍA: INFORME DE UNA PASANTÍA EN ATENCIÓN
PRIMARIA DE SALUD**

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Melo³, Thainá Mendes Faria⁴, Carla Denari Giuliani⁵**

ABSTRACT

This experience report presents the experiences of a group of six fourth-semester nursing students from the Federal University of Uberlândia (UFU) during their supervised internship in Primary Health Care (PHC). The experience highlights the importance of integrating theory and practice in professional training, addressing the learning and challenges faced by the students. The activities involved accompanying nursing consultations, preventive examinations, vaccinations, child care, and home visits with Community Health Agents (CHAs). This experience allowed students a broader understanding of the nurse's role in care management, health promotion, and teamwork, in addition to strengthening technical, ethical, and communication skills. Among the challenges, the limited internship time, the lack of institutional support, and the conditions of social vulnerability in the territory stood out. Thus, it is clear that supervised practice plays a fundamental role in building the generalist and humanist profile proposed by the National Curriculum Guidelines (DCNs), contributing to a critical, reflective, and socially committed education.

Keywords: Academic Experience. Curriculum Integration. Competency Development. Primary Health Care (PHC).

RESUMO

O presente relato de experiência apresenta a vivência de um grupo de seis acadêmicos do quarto período do curso de Enfermagem da Universidade Federal de Uberlândia (UFU) durante o estágio supervisionado na Atenção Primária à Saúde (APS). A experiência destaca a importância da integração entre teoria e prática na formação profissional, abordando os aprendizados e desafios enfrentados pelos estudantes. As atividades desenvolvidas envolveram o acompanhamento de consultas de enfermagem, exames preventivos, vacinação, puericultura e visitas domiciliares junto aos Agentes Comunitários de Saúde (ACS). Essa vivência permitiu aos discentes uma compreensão ampliada sobre o papel do enfermeiro na gestão do cuidado, na promoção da saúde e no trabalho em equipe, além de

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fortalecer habilidades técnicas, éticas e de comunicação. Entre os desafios, destacaram-se o tempo limitado de estágio, a falta de suporte institucional e as condições de vulnerabilidade social do território. Dessa forma, percebe-se que a prática supervisionada tem um papel fundamental na construção do perfil generalista e humanista proposto pelas Diretrizes Curriculares Nacionais (DCNs), contribuindo para uma formação crítica, reflexiva e socialmente comprometida.

Palavras-chave: Vivência Acadêmica. Integração Curricular. Desenvolvimento de Competências. Atenção Primária à Saúde (APS).

RESUMEN

Este informe de experiencia presenta las vivencias de un grupo de seis estudiantes de cuarto semestre de enfermería de la Universidad Federal de Uberlândia (UFU) durante su pasantía supervisada en Atención Primaria de Salud (APS). La experiencia destaca la importancia de integrar teoría y práctica en la formación profesional, abordando el aprendizaje y los retos que enfrentaron los estudiantes. Las actividades incluyeron el acompañamiento en consultas de enfermería, exámenes preventivos, vacunaciones, cuidado infantil y visitas domiciliarias con Agentes Comunitarios de Salud (ACS). Esta experiencia permitió a los estudiantes comprender mejor el rol de la enfermera en la gestión de cuidados, la promoción de la salud y el trabajo en equipo, además de fortalecer sus habilidades técnicas, éticas y de comunicación. Entre los retos, destacaron el tiempo limitado de la pasantía, la falta de apoyo institucional y las condiciones de vulnerabilidad social en el territorio. Así, queda claro que la práctica supervisada desempeña un papel fundamental en la construcción del perfil generalista y humanista propuesto por las Directrices Curriculares Nacionales (DCN), contribuyendo a una educación crítica, reflexiva y socialmente comprometida.

Palabras clave: Experiencia Académica. Integración Curricular. Desarrollo de Competencias. Atención Primaria de Salud (APS).

1 INTRODUCTION

The National Curriculum Guidelines (DCNs) of the Nursing course perform the function of ensuring a national standard of quality, establishing a common base guided by the principles of the Unified Health System (SUS). In addition, they give flexibility to Educational Institutions (HEIs) for the contextualization of their Pedagogical Course Projects (PPCs), allowing them to adapt to regional specificities and their institutional identities.

As of the date of this report, the 2024 National Curriculum Guidelines (DCNs) are the current regulatory framework for the bachelor's degree course in Nursing. This instrument defines, as the purpose of training, the development of a professional with a "generalist, humanistic, critical, reflective and ethical-legal" profile (BRASIL, 2024), in parallel with encouraging training in a "multiprofessional and interdisciplinary" environment (BRASIL, 2024). Such foundations confer theoretical and practical solidity to academic development. This last aspect, in particular, was intensely experienced in the educational practice offered by the Federal University, materialized through the internship in a Basic Health Unit (UBS) - a scenario that, by its very nature, materializes the principle of the DCNs of an undergraduate course based on the SUS.

As provided for in Article 11, Primary Health Care (PHC) is designated as the coordinator of care and the organizer of the Health Care Networks (RAS) (BRASIL, 2024). This role dates back to the Alma-Ata International Conference (WHO, 1978), a historical milestone in which PHC was established as the preferred gateway to health systems and a fundamental element for the continuity of care (SALTMAN, 2006). In view of this structure, the student's immersion in the real scenario of the SUS, particularly at the entrance to the system, is consolidated as essential for the development of the competencies inherent to nurses, preparing them to act as unit managers and central figures in family and community care.

In this context, the discussion about the moment and the way in which the student should be inserted in this scenario gains relevance, especially when it is considered that early and supervised practice can favor the consolidation of knowledge and the development of professional autonomy. The literature corroborates the premise of early practical immersion, but also presents it as a complex process, whose results must be analyzed beyond the numbers. The study by Yazdi (2025) demonstrated tangible gains with Early Clinical Exposure (ECE), but noted that the improvement in specific communicative competencies did not reach the expected significance in certain contexts. The authors themselves attribute this fact to

limiting environmental variables, such as the presence of family members or the overcrowding of spaces, which may have impaired the focus and performance of students during interaction. This data, far from invalidating ECE, deepens its understanding: it aligns with findings such as those of Eren and Turkmen (2021), who reported elevated levels of stress in first-year students during patient interviews. The "fear" and anxiety inherent in the initial contact with the clinical reality do not represent a failure of the methodology, but rather an aspect of learning that requires structured support. This finding reinforces that practical immersion needs to be intentionally planned, with adequate supervision and environments that favor progressive development. In this way, it is possible to build the student's emotional security in parallel with the development of their technical skills.

In view of this scenario, it is non-negotiable that the undergraduate nursing curriculum includes continuous and pedagogically planned practical experiences throughout the education. The progressive insertion of students in Primary Health Care (PHC), in a way that is compatible with their level of knowledge, favors the gradual development of clinical, relational and managerial skills. The present experience report emerges, therefore, as an expression of a remarkable learning, which evidenced the transformative potential of the experience in PHC and, simultaneously, the lack of similar opportunities in previous stages of the course. By highlighting this experience, it is intended to contribute to the reflection on the need to restructure the Pedagogical Project of the Course, so that the practice in Primary Care is valued from the initial periods as an essential axis of nursing education.

2 METHODOLOGY

The present work is characterized as descriptive and qualitative in the experience report model. It addresses the experience carried out in a Basic Family Health Unit (UBSF) in the city of Uberlândia – MG, by a group of 6 students from the 4th period of the undergraduate Nursing course at the Federal University of Uberlândia (UFU), in the discipline of Collective Health IV.

The practice at UBSF took place on 08/05/2025 and 08/06/2025 from 1:30 pm to 4:00 pm, by the group of 6 students, accompanied by the teacher in charge. Regarding practice, the students were separated and sent to accompany a nursing professional, while a pair was responsible for accompanying the Community Health Agents (CHA) in their home visits.

Based on this, those who accompanied the nurses in the health unit observed cases of nursing consultations, preventive exams in women, heel prick tests, childcare and other

procedures, while those who accompanied the CHAs observed searches, registration and home visits.

Therefore, with the purpose of strengthening and defending the importance of practice in the undergraduate nursing course, bibliographic references were searched on the PubMed, Google Scholar, Scielo, Capes Portal, Virtual Health Library (VHL) and resolutions of the Federal Nursing Council (Cofen) platforms. Thus, for the present work, 8 articles from the PubMed, Google Scholar, Virtual Health Library (VHL) and Cofen platforms were used.

3 DISCUSSION

The supervised experience in the discipline of Collective Health IV, developed in two days, in the afternoon, at UBSF Glória, linked to the Federal University of Uberlândia (UFU), transcended the character of observation, representing in practice the concrete application of the fundamentals of the SUS in Primary Health Care (PHC). The activities involved the monitoring of gynecological consultations, screening, vaccinations, heel prick testing and childcare, composing a scenario in which individual care proved to be inseparable from collective health responsibility - a principle that has guided the National Curriculum Guidelines (DCNs) since 2001 and the very logic of organization of PHC (WHO, 1978; SALTMAN, 2006).

The experience allowed a critical understanding of the structuring elements of the work process in the Unit, as proposed in the objectives of the discipline (BRASIL, 2018). An organized scheduling flow and the presence of medical specialists on a weekly basis were observed, although without the figure of some nursing specialties - an absence that aroused reflection on the underuse of nursing in specialty practices in the scope of primary care. Positively, the multiprofessional team presented an integrated and cooperative dynamic, with well-defined roles and effective communication between doctors, nurses, technicians and community health agents, in line with what (ESTEVES, et al., 2018) point out as essential to the consolidation of interdisciplinary practice.

The observation of the use of the e-SUS system evidenced the role of nurses in the management of health information, allowing us to understand how data guide the planning and monitoring of established goals. This administrative dimension, still little explored in previous undergraduate periods, revealed the complexity of nurses' work in PHC, which articulates care, surveillance, and management (LIMA, et al., 2016).

During the home visits, carried out with the CHAs, learning reached its greatest formative depth. The insertion in the territory of Glória, characterized by social vulnerability,

history of occupation and marked state invisibility, made it possible to recognize the social determinants of health as conditioning factors of the health-disease process, especially with regard to teenage pregnancy and low adherence to contraceptive methods. This reality reinforced the understanding that nursing practice in PHC demands socio-community engagement and the ability to articulate politically, going beyond the technical dimension of care.

Among the challenges experienced, the commute to UBSF Glória was a significant limitation. The journey, which lasted approximately one hour and without institutional support, evidenced the personal cost involved in nursing education. Despite the discomfort, arriving at the unit and contacting the community represented a rewarding counterpoint, reaffirming the social meaning of care. The security dimension, in turn, was also sensitive: the presence of armed groups in the vicinity of the region, although respectful of health professionals, exposed the vulnerability to which the student - and in the future the nurse - is subjected. The fact that the University does not offer logistical support or safety guidelines highlights a gap in institutional care aimed at protecting students in the field. Such absence, even if understood within the structural limitations of public education, ends up reproducing, since graduation, the negligence that later manifests itself in labor violence against nurses in various care contexts.

Another limiting point was the reduced workload, the result of unforeseen events that culminated in the loss of one of the three days of field, without the occurrence of replacement. The brevity of the discipline partially restricted the immersion and deepening of learning about the territory and the work process in PHC. In addition, the occasional absence of direct supervision during the experience was perceived positively, as it allows greater autonomy and interaction with the multiprofessional team - an essential element for the development of self-confidence and teaching-service integration. Such challenges reveal, however, how much Nursing, even in the face of occasional adversities, tends to normalize certain weaknesses in education in the name of resilience and vocation. This attitude, often romanticized as an expression of altruism, ends up reinforcing the idea that permissiveness is an expected attribute of the profession, while other areas of health demand more equitable teaching and working conditions (ESTEVEZ, et al., 2018).

The experience, although brief, favored the development of communicative and relational skills, confirming what Yazdi (2025) points out about the gains of supervised practical exposure. However, the short duration of the experience and its realization only in a

more advanced period of the course exposed the lack of early practices that sustain continuous learning. As Eren and Turkmen (2021) observe, the limitation of practical opportunities during graduation can generate insecurity and anxiety in students, making it difficult to consolidate professional autonomy. This finding reinforces the need for a curricular review that ensures progressive experiences in PHC, adjusted to the student's level of education, in order to balance theory and practice and strengthen the nurse's professional identity.

4 CONCLUSION

The present report aimed to describe the experiences observed by students in the fourth period of the undergraduate program at UFU during the supervised internship in Primary Health Care (PHC) and to contribute to the reflection on the need to remodel the Pedagogical Project of the Course, so that the practice in Primary Care is valued from the first periods as one of the great and important areas of nurses' activity.

The experience provided the improvement of technical, ethical and interpersonal skills. The experience allowed a greater knowledge of the role of nurses in PHC, their management functions, health education, surveillance and nursing care in the face of the demands of the community. In view of this, the great relevance of practical activities for the comprehensive education of nursing professionals is observed.

Among the main challenges and limitations faced during the supervised internship are local vulnerability, due to the insecurity present in the visited neighborhood; in addition to the reduced workload that led to the loss of one of the days of practice that could be experienced by the students.

In view of this internship, the students identified the great relevance of practical activities for nursing education, which are often not promoted to the students in a satisfactory way. The experience revealed, therefore, the need for greater appreciation and expansion of supervised practices during the training, with a progressive and constant exposure that accompanies the knowledge acquired at each moment of graduation in order to strengthen the learning and skills of the nurse as a transforming agent of care and promoter of public health.

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**WEB CURRICULUM AND DISTANCE EDUCATION: CURRICULAR PATHWAYS
MEDIATED BY DIGITAL TECHNOLOGIES**

**WEB CURRÍCULO E EDUCAÇÃO A DISTÂNCIA: CAMINHOS CURRICULARES
MEDIADOS PELAS TECNOLOGIAS DIGITAIS**

**CURRÍCULO WEB Y EDUCACIÓN A DISTANCIA: TRAYECTOS
CURRICULARES MEDIADOS POR TECNOLOGÍAS DIGITALES**

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ABSTRACT

This article analyzes the characteristics, potentialities, and challenges of the Web Curriculum in the context of Distance Education (DE), in light of the transformations brought about by digital culture. This bibliographic research is based on academic works, scientific articles, and official documents, aiming to understand how curricula mediated by digital technologies can promote more meaningful, interactive, and inclusive learning. Initially, the evolution of the curriculum concept and its social function is discussed, highlighting the transition from traditional models to more critical and flexible approaches. Then, the specificities of DE and the curricular models that support it are explored, emphasizing pedagogical mediation and personalized learning. The Web Curriculum is presented as an innovative proposal, grounded in principles such as hypertextuality, authorship, and collaboration, aligning with active methodologies and the demands of networked society. The discussion reveals both the advantages and the challenges of this approach, including digital exclusion, teacher training, and assessment in DE. It is concluded that the effective implementation of the Web Curriculum requires public policies, adequate infrastructure, and continuous teacher development, as well as new pedagogical practices that value autonomy and authorship in digital culture.

Keywords: Web Curriculum. Distance Education. Digital Culture. Digital Curriculum. Educational Technologies.

RESUMO

Este artigo analisa as características, potencialidades e desafios do Web Currículo no contexto da Educação a Distância (EAD), à luz das transformações provocadas pela cultura digital. A pesquisa, de natureza bibliográfica, fundamenta-se em obras acadêmicas, artigos científicos e documentos oficiais, com o objetivo de compreender como os currículos mediados por tecnologias digitais podem promover aprendizagens mais significativas, interativas e inclusivas. Inicialmente, discute-se a evolução do conceito de currículo e sua função social, destacando a transição de modelos tradicionais para abordagens mais críticas

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e flexíveis. Em seguida, são exploradas as especificidades da EAD e os modelos curriculares que a sustentam, com ênfase na mediação pedagógica e na personalização da aprendizagem. O Web Currículo é apresentado como uma proposta inovadora, baseada em princípios como hipertextualidade, autoria e colaboração, alinhando-se às metodologias ativas e às demandas da sociedade em rede. A discussão evidencia tanto as vantagens quanto os desafios dessa abordagem, incluindo a exclusão digital, a formação docente e a avaliação na EAD. Conclui-se que a efetivação do Web Currículo requer políticas públicas, infraestrutura adequada e formação continuada, além de novas práticas pedagógicas que valorizem a autonomia e a autoria dos sujeitos na cultura digital.

Palavras-chave: Web Currículo. Educação a Distância. Cultura Digital. Currículo Digital. Tecnologias Educacionais.

RESUMEN

Este artículo analiza las características, potencialidades y desafíos del currículo web en el contexto de la educación a distancia (ED), a la luz de las transformaciones impulsadas por la cultura digital. Esta investigación bibliográfica se basa en trabajos académicos, artículos científicos y documentos oficiales, con el objetivo de comprender cómo los currículos mediados por tecnologías digitales pueden promover un aprendizaje más significativo, interactivo e inclusivo. Inicialmente, se aborda la evolución del concepto de currículo y su función social, destacando la transición de los modelos tradicionales a enfoques más críticos y flexibles. Posteriormente, se exploran las especificidades de la ED y los modelos curriculares que la sustentan, potenciando la mediación pedagógica y el aprendizaje personalizado. El currículo web se presenta como una propuesta innovadora, fundamentada en principios como la hipertextualidad, la autoría y la colaboración, en consonancia con metodologías activas y las demandas de la sociedad en red. El análisis revela tanto las ventajas como los desafíos de este enfoque, incluyendo la exclusión digital, la formación docente y la evaluación en la ED. Se concluye que la implementación efectiva del currículo web requiere políticas públicas, infraestructura adecuada y desarrollo docente continuo, así como nuevas prácticas pedagógicas que valoren la autonomía y la autoridad en la cultura digital.

Palabras clave: Currículo Web. Educación a Distancia. Cultura Digital. Currículo Digital. Tecnologías Educativas.

1 INTRODUCTION

In recent decades, digital culture has promoted profound transformations in the ways of producing, accessing, and sharing knowledge. The emergence of digital information and communication technologies (DICT) has not only changed the modes of social interaction, but has also significantly impacted educational processes, especially with regard to Distance Education (EAD). This modality, previously marginalized, has consolidated itself as a legitimate and effective teaching alternative, especially after the challenges imposed by the COVID-19 pandemic, which accelerated the digitalization of education on a global scale (UNESCO, 2021). In this scenario, it is essential to rethink school and university curricula in light of the new possibilities and demands of digital culture.

Digital culture, characterized by connectivity, interactivity and fluidity of information, redefines the relationships between subjects, knowledge and pedagogical practices. The curriculum, as a social and political construction, does not remain immune to these transformations. On the contrary, it is constantly pressured to reconfigure itself to meet the demands of a networked society, marked by the ubiquity of information and the need to develop digital, critical and collaborative skills (Almeida, 2005; Kenski, 2012). In this context, distance education emerges as a fertile field for the experimentation of new curricular forms, which break with the linearity and rigidity of traditional models.

The central problematization of this article lies in the understanding of the impacts of digital culture on the organization and mediation of distance education curricula. How do digital technologies influence curriculum construction? How does the concept of Web Curriculum fit into this constantly changing scenario? These questions guide the investigation, which seeks to understand how technology-mediated curricula can promote more meaningful, personalized, and inclusive learning. The proposal is to analyze the Web Curriculum not only as a technical innovation, but as a paradigmatic change in the way of conceiving teaching and learning.

The main objective of this study is to present the conceptual and practical characteristics of the Web Curriculum, discussing how it manifests itself in virtual learning environments and what are its pedagogical implications. In addition, it is intended to reflect on the challenges and potentialities of this curricular proposal in the contemporary educational scenario, considering the demands of digital culture. The analysis will be conducted from a critical perspective, which recognizes the contradictions and tensions

present in the implementation of digital curricula, especially in contexts marked by social and technological inequalities.

The relevance of the theme is justified by the growing expansion of distance education in Brazil and in the world, driven by public policies, technological advances and changes in student profiles. The need to reconfigure curricula to promote autonomy, accessibility, interactivity, and criticality becomes urgent in the face of an ever-changing educational landscape. The Web Curriculum, by incorporating the principles of digital culture, offers promising paths for the construction of more open, collaborative, and student-centered pedagogical proposals (Moran, 2015; Valente, 2015). However, its effectiveness depends on structural, political and formative conditions that still need to be consolidated.

The methodology adopted in this article is bibliographic research, based on academic works, scientific articles, official documents and academic productions available in open repositories. The selection of sources prioritizes reference authors in the area of education, curriculum and digital technologies, as well as recent studies that address distance education and Web Curriculum in the context of digital culture. This approach allows for an in-depth theoretical analysis, based on evidence and in dialogue with the main trends and contemporary debates on the subject.

2 LITERATURE REVIEW

2.1 CURRICULUM: CONCEPTIONS, SOCIAL FUNCTION AND TRAJECTORY

The concept of curriculum has historically been constructed from different theoretical and epistemological perspectives. The traditional approach, strongly influenced by the technical-rational model, understands the curriculum as a set of contents organized in a linear and sequential manner, with a focus on efficiency and measurable results (Tyler, 1974). This conception, centered on the logic of instruction and the standardization of educational objectives, has been widely adopted in modern school systems. However, criticisms of this view began to emerge strongly from the 1980s onwards, when authors such as Apple (2006) began to denounce the curriculum as an instrument for the reproduction of social inequalities. For Sacristán (2000), the curriculum should be understood as a social and cultural practice, which expresses disputes of power and values, and not only as a technical teaching plan.

The social function of the curriculum is directly related to its ability to form critical subjects who are aware of their role in society. By selecting and organizing certain knowledge to the detriment of others, the curriculum acts as a device of inclusion and exclusion, shaping

identities and school trajectories (Silva, 2009). In this sense, Giroux (1997) defends a critical pedagogy that recognizes the curriculum as a space of resistance and transformation, capable of promoting the emancipation of students. Moreira and Silva (1994) highlight the importance of considering hidden curricula and students' experiences as an integral part of the educational process. Thus, the curriculum is no longer just a prescriptive document and is understood as a field of symbolic and political disputes, which directly influences the formation of citizens.

In the Brazilian context, the curriculum has undergone significant transformations, especially with the implementation of the National Common Curricular Base (BNCC), which proposes a competency-based approach. This change represents an attempt to align the curriculum with the contemporary demands of the knowledge society, promoting more meaningful and contextualized learning (Brasil, 2017). However, authors such as Pacheco (2019) warn of the risks of excessive standardization that disregards the country's regional and cultural diversities. On the other hand, Lopes and Macedo (2011) argue that the BNCC can be an opportunity to rethink the curriculum in a more democratic way, as long as it is implemented with the effective participation of educators. In this scenario, digital culture also imposes new challenges and possibilities, requiring curricula that are more flexible, interactive and connected with the realities of students (Almeida, 2005).

2.2 DISTANCE EDUCATION AND MEDIATED CURRICULUM MODELS

Distance Education (EAD) has been consolidated as a strategic educational modality to expand access to education, especially in contexts of geographic and social inequality. Its main characteristic is technological mediation, which allows the flexibility of learning time and space, favoring student autonomy (Moore & Kearsley, 2011). This flexibility, however, requires specific curriculum planning, which considers the particularities of the modality and the needs of the subjects involved. Belloni (2009) highlights that distance education cannot be seen only as a transposition of face-to-face teaching to digital, but as a pedagogical practice with its own identity. Peters (2001) argues that distance education represents a new form of organization of pedagogical work, marked by industrialization and the rationalization of educational processes.

The curricular organization in distance education demands a structure that favors active and meaningful learning, even in environments mediated by technologies. Models based on modules, learning paths and thematic units are common, as they allow greater

personalization and adaptability of training paths (Litto & Formiga, 2009). In addition, the integration of digital resources — such as videos, forums, infographics, podcasts, and interactive learning objects — expands the possibilities of engagement and understanding of content (Valente, 2015). According to Moran (2015), pedagogical mediation in distance education must be intentional and interactive, promoting the collaborative construction of knowledge. In this sense, the role of the teacher is also transformed, requiring skills to act as an instructional designer, content curator and learning facilitator.

Despite the potential, technology-mediated curricula in distance education face significant challenges. One of the main ones is the guarantee of the quality of learning in large-scale contexts and diversity of student profiles. Kenski (2012) warns of the risk of superficiality in the training processes when the use of technologies is not accompanied by a consistent pedagogical proposal. Another challenge is the maintenance of the pedagogical bond and student engagement, which can be weakened by the absence of face-to-face interactions (Moore, 1993). In addition, the assessment of learning in distance education requires differentiated strategies that value the autonomy, authorship, and active participation of students, going beyond traditional tests (Silva, 2020). Thus, the curricular models in distance education must be constantly reviewed and improved to ensure their effectiveness and relevance in the context of digital culture.

2.3 WEB CURRICULUM: CONCEPT, PRINCIPLES AND IMPLICATIONS IN DIGITAL CULTURE

The concept of Web Curriculum emerges as a response to the transformations caused by digital culture in education, proposing a new way of thinking and organizing the curriculum. Different from the traditional, linear model centered on the transmission of content, the Web Curriculum is conceived as a networked construction, dynamic, interactive and constantly updated (Almeida, 2005). This curricular conception values hypertextuality, authorship and collaboration, characteristics of the internet and contemporary social practices (Moran, 2015). According to Santaella (2013), we live in a culture of convergence, in which subjects not only consume, but also produce and share information, which requires more open and participatory curricula. In this sense, the Web Curriculum breaks with the logic of centralization of knowledge and promotes the decentralization of knowledge, favoring the collective and contextualized construction of learning.

Among the fundamental principles of the Web Curriculum are the personalization of the training path, student autonomy and the appreciation of teacher and student authorship. Hypertextuality, for example, allows students to navigate through different learning paths, constructing meanings based on their experiences and interests (Lévy, 1999). This non-linear logic challenges the traditional structure of the curriculum and demands a new role for the teacher, who starts to act as a mediator, curator of content and facilitator of knowledge networks (Kenski, 2012). In addition, peer collaboration, enhanced by digital technologies, becomes a central element in the construction of knowledge, promoting more dialogical and democratic pedagogical practices (Freire, 2020). The Web Curriculum, therefore, is not only a technological adaptation, but a pedagogical proposal that resignifies the role of subjects and educational practices in the digital age.

The operationalization of the Web Curriculum is strongly associated with active learning methodologies, which seek to engage students in a critical and participatory way. Strategies such as the flipped classroom, project-based learning, and mobile learning are examples of approaches that dialogue with the principles of the Web Curriculum (Valente, 2015). These methodologies favor the construction of meaningful, contextualized and interdisciplinary knowledge, aligning with the demands of the network society. According to Bacich and Moran (2018), the pedagogical use of technologies should go beyond instrumentalization, promoting learning experiences that stimulate creativity, problem-solving, and collaboration. In this context, the Web Curriculum presents itself as a powerful proposal for the formation of autonomous, critical subjects capable of acting ethically and responsibly in the digital world.

2.4 DIGITAL TECHNOLOGIES AND TEACHER TRAINING IN DISTANCE EDUCATION

The integration of Digital Information and Communication Technologies (DICT) in the Distance Education (EAD) curriculum requires a critical and reflective approach on the part of educators. DICT should not be understood only as auxiliary tools, but as structuring elements that reconfigure the teaching and learning processes (Kenski, 2012). For Valente (2015), the pedagogical use of technologies demands a change in the teaching posture, which goes beyond instrumentalization and promotes innovative and student-centered practices. In this sense, Almeida (2005) argues that digital culture imposes new challenges to teacher training, requiring the development of skills that articulate pedagogical, technological and communicational knowledge.

The role of the teacher in distance learning is multifaceted and goes far beyond the simple transmission of content. He acts as a curator of information, mediator of knowledge, instructional designer and facilitator of learning experiences (Moran, 2015). This performance requires technical mastery of digital platforms, but, above all, pedagogical sensitivity to promote meaningful and personalized interactions. Freire (2020) reinforces the importance of critical mediation, in which the educator recognizes the student as an active subject of the educational process, capable of building knowledge in dialogue with the world. Belloni (2009) highlights that teacher mediation in distance education must be planned intentionally, considering the times and rhythms of the students, as well as the specificities of the virtual environments.

Teacher training to work in distance education must contemplate both technical and pedagogical aspects, promoting the development of digital skills integrated into educational practice. According to Tardif (2014), teaching knowledge is made up of multiple dimensions — experience, academic training, disciplinary and contextual knowledge — that need to be articulated in continuing education. Valente (2015) proposes that training programs include practical, reflective and collaborative activities, which allow teachers to experiment and re-signify the use of technologies in their practice. In addition, Kenski (2012) emphasizes that training must be continuous and contextualized, following the rapid technological transformations and the emerging demands of digital culture. Thus, teacher qualification becomes a decisive factor for the effectiveness of technology-mediated curricula in distance learning.

2.5 COMPARATIVE ANALYSIS OF CURRICULA IN DISTANCE EDUCATION IN GLOBAL CONTEXTS

The analysis of curricular models in different countries allows us to understand how distance education has been incorporated in different contexts, revealing both convergences and cultural, political and technological specificities. In countries such as Finland, the integration of digital technologies into the curriculum is guided by principles of equity, personalization, and phenomenon-based learning, which favors the adoption of innovative practices also in distance education (Sahlberg, 2015). In Peru, public policies have sought to expand access to digital education in remote regions, with a focus on teacher training and the production of contextualized content (UNESCO, 2021). In Kenya and Cambodia, initiatives supported by international organizations such as UNESCO and the World Bank

have promoted the use of mobile technologies and open platforms to ensure the continuity of learning in contexts of vulnerability (World Bank, 2020; UNESCO, 2022).

The global guidelines proposed by multilateral organizations such as the OECD and UNESCO have directly influenced the formulation of curriculum policies in developing countries, including Brazil. The OECD (2020) advocates a curriculum focused on life skills, with an emphasis on problem-solving, collaboration, and critical thinking, elements that dialogue with the principles of the Web Curriculum. UNESCO (2021), in turn, proposes a new social contract for education, which values inclusion, social justice, and sustainability, guiding the construction of curricula that are more open and responsive to digital transformations. In Brazil, the Quality Reference for Distance Higher Education (CNE, 2007) and the BNCC (Brazil, 2017) reflect these influences, while facing challenges for their effective implementation in a scenario marked by structural inequalities.

The presence of digital technologies in the curricular models analyzed reveals different levels of maturity and pedagogical appropriation. In contexts such as the Finnish one, DICT are integrated in a transversal and critical way, promoting students' authorship and autonomy (Pietarinen et al., 2017). In developing countries, although there have been advances, challenges persist related to infrastructure, teacher training and the production of materials appropriate to local realities (Trucano, 2016). In Brazil, successful experiences of distance education in public and private universities demonstrate the potential of the Web Curriculum, but also highlight the need for public policies that guarantee connectivity, continuing education and institutional support (Valente, 2015; Kenski, 2012). Thus, the comparative analysis reinforces the importance of considering sociocultural and economic contexts in the formulation of digital curricula, avoiding imported models that disregard local specificities.

3 DISCUSSION

Distance Education (EAD) and the Web Curriculum have significant advantages in the contemporary educational scenario, especially with regard to the democratization of access to knowledge. The flexibility of time and space allows students from different geographical and social backgrounds to access formal education, overcoming physical and logistical barriers (Moore & Kearsley, 2011). This characteristic is particularly relevant in countries such as Brazil, where regional inequalities still limit access to quality face-to-face education. In addition, distance education enables the continuity of studies in emergency situations, as

occurred during the COVID-19 pandemic, evidencing its strategic importance (UNESCO, 2021).

Another positive aspect of Web Curriculum is the personalization of the training path, which respects the different rhythms, styles and learning interests of students. Hypertextuality and non-linear navigation allow the student to build his or her own learning path, promoting greater autonomy and engagement (Lévy, 1999). This approach favors student protagonism and stimulates the development of skills such as self-regulation, criticality, and the ability to solve complex problems (Valente, 2015). In addition, the use of multimedia and interactive resources enriches the learning experience, making it more meaningful and contextualized (Moran, 2015).

Accessibility is another strong point of distance learning and Web Curriculum, especially when associated with public policies for digital inclusion. Students with disabilities, workers with flexible schedules and people in situations of reduced mobility find in distance education a real opportunity to access education (Belloni, 2009). The possibility of adapting content and interfaces to the specific needs of users expands the reach of pedagogical proposals and contributes to the construction of a more inclusive education. However, this potential is only fully realized when there are investments in infrastructure, teacher training and the development of accessible materials (Kenski, 2012).

Despite the advantages, the challenges of distance learning and the Web Curriculum are significant and cannot be ignored. The digital divide is still a reality for millions of students, who face difficulties in accessing the internet, adequate equipment, and environments conducive to study (UNESCO, 2022). This inequality compromises equity in access to the digital curriculum and requires robust public policies to ensure connectivity and inclusion. In addition, teacher training for the pedagogical use of technologies is still insufficient in many contexts, which limits the effectiveness of curricular proposals mediated by DICT (Valente, 2015).

Another important challenge is the assessment of learning in virtual environments. The transposition of traditional evaluation models to digital often does not contemplate the specificities of distance learning, such as student autonomy and the diversity of training trajectories. It is necessary to develop evaluation strategies that are more formative, processual and integrated into the daily learning routine, valuing authorship, participation and the collective construction of knowledge (Silva, 2020). In addition, student engagement in

virtual environments requires active methodologies and meaningful interactions, which are not always prioritized in more traditional distance learning models (Moran, 2015).

Finally, the teaching practice in the context of the Web Curriculum requires a reconfiguration of the role of the teacher, who starts to act as a designer of learning experiences, mediator of knowledge and promoter of student authorship. This performance requires pedagogical, technological, and communicational skills, as well as an ethical and reflective posture in the face of transformations in digital culture (Freire, 2020; Kenski, 2012). Curriculum planning must go beyond the simple digitization of content, incorporating principles of interactivity, collaboration, and contextualization. Thus, the Web Curriculum presents itself as a powerful proposal, but it depends on structural, political and formative conditions for its effective implementation.

4 FINAL CONSIDERATIONS

The present research aimed to understand the characteristics, potentialities and challenges of the Web Curriculum in the context of Distance Education (EAD), in the light of the transformations caused by the digital culture. Throughout the study, it was possible to identify that the Web Curriculum represents an innovative proposal for curricular organization, which breaks with the linearity and rigidity of traditional models, promoting a more interactive, personalized and collaborative learning. Digital culture, with its networked, hypertextual and participatory logic, requires more flexible curricula that are responsive to the needs of contemporary subjects, which makes Web Curriculum a relevant and necessary pedagogical alternative.

The main findings of the research indicate that, although the Web Curriculum and Distance Learning offer significant advantages — such as flexibility, accessibility, personalization, and encouragement of autonomy — their effectiveness still faces structural, pedagogical, and formative challenges. The digital divide, the fragility in teacher training and the difficulty of institutional adaptation are obstacles that need to be faced through consistent public policies and investments in infrastructure and training. In addition, teaching practice needs to be resignified, with the teacher assuming the role of mediator, curator and designer of learning experiences, capable of critically integrating technologies into the curriculum.

In view of this, it is urgent that educational institutions and public managers recognize the importance of a digital curriculum that goes beyond the simple digitization of content, promoting meaningful, inclusive, and contextualized learning. Continuing teacher training, the

production of accessible materials and the guarantee of connectivity are fundamental elements for the consolidation of the Web Curriculum as a pedagogical proposal. As future research paths, it is suggested to carry out case studies on concrete experiences of implementation of the Web Curriculum, the analysis of the impact of artificial intelligence on curricular personalization and the investigation on the construction of digital curricula in basic education. Such investigations can contribute to the theoretical and practical advancement of the area, strengthening the construction of a more democratic education and connected with the challenges of the twenty-first century

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**APPLICATIONS OF ACTIVE METHODOLOGIES IN SPECIAL EDUCATION FOR
THE PROMOTION OF AUTONOMY AND SCHOOL INCLUSION**

**APLICAÇÕES DE METODOLOGIAS ATIVAS NO ENSINO ESPECIAL PARA A
PROMOÇÃO DA AUTONOMIA E DA INCLUSÃO ESCOLAR**

**APLICACIONES DE METODOLOGÍAS ACTIVAS EN LA EDUCACIÓN
ESPECIAL PARA LA PROMOCIÓN DE LA AUTONOMÍA Y LA INCLUSIÓN
ESCOLAR**

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ABSTRACT

This article aims to analyze the contributions of active methodologies to the teaching and learning process of students with disabilities, focusing on the promotion of school inclusion and student protagonism in basic education. The research is characterized as qualitative, theoretical, and bibliographic, based on the analysis of contemporary publications that address the practical application of these methodologies in the context of special education. The study seeks to avoid approaches centered on the philosophical foundations of active pedagogies, such as Dewey's classical formulations, and instead focuses on concrete pedagogical practices and strategies, such as flipped classroom, gamification, and project-based learning. The results indicate that the adoption of active methodologies fosters the development of autonomy among students with disabilities, expands opportunities for participation in school activities, and contributes to the construction of inclusive environments. It is concluded that, although structural and training challenges persist, the implementation of active methodologies offers promising paths toward a more equitable education that is responsive to diversity.

Keywords: Special Education. School Inclusion. Active Methodologies. Student Protagonism. Teaching and Learning.

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RESUMO

Este artigo tem como objetivo analisar as contribuições das metodologias ativas no processo de ensino e aprendizagem de estudantes com deficiência, com foco na promoção da inclusão escolar e do protagonismo discente na educação básica. A pesquisa se caracteriza como qualitativa, de cunho teórico-bibliográfico, baseada na análise de publicações contemporâneas que tratam da aplicação prática dessas metodologias no contexto da educação especial. Busca-se evitar abordagens centradas nos fundamentos filosóficos das pedagogias ativas, como as formulações clássicas de Dewey, concentrando-se nas práticas e estratégias pedagógicas concretas, como sala de aula invertida, gamificação e aprendizagem baseada em projetos. Os resultados da pesquisa indicam que a adoção de metodologias ativas favorece o desenvolvimento da autonomia dos estudantes com deficiência, amplia as possibilidades de participação nas atividades escolares e contribui para a construção de ambientes inclusivos. Conclui-se que, embora persistam desafios estruturais e formativos, a implementação de metodologias ativas oferece caminhos promissores para uma educação mais equitativa e responsiva à diversidade.

Palavras-chave: Educação Especial. Inclusão Escolar. Metodologias Ativas. Protagonismo Discente. Ensino-Aprendizagem.

RESUMEN

Este artículo tiene como objetivo analizar las contribuciones de las metodologías activas al proceso de enseñanza y aprendizaje de estudiantes con discapacidad, con énfasis en la promoción de la inclusión escolar y del protagonismo estudiantil en la educación básica. La investigación se caracteriza como cualitativa, teórica y bibliográfica, basada en el análisis de publicaciones contemporáneas que abordan la aplicación práctica de estas metodologías en el contexto de la educación especial. Se busca evitar enfoques centrados en los fundamentos filosóficos de las pedagogías activas, como las formulaciones clásicas de Dewey, y concentrarse en las prácticas y estrategias pedagógicas concretas, como aula invertida, gamificación y aprendizaje basado en proyectos. Los resultados indican que la adopción de metodologías activas favorece el desarrollo de la autonomía de los estudiantes con discapacidad, amplía las posibilidades de participación en las actividades escolares y contribuye a la construcción de ambientes inclusivos. Se concluye que, aunque persisten desafíos estructurales y formativos, la implementación de metodologías activas ofrece caminos prometedores para una educación más equitativa y sensible a la diversidad.

Palabras clave: Educación Especial. Inclusión Escolar. Metodologías Activas. Protagonismo Estudiantil. Enseñanza-Aprendizaje.

1 INTRODUCTION

The construction of an inclusive and democratic education in Brazil has required the strengthening of pedagogical practices capable of meeting the multiple singularities present in the classrooms of basic education. In this scenario, active methodologies have stood out for promoting the centrality of the student in the learning process, stimulating autonomy, critical thinking and cooperation. Such strategies play an even more relevant role when directed to serving students with disabilities, whose educational needs require differentiated, flexible, and responsive approaches (Almeida, 2025).

The legal framework for inclusion in Brazil establishes clear guidelines to ensure the right of all to education, with equity and quality. The Federal Constitution of 1988 guarantees, in its article 206, the principle of equal conditions for access to and permanence in school (Brasil, 1988). The Law of Guidelines and Bases of National Education (Law No. 9,394/1996) determines that teaching must be adapted to the needs of students with disabilities, promoting appropriate curricula, methods and resources (Brasil, 1996). The Salamanca Declaration (1994), adopted internationally and reaffirmed by the Statute of Persons with Disabilities (Law No. 13,146/2015), reinforces the right to inclusive education in common teaching environments (Brasil, 2015).

Active methodologies are characterized by practices that break with the traditional teaching model, prioritizing learning through problem solving, interaction, and student protagonism. When applied to special education, they make it possible to adapt content to different learning capacities, styles, and rhythms, promoting more inclusive and less exclusionary environments (Viegas *et al.*, 2023). However, its implementation still faces important obstacles, such as insufficient teacher training, lack of material resources, and resistance to change in pedagogical practice (Matos *et al.*, 2025).

Although active pedagogies have their roots in the philosophical tradition of the New School, in the formulations of John Dewey, this article proposes a different approach, focused on the practical applications and contemporary didactic strategies derived from this conception. Instead of deepening the philosophical-educational foundations, it seeks to analyze concrete experiences that have been adopted by teachers and researchers in basic education as a way to promote inclusion and the development of skills in students with disabilities (Libâneo, 2022).

The problem that guides this reflection is: how to apply active methodologies in a concrete and effective way in special education, in order to favor the inclusion, autonomy and

protagonism of students with disabilities in basic education, overcoming the limitations of traditional approaches? The literature consulted indicates that, although these methodologies are promising, their effectiveness depends on intentional pedagogical planning, institutional conditions, and commitment to diversity (Matos *et al.*, 2025).

The objective of this article is to present a grounded analysis of the possibilities of using active methodologies as didactic practices aimed at promoting the inclusion of students with disabilities, highlighting the contributions, challenges and strategies observed in documented experiences. The study is based on qualitative research, with a bibliographic approach, and recent national scientific productions. The objective of the research, therefore, is to map and understand, based on the available evidence, how such methodologies have been implemented in the context of special education and what impacts they have generated in the teaching-learning process.

2 ACTIVE METHODOLOGIES AND THEIR PRACTICAL IMPLICATIONS IN BASIC EDUCATION

According to Garbin (2025), the differentiation between active pedagogies and active methodologies has gained relevance in contemporary educational studies in the Brazilian context. According to Silva (2025), while active pedagogies are historically linked to the philosophical ideas of the New School, active methodologies represent a set of more recent didactic strategies, aimed at the development of learning through the active participation of students, without this implying full adherence to the philosophical foundations that originated them (Gallo *et al.*, 2024).

This distinction is also highlighted by Libâneo (2022), when he states that active methodologies are pedagogical techniques aimed at student-centered learning, with didactic intentionality and commitment to teacher mediation. The author warns, however, that the uncritical or decontextualized use of these strategies can distort their formative potential, transforming them into generic solutions detached from the school reality.

Discussions on pedagogical innovation in Brazil have distinguished, in an increasingly precise way, two central axes: on the one hand, active pedagogies, linked to historical philosophical-educational foundations; on the other, active methodologies, aimed at the didactic operationalization of practices centered on the action of students in the learning process (Libâneo, 2022). This differentiation is relevant to avoid the generalization of

proposals that, although they dialogue conceptually, have different scopes, purposes, and applications.

Active pedagogies originate in the New School movement, based on the contributions of John Dewey, who defended the centrality of experience and action in the formation of the subject. According to Tiballi (2023), experience, in the pragmatist sense, is not only lived, but reconstructed in a reflective way, which implies the appreciation of critical thinking and participation. However, this approach has a more philosophical than technical bias, being structured based on long-term theoretical principles.

Active methodologies, in turn, emerge as concrete didactic strategies that seek to update these premises in the light of the contemporary demands of school practice. For Libâneo (2022), it is a set of teaching procedures that transfer to the student the responsibility for the learning process itself, without, however, disregarding the role of the teacher as a qualified mediator and planner of educational situations. Also according to the author, it is essential to avoid the indiscriminate or technicist use of these methodologies, in contexts of neoliberal policies that transfer to the student the obligation to learn, without ensuring the appropriate pedagogical and material conditions.

This criticism is shared by Silva (2025), when analyzing the use of active methodologies in higher education and their transpositions to basic education. The authors warn of the risk of reducing pedagogical content when such strategies are applied without considering the sociocultural particularities of the students and the school context, pointing out that active methodologies cannot be confused with educational fads or ready-made teaching packages.

In a convergent way, Oliveira *et al.* (2020) highlight that active methodologies, by promoting student protagonism, need to be understood within a collective and critical pedagogical project. The authors reinforce that these strategies must be planned with intentionality and aligned with the school curriculum, focusing on the construction of knowledge and the integral formation of the student.

For Bacich and Moran (2017), the use of active methodologies has favored the diversification of teaching practices, bringing students closer to real problem-situations, group work and interdisciplinarity. Matos *et al.* (2025) emphasize that the application of these strategies allows a reorganization of the traditional pedagogical dynamics, promoting environments organized in a collaborative and responsive way to the needs of students. However, they warn that the adoption of active methodologies requires planning, constant

evaluation and continuous teacher training, so that fragmented or decontextualized practices are avoided.

Therefore, when delimiting the concept of active methodologies in this article, the perspective is adopted that they are intentional, planned and participatory practices, aimed at the mediation of learning and guided by a commitment to equity and inclusion, when applied to special education. This delimitation allows us to move away from a merely technical approach and approach a critical conception, situated and committed to the right to quality education for all students.

In this article, we adopt the perspective that active methodologies are practices planned and directed to the strengthening of autonomous, collaborative and situated learning, which should not be confused with the philosophical basis of active pedagogies, but understood as their critical updating in contemporary school daily life.

3 SPECIAL EDUCATION AND THE CHALLENGE OF INCLUSION IN REGULAR SCHOOLS

The consolidation of public educational policies aimed at school inclusion in Brazil is anchored in normative documents and legal guidelines that ensure the right to education for all students, as highlighted by Moreira and Ferreira (2019) when analyzing the role of these legal frameworks in structuring inclusive practices.

Among them, the Federal Constitution of 1988, the Law of Guidelines and Bases of National Education, Law No. 9,394/1996, the Statute of the Child and Adolescent (ECA), Law No. 8,069/1990, the Statute of Persons with Disabilities, Law No. 13,146/2015 and the Declaration of Salamanca (1994) stand out. These instruments ensure the right to quality education for all students, regardless of their physical, sensory, intellectual or social conditions, recognizing diversity as a structuring principle of the educational process.

The LDBEN determines in its article 58 that special education is a modality of teaching transversal to all levels and stages of basic education, and must be offered in the regular school network. The Statute of Persons with Disabilities, on the other hand, reinforces the principle of universal design and accessibility, pointing to the need to reorganize pedagogical practices in order to ensure equity in the access and permanence of students with disabilities. The Salamanca Declaration, in turn, established an international framework in the defense of school inclusion, by stating that regular schools with an inclusive orientation are an adequate

means to confront discriminatory attitudes, creating welcoming communities and building an inclusive society.

For Viegas *et al.* (2023) Despite these normative advances, Brazilian school daily life still presents concrete challenges to the effectiveness of inclusion. The permanence of exclusionary practices, the lack of specific teacher training, the scarcity of adapted pedagogical resources and the fragility of support structures have hindered the construction of inclusive educational environments. As Moreira and Ferreira (2019) argue, special education, historically marked by stigma and segregation, needs to advance in confronting the factors that make it impossible for students with disabilities to fully present themselves in regular schools.

In this context, the role of the teacher acquires centrality. The teacher is no longer just a transmitter of knowledge to become a mediator and facilitator of the learning process. This change in perspective implies the adoption of more flexible, dialogical and student-centered pedagogical practices, as pointed out by the studies by Silva *et al.* (2025), by emphasizing the importance of active listening, the reorganization of the pedagogical space and the appreciation of the subjects' experience in learning. According to the authors, the effectiveness of active methodologies in basic education depends on the ethical and pedagogical posture of teachers, who need to be willing to break with consolidated practices and adopt new forms of mediation.

According to Almeida (2025), active methodologies, in this scenario, emerge as possibilities with pedagogical applicability to face the obstacles of school inclusion. These intentional didactic strategies promote student protagonism, respect different learning styles and rhythms, and create practical learning situations aligned with needs and context. For Matos *et al.* (2025), active methodologies operate in a logic of cooperation and investigation, which favors the effective participation of students with disabilities and enables the construction of knowledge in a network.

Viegas *et al.* (2023) reveal that the insertion of practices based on active methodologies in special education contributes not only to the cognitive development of students, but also to their self-esteem, autonomy, and social interaction. Such practices have contributed to minimizing the attitudinal and pedagogical obstacles that still persist in classrooms, by creating environments that value diversity and promote dialogue as a structuring principle of the educational process. The authors emphasize that the centrality of

the student in active methodologies must be accompanied by a curricular reorganization that contemplates the principles of inclusive education.

According to Oliveira (2020), teacher training focused on inclusion is still a gap in continuing education policies. Many teachers, even working in basic education, are still unaware of the legal and pedagogical foundations of special education, which makes it difficult to implement inclusive practices based on active methodologies. The author argues that continuing education should promote dialogue between theory and practice, encouraging teachers to reflect on their own experiences, deconstruct prejudices and develop innovative strategies that respond to the needs of students with disabilities.

The process of school inclusion is not limited to the enrollment of students with disabilities in regular schools, but requires structural transformations in pedagogical conceptions, curricula, interpersonal relationships and forms of evaluation. As Moreira and Ferreira (2019) point out, it is necessary to rethink the role of the educator and reorganize school environments to make them accessible and welcoming. Active methodologies, in this sense, enable a break with the traditional paradigm of homogenization and promote the appreciation of the singularities of subjects in learning situations.

In addition, the use of technological resources and the creation of collaborative and interactive activities expand the possibilities of participation of students with disabilities. Leite *et al.* (2024) argue that the use of assistive technologies combined with active pedagogical strategies favors inclusion by reducing physical, sensory, and cognitive obstacles that often limit students' participation in the teaching-learning process. The author also draws attention to the importance of collaborative pedagogical planning, involving teachers from the regular classroom, teachers from the specialized educational service (SES), managers and family members.

Based on these elements, it is possible to affirm that the construction of an inclusive school requires a paradigm shift in the understanding of the educational process. It is about understanding that the right to quality education, with equity, will only be effective when the multiple ways of learning and being in the world are recognized. Active methodologies are not a panacea, but represent an important way to transform pedagogical practices, as long as they are accompanied by teacher training policies, investments in accessibility and ethical-political commitment to inclusion.

Finally, it is highlighted that the contributions of the analyzed literature converge in valuing the teacher as a transforming agent of the educational reality. Their role as a mediator

requires training, sensitivity, listening and commitment to a pedagogy that respects diversity and believes in the power of all subjects to learn. As Tiballi (2023) states, the inclusive pedagogical experience must be conceived as a critical, ethical, and situated practice, capable of producing new meanings for school education and for the subjects who participate in it.

4 APPLICATIONS OF ACTIVE METHODOLOGIES IN SPECIAL EDUCATION

The adoption of active methodologies in special education has been configured as an effective alternative for the construction of inclusive pedagogical practices, aimed at valuing the functional diversity present in classrooms. These methodologies shift the focus from traditional teaching to the centrality of the student, promoting learning through action, problem solving and collaboration, fundamental aspects for the development of cognitive, emotional and social skills of students with disabilities. According to Almeida (2025), the implementation of these strategies favors autonomy, active participation, and student protagonism, allowing students to learn in a more meaningful way, based on their own experiences and rhythms.

In the field of special education, strategies such as gamification, flipped classroom, project-based learning, and rotation by stations can be understood as active methodologies that place the student at the center of the teaching process. The review carried out by Cunha *et al.* (2024) demonstrates that these methodologies, when integrated into teacher planning, favor engagement, stimulate active participation, and expand learning possibilities by articulating collaboration, problem-solving, and the relationship between theory and practice.

Viegas *et al.* (2023) show that the insertion of these methodologies in everyday school life expands the possibilities of pedagogical mediation, making the teaching-learning process more accessible, interactive, and collaborative, for students who have sensory, cognitive, or motor obstacles.

Ferreira corroborates *et al.* (2025) that gamification has been pointed out as one of the methodologies that have shown positive results in promoting the learning of students with disabilities, by stimulating curiosity, problem-solving and cooperation among peers. According to Almeida (2025), gamified activities enabled students with special educational needs to develop cognitive and social skills through structured games with clear pedagogical objectives. The author highlights that the playful elements, such as challenges, symbolic rewards and progression by levels, increased the participation of students, with difficulties in concentration or low self-esteem.

The flipped classroom, in turn, reorganizes pedagogical time and space by proposing that content be explored by students, outside the classroom, through videos, podcasts, or accessible texts, so that class time is dedicated to carrying out practical and collaborative activities. Matos *et al.* (2025) report the experience of a public school in the Federal District that used this strategy with inclusive elementary school classes. The results showed that students with intellectual disabilities had greater autonomy in the execution of tasks and demonstrated advances in the understanding of complex contents, since they were able to review them at their own pace before face-to-face activities.

Project-based learning (PBL) promotes the construction of knowledge through investigation and the resolution of real problems, involving students in active and collaborative processes. Moreira and Ferreira (2019) describe an experience developed in a municipal school in the Southeast region, in which students with different types of disabilities participated in interdisciplinary projects involving sustainability, local culture, and accessibility. According to the authors, PBL provided an environment that valued diversity, stimulating student protagonism and cooperation among colleagues, in addition to favoring the formative and continuous evaluation of learning.

Station rotation, in turn, has been used as a way to diversify stimuli and promote personalized learning. In this methodology, students are organized into small groups and go through different learning stations with specific tasks. Viegas *et al.* (2023) analyze an experience in a multifunctional resource room in which rotation by stations was applied with students with physical and multiple disabilities. The research showed that the variation of activities, assisted reading, digital games, manipulation of concrete objects and activities with assistive technologies, contributed to increase the attention span and involvement of students in school activities.

The experiences analyzed in the studies show that the use of active methodologies in special education requires, however, intentional planning and continuous teacher training. The teacher is no longer just a transmitter of content to assume a role of mediator, articulator and facilitator of learning, which requires sensitivity to identify the specific needs of students and creativity to adapt strategies and resources. As pointed out by Almeida (2025), the effectiveness of active methodologies depends on the quality of pedagogical interactions and the degree of intentionality in the planned actions.

Another relevant aspect concerns the accessibility of the materials and technologies used. Active methodologies cannot do without resources adapted to the sensory, cognitive

and motor conditions of students with disabilities. Matos *et al.* (2025) highlight the importance of using software with screen reading, videos with subtitles and sign language, as well as tactile materials, such as sensory boards and manipulable objects. The use of these tools expands the conditions for student participation and avoids the reproduction of pedagogical limitations in a format considered innovative, but still exclusionary.

It is important to emphasize that the application of active methodologies in special education needs to be aligned with the principles of inclusive education, as recommended by Brazilian legal documents. The Law of Guidelines and Bases of National Education (LDB, Law No. 9,394/1996) ensures the provision of specialized educational service, in the regular school network, as a way to guarantee access, permanence, participation and learning for all students. The Statute of Persons with Disabilities (Law No. 13,146/2015), in turn, reinforces the right to education in equal opportunities, with the adoption of inclusive pedagogical practices and accessibility resources that promote adequate conditions for learning and participation.

In this sense, the Salamanca Declaration (UNESCO, 1994) is an international reference when it states that schools must welcome all students, regardless of their physical, intellectual, social, emotional, linguistic or other conditions. The implementation of active methodologies in special education, therefore, should not be seen as a pedagogical fad, but as an ethical and political requirement in the face of the commitments made to educational equity and justice.

The studies analyzed also show that the positive results of active methodologies in special education go beyond the improvement of academic performance. According to Moreira and Ferreira (2019), there was an increase in the sense of belonging of students with disabilities to the school environment, strengthening of interpersonal bonds and greater involvement of families in educational processes. These factors are fundamental for the construction of a more welcoming, democratic and inclusive school.

In short, active methodologies, when implemented with pedagogical intentionality, accessibility and active listening to the subjects involved, constitute powerful paths for the promotion of quality special education. They favor student protagonism, the appreciation of diversity and the overcoming of exclusionary practices that still persist in many school contexts. To this end, it is essential that public policies and training projects ensure that teachers have the necessary conditions to plan, execute and evaluate these methodologies in a critical and contextualized way.

5 REFLECTIONS ON AUTONOMY, INDIVIDUALIZATION AND STUDENT PROTAGONISM

The application of active methodologies in special education has generated significant debates about the limits and possibilities of these approaches in the development of student autonomy and protagonism. Such concepts, widely valued in contemporary pedagogical discourse, require educational practices that respect the rhythms, potentialities and learning styles of each student, including students with disabilities. In this scenario, the individualization of pedagogical strategies becomes a condition for the construction of inclusive processes.

For Almeida (2025), one of the biggest challenges of contemporary education is to train students who are able to exercise their autonomy in a critical and reflective way. By analyzing the presence of active methodologies in inclusive classrooms, the author highlights that such practices, when well planned and applied with intentionality, promote environments in which subjects are no longer just content receptors and start to assume the role of knowledge constructors. This change in posture requires the teacher to take a close look at functional diversity, respecting the specificities of each student, adapting the didactic proposals to the individual rhythm and enabling multiple forms of participation.

In this sense, Matos *et al.* (2025) argue that active methodologies offer didactic paths that encourage the involvement of all students, including those with disabilities, as long as such strategies are associated with an inclusive pedagogy. The authors' study demonstrated that when methodologies are adapted to the needs of students, it is possible to favor self-determination and the active participation of subjects in the teaching-learning process. Autonomy, in this context, is not only a goal, but a pedagogical right that needs to be built, based on accessible, mediated and dialogical practices.

The individualization of teaching, in turn, is treated by Moreira and Ferreira (2019) as a requirement for the success of active methodologies in inclusive contexts. The authors emphasize that the use of strategies such as rotation by stations allows the student to perform tasks more autonomously, in their own time, with mediation appropriate to their needs. This personalization of the educational path is a way to confront the attitudinal and pedagogical barriers that still limit the participation of students with disabilities.

Viegas *et al.* (2023) contribute to the reflection by stating that student protagonism is only effective when teaching strategies consider the uniqueness of each subject. In her research, it was evidenced that the use of the flipped classroom with special education students favored not only the appropriation of the content, but also the development of responsibility for the

learning processes themselves. However, the authors warn that such protagonism does not emerge spontaneously, and it is necessary that the school environment be structured based on principles of equity, accessibility and encouragement of engagement.

Despite the potential of active methodologies, their implementation in special education faces considerable obstacles. One of the main challenges, according to Almeida (2025), is related to teacher training. Many teachers still do not feel prepared to work with methodologies that require flexibility, creativity and knowledge of different forms of learning. This technical limitation is reflected in the reproduction of practices centered on the figure of the teacher and reduces the possibilities of protagonism and autonomy of the students.

In addition, Matos *et al.* (2025) point out that the material conditions of Brazilian public schools are not always favorable to the implementation of active methodologies when it comes to special education. The absence of adapted technological resources, the lack of accessible pedagogical materials and the scarcity of support professionals compromise the effectiveness of inclusive practices based on the active participation of students. For the authors, it is not enough to incorporate new methodologies: it is necessary to ensure that they are applied ethically and responsibly, taking into account everyone's right to learning.

In the same field, Viegas *et al.* (2023) emphasize the importance of institutional support for the successful implementation of active methodologies in special education. This includes collective planning, listening to families, monitoring school management and articulation with specialized educational services. When these elements are present, it is possible to build more sensitive and effective practices that respect the individuality of each student without compromising the common learning objectives.

Regarding the adaptation of practices to the students' learning style, Moreira and Ferreira (2019) indicate that this concern should guide the pedagogical work from planning to evaluation. Strategies such as project-based learning favor this alignment, since they allow students to participate in the process of choosing themes, organizing the execution stages and defining the final products. For the authors, active listening and recognition of multiple intelligences are key elements for the success of these methodologies, as they guarantee the appreciation of the unique contributions of each subject.

It is important to note that Brazilian educational legislation also supports the principles of autonomy and protagonism as essential components of inclusive education. The Law of Guidelines and Bases of National Education (Law No. 9,394/1996) establishes, in its article 58, that special education must be offered in a complementary way to regular schooling,

ensuring curricula, methods and resources that respond to the specific needs of students. The Statute of Persons with Disabilities (Law No. 13,146/2015) reinforces the obligation to offer pedagogical practices that promote the full development and participation of students with disabilities on equal terms with others.

The experiences presented in the analyzed studies demonstrate that autonomy, individualization and student protagonism are possible goals when active methodologies are applied in a planned, sensitive and contextualized way. However, overcoming the limitations faced requires investments in the continuing education of teachers, in the physical and pedagogical structure of schools and in the construction of a school culture that recognizes diversity as a constitutive value of the educational process.

As observed by Oliveira (2020), autonomy cannot be understood as an end in itself, but as a mediated construction, which occurs through interaction with others and with knowledge. In this sense, active methodologies, by placing the student at the center of learning, challenge the school to rethink its structures, practices and values. It is a process that requires willingness to change pedagogical practices, ethical commitment and openness to transformation.

Finally, it is important to highlight that the promotion of student protagonism also implies changes in the way evaluation is conceived and practiced. Evaluating, in this context, means monitoring the learning processes, identifying advances and difficulties, proposing appropriate pedagogical interventions and recognizing the achievements of students with disabilities, even if they do not fit into traditional performance patterns. As proposed by Almeida (2025) and Matos *et al.* (2025), assessment should be formative, continuous, diversified and focused on the potential of each student.

Thus, the construction of an inclusive school through active methodologies requires more than the adoption of new techniques: it demands a teaching posture committed to valuing singularities, listening to subjects and transforming school daily life. Autonomy, individualization and student protagonism, in this context, are no longer just abstract concepts and become educational practices capable of promoting social justice and equity in education.

6 RESULTS AND DISCUSSIONS

The analysis of the data collected in the bibliographic research allowed us to identify the contributions of active methodologies in the promotion of school inclusion and student

autonomy in the context of special education. The studies analyzed show that strategies such as gamification, project-based learning, rotation by stations and flipped classroom have the potential to modify the traditional logic of teaching, centered on the transmission of content, to a pedagogical practice that is more dialogical, participatory and adaptable to the needs of students with disabilities.

The work of Almeida (2025) demonstrates that gamification, by incorporating playful elements and symbolic rewards into the learning process, favors the engagement of students with intellectual disabilities, allowing them to build knowledge in an active and collaborative way. In her experience with inclusive classes, the author observed an improvement in the students' self-esteem and involvement, when the games were adapted to the reality and rhythm of each student. These results align with Matos' contributions *et al.* (2025), which highlight that the use of gamified digital platforms can promote the development of cognitive and socio-emotional skills, while strengthening interpersonal bonds and encouraging cooperation between peers.

In the case of project-based learning, the reviewed studies indicate that this strategy offers a suitable environment for student protagonism. Viegas *et al.* (2023) highlight that the planning of group activities with common goals promotes the appreciation of individual potentialities, even in contexts of functional heterogeneity. The authors also show that the project-based approach allows the teacher to act as a mediator, adapting the training paths and the resources used to the specific conditions of students with disabilities, which reinforces the principle of equity in the teaching-learning process.

Another important result identified concerns the flipped classroom. Moreira and Ferreira (2019) point out that this methodology favors the autonomy of students by moving part of the learning process to extracurricular moments, encouraging the construction of knowledge through videos, texts, and preparatory activities. In the case of special education, this strategy proved to be more effective when accompanied by accessible materials and family or institutional support, considering that part of the students with disabilities may require additional mediation to access the content in advance. Even so, the reorganization of pedagogical time allowed face-to-face moments to be used to deepen understanding, clarify doubts, and carry out practical activities based on the rhythm and individual needs.

The rotation by stations, in turn, stood out as an especially effective methodology in classrooms with a great diversity of profiles and learning styles. As Almeida (2025) points out, this strategy allows the school space to be organized into multiple learning points, in which

students develop differentiated activities in groups or individually, favoring the personalization of teaching. The success of the implementation depends directly on teacher planning, the clarity of the objectives of each station and the offer of accessible and varied resources, such as manipulative materials, videos with subtitles, tactile resources and support software.

Another point that emerged from the analysis refers to the role of the teacher in the mediation of the processes. In all the studies analyzed, the teacher figure appears as fundamental for the successful implementation of active methodologies in special education. It is not just a matter of applying previously defined techniques, but of understanding the uniqueness of each student and constantly adapting the methods, times and evaluation instruments. Milk *et al.* (2024) reinforce that the teacher's ethical commitment to inclusion requires sensitivity, flexibility, and continuing education. The author argues that the teacher should be able to "translate" the content into accessible forms, without reducing the complexity of knowledge, but ensuring that all students can actively participate in the school experience.

The limitations faced in the implementation of active methodologies in special education were also identified as a recurring theme in the articles analyzed. Among the main obstacles cited are the lack of specific training of teachers to work with assistive technologies and differentiated methodologies, the scarcity of accessible pedagogical resources, the resistance of educators to methodological changes and the lack of adequate time for planning and evaluating activities. Matos *et al.* (2025) point out that, although Brazilian public policies, such as the National Education Plan (PNE) and the National Policy on Special Education in the Perspective of Inclusive Education, encourage innovative and inclusive practices, there is a mismatch between the normative discourse and the objective working conditions in schools.

The bibliographic research also highlighted the importance of observing the legal and normative principles that govern school inclusion in Brazil. The Salamanca Declaration (1994), the Federal Constitution (1988), the Law of Guidelines and Bases of National Education (Law No. 9,394/1996), the Statute of Persons with Disabilities (Law No. 13,146/2015) and the Statute of the Child and Adolescent (Law No. 8,069/1990) establish the duty of the State to ensure the access, permanence and full development of students with disabilities in regular education. In this sense, active methodologies, by prioritizing the personalization of teaching and student protagonism, contribute directly to the realization of the right to quality education for all, as pointed out by Oliveira (2020) and Silva (2025).

The critical analysis of the results shows, therefore, that active methodologies not only expand learning opportunities for students with disabilities, but also cause important transformations in the school culture. The focus shifts from homogenization to valuing differences, from passivity to action, from teacher-centered teaching to student-centered learning. However, such transformations require investment in teacher training, effective public policies, and a collective commitment to educational equity.

The discussion of the findings also points to the need for a more flexible and responsive curriculum, which considers not only the disciplinary contents, but also the processes by which students learn. As Libâneo (2022) and Tiballi (2023) argue, the school must be reconfigured as a space for the creation of meaning, in which students are called to reflect, experiment, communicate, and reconstruct knowledge based on their experiences. Active methodologies, when implemented with pedagogical intentionality and sensitivity to the specificities of students with disabilities, are aligned with this proposal and constitute a promising path for the realization of an inclusive, democratic and humanizing school.

7 FINAL CONSIDERATIONS

The critical analysis of pedagogical strategies based on active methodologies applied to special education allowed us to understand that there is a significant transformative potential in these practices, especially when used with intentionality, planning and sensitivity to the specificities of students with disabilities. The studies examined show that the adoption of active methodologies, such as gamification, project-based learning, rotation by stations and flipped classroom, contributes to the strengthening of student autonomy, to the promotion of school inclusion and to the appreciation of different ways of learning.

Throughout this article, it has been observed that active methodologies promote structural changes in the way teaching and learning are conceived. Instead of perpetuating practices centered exclusively on the teacher and on the exposure of contents, these methodologies place the student at the center of the process, respecting their rhythm, their capacities and their way of interacting with the world. Such practices are especially effective in serving students with disabilities, since they break with the homogeneous logic of the traditional classroom and value diversity as a constitutive element of learning.

The findings of the research indicate that the centrality of the student is not just an abstract principle, but can be operationalized through concrete pedagogical practices that involve students in real situations of problem solving, knowledge production, interaction with

peers and decision-making. Working with projects, for example, allows students to get involved with significant topics, take responsibility, and develop cognitive and socio-emotional skills. Similarly, gamification favors engagement and overcoming challenges, while rotation by stations makes it possible to adapt activities to different levels of complexity and learning styles.

However, the effectiveness of these practices depends on relevant contextual factors, especially with regard to teacher training and the institutional conditions of implementation. In many schools, the absence of accessible pedagogical resources, the high number of students per class and the lack of specialized support make it difficult to carry out more innovative methodological proposals. In addition, the resistance of part of the faculty to modify consolidated practices and the insufficiency of continuing education focused on inclusion and educational technologies configure obstacles that cannot be ignored.

Thus, one of the main challenges for the consolidation of active methodologies in special education is to overcome the structural inequalities that cross the Brazilian educational system. The promotion of school inclusion necessarily requires the articulation between pedagogical actions and public policies that ensure the educational rights of students with disabilities. In this sense, the importance of legislation such as Law No. 13,146/2015, Statute of Persons with Disabilities, which establishes the mandatory accessibility and specialized educational service in regular education, and Law No. 9,394/1996, LDB, which reinforces equal conditions for access and permanence in school, is highlighted.

In addition, the National Education Plan (PNE), in its Goal 4, establishes the commitment to the universalization of school attendance for the population aged 4 to 17 years with disabilities, preferably in the regular school network, with the guarantee of specialized support services. This orientation is in line with the Salamanca Declaration (1994), which defines inclusive education as a fundamental human right and a guiding principle of educational policies. Therefore, it is essential that the pedagogical work is in tune with these legal guidelines and develops in constant dialogue with the principles of equity, social justice and respect for differences.

Another relevant aspect concerns the appreciation of active listening and the protagonism of students with disabilities. The educational experience of these subjects should not be reduced to the adaptation of contents, but needs to be understood as a process of joint construction of meanings, in which the student is recognized as a subject of rights and

knowledge. To this end, the teacher must act as a competent and ethical mediator, capable of building pedagogical paths that respect singularities and promote the full participation of all.

This perspective requires overcoming the assistentialist or compensatory model of special education, still present in many school practices, and the consolidation of an emancipatory, critical approach committed to social transformation. With regard to contributions to teaching practice, this research reaffirms the need for investments in the initial and continuing training of basic education teachers, with emphasis on school inclusion, active methodologies and the pedagogical use of assistive technologies. The construction of an innovative pedagogical practice does not take place through ready-made recipes, but through reflective and collaborative processes that involve the entire school community. Teacher training, in this context, should value research, the exchange of experiences, the collective construction of projects and the constant resignification of the role of the educator.

Borges (2021) highlights the importance of involving families and other school professionals in building an inclusive culture. Special education cannot be the exclusive responsibility of the regular classroom teacher or the specialized educational service teacher. It is an institutional commitment that demands the engagement of managers, pedagogical coordinators, caregivers, interpreters, health professionals and, especially, the students themselves and their families. The articulation between these actors enhances the possibilities of success of active methodologies and favors the construction of more welcoming, cooperative and participatory environments.

The analysis also points to the need for empirical studies on the effects of active methodologies on the learning of students with disabilities. Although the literature review has revealed experiences with favorable results aligned with the pedagogical objective, there are still few studies that systematically measure the impacts of these practices on academic performance, the development of autonomy and school permanence. Future research may explore, for example, the relationship between active methodologies and the reduction of school dropout in special education, the effects of gamification on the literacy of students with intellectual disabilities, or even the contributions of project-based learning to language development in children with autism spectrum disorder.

Another promising line of research concerns the use of accessible digital technologies as mediators of inclusive education. In a scenario of constant technological transformations, it is essential to understand how resources such as screen reading software, alternative

communication applications, adaptive teaching platforms, and virtual learning environments can be integrated in a critical and ethical way into pedagogical proposals. Studies in this field can contribute to the formulation of public policies on assistive technology, as well as to the development of inclusive teaching materials.

Finally, this reflection reinforces that the realization of the right to inclusive education is not limited to the enrollment of students with disabilities in regular schools. It is necessary to guarantee real conditions of participation, learning and development, through pedagogical practices that recognize and value differences as part of the richness of the educational process. Active methodologies, when articulated with the principles of inclusion and social justice, offer paths that can contribute to the construction of a more democratic, welcoming school committed to the integral formation of all subjects.

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**FROM TERRITORY TO CURRICULUM: BUILDING IDENTITY AND BELONGING
THROUGH HERITAGE EDUCATION**

**DO TERRITÓRIO AO CURRÍCULO: CONSTRUINDO IDENTIDADE E
PERTENCIMENTO PELA EDUCAÇÃO PATRIMONIAL**

**DEL TERRITORIO AL PLAN DE ESTUDIOS: CONSTRUYENDO IDENTIDAD Y
PERTENENCIA A TRAVÉS DE LA EDUCACIÓN PATRIMONIAL**

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ABSTRACT

The qualitative study investigates how the integration between territory, curriculum, and heritage education contributes to the formation of critical students who take charge of their own learning. Conducted in public schools in Laje do Muriaé/RJ, with an emphasis on a high school class at CIEP 343 – Prof. Emília Ligiero Diniz, the study observed the incorporation of local cultural heritage into pedagogical practices, such as the creation of cultural maps of the home-school route. The results indicate that this articulation strengthens identity bonds, promotes meaningful learning, and transforms the school into a space of memory, culture, and belonging.

Keywords: Heritage Education. Curriculum. Territory. Identity. Belonging.

RESUMO

O estudo qualitativo investiga como a integração entre território, currículo e educação patrimonial contribui para a formação de estudantes críticos e protagonistas de sua aprendizagem. Realizado em escolas públicas de Laje do Muriaé/RJ, com ênfase em uma turma do Ensino Médio do CIEP 343 – Prof^a Emília Ligiero Diniz, observou-se a incorporação do patrimônio cultural local em práticas pedagógicas, como a elaboração de mapas culturais do trajeto casa–escola. Os resultados indicam que essa articulação fortalece vínculos identitários, promove aprendizagens significativas e transforma a escola em espaço de memória, cultura e pertencimento.

Palavras-chave: Educação Patrimonial. Currículo. Território. Identidade. Pertencimento.

RESUMEN

El estudio cualitativo investiga cómo la integración entre el territorio, el currículo y la educación patrimonial contribuye a la formación de estudiantes críticos y protagonistas de su propio aprendizaje. Realizado en escuelas públicas de Laje do Muriaé/RJ, con énfasis en una clase de secundaria del CIEP 343 – Prof^a Emília Ligiero Diniz, se observó la incorporación del patrimonio cultural local en prácticas pedagógicas, como la elaboración de mapas culturales del trayecto casa-escuela. Los resultados indican que esta articulación

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fortalece los vínculos identitarios, promueve aprendizajes significativos y transforma la escuela en un espacio de memoria, cultura y pertenencia.

Palabras clave: Educación Patrimonial. Currículo. Territorio. Identidad. Pertenencia.

1 INTRODUCTION

Contemporary education faces the challenge of bringing school knowledge closer to the concrete reality of students, considering that the territory is not only a geographical space, but also a place of meanings, memories and cultural practices (LEFEBVRE, 1991). This qualitative study is based on the understanding that the educational space is crossed by symbolic and social dimensions that directly influence the identity formation and belonging of the subjects. The territory functions simultaneously as a setting and an agent of human experience, being crossed by collective histories, everyday experiences and power relations. Understanding this dimension is essential for pedagogical practices that connect the school to the social reality of students, promoting meaningful learning, a sense of belonging, and valuing local identities.

In this sense, the curriculum needs to be understood as a historical, political, and cultural construction, reflecting tensions, symbolic disputes, and power relations that cross the educational field (GIMENO SACRISTÁN, 2000; BOURDIEU, 2001). It is not limited to the transmission of neutral content, but expresses values, norms and ideologies, and can both reproduce inequalities and act as an instrument of social transformation.

Heritage education offers an approach capable of transcending the traditional curriculum, valuing memory, culture and local traditions, strengthening students' sense of belonging and cultural identity (SMITH, 2006; SANTOS, 2008). Working on heritage in school implies recognizing that identity is not fixed; it is the result of a continuous process of negotiation between the self and the other, between the local and the global, crossed by narratives, symbolic practices and cultural resistances (HALL, 2006; BHABHA, 1998). In this way, the curriculum becomes a space for cultural mediation, capable of generating meaning, stimulating critical reflections and consolidating identity bonds.

Considering these perspectives, this study has the general objective of analyzing how the integration of the territory into the curriculum, through heritage education, contributes to the construction of identity and belonging of students. To achieve this purpose, the following specific objectives are defined: (1) to investigate pedagogical practices that relate cultural heritage to the school curriculum; (2) to identify the impacts of these practices on the formation of students' cultural identity; (3) understand how the curriculum is re-signified by incorporating territorial and community experiences; and (4) reflect on challenges and tensions in the implementation of heritage education.

The articulation of the curriculum to the territory is carried out through concrete pedagogical practices, such as the elaboration of cultural maps of the school surroundings, photographic and audiovisual records of daily routes, interviews with residents, visits to historical points and memory workshops. Such activities enable students to perceive themselves as active agents in the construction of knowledge, transforming ordinary spaces — streets, squares, markets and churches — into sources of meaningful learning (CERTEAU, 1994; FREIRE, 2011).

In addition, these practices promote student protagonism, allowing students to investigate, interpret, and share their experiences, developing socio-emotional skills, critical thinking, and ethical awareness. Pierre Bourdieu (2001) warns that the school can reproduce symbolic inequalities; By incorporating local heritage into the curriculum, heritage education acts as an instrument for democratizing memory, recognizing diversity, and valuing multiple voices. Homi Bhabha (1998) describes this process as the creation of a "third space" where different cultures meet, dialogue, and mutually transform each other.

Paulo Freire (2011) emphasizes that education must start from the concrete reality of the learner, promoting critical reflection and active participation. By relating personal and collective experiences with elements of local heritage, students develop belonging, self-knowledge and social responsibility. Milton Santos (2008) warns of the risks of globalization in erasing cultural singularities; The integration of the territory into the curriculum constitutes cultural resistance, reaffirms identity and promotes critical citizenship.

In this way, the articulation between territory, curriculum and heritage education transforms the school into a space for dialogue, cultural resistance and construction of meaning. The student's experience is no longer merely receptive, becoming investigative, reflective and creative, consolidating significant learning and promoting the formation of critical, ethical subjects engaged in the preservation of the cultural heritage of their community.

2 METHODOLOGY

The research was carried out in Laje do Muriaé, Rio de Janeiro, Northwest Fluminense region, characterized by rich history and culture, which makes it suitable for investigations in heritage education. A qualitative, descriptive and exploratory approach was adopted, articulating a bibliographic survey, documentary analysis and field study, aiming to

understand how the integration of the territory into the curriculum, through heritage education, contributes to the construction of student identity and belonging.

The field study took place in a state school — CIEP 343 Prof. Emília Ligiero Diniz — with a class of about 20 high school students, during the second semester. The school was chosen because of the relevance of pedagogical practices that integrate the local cultural heritage into the educational process. The researcher acted as a participant observer and mediator, balancing active participation and critical observation, recording interactions and stimulating reflections.

Data collection involved multiple sources and instruments, including:

- Field observation records with detailed notes on pedagogical practices and interactions;
- Student productions, such as cultural maps, descriptive texts, and photographic and audiovisual records of home-school routes;
- School documents, including lesson plans and pedagogical projects related to heritage education.

To increase reliability, triangulation was used between observations, productions and documentary records, ensuring consistency of information.

The bibliographic survey included a review of works, articles and specialized publications on education, curriculum, territory, cultural heritage and identity, providing a theoretical basis for data interpretation. The documentary analysis considered pedagogical projects, lesson plans and school records, allowing us to understand teaching strategies, resources used and perceived impacts on the identity formation of students.

Data analysis followed thematic categorization: initially, an exploratory reading of notes, productions and documents was carried out, identifying significant units; Then, these units were grouped into emerging categories related to territory, curriculum and identity, considering frequency, relevance and thematic coherence. To ensure validity, the categories were compared with the literature and discussed with specialists in heritage education. The reliability was reinforced by the triangulation of the sources and the systematic recording of observations during all stages of the research. The categories of analysis addressed: pedagogical practices that articulate cultural heritage to the curriculum, impacts on the cultural identity of students, resignification of the curriculum from territorial and community experiences, and challenges in the implementation of heritage education.

3 THEORETICAL FOUNDATION

The articulation between territory, curriculum and heritage education is based on theoretical conceptions that recognize education as a social and political practice, capable of transforming subjects and communities. Henri Lefebvre (1991) understands that space is socially produced, crossed by power relations, collective memories and everyday practices, which implies that territory should not be understood only as a geographical dimension, but as a *locus* of meanings and experiences that shape identities and meanings of belonging. In this sense, the school, by incorporating the territory into its practices, connects school knowledge to the concrete lives of students, promoting contextualized and meaningful learning.

The curriculum, from this perspective, is not neutral; it expresses values, norms and ideologies that can reproduce inequalities or serve as an instrument of emancipation (GIMENO SACRISTÁN, 2000; BOURDIEU, 2001). Michael Apple (2002) emphasizes that every educational practice is also a political practice, capable of reaffirming or contesting social structures. Raymond Williams (1983) adds that culture is constructed in everyday life, and not only in artistic or erudite manifestations, reinforcing the need for the curriculum to dialogue with the experiences of students, including their social, cultural and community practices.

Heritage education emerges as a pedagogical approach capable of transcending the logic of the traditional curriculum, valuing memory, culture and local traditions (SMITH, 2006). It acts as a catalyst for belonging and identity construction, promoting the recognition of cultural roots and strengthening students' self-esteem and sense of social responsibility. **In the Brazilian context, authors such as Horta (1999), Grunberg (1997) and Fonseca (2005) reinforce that heritage education must go beyond the material preservation of heritage, articulating memory, citizenship and identity as essential educational dimensions. Horta (1999) highlights the formative value of heritage as a living cultural expression, while Grunberg (1997) emphasizes the importance of educational work with the community and Fonseca (2005) proposes a reflective and critical practice aimed at valuing local subjects.**

In this process, it is essential to understand that identity is not a fixed trait, but the result of continuous negotiations between the self and the other, between the local and the global (HALL, 2006). Homi Bhabha (1998) proposes that these negotiations take place in a

"third space", a place of cultural interaction that allows coexistence, dialogue and the transformation of identities, favoring the construction of critical and reflective subjects.

The integration of the territory into the curriculum implies the development of concrete practices that bring students closer to the context in which they live. Among these practices, the elaboration of cultural maps, photographic and audiovisual records of daily routes, interviews with residents, visits to historical sites and memory workshops stand out (CERTEAU, 1994). Such activities allow students to transform everyday life into a source of learning, recognizing the importance of ordinary spaces — streets, squares, markets, churches — in the construction of meanings, memories and community bonds. In addition, these practices consolidate the idea of student protagonism, in which students become active agents in the production of knowledge, stimulating socio-emotional skills, critical thinking, and ethical awareness.

The theoretical foundation also highlights the challenges of inequality and symbolic exclusion that the school environment goes through. Bourdieu (2001) warns that, without critical intervention, the school tends to reproduce hierarchies and marginalize local knowledge. In this context, heritage education acts as an instrument for the democratization of memory, allowing multiple voices to express themselves and historical and cultural narratives to be recognized. **Brazilian authors, such as Chagas (2009), further expand this understanding by stating that educational work with heritage needs to recognize plural memories and stimulate the protagonism of communities in the construction of their own cultural discourses.**

Milton Santos (2008) contributes to this debate by pointing out the risks of globalization, which tends to homogenize cultures and erase local singularities. The school, by valuing the territory and cultural heritage, offers resistance to these pressures, reaffirms local identities and promotes critical citizenship. Paulo Freire (2011) complements by emphasizing that education must start from the concrete reality of the student, enabling learning to be reflective, investigative and participatory. The construction of knowledge based on local heritage strengthens affective and social bonds, promotes cooperation and develops ethical responsibility in students, preparing them to act in an engaged manner in the transformation of their community. Michel de Certeau (1994) reinforces this perspective by understanding everyday life as a space of invention and resistance, in which subjects reinterpret cultural practices, resignify places and construct meaning from concrete experience.

In addition, recent authors (2020–2024) have investigated the use of digital technologies as mediators of heritage education, highlighting the potential of digital platforms and interactive tools to strengthen belonging, document heritage, and engage students in innovative ways (SILVA et al., 2021; OLIVEIRA & CARVALHO, 2022; MENDES, 2023). These studies emphasize that digital resources, such as cultural mapping apps, augmented reality, digital storytelling platforms, and educational social networks, allow students to record, share, and reinterpret elements of local heritage in a collaborative and reflective way. Technology, in this context, not only works as a recording tool, but also as a space for experimentation and cultural mediation, offering opportunities for students to develop digital skills, critical thinking, and historical and social investigation skills.

In addition, the use of digital environments makes it possible to expand the reach of heritage experiences beyond the classroom, connecting schools, families, and communities. Recent studies show that the digitization of collections and the creation of virtual itineraries allow students to perceive relationships between memory, culture, and identity, promoting affective engagement and a sense of collective belonging. Through these practices, heritage education becomes more inclusive and dynamic, capable of contemplating different learning rhythms and participation styles, while strengthening the integration between local knowledge and contemporary digital skills.

In summary, the incorporation of digital technologies in heritage education shows a necessary updating of the field, showing that digital mediation can enhance student protagonism, the construction of identity and the critical appropriation of cultural heritage, articulating tradition and innovation in a strategic and meaningful way.

Finally, the theoretical foundation demonstrates that territory and heritage education are essential tools for the construction of meaningful learning, identity and belonging. The curriculum, when articulated with the territorial and cultural context, ceases to be a set of disconnected contents and becomes an instrument of cultural mediation, capable of integrating knowledge, memory, social practice and ethical development. Thus, the school is consolidated as a space for dialogue, cultural resistance, production of meaning and formation of critical citizens, aware and engaged in the preservation of the cultural heritage of their community.

4 REFERENCES OF BRAZILIAN DISSERTATIONS ON HERITAGE EDUCATION

To situate the study in the context of national academic production, dissertations that investigate the articulation between territory, curriculum and heritage education were analyzed. Chart 1 summarizes the relevance of these studies in terms of pedagogical practices, impacts on students' identity and challenges in the implementation of innovative approaches that value local cultural heritage.

Table 1

Dissertation	Year	University	Link	Relationship with the Objectives and the Study
Heritage Education: applied experience for the municipality of Santiago – RS	2020	UFSM	https://repositorio.ufsm.br/handle/1/19830	It explores educational practices based on local cultural heritage, highlighting impacts on the formation of students' identity (Objective 2) and the resignification of the curriculum through territorial and community experiences (Objective 3). It shows the transformation of the school into a space of belonging.
Cultural heritage and local history: heritage education from the perspective of teaching History (AC Santos)	2017	UFMG	https://repositorio.ufmg.br/items/804add64-9317-4f17-be9d-767f08f82522	It analyzes the integration of cultural heritage in the teaching of History, highlighting how the curriculum is re-signified with local experiences (Objective 3) and contributes to the construction of students' identity (Objective 2). It reinforces the importance of local memory and culture in meaningful learning.
School, Education and Cultural Heritage (Adriana Santos Brito)	2019	UFPI	https://dspace.ufdp-ar.edu.br/jspui/bitstream/prefix/418/1/ESCOLA%2C%20EDUCA%C3%87%C3%83O%20E.%20PATRIM%C3%94NIO.pdf	Action research in schools that incorporate cultural heritage, providing examples of innovative pedagogical practices (Aim 1) and reflecting on challenges and tensions in the implementation of heritage education (Aim 4). It highlights the cultural mediation of the curriculum.

Heritage education in the school curriculum from the perception of teachers and undergraduates: learning in practice	2021	University of Taubaté	https://mestradoh.unitau.br/wp-content/uploads/dissertacoes/2021/Nathalia-Maria-Novaes-Victor.pdf	It analyzes perceptions of teachers and undergraduates about the incorporation of cultural heritage in the school curriculum, contributing to the understanding of effective pedagogical practices (Objective 1) and impacts on the cultural identity of students (Objective 2). It demonstrates the articulation between educational theory and practice.
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Source: Authors.

4.1 INTEGRATION OF THE ACTIVITY "PLACING SLAB OF MURIAÉ ON GOOGLE MAPS"

The analysis of the previously examined dissertations shows convergence in the valorization of local heritage, in the promotion of belonging and in the resignification of the school curriculum. All of them reinforce the need to bring students closer to the territory in which they live, integrating concrete experiences into learning and strengthening identity bonds. However, it is observed that, despite the theoretical convergences, nuances emerge regarding the effectiveness and implementation strategies, indicating that the impact of heritage education depends strongly on teacher mediation, the school context and student engagement.

The activity "Placing Laje do Muriaé on Google Maps" operationalized these principles in a practical and reflective way. The students documented daily routes between home and school, identified historical and cultural points, prepared descriptive texts and recorded information on the digital platform. This practice promoted active engagement, student protagonism, and the insertion of technology as a mediator of learning, aligning with the Vygotskian perspective of social mediation. The activity showed distinct participation patterns among the groups, revealing individual differences in the perception of heritage and in the willingness to collaborate, which points to the need for differentiated strategies to engage all students in an equitable way.

Figure 1

Class for the division of groups and the explanation of the contents that will be covered



Source: Authors.

The process took place in structured stages — planning, organizing texts and photographs, inserting points on Google Maps, and teacher monitoring — allowing previously unnoticed details to be observed and promoting an expanded perception of local history and culture. This structuring, although efficient, evidenced practical tensions: the articulation between field activities and curricular schedules was pointed out by the professors as a significant challenge, suggesting that pedagogical innovation requires flexibility and institutional support to be fully implemented.

Figure 2

"Putting Laje do Muriaé on Google Maps"



Legend: A) Satellite Image. Source: CNES, c2023

When comparing the results of the activity with the findings of the dissertations analyzed, clear patterns are found in relation to the four objectives of the study:

- **Pedagogical practices (Objective 1):** The mapping and digital recording integrated school content and territory, consolidating contextualized and investigative

experiences. However, the variation in group participation indicates that not all students internalize territorial learning in the same way, highlighting the need for differentiated monitoring and inclusive engagement strategies.

- **Impacts on cultural identity (Objective 2):** The exploration of urban space encouraged recognition of the relevance of the community and strengthening of affective bonds. Some narratives, however, revealed resistance or ignorance of historical elements, indicating gaps in formal and informal cultural transmission. This finding suggests that heritage education, in addition to promoting belonging, should be articulated with practices that rescue forgotten or marginalized memories, avoiding reinforcing only dominant narratives.
- **Reframing the curriculum (Objective 3):** The territorial experiences enriched the curriculum, making it more meaningful and connected to the student's reality. Even so, practical limitations arise related to the integration between syllabus and field activities, highlighting the tension between pedagogical innovation and bureaucratic requirements of formal education.
- **Challenges and tensions (Objective 4):** Careful planning, faculty mediation, and technological support revealed operational and methodological challenges, including time management, access to devices, and the need for constant guidance. These structural limitations indicate that the full effectiveness of heritage education requires institutional policies and adequate resources, reinforcing the importance of thinking about implementation on a broader school scale.

The hermeneutic analysis of the students' productions evidences critical reflection on belonging, identity and lived space. In the descriptive texts, the students often associated everyday places with family and collective memories, demonstrating a tacit understanding that the territory is social and symbolic, not just physical. The collective narratives reveal how students negotiate local identities and attribute meaning to previously neutral spaces, dialoguing with Lefebvre (1991) and Hall (2006). This indicates that learning involves co-construction of meaning, where students recognize themselves as active agents in the cultural production of their community.

In addition, the activity allows inferring patterns of resistance, resignification and critical appropriation of knowledge, showing that technology, when mediated in a reflective way, is not only a tool for registration, but a catalyst for investigation, critical reflection and

protagonism. Thus, the experience in Laje do Muriaé confirms that the integration between territory, curriculum and heritage education validates the theoretical findings and expands their applicability in real school contexts, contributing to meaningful learning, identity construction and community belonging.

5 CONCLUSION

The present research demonstrated that the articulation between territory, curriculum and heritage education is a powerful path for the promotion of identity, belonging and meaningful learning in the school context. The practices analyzed, especially the activity "Placing Laje do Muriaé on Google Maps", showed that the direct involvement of students with the local cultural heritage stimulates protagonism, investigative engagement and critical reflection, converting the school space into a locus of production of meaning and appreciation of community memory.

The data collected indicate that the territory should be understood not only as a geographical dimension, but as a social and symbolic space that acts as a mediator of identity construction and contextualized learning. The student productions — cultural maps, descriptive texts, and photographic records — revealed that students internalize knowledge at the same time that they collectively negotiate meanings, resignify everyday spaces, and build narratives that consolidate belonging and affective bonds with the community.

The research also highlighted practical challenges that require institutional and pedagogical attention: variation in student participation, time and resource limitations, difficulties in integrating field activities and curricular content, in addition to the need for constant teacher mediation. These elements indicate that the effectiveness of heritage education depends on structured planning, technological support, and continuing teacher training in order to ensure equitable inclusion and sustainability of practices.

Theoretically, the findings reinforce the conception of curriculum as a dynamic space of cultural mediation, capable of articulating memory, territory and local knowledge. By valuing heritage, the school not only strengthens identities but also promotes cultural resistance, democratizes knowledge, and fosters critical citizenship. Thus, the investigation contributes to the reflection on pedagogical innovation, consolidating the understanding that contextualized and technologically mediated territorial experiences are essential for the formation of critical subjects, aware of their role in the preservation and cultural transformation of the community.

Finally, it is recommended that future research adopt a longitudinal perspective, explore inclusive engagement strategies, and investigate the continued use of digital technologies as mediators of learning. Such deepening will allow the consolidation of the integration between territory, curriculum and identity as a sustainable educational practice, expanding the role of the school as a space of memory, belonging and construction of meaning.

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**ANALYSIS OF FINANCIAL AND TECHNOLOGICAL MECHANISMS IN THE
GREEN ECONOMIC TRANSITION**

**ANÁLISE DE MECANISMOS FINANCEIROS E TECNOLÓGICOS NA
TRANSIÇÃO ECONÔMICA VERDE**

**ANÁLISIS DE MECANISMOS FINANCIEROS Y TECNOLÓGICOS EN LA
TRANSICIÓN ECONÓMICA VERDE**

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ABSTRACT

This article analyzes the characteristics, potentialities, and challenges of the Web Curriculum in the context of Distance Education (DE), in light of the transformations brought about by digital culture. This bibliographic research is based on academic works, scientific articles, and official documents, aiming to understand how curricula mediated by digital technologies can promote more meaningful, interactive, and inclusive learning. Initially, the evolution of the curriculum concept and its social function is discussed, highlighting the transition from traditional models to more critical and flexible approaches. Then, the specificities of DE and the curricular models that support it are explored, emphasizing pedagogical mediation and personalized learning. The Web Curriculum is presented as an innovative proposal, grounded in principles such as hypertextuality, authorship, and collaboration, aligning with active methodologies and the demands of networked society. The discussion reveals both the advantages and the challenges of this approach, including digital exclusion, teacher training, and assessment in DE. It is concluded that the effective implementation of the Web Curriculum requires public policies, adequate infrastructure, and continuous teacher development, as well as new pedagogical practices that value autonomy and authorship in digital culture.

Keywords: Web Curriculum. Distance Education. Digital Culture. Digital Curriculum. Educational Technologies.

RESUMO

Este artigo analisa as características, potencialidades e desafios do Web Currículo no contexto da Educação a Distância (EAD), à luz das transformações provocadas pela cultura digital. A pesquisa, de natureza bibliográfica, fundamenta-se em obras acadêmicas, artigos científicos e documentos oficiais, com o objetivo de compreender como os currículos mediados por tecnologias digitais podem promover aprendizagens mais significativas, interativas e inclusivas. Inicialmente, discute-se a evolução do conceito de currículo e sua função social, destacando a transição de modelos tradicionais para abordagens mais críticas

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e flexíveis. Em seguida, são exploradas as especificidades da EAD e os modelos curriculares que a sustentam, com ênfase na mediação pedagógica e na personalização da aprendizagem. O Web Currículo é apresentado como uma proposta inovadora, baseada em princípios como hipertextualidade, autoria e colaboração, alinhando-se às metodologias ativas e às demandas da sociedade em rede. A discussão evidencia tanto as vantagens quanto os desafios dessa abordagem, incluindo a exclusão digital, a formação docente e a avaliação na EAD. Conclui-se que a efetivação do Web Currículo requer políticas públicas, infraestrutura adequada e formação continuada, além de novas práticas pedagógicas que valorizem a autonomia e a autoria dos sujeitos na cultura digital.

Palavras-chave: Web Currículo. Educação a Distância. Cultura Digital. Currículo Digital. Tecnologias Educacionais.

RESUMEN

En este capítulo se analiza de manera integral los mecanismos financieros y tecnológicos que impulsan la transición hacia una economía verde, en el contexto de los desafíos climáticos globales. Se abordan instrumentos como bonos verdes, blended Finance y el financiamiento multilateral, así como tecnologías emergentes como blockchain, inteligencia artificial e internet de las cosas. Mediante una revisión documental y análisis de indicadores internacionales, se identifican avances significativos, pero también brechas críticas en financiamiento, innovación y gobernanza. Los hallazgos confirman la idea de que la innovación financiera y tecnológica es indispensable para acelerar la transición verde, aunque debe fortalecerse mediante marcos regulatorios robustos, alianzas multisectoriales y políticas inclusivas. Se concluye que, si bien se observan progresos, el ritmo actual no es suficiente para alcanzar las metas climáticas internacionales, lo que demanda intensificar y escalar las acciones globales, priorizando la justicia social y la sostenibilidad integral.

Palabras clave: Instituciones y Servicios Financieros. Medio Ambiente y Desarrollo. Innovación Tecnológica. Fuentes de Energías Alternativas.

1 INTRODUCTION

In a global context marked by the climate crisis, environmental degradation and growing socioeconomic inequalities, we have sought to move towards a green economy that is a central axis in global economic policies (UNEP, 2011). In the green economy, the concept of economic development is intended to have environmental sustainability and social equity so that they cease to be marginal conditions and become fundamental pillars of progress (Carfi and Schiliró, 2012). In this sense, the green economy emerges as a comprehensive strategy that seeks to redefine production systems under principles of circularity, energy efficiency and intergenerational justice.

The conceptual framework of this transition to a green economy has its origins in the debates on sustainable development in Rio de Janeiro in 1992, but in recent years it has gained relevance due to the current context of climate emergency. The green economy proposes that there is an articulation between economic prosperity through regenerative business processes, social inclusion through equitable access to resources, and the protection of ecosystems through decarbonization and conservation of diversity (Herrán, 2012; UNEP, 2011). This vision has been formalized in international agreements. For example, in the Paris Agreement (2015) and in the 2030 Agenda, which recognize the existence of environmental and social challenges, which are deeply interconnected.

However, this model faces different obstacles, with financing being one of the most critical. According to the International Energy Agency (IEA), although investments in clean energy have increased, they have not been enough to meet the goals established by the 2030 agenda. Due to financial inequality, the need to establish innovative mechanisms that can mobilize capital is evident. In this context, instruments such as green bonds, *blended finance*, multilateral financing and green fiscal policies are emerging.

At the same time, the technological revolution is shaping the possibilities of transition to disruptive technologies such as *blockchain*, which seeks to increase transfer in green markets through immutable records that combat *greenwashing*. On the other hand, artificial intelligence seeks to optimize the reallocation of resources through predictive analysis of environmental impact. Meanwhile, the Internet of Things is enabling energy efficiency gains (*International Renewable Energy Agency (IRENA)*, 2023). Therefore, it should be noted that these innovations not only improve the profitability of sustainable projects, but also create new paradigms in natural resource management and impact measurement.

However, it should be considered that there are structural challenges that limit the potential of the green transformation, among which are: the lack of global standardization, technological asymmetries between developed and developing countries, and the risks of *greenwashing* (Forest, 2023; United Nations, 2018; Tukhtabayev, 2024). As the OECD (2020) points out, the effectiveness of innovative mechanisms depends critically on robust regulatory frameworks, international cooperation, and institutional capacities that currently present significant gaps.

This work aims to analyze the financial and technological mechanisms, to achieve this it will be structured in four sections. The first offers a conceptual framework on the transition to the green economy. The second section addresses a critical analysis of financing mechanisms and their effectiveness. Section three addresses the role that technological innovations play in the green transition. In the fourth section, the key indicators are analysed in order to assess the results of the transition, as well as how these international indicators allow the process to be monitored. Finally, a section is devoted to the main conclusions.

2 GLOBAL CONTEXT OF THE GREEN ECONOMY

2.1 CONCEPTUALIZATION AND HISTORICAL CONTEXT OF THE GREEN ECONOMY

The green economy emerged as an alternative to the traditional model, known as the *brown economy*, since it prioritized growth without considering environmental and social impacts. This new approach is born out of the urgent need to be able to address three interconnected crises: environmental degradation, social inequality and the depletion of natural resources. The main difference with the traditional model is that it proposes the integral development of economic prosperity with social justice and ecological protection (UNEP, 2011).

The concept of green economy emerged approximately two decades ago, as an extension of the paradigm of sustainable development, its origins date back to the first Earth Summit in Rio 1992, where the first global commitments were established. However, it was not until the Rio+20 Conference, held in the city of Rio de Janeiro in 2012, that it acquired international relevance, when it was formally adapted by the United Nations (UN) as a strategic axis to achieve sustainability (Herrán, 2012).

According to the United Nations (2018), the green economy is an innovative model that aims to transform traditional production systems through three main axes, which are: efficiency in the use of resources, greater social inclusion, and climate change mitigation. In

an environmental aspect, it seeks a transition towards circular systems that minimize the waste of materials and energy, based on the adoption of renewable energies, the implementation of clean industrial processes and the development of resilient infrastructures.

Currently, the green economy is considered a key aspect for the fulfillment of the Sustainable Development Goals (SDGs), according to the United Nations report (2018). This model provides a practical framework for simultaneously addressing economic, social and environmental challenges. However, its implementation requires structural transformations in production and consumption patterns, in addition to the creation of public policies that integrate sustainable innovation.

2.2 IMPORTANCE OF THE ENERGY TRANSITION

The energy transition is a cornerstone for the green economy, as it allows the decoupling of economic growth from environmental deterioration, as it seeks to replace fossil fuels with renewable energies, reduce carbon emissions, and ensure energy security in the long term (IRENA, 2023).

This transition process requires global and coordinated action that combines public policies, innovative financial mechanisms (e.g. green bonds) and international technological cooperation. However, this process entails several challenges, which must be addressed through solid regulatory frameworks and financial ecosystems capable of promoting sustainable projects (Plaza, 2024).

It should be noted that the effectiveness of the energy transition is directly related to the availability of financial and technological resources. For example, according to IRENA (2023), in order to achieve the climate goals set out in the Paris Agreement, annual investments of approximately trillions of dollars are needed until 2030. However, this figure represents almost triple the current levels of investment, which underscores the magnitude of the financial challenge. In this regard, it is important to identify and implement innovative and efficient financial mechanisms in order to direct resources effectively and equitably.

2.3 SUSTAINABLE FINANCING AND INNOVATIVE FINANCIAL MECHANISMS

Financing is an essential element for the transition process towards a green economy, which must be accompanied by an innovative process, in order to ensure environmental sustainability and mitigate the effects of climate change (Kahn *et al.*, 2022). This perspective is reinforced by Chabán-García (2024), who states that the promotion of a green economy

requires the implementation of green finance and the development of technological innovation.

This is materialized by the fact that the energy transition to a low-carbon economy demands significant financing as well as a strong innovative framework, given that this process entails an estimated economic cost of between 92 and 173 trillion dollars, so a solvent green financial ecosystem must be created. stable and supported by certification mechanisms that can guarantee the sustainability of the projects (Plaza, 2024). The United Nations (2018) argues that significant mobilization of financial resources, both from the public and private sectors, is needed.

In this context, innovative financing mechanisms emerge, which are strategies used for the mobilization of financial resources for projects and activities for the transition to the green economy. These complement traditional sources of financing and facilitate access to capital for sustainable investments. Among the most prominent instruments are green funds and bonds, along with impact investments, grants and green *crowdfunding*, which can be complemented by environmental insurance and tax incentives (UNEP, 2011).

2.4 TECHNOLOGICAL INNOVATION FOR A GREEN ECONOMY

Technological innovation is a key element for the green economy, its objective is to minimise environmental impact and promote sustainability, in addition to being essential to achieve the development of energy efficiency. In addition, technologies such as the Internet of Things (IoT) and artificial intelligence (AI) optimize the use of resources in order to improve efficiency in industries and cities. In addition, digitalization through *big data* and real-time monitoring systems allows for smarter management of resources (UNEP, 2021; IRENA, 2023; Plaza, 2024), elements that will be addressed later.

Technological innovation also facilitates the creation of new sustainable business models, such as the circular economy, which seeks to maximise resources and minimise waste. In addition, access to information and data processing can contribute to sustainable practices in various sectors. However, in order to harness the potential of technological innovation, it is necessary to have appropriate policies that are capable of promoting research, development, and the adoption of sustainable technologies (ECLAC, 2021).

2.5 KEY INDICATORS FOR THE EVALUATION OF THE ENERGY TRANSITION

Currently, there are different indices that allow us to evaluate progress towards the energy transition, one of them is the Energy Transition Index (ETI) which is a tool developed by the World Economic Forum that seeks to provide a data framework that allows us to appreciate the performance of energy systems and their willingness to transition, which is divided into two groups: core factors (legislation, political commitment, finance and investment) and enabling factors (innovation, infrastructure, education and human capital). The final score is made up of the scores you achieve in each of the sub-indices (World Economic Forum, 2024).

Additionally, there is the Global Carbon Intensity Index, which is measured in grams of CO_2 per kWh produced, this is a key indicator to know if there really is a significant reduction in carbon emissions. It should be noted that this index has decreased in recent years. For example, in 2019 it was 475 while in 2024 it decreased to 421, confirming the need to establish mechanisms that continue to mitigate carbon emissions (Ember Climate, 2024). gCO_2 / kWh

Both indices are examples that significant changes can be achieved to achieve a transition to a green economy, however, financial and technological mechanisms must continue to be implemented so that the impact can be greater.

2.6 ANALYSIS OF INNOVATIVE FINANCIAL MECHANISMS FOR THE TRANSITION TO A GREEN ECONOMY

Sustainable finance aims to align with financial markets and integrate environmental, social and governance criteria into investment decision-making. This implies carrying out a transition process, where economically sustainable environmental technologies and practices are adopted, based on redirecting funds towards low-carbon models and ensuring that investments generate positive impacts for the environment and communities (Mealy and Teyteboym, 2022).

Therefore, the following section will analyze the key mechanisms for mobilizing capital towards the transition to a green economy. The mechanisms analyzed will be: green bonds, blended *finance*, multilateral financing and green policies.

2.7 GREEN BONDS AS SUSTAINABLE FINANCING INSTRUMENTS

Green bonds are financing options for private companies and public entities that need to support their investments in the climate and environment. It should be noted that the World Bank (WB) and the International Finance Corporation (IFC) were pioneers in the development of the green bond market, since in 2008 the first green bond was issued by the WB, while in 2013 the IFC was in charge of issuing the first global green bond (World Bank Group, 2017).

Green bonds are debt instruments where the issuer commits to use the proceeds to finance or refinance projects that benefit the environment and mitigate the effects of climate change. These bonuses are divided into labeled and unlabeled. The former refer to those explicitly issued as green to finance environmental projects, while the latter are those that finance sustainable initiatives without formally declaring themselves green (Forest, 2023).

In order to ensure that these instruments meet the environmental objectives they promise, it is necessary to establish clear definitions of what constitutes a *green* asset and implement robust verification and monitoring systems, avoiding practices such as *greenwashing*, in order to ensure transparency in the market (ECLAC, 2018).

According to IRENA data (2023), the green bond market exceeds 500 billion dollars in cumulative issuances, with a growth rate of 50%, reflecting a growing dynamic of awareness about climate change and the need to align financial flows. Finally, the bond market is becoming a fundamental pillar for the transition to low-carbon economies.

2.8 BLENDED FINANCE, THE COMBINATION OF PUBLIC AND PRIVATE RESOURCES

Blended finance is the combined use of grants, concessional instruments, and reimbursable financing from public and private sources, which seek to provide greater financial viability and sustainability to projects with an impact on sustainable development (CAF, 2021). This mechanism allows for greater mobilization of resources to sectors that traditionally suffer due to structural market barriers. In addition, according to data from Concergece (2024), blended finance has mobilized approximately \$249 billion for sustainable development, and around 6800 financial commitments have been identified for these blended finance transitions.

It should be noted that blended finance allows you to structure your investments through layers of financing and mechanisms to transmit returns and risks, allowing private investors to participate in market-like conditions (González and Sánchez, 2024).

In recent years, the Development Bank of Latin America (CAF) has mobilized highly concessional resources through blended finance programs in collaboration with strategic partners in order to support projects or common areas. A successful example was the approval of financing from the Climate Action and Solar Energy Development Program in Chile. With a total amount of 79 million dollars, combining resources from CAF, the Green Climate Fund and the private sector (CAF, 2021).

However, *blended finance* faces certain challenges including structuring investments, the complexity of deals that may affect its implementation and scalability, measuring its performance in emerging markets, and mobilizing private finance in developing countries. Therefore, more research is needed on the impact mechanisms of sustainable investing.

2.9 MULTILATERAL FINANCING: ESSENTIAL SUPPORT FOR EMERGING ECONOMIES

Multilateral financing is an important key to the transition to green economies, mainly in developing countries that face both financial and technological constraints. There are various mechanisms that allow the channeling of resources to support sustainable projects. These multilateral investments are usually channeled by financial institutions such as the World Bank, the Green Climate Fund, and the Inter-American Development Bank (IDB) (Sunguryan, 2023).

The main advantage of this type of financing is to offer favorable conditions in interest rates and longer terms, which makes it easier to facilitate investments. In addition, some institutions usually provide technical assistance and some knowledge transfer to strengthen capacities (IFC, 2022).

Key challenges and constraints include geographic concentration, as funding tends to be concentrated in middle-income countries and neglects lower-income countries. It is also necessary to be able to have an adequate regulatory framework and certain mechanisms that increase investor confidence and thus be able to guarantee the effectiveness of financing (Kim and Lee, 2021; Nepal *et al.*, 2024; Wang *et al.*, 2024)

2.10 GREEN FISCAL POLICIES AS AN EFFECTIVE MOBILIZATION FROM THE PUBLIC SECTOR

Green fiscal policies are government strategies that use taxes, subsidies, and other fiscal instruments to promote sustainable practices and reduce the impact of the environmental crisis. Its main objective is the alignment between economic growth and

sustainability, to achieve this it seeks to encourage the transition to clean technologies, its main tool being carbon taxes (IMF, 2019).

This type of policy seeks to internalize environmental costs, through taxes on carbon or polluting products, in order to promote the adoption of greener alternatives. The aim is for the revenues generated to be used to finance sustainable infrastructure, as well as to the conservation of natural resources and innovations in green technologies. These types of measures, in addition to promoting economic development, seek to ensure environmental protection and are essential to face climate challenges (UNEP, 2021).

However, and according to ECLAC (2018), green fiscal policies face multiple challenges for their effective implementation, including political and social resistance, mainly from sectors dependent on polluting practices and from citizens who perceive environmental taxes negatively. Therefore, it is key to have coherence so that its impact is not limited, in addition to multisectoral collaboration and comprehensive policy designs that can balance environmental, economic and social objectives.

3 TECHNOLOGICAL INNOVATIONS FOR A GREEN TRANSITION

3.1 THE ROLE OF TECHNOLOGICAL INNOVATION IN THE GREEN TRANSITION

This section analyzes how innovation is found in financial and technological mechanisms; In addition, where the way in which capital is mobilised for sustainable projects is being revolutionised, contributing to greater efficiency, transparency and scalability of investments aimed at the global green transition.

The analysis is carried out in a context where the adoption of various disruptive technologies such as *blockchain*, AI, IoT, and *big data* have paved the way for the development of digital platforms that aim to monitor investments and verify environmental and social impacts (OECD, 2020; PwC, 2023).

Different authors have highlighted the importance of this technological transformation since it not only allows for the reduction of operating and transaction costs, but also allows for the monitoring with great precision of the environmental and social impacts that derive from green investments, which facilitates a more transparent and effective management of financial resources (Agrawal *et al.*, 2021; OECD, 2020).

3.2 BLOCKCHAIN AS A TOOL FOR FINANCIAL TRANSPARENCY AND TRACEABILITY

Blockchain technology became popular due to cryptocurrencies, but it has revolutionized the transparency and traceability of green financing. This technology is based on providing a distributed and cryptographically secure database, which records sustainable financial transactions in an immutable way that is also verifiable by any actor involved (WEF, 2021). As a result, the risks of fraud, corruption and so-called *greenwashing* in projects that are financed through green bonds or *blended finance* are significantly reduced (Wang *et al.*, 2021).

Specific examples could include platforms such as *Energy Web Foundation* and *Power Ledger*, which employ *blockchain* to manage digital green certificates, ensuring traceability of renewable green energy generated and sold in international markets (*Energy Web Foundation*, 2023). Thus, this technology generates confidence among institutional and private investors, facilitating a greater flow of capital towards sustainable projects.

However, the use of *blockchain* in sustainable finance also presents technological and regulatory challenges, this is due to high energy costs in certain *blockchain* protocols and the need to have international regulatory frameworks that facilitate its application on a global scale (Lacity *et al.*, 2021).

3.3 ARTIFICIAL INTELLIGENCE AND BIG DATA FOR SUSTAINABLE IMPACT ASSESSMENT

Along the same lines, Artificial Intelligence (AI) together with advanced data analysis (*big data*) have become the main tools for assessing the environmental and social impact generated by green investments with high precision and efficiency. In this sense, these new technologies make it possible to analyse large amounts of environmental, economic and social data in real time, which substantially improves decision-making and optimises the allocation of financial resources towards projects with greater potential for positive impact (PwC, 2023).

Specifically, AI algorithms applied to green investments can accurately predict the future outcomes of sustainable projects, from emissions reductions to renewable energy generation, improving the profitability and effectiveness of these investments (Agrawal *et al.*, 2021). To mention one case, technology platforms such as Arabesque S-Ray and MSCI Research use AI and *big data* to comprehensively evaluate companies and projects based on environmental, social, and governance (ESG) criteria. Despite the above, the adoption of

these technologies still faces barriers related to the quality of reliable environmental data, ethical and regulatory challenges regarding the responsible and equitable use of sensitive information (OECD, 2020).

3.4 INTERNET OF THINGS (IOT) IN GREEN INFRASTRUCTURE OPTIMIZATION

In the same way, the Internet of Things (IoT) has an important role in the operational and economic optimization of sustainable infrastructures, especially in sectors such as renewable energy, transport and smart cities. The IoT allows sensors and devices to continuously monitor the operation and performance of green infrastructure, significantly increasing its efficiency and reducing costs (PWC, 2023).

To illustrate, the IoT makes it possible to optimize smart *grids*, facilitating efficient management of electricity consumption and a better integration of different renewable energies in real time, thus reducing energy losses and operating costs (WEF, 2021). Similarly, in sustainable transport, the IoT makes it possible to monitor and optimise the energy performance of electric vehicles and public transport, directly contributing to the effective reduction of urban pollutant emissions (IRENA, 2023).

3.5 HYBRID AND INNOVATIVE FINANCIAL INSTRUMENTS

The emergence of hybrid instruments, for example, social impact bonds and sustainable ones that are linked to environmental performance indicators, are an important step forward. These instruments make it possible to create a combination of financial returns with metrics in social and environmental areas. This is the case of *Social Impact Bonds*, which incorporate performance clauses that depend on the achievement of the Sustainable Development Goals (SDGs), such as improving access to education or reducing poverty (Rizello and Kabli, 2020).

One case could be that of Latin America, where various renewable energy projects have been financed through co-financing between public and private organizations. According to data from OMFIF (2024), these strategies have made it possible to mobilize more than 3000 million dollars in the last three years. The key to this model lies in the use of public guarantees and concessional financing that reduce perceived risk, encouraging the participation of institutional investors.

4 KEY INDICATORS FOR ASSESSING THE RESULTS OF THE ENERGY TRANSITION

Similarly, analysing the effectiveness of the efforts made in the energy transition towards a green economy is necessary to determine whether financial and technological mechanisms are delivering results.

4.1 ENERGY TRANSITION INDEX (ETI)

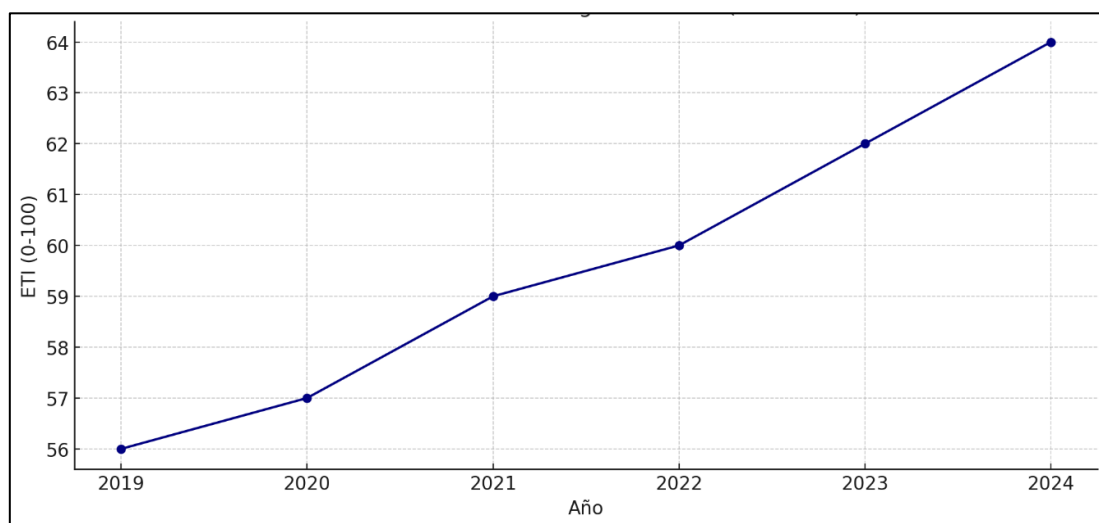
The World Economic Forum develops the Energy Transition Index and has managed to consolidate it as an indicator of global scope with robustness and wide acceptance. The ETI comprehensively assesses the ability of countries to transform their energy systems towards more sustainable and economically viable systems. The ETI is made up of three dimensions: performance of the current energy system, energy security and access, environmental sustainability and economic growth; preparation for transit (stability in regulations, infrastructure, investment, human capital and innovation); long-term sustainability, energy diversification, energy efficiency and effective emission reduction.

Thus, in 2024, the ETI reached a value of 64 out of 100, showing progress compared to previous years (WEF, 2024).

This indicator shows both important achievements and challenges to be faced, allowing us to assess how various financial and technological mechanisms directly influence progress towards a green economy.

Figure 1

Energy Transition Index (ETI), 2019-2024



Source: adapted from World Economic Forum (2019-2024). Retrieved from <https://www.weforum.org/publications/fostering-effective-energy-transition-2024/>

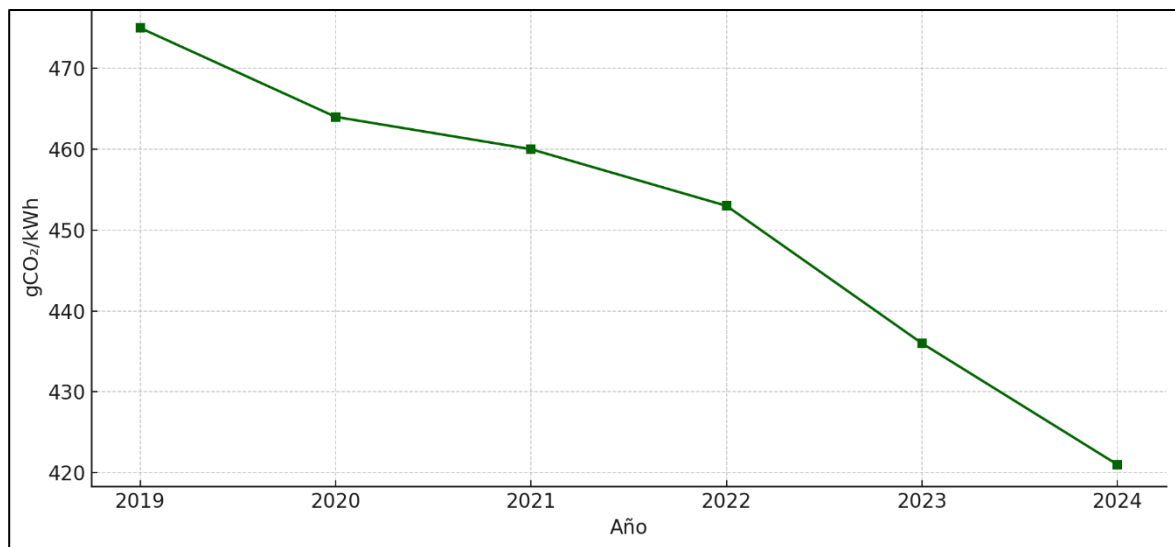
4.2 GLOBAL CARBON INTENSITY

Global carbon intensity is another important indicator that allows us to assess the impact of the energy transition on the reduction of greenhouse gas emissions (Ember Climate, 2024). Thus, this indicator shows the proportion of fossil fuels compared to renewable energies within global energy generation, which allows for an immediate assessment of the real results of climate policies and sustainable financing.

According to Ember Climate (2024), carbon intensity showed a reduction from 475 gCO₂/kWh in 2019 to 421 gCO₂/kWh in 2024. In other words, the decline shows a notable increase in the global share of renewable energy, driven by public policies and innovative mechanisms such as green bonds, even if they are only a small part (IEA, 2024). However, the current rate of decline is not enough to meet international climate goals, which highlight the importance of intensifying the adoption of clean energy.

Figure 2

Global Carbon Intensity (gCO₂/kWh), 2019-2024



Source: adapted from Ember Climate. (2024). Global Electricity Review 2019-2024. Retrieved from: <https://ember-climate.org>

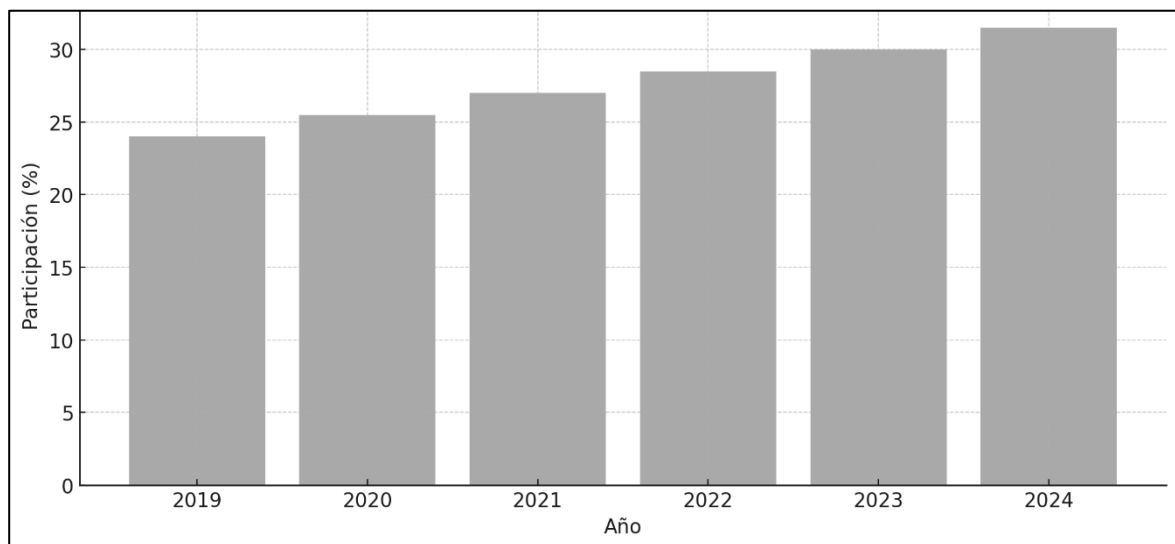
4.3 GLOBAL SHARE OF RENEWABLE ENERGY

Along the same lines, the share of renewable energies in global energy consumption is another important indicator that is used by different international organizations, such as the International Renewable Energy Agency (IRENA). The objective of this indicator clearly shows the share of clean energy (solar, wind, hydro, geothermal, biomass) in the total global primary energy consumption (IRENA, 2023).

In 2023, this indicator shows a 30% share of total energy consumption, showing a growth compared to the 20% recorded in 2015 (IRENA, 2023). Therefore, this increase reflects the effectiveness of financial mechanisms and global public policies focused on the energy transition. However, participation is not sufficient compared to the 50% recommended by experts by 2030, indicating the need to accelerate the adoption of these renewable energies, particularly in emerging and developing economies (IEA, 2024).

Figure 3

Global Share of Renewable Energy in Percentages, 2019-2024



Source: adapted from International Renewable Energy Agency (IRENA). (2019-2024). Renewable Energy Statistics 2023. Retrieved from: <https://www.irena.org>

5 CONCLUSIONS

The conclusions we reach in this chapter are that the transition to a green economy is due to an urgent response to the climate crisis, loss of biodiversity and, not least, growing socio-economic inequalities. This paper confirms the idea that this transition not only presents environmental challenges, but also a profound economic and social transformation, which requires an effective integration of different mechanisms to materialize successfully.

First, the documentary analysis shows how the mobilization of capital directed towards sustainable projects has grown significantly, particularly through innovative instruments such as green bonds, *blended finance*, and multilateral financing. However, current investments, although with a growing trend, are still not enough in the face of global climate goals, as they need to increase to 4.5 trillion dollars per year by 2030 (IEA, 2024). Thus, the urgency of

strengthening these financial mechanisms, improving their transparency, scalability and global standardization is highlighted.

Therefore, the strategic importance of innovation to strengthen and optimize financial mechanisms is shown. Technologies such as *blockchain*, artificial intelligence, *big data*, and the Internet of Things have improved the efficiency, transparency, and traceability of sustainable finance, facilitating a more effective and reliable allocation of available financial resources. However, these technological advances still face barriers related to regulatory frameworks, a digital infrastructure with inequalities, data quality and ethical aspects, which partially limits their adoption and scalability in different economic and geographical contexts.

In the same vein, the use of international indicators has made it possible to accurately assess the impact of global energy transition efforts. On a one-off basis, indicators such as the TSI, global carbon intensity and the share of renewable energies reflect real progress that shows how financial and technological mechanisms are managing to significantly reduce emissions and increase the global share of clean energy. On the other hand, the analysis also reveals that the current pace is insufficient to meet the international goals of the Paris Agreement, which emphasizes the need to accelerate and deepen these global actions.

In summary, the information analyzed confirms the idea raised, financial and technological innovation is crucial to accelerate the transition to a global green economy. These mechanisms, together with clear public policies and public-private partnerships, represent a historic opportunity to confront the current climate crisis while building a more just, equitable, and sustainable global economy in the long term.

Although this paper offers a comprehensive and multidimensional analysis of innovative and technological financial mechanisms in the transition to a green economy, it is important to recognize the limitations that arose in their development, which open opportunities for future research.

The analysis of the mechanisms was mainly based on secondary sources from institutional reports, academic literature and official databases. Although these sources are recognized and reliable, there were no primary data that would allow us to delve into the perceptions and experiences of key actors involved in the implementation of these mechanisms.

Due to the global scope of the study, the national or local specificities in the use and impact of financial and technological mechanisms are not addressed in detail. Political, regulatory, and socioeconomic dynamics in each country or region may influence the

effectiveness of these instruments, suggesting the need for studies of greater territorial scale and contextual depth.

Finally, the interdisciplinary nature of the topic implies that some economic, technological, social, and political aspects could only be addressed synthetically within the framework of the study, leaving pending a more in-depth and sectorized analysis of the interactions between these elements.

Based on the various limitations that were identified, priority lines for future research are proposed. Investigate mechanisms in depth in specific national and local contexts, including analyses of success stories and challenges unique to each region, especially in developing or underdeveloped countries. Likewise, to carry out empirical research that quantifies the real impact of financial and technological mechanisms.

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**NEUROSCIENCE AS A TOOL FOR SELF-KNOWLEDGE AND DEVELOPMENT
OF COGNITIVE POTENTIAL FOR PEOPLE IN VULNERABLE SITUATIONS**

**NEUROCIÊNCIA COMO FERRAMENTA DE AUTOCONHECIMENTO E
DESENVOLVIMENTO DE POTENCIALIDADES COGNITIVAS PARA PESSOAS
EM SITUAÇÃO DE VULNERABILIDADE**

**LA NEUROCIENCIA COMO HERRAMIENTA PARA EL AUTOCONOCIMIENTO Y
DESARROLLO DEL POTENCIAL COGNITIVO DE PERSONAS EN SITUACIÓN
DE VULNERABILIDAD**

 <https://doi.org/10.56238/sevened2025.038-049>

Renata Godis da Silva¹

ABSTRACT

This work, conducted at the Institute for Socio-Emotional Development of the State of Rio de Janeiro, uses neuroscience as an analysis to understand mental obstacles that hinder the development of cognitive potential crucial for overcoming emotional barriers. These barriers often prevent vulnerable individuals from achieving the life they desire. To contribute to overcoming personal difficulties, this work aims to offer tools to enable a group of people in Rio de Janeiro to develop their self-awareness and move beyond their psychic comfort zones, encouraging reflection on paradigms created through lived experiences and motivating personal transformation. Neuroscience has provided vast insights into mental organization, and awakening minds to their full potential has never been more widely discussed than in the current decade. Thus, the possibilities for overcoming these challenges reaffirm the importance of rethinking proposals that foster a new perspective and new social outlook for this group of individuals.

Keywords: Neuroscience. Cognitive Potential. People in Vulnerable Situations.

RESUMO

Trabalho realizado no Instituto de Desenvolvimento Socioemocional do Estado do Rio de Janeiro, através de uma análise juntamente com a neurociência, na busca de compreender obstáculos mentais que impedem o desenvolvimento de potencialidades cognitivas importantes para o romper das travas emocionais, muitas das vezes responsáveis pelo impedimento de pessoas em situação de vulnerabilidade, em alcançar a vida que tanto deseja. De modo a contribuir na superação de dificuldades pessoais, este trabalho tem como principal objetivo oferecer ferramentas cabíveis para que o grupo de pessoas, situadas na cidade do Rio de Janeiro desenvolvam em seu potencial o autoconhecimento, bem como fazer com que estes indivíduos saiam de sua zona de conforto psíquica oferecendo reflexões sobre os paradigmas criados no decorrer das experiências vividas e motivá-las para a sua transformação pessoal. A neurociência tem trazido vastos esclarecimentos sobre as organizações mentais e despertar as mentes para o potencial máximo de sua existência nunca foi tão discutido como na década atual. Assim as possibilidades de superação reafirmam sobre a importância de repensar em propostas que favoreçam a construção de um novo olhar e novas perspectivas sociais para este grupo de indivíduos.

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Palavras-chave: Neurociência. Potencialidades Cognitivas. Pessoas em Situação de Vulnerabilidade.

RESUMEN

This work, conducted at the Institute for Socio-Emotional Development of the State of Rio de Janeiro, uses neuroscience as an analysis to understand mental obstacles that hinder the development of cognitive potential crucial for overcoming emotional barriers. These barriers often prevent vulnerable individuals from achieving the life they desire. To contribute to overcoming personal difficulties, this work aims to offer tools to enable a group of people in Rio de Janeiro to develop their self-awareness and move beyond their psychic comfort zones, encouraging reflection on paradigms created through lived experiences and motivating personal transformation. Neuroscience has provided vast insights into mental organization, and awakening minds to their full potential has never been more widely discussed than in the current decade. Thus, the possibilities for overcoming these challenges reaffirm the importance of rethinking proposals that foster a new perspective and new social outlook for this group of individuals.

Keywords: Neuroscience. Cognitive Potential. People in Vulnerable Situation.

1 INTRODUCTION

Government actions still manifest little in terms of the seriousness of people in vulnerable situations, marked by social indifference that keeps them excluding and marginalized. These people need to be seen and treated in the condition of human dignity by the State as well as by society in general.

The care provided to individuals in vulnerable situations, through the development of this work, brought a significant result in terms of self-knowledge, based on the reports presented and on their follow-up observation. Through the brain's ability to undergo temporal or permanent modifications, whenever it is influenced by itself, by other brains or by the environment, it complements the positive results presented by this group of people.

The profile of these individuals indicates fewer possibilities of reintegration and social reintegration, which requires greater attention through more intensive and broader public policies that will add in an inclusive way, restructuring and expanding new possibilities for social development.

Considering the assumption that individuals in vulnerable situations can break mental paradigms by leaving their psychic comfort zone, it is essential not only to rethink, but also to seek actions that adopt practical actions in order to provide real changes in this scenario of social distancing

2 CONCLUSION

There are countless difficulties encountered by people in vulnerable situations, so reconstructing their identity and situating themselves in the world is the constant struggle of these citizens in the face of their object of anguish. If helplessness is a characteristic state of contemporary city life and is revealed in the lack of guarantee about the future, says Menezes, 2006, it can be said that helplessness leads to the height of an existential crisis and establishing a profile of homeless people is not something expressly simple.

Whether or not something happens in front of these groups is a doubt that is accentuated when social distancing makes this picture of inequality clear. Baumam (1998) delegates responsibility in relation to the other, as a moral behavior that arises from the condition of proximity. According to him, the strategies of maintaining social distancing curb the impulse to judge the suffering of the other as something that does not concern us. People in vulnerable situations are in constant need, as they are far from the social spectacle in the expectation of being treated in a way that makes them feel valued and accepted.

The Universal Declaration of Human Rights, 1948, has as its main basis the right of all people to participate freely in development and to contribute to this development by enjoying it in an active, free and meaningful way. Thus, the development of this work establishes the importance of serving people who are in a situation of vulnerability so that they can improve themselves with appropriate tools for their personal development in a significant and transformative way. The individual, according to Freire, 1998, is a being of mutual relationships and in his interaction with the environment promotes changes, because we respond to challenges by being able to create and recreate culture.

Therefore, mentioning the human being's ability to develop in society is an issue that cannot fail to be addressed without mentioning the incredible and dynamic capacity of the brain to change when receiving influences and information from the environment, including its internal microenvironment, which within the neuroscience approach is called neuroplasticity. Thus, neuroplasticity according to Lent, 2019, can be defined as the property that we all have of dynamically changing in interaction with the environment. In this way, offering interaction to these individuals, inducing them to establish mental contact through language, as well as sensory contact, is the tool found for a possible change in the mental paradigm, in order to stimulate cognitive potentialities, so important for the restructuring of the mind.

Based on this concept, the development of this work presupposes that offering tools of self-knowledge to these individuals considered marginalized can create in their minds new perspectives of life, where they can develop a new mental model of growth and real desire to change their lives.

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**EDUCATIONAL PROGRAMS IN ENGINEERING: A PERSPECTIVE FROM THE
NEW MEXICAN SCHOOL AND GENDER EQUITY**

**PROGRAMAS EDUCACIONAIS EM ENGENHARIAS: UMA PERSPECTIVA DA
NOVA ESCOLA MEXICANA E DA EQUIDADE DE GÊNERO**

**PROGRAMAS EDUCATIVOS EN INGENIERÍAS: UNA PERSPECTIVA DE LA
NUEVA ESCUELA MEXICANA Y LA EQUIDAD DE GÉNERO**

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ABSTRACT

Currently, stereotypes associated with professional practice persist, particularly in engineering programs. This study employs a qualitative approach, using action research, to analyze the issues related to gender equity at the Faculty of Engineering of the Autonomous University of Campeche (UACAM). The study incorporates an analysis of the guiding principles of the New Mexican School (NEM) and the UACAM university statutes to identify, design, and implement strategies, activities, and events aimed at achieving gender equity. This is accomplished through the achievement of the objectives of the Women Engineers project, maintaining a comprehensive and holistic perspective of academic training. The results show that the actions undertaken have been supported by various stakeholders, and the specific objectives have been achieved through alignment with NEM's priority principles. These priorities include university guidelines, infrastructure, financial support, and shared responsibility in student and faculty support initiatives for professional development.

Keywords: Engineering. Gender Equality. New Mexican School. Sustainable Development Goals.

RESUMO

Na atualidade, persistem estereótipos associados ao exercício profissional, particularmente nos programas educativos vinculados às engenharias. O presente estudo desenvolve uma pesquisa de abordagem qualitativa, na modalidade de pesquisa-ação, que analisa a problemática relacionada à equidade de gênero na Faculdade de Engenharia da

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Universidade Autônoma de Campeche (UACAM). O desenvolvimento do estudo incorpora uma análise dos eixos norteadores da Nova Escola Mexicana (NEM) e dos estatutos universitários da UACAM, com o propósito de identificar, desenhar e implementar estratégias, atividades e eventos orientados à equidade de gênero, por meio do cumprimento dos objetivos do projeto Mulheres Engenheiras, mantendo uma perspectiva integral e holística da formação acadêmica. Os resultados obtidos evidenciam que as ações empreendidas contaram com o apoio de diferentes atores envolvidos, alcançando-se os objetivos específicos propostos mediante articulação com os eixos prioritários da NEM, entre os quais se destacam as diretrizes universitárias, a infraestrutura e o apoio financeiro, bem como a corresponsabilidade em iniciativas de acompanhamento estudantil e para o fortalecimento da formação profissional.

Palavras-chave: Engenharias. Equidade de Gênero. Nova Escola Mexicana. Objetivos de Desenvolvimento Sustentável.

RESUMEN

En la actualidad, persisten estereotipos asociados al ejercicio profesional, particularmente en los programas educativos vinculados con las ingenierías. El presente estudio desarrolla una investigación de enfoque cualitativo, bajo la modalidad de investigación-acción, que analiza la problemática relacionada con la equidad de género en la Facultad de Ingeniería de la Universidad Autónoma de Campeche (UACAM). El desarrollo del estudio incorpora un análisis de los ejes rectores de la nueva escuela mexicana (NEM) y de los estatutos universitarios de la UACAM con el propósito de identificar, diseñar e implementar estrategias, actividades y eventos orientados a la equidad de género, mediante el logro de los objetivos del proyecto Mujeres Ingenieras, manteniendo una perspectiva integral y holística de la formación académica. Los resultados obtenidos evidencian que las acciones emprendidas han contado con el respaldo de distintos actores involucrados, alcanzándose los objetivos específicos planteados mediante la articulación con los ejes prioritarios de la NEM, entre los que destacan los lineamientos universitarios, la infraestructura y el apoyo financiero, así como la corresponsabilidad en iniciativas de acompañamiento estudiantil y por establecimiento a la formación profesional.

Palabras clave: Ingenierías. Equidad de Género. Nueva Escuela Mexicana. Objetivos de Desarrollo Sostenible.

1 INTRODUCTION

From a historical and educational perspective, it is recognized that education has been central to the advancement of equality. As Pacheco Pazos (2025) puts it, "education has had a central place within feminism" because it is considered that equal access to education for women and men could eliminate misogyny, the devaluation of women and contribute to eliminating other inequalities.

The New Mexican School (NEM) is a national educational project that promotes principles such as inclusion, equity and comprehensive education. Various studies indicate that gender equity is a key pillar in this model: "inclusive and equitable education" is sought through programs that address equality and gender violence, strengthening mutual respect and peaceful coexistence. Although the NEM was initially designed for basic and upper secondary levels, experts highlight that "its escalation to the higher level is imminent", which poses new challenges for universities (Villarruel Fuentes & Villarruel López, 2023). In this context, higher education institutions are expected to adopt their articulating axes – such as education for all, and environments of healthy coexistence – in their academic plans and activities.

Gender equity in education seeks to ensure that all people, regardless of their sex or identity, have equal opportunities, access, and treatment in educational spaces (Virgen Amparo, 2024). At the higher level, this implies institutional and cultural actions to correct historical inequalities and prevent gender-based violence (Solís Salazar et al., 2025).

Many universities collect data on gender participation and retention. Reports from international organizations show that, although in 2022 there was a 21% increase in gender equality indicators in universities, "significant disparities persist" in STEM areas and senior academic positions (IESALC, 2025).

Recent studies in Mexico show that public universities in the southeast —the region where Campeche is located—have made progress in gender equity, but they have yet to institutionalize the gender perspective in policies, programs, and curricula (Echeverría Echeverría, 2024, p. 59). This lag is related to "the persistence of stereotypes, prejudices, and discrimination against women in the university" (Barrera Machado & Duque Monsalve, 2025). This research underscores that progress depends on the existence of internal units dedicated to equality, as well as on the active participation of the academic community in awareness-raising and prevention actions (López Estrada et al., 2023).

The NEM emphasizes a humanistic and community-based educational model. A recent analysis notes that NEM is oriented towards a "model focused on human development, critical and reflective" that links the curriculum with local communities, critical pedagogy and environmental education. This involves preparing university students to act with social justice and environmental awareness, and promoting plural academic spaces. In practice, the NEM proposes priority axes such as guaranteeing education for all and decent environments for coexistence. At the higher level, this involves adapting curricula and institutional culture to reinforce social inclusion, interculturality and comprehensive training.

In addition, the inclusion of gender equity content within the curricula – aligned with the principles of the NEM – makes it possible to strengthen social awareness in students and teachers (Virgen Amparo, 2024). The SEP (2022) emphasizes that the NEM aims to develop a citizenship that respects diversity, equality, and human rights, and that universities are key spaces for materializing these objectives.

These concrete actions materialize the link between the NEM and higher education: the comprehensive training of professionals who understand social diversity, co-responsibility, and educational justice (Solís Salazar et al., 2025). In this sense, the UACAM represents a regional example of how Mexican universities incorporate the axes of the New Mexican School into their institutional culture.

2 METHODOLOGY

The study proposes a qualitative research with a *Research-Action* approach applying actions related to gender equity based on the axes of the New Mexican School (NEM) based on the Mission, Vision, Transversal Principle of Gender Perspective and inclusion of the UACAM. Specifically, the Project with code 11/UACAM/2024 Women Engineers is considered as a means or instrument for action. Table 1 shows the approach of the research study.

Table 1

Research-Action Methodology

RESEARCH	ACTION
Priority axes of action of the New Mexican School (NEM)	Impact of the priority axes of the NEM at the Autonomous University of Campeche and with the Women Engineers Project as an initiative in favor of gender equity.

Source: The source.

2.1 RESEARCH

In the research stage, the four principles of the New Mexican School (NEM) are highlighted: revaluation of the teaching profession, Infrastructure, Governance and Content (see Figure 1).

Figure 1

Principles of the New Mexican School (NEM)

L a Nueva Escuela Mexicana (NEM) en acción			
Revalorización del magisterio Reconocer a las maestras y los maestros como agentes fundamentales del proceso educativo, con pleno respeto a sus derechos, a partir de su desarrollo profesional, mejora continua y vocación de servicio.	Infraestructura Garantizar que los planteles cuenten con servicios e infraestructura necesaria para promover el aprendizaje del estudiantado, en un espacio seguro y que permita la realización de actividades no solo académicas sino deportivas, artísticas y culturales.	Gobernanza Los integrantes de la comunidad escolar y social participan en la toma de decisiones, emprenden acciones de manera conjunta y se corresponsabilizan de los resultados, sin perder de vista el rol de cada uno de ellos.	Contenidos Se cumple con lo dispuesto en el artículo tercero constitucional, en el cual se define que los materiales, así como las estrategias didácticas, serán adecuados para cada nivel, tomando en cuenta las edades y las capacidades de las y los estudiantes.

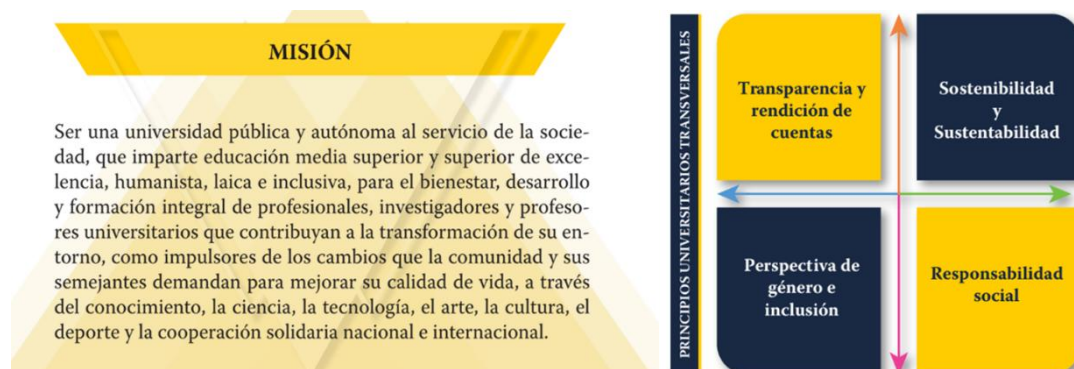
Source: Taken from Government of Mexico. www.gob.mx.

2.2 ACTION

The action phase is aimed at fulfilling one of the transversal university principles, the "Gender and Inclusion Perspective" as a fundamental part of the vision of the Autonomous University of Campeche (see Figure 2).

Figure 2

The Autonomous University of Campeche (UACAM)

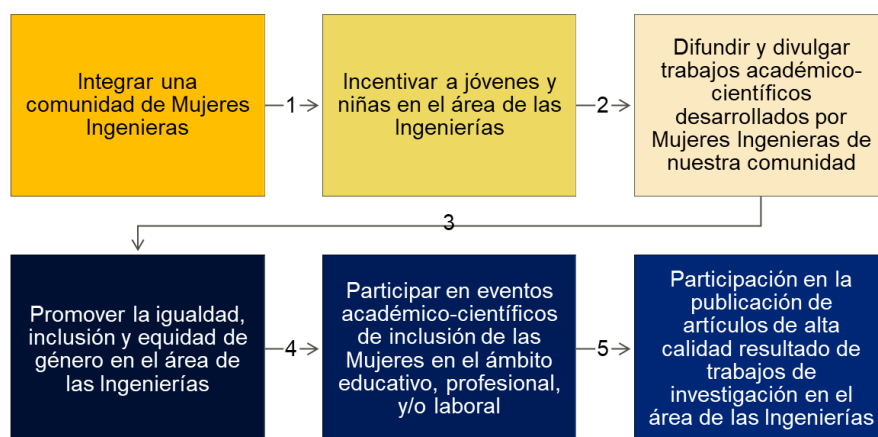


Source: Taken from the Institutional Development Plan 2022-20226 UACAM.

The method used specifies the actions defined in the Women Engineers Project for analysis and reflection. The specific objectives of the project are described in Figure 3.

Figure 3

The Women Engineers Project with code 011/UACAM/2024



Source: The source.

3 DISCUSSION AND RESULTS

The Universidad Autónoma de Campeche (Universidad Autónoma de Campeche, 2025) applies this institutional framework to its local context. Although there is not extensive academic information published on its specific plan, UACAM, like other public HEIs, has a University Equality and Inclusion Unit (UII) in charge of mainstreaming gender equality in all university functions. This unit coordinates gender-based violence prevention programmes, awareness-raising workshops and campaigns to promote the equal participation of women

and gender-based diversities. As the national diagnosis points out, the main task of these units is to "evaluate the actions, policies and programs in compliance with the Equality Policy." It is understood that, at UACAM, the UII supervises protocols against harassment, collaborates with the University Ombudsman's Office and disseminates an institutional culture based on equality.

In the academic field, UACAM promotes gender equity through various initiatives: it adjusts its educational offer to include content on human rights and gender, and promotes equity in enrollment (e.g., with scholarships for vulnerable groups). In addition, the university promotes student support services (mental health, vocational guidance, safe transportation) that especially benefit women and people in disadvantaged situations. These measures reflect the understanding that gender equity is not only a legal matter but an essential educational value. In accordance with the research, it is expected that the UACAM seeks to overcome stereotypes on campus and facilitate access to traditionally male careers for female students, a goal that the NEM also promotes.

Research Project 011/UACAM/2024 Women Engineers is an initiative that emerges in the Faculty of Engineering of the Autonomous University of Campeche, Mexico and is based on: SDG 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all and SDG 5 Achieve gender equality and empower all women and girls.

Figure 4

The results obtained from the Women Engineers Project, UACAM



Source: The source.

The priority axes of the NEM are closely linked to the institutional policies of the UACAM and the activities carried out within the Women Engineers Project (see *Figure 4*). Promoting inclusion and guaranteeing broad access to higher education in the area of engineering. On the other hand, it promotes peaceful coexistence through and respect that seek environments free of violence, aligning with the values of the culture of peace of the NEM. In addition, in line with the humanistic approach of the NEM, the UACAM and the Women Engineers Project, community outreach is promoted: their academies carry out social and environmental projects in the municipalities of Campeche, integrating knowledge and encouraging professional training in Engineering.

On the other hand, in an analysis of correspondence with the principles of the NEM, the most relevant points can be specified:

- *Reassessment of the teaching profession.* Teachers enjoy a free teaching, with technological tools available, continuous training plans (two periods a year), support for all kinds of academic, cultural and scientific events programmed in the Annual Operational Plan, among other benefits of notable importance.
- *Infrastructure.* The Autonomous University of Campeche has adequate physical spaces for each of its affiliations, in addition to providing a Hygiene Safety
- *Governance.* There is a defined and organized structure of the different levels of governance and the responsibilities of each of them. It is a solid institution that has a Quality Management System where processes are defined in an institutional way.
- *Contents.* In particular, UACAM seeks the continuous certification of its Educational Programs, for this reason, it takes actions of continuous updates and improvements in the Learning Unit Programs through the teacher academies and curricular committees in adherence to well-defined processes.

4 CONCLUSIONS

The results show that the actions carried out so far have had the support of the different actors identified (UACAM, professors, students, women and society) and have met the specific objectives of the project based on the priority axes of the NEM (University Guidelines, infrastructure and financial support, co-responsibility in student support initiatives and professional academic training). A project with a very long way to go, some lines of action already identified are: collaboration with various educational and government institutions;

linkage with project and business incubators; and to promote sustainability in the area of engineering.

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CONTRIBUTIONS OF REXLAB/UFSC TO THE PROMOTION OF MAKER CULTURE IN BASIC EDUCATION: A CASE STUDY ON THE TECHNOLOGY INTEGRATION IN EDUCATION PROGRAM (INTECEDU)

CONTRIBUIÇÕES DO REXLAB/UFSC PARA A PROMOÇÃO DA CULTURA MAKER NA EDUCAÇÃO BÁSICA: UM ESTUDO DE CASO SOBRE O PROGRAMA DE INTEGRAÇÃO DE TECNOLOGIA NA EDUCAÇÃO (INTECEDU)

CONTRIBUCIONES DEL REXLAB/UFSC PARA LA PROMOCIÓN DE LA CULTURA MAKER EN LA EDUCACIÓN BÁSICA: UN ESTUDIO DE CASO SOBRE EL PROGRAMA DE INTEGRACIÓN DE TECNOLOGÍA EN LA EDUCACIÓN (INTECEDU)

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ABSTRACT

The maker culture, with its focus on practical and collaborative learning, has gained prominence in education. However, there are still challenges to its implementation in basic education. The Remote Experimentation Laboratory (REXLAB) at the Federal University of Santa Catarina (UFSC) stands out for its efforts in promoting maker culture in basic education through the Technology Integration in Education Program (INTECEDU). Aiming to analyze how REXLAB/UFSC promotes maker culture in basic education through the INTECEDU program, this study employed a qualitative approach. Data collection procedures included interviews with eight informants, including members of REXLAB/UFSC, as well as a visit to the Laboratory's makerspace. The collected data were analyzed using Braun and Clarke's Thematic Analysis, seeking to identify patterns of meaning within the dataset. The results indicate that REXLAB/UFSC has been essential in creating innovative resources and methodologies, promoting the integration of technology in education. The research highlights the role of REXLAB/UFSC in teacher training, the development of materials, and the creation of collaborative spaces for implementing maker culture in schools. The findings point to the need for effective public policies for the implementation of maker culture in Brazilian basic education.

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Keywords: Information and Communication Technologies (ICTs). Maker Culture. Maker Education. REXLAB/UFSC. Educational Innovation.

RESUMO

A cultura maker, com foco na aprendizagem prática e colaborativa, tem se destacado na educação. No entanto, ainda há desafios para sua implementação na educação básica. O Laboratório de Experimentação Remota (REXLAB) da Universidade Federal de Santa Catarina (UFSC) se destaca por seus esforços na promoção da cultura maker na educação básica, por meio do Programa de Integração de Tecnologia na Educação (INTECEDU). Com o objetivo de analisar como o REXLAB/UFSC promove a cultura maker na educação básica por meio do programa INTECEDU, este estudo utilizou uma abordagem qualitativa. Os procedimentos de coleta de dados adotados foram entrevistas com oito informantes, incluindo membros do REXLAB/UFSC e uma visita ao makerspace do Laboratório de Experimentação. Os dados coletados foram analisados por meio da Análise Temática de Braun e Clarke, buscando identificar padrões de significado dentro do conjunto de dados. Os resultados indicam que o REXLAB/UFSC tem sido fundamental na criação de recursos e metodologias inovadoras, promovendo a integração da tecnologia na educação. A pesquisa destaca o papel do REXLAB/UFSC na formação de professores, desenvolvimento de materiais e criação de espaços de colaboração para a implementação da cultura maker em escolas. As descobertas apontam para a necessidade de políticas públicas eficazes para a implementação da cultura maker na educação básica brasileira.

Palavras-chave: Tecnologias da Informação e Comunicação (TICs). Cultura Maker. Educação Maker. REXLAB/UFSC. Inovação Educacional.

RESUMEN

La cultura maker, centrada en el aprendizaje práctico y colaborativo, ha ganado relevancia en la educación. Sin embargo, aún existen desafíos para su implementación en la educación básica. El Laboratorio de Experimentación Remota (REXLAB) de la Universidad Federal de Santa Catarina (UFSC) se destaca por sus esfuerzos en promover la cultura maker en la educación básica por medio del Programa de Integración de Tecnología en la Educación (INTECEDU). Con el objetivo de analizar cómo el REXLAB/UFSC promueve la cultura maker en la educación básica a través del programa INTECEDU, este estudio empleó un enfoque cualitativo. Los procedimientos de recolección de datos incluyeron entrevistas con ocho informantes, entre ellos miembros del REXLAB/UFSC, además de una visita al makerspace del Laboratorio de Experimentación. Los datos recopilados fueron analizados mediante el Análisis Temático de Braun y Clarke, buscando identificar patrones de significado dentro del conjunto de datos. Los resultados indican que el REXLAB/UFSC ha sido fundamental en la creación de recursos y metodologías innovadoras, promoviendo la integración de la tecnología en la educación. La investigación destaca el papel del REXLAB/UFSC en la formación docente, el desarrollo de materiales y la creación de espacios de colaboración para la implementación de la cultura maker en las escuelas. Los hallazgos señalan la necesidad de políticas públicas eficaces para la implementación de la cultura maker en la educación básica brasileña.

Palabras clave: Tecnologías de la Información y la Comunicación (TIC). Cultura Maker. Educación Maker. REXLAB/UFSC. Innovación Educativa.

1 INTRODUCTION

In Brazil, an emerging theme is digital technologies in education. A factor that contributes to this is the implementation of the National Education Plan for the decade from 2024 to 2034, which brings a School proposal that has technology, in a special way, as an element of education qualification. Such a public policy marks a process of consideration of the importance of digital technological resources for Brazilian education.

A milestone in Brazil for the pedagogical use of digital technologies in basic education was Law No. 14,180, of July 1, 2021, which institutes the Innovation Policy: Connected Education, which aims to ensure the necessary conditions for the insertion of technology as a pedagogical tool for daily use in public basic education schools. This law, among other principles, deals with broad access, promotion of the development and dissemination of quality digital educational resources, showing the relevance of the theme.

Another important law is No. 14,533, of January 11, 2023, which institutes the National Digital Education Policy (PNED), this law seeks to enhance the Brazilian population's access to digital resources, tools, and practices, among others. It brings an important change to basic education: digital education (with a focus on digital literacy and the teaching of computing, programming, robotics and other digital skills), as a curricular component of elementary and high school. The PNED has the following structuring axes and objectives: Digital Inclusion; School Digital Education; Digital Training and Specialization; Research and Development in Information and Communication Technologies (ICTs).

This policy complements the National Common Curricular Base for Computing, with axes and learning objectives by stages: early childhood education, elementary school and high school, regulated by Resolution CNE/CP No. 2, of December 22, 2017, which instituted the implementation of the National Common Curricular Base (BNCC) within the scope of Basic Education – Early Childhood Education and Elementary Education. In Chapter V – Final and Transitory Provisions, Article 22 determines that "The CNE shall prepare specific rules on computing".

In view of the new laws, some schools have already adopted this new possibility of using digital technologies and, currently, there are several aspects of information technology that are already implemented in teaching, whether face-to-face or at a distance. For Santos, for example:

However, it is worth remembering that this is a distant reality for many schools. Unfortunately, these periods of acquisition and technological adaptation in schools are not an easy process and present several obstacles, such as the financial resources necessary for the acquisition of good quality hardware and software, teacher training, adequacy of physical space, among other factors. (Santos, 2015, p.26)

However, there are still several barriers such as those mentioned by Santos for there to be effectively the integration of technology in Basic Education, so actions and procedures for the use of available resources (technologies) for school work need to be discussed, analyzed and researched. For Valente:

Computers are providing a true revolution in the teaching-learning process. A more obvious reason comes from the different types of teaching approaches that can be carried out through the computer, due to the numerous programs developed to assist the teaching-learning process. However, the greatest contribution of the computer as an educational medium comes from the fact that its use has provoked the questioning of the teaching methods and processes used. (VALENTE, 1991, apud Santos, 2015)

In view of the need to investigate and disseminate innovative practices that promote the integration of digital technologies in Basic Education, this study directs its focus to the actions of the Remote Experimentation Laboratory (REXLAB) of the Federal University of Santa Catarina (UFSC). REXLAB stands out as a center for research and development of innovative resources and methodologies for teaching and learning, with emphasis on Maker Culture .

Through the analysis of the interviews, the research intends to answer the guiding question: What are the contributions of REXLAB/UFSC to the integration of technology in education? The information collected allowed us to understand the role of REXLAB in teacher training, development of educational resources and creation of collaborative environments, contributing to the advancement of research and educational practice in the context of the integration of digital technologies.

2 LITERATURE REVIEW

Among the different types of literature review, we chose the narrative review to use in this research. According to Botelho, Cunha and Macedo (2011, p.125) the narrative revision is

used to describe the state of the art of a specific subject, from a theoretical or contextual point of view. We chose this review format also because of the possibility of acquiring and updating knowledge on a given topic in a short period of time, as we had a period of two months in the schedule foreseen for literature review.

After identifying the search question, we subsequently began the construction of the search strategy, defined the search string, and the database to find the 10 most cited articles. We defined the descriptors and divided them by subject to then form the search string, in subject 1 we searched for words related to the maker approach, in subject 2 we defined words related to the school scenario, as our research interest is the application of maker culture in a school environment.

a) Subject 1

"Maker Culture" OR "Maker Movement" OR "Education Maker" OR "Digital Fabrication" OR makerspace OR makerspaces OR "do it yourself" OR fablab OR "digital fabrication" OR "maker culture" OR "maker approach" OR "maker movement" OR "maker space" OR "do it yourself" OR "hands-on" OR "maker labs" OR "makers OR "digital fabrication" OR "creative culture" OR "Maker practices"

b) Subject 2

"Primary Education" OR "Primary Grades" OR "Primary Grade" OR "Elementary Education" OR "Elementary Grades" OR "Elementary Schools" OR "Elementary School" OR "Primary Schools" OR "Primary School" OR "Ensino Prima" OR "Educação Básica" OR "Educação Primaria")

We select the database. The database chosen was the Web of Science (Clarivate Analytics) because it has the option of classification by the most cited articles, access was via the CAPES Journal Portal (<http://periodicos.capes.gov.br/>), using the option "Collection" > "List of databases" and using the CAFE access.

Table 1

Database and Search String

Database	SEARCH STRING
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Web of Science (Clarivate Analytics)	TS=("Maker Culture" OR "Maker Movement" OR "Education Maker" OR "Digital Fabrication" OR makerspace* OR "do it yourself" OR fablab OR "digital fabrication") AND TS=("Primary Education" OR "Primary Grade*" OR "Elementary Grade*" OR "Elementary School*" OR "Primary School*").
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Source: The authors

The search in the databases returned data that allowed the construction of Table 2 containing the list of the ten most cited articles found below:

Table 2

Ten most cited articles

Authors	Title	Year
1.LESKINEN; KUMPULAINEN; KAJAMAA; RAJALA	The emergence of leadership in students' group interaction in a school-based makerspace	2021
2.LEINONEN; VIRNES; HIETALA; BRINCK,	3D Printing in the Wild: adopting digital fabrication in elementary school education.	2020
3.VUOPALA; MEDRANO; ALJABALY; HIETAVIRTA; MALACARA; PAN	Implementing the Maker culture in elementary school – students' perspectives.	2020
4.KUMPULAINEN; KAJAMAA	Sociomaterial movements of students' engagement in a school's makerspace	2020
5.HATZIGIANNI; STEVENSON; BOWER; FALLOON; FORBES	Children's views on making and designing	2020
6.NÄYKKI; LARU; VUOPALA; SIKLANDER; JÄRVELÄ	Affective Learning in Digital Education— Case Studies of Social Networking Systems, Games for Learning, and Digital Fabrication. Front. Educ	2019

7. STEVENSON; BOWER; FALLOON; FORBES; HATZIGIANI,	By design: Professional learning ecologies to develop primary school teachers' makerspaces pedagogical capabilities	2019
8. SCHLEGEL; CHU; CHEN; DEUERMEYER; CHRISTY; WHAT	Making in the classroom: longitudinal evidence of increases in self-efficacy and stem possible selves over time.	2019
9. VONGKULLUKSN; MATEWOS; SINATRA; MARSH	Motivational factors in makerspaces: a mixed methods study of elementary school students': situational interest, self-efficacy, and achievement emotions	2018

Source: The authors

2.1 MAKER CULTURE: THEORETICAL CONTRIBUTIONS AND ITS CONNECTIONS WITH THE INTERVIEWS

The maker culture has influenced the way many educators organize teaching and, consequently, influences how people learn and create, it did not emerge in isolation, its evolution can be understood through the contributions of authors who, over time, have brought different perspectives on how creativity, innovation and the economy relate to learning and the production of knowledge.

As a way to exemplify these contributions, we highlight the work of four authors: Seymour Papert, David Gauntlett, Chris Anderson and Dale Dougherty. Each of these authors, in different contexts, contributed to the understanding of maker culture, connecting pedagogical methodologies, social connections, economics and the idea of doing as a mode of transformation.

The beginning of the theoretical construction that influences the maker movement can be attributed to the mathematician and educator Seymour Papert who, in 1980, published the book: *Mindstorms: Children, Computers, and Powerful Ideas*, a work that brought to light the idea of how technology could be used in education. His theory, called "constructionism," proposed that children would learn more effectively by being actively involved in building something meaningful to them. This idea of "learning by doing" was central to the first steps of maker culture.

According to Papert (1980), the computer is a tool that allows the creation of new forms of cognitive experiences. He also argued that children should be seen as "designers", that is, responsible for designing their own learning. By advocating that children could use computers

to program, create, and experiment, Papert provided a methodological basis for what would later become maker culture, where technological tools, such as 3D printers and robotics kits, are used to stimulate creative learning.

The analysis of the interviews revealed a series of principles that guide the approach maker, corroborating the studies of different authors. One of the principles of maker culture it is intrinsically linked to creativity and "learning by doing", as highlighted by Papert and the interviewees.

The essence of the maker culture that learning takes place through action, construction and experimentation appears in the statement of interviewee 1 when he states:

"Maker is doing. Do it yourself [...] our philosophy in terms of the laboratory, which is the fact of having the teacher and the student as creators, these people have to be creators. You have to create and build." (Manager)

Another author who came thirty years after Papert, in 2011, was David Gauntlett who published his book: "Making is Connecting: The Social Meaning of Creativity, from DIY and Knitting to YouTube and Web 2.0", expanding the understanding of how making connects individuals in social and digital networks. Thus, Gauntlett brought as a contribution, the social dimension to the maker culture, emphasizing how people, when creating, not only produce something tangible, but also build connections with other people. Gauntlett (2018) argues that "doing is connecting", creativity is a process of connection, not an isolated act, and that it brings people together.

Interviewee 2 emphasizes the importance of creativity, bringing that when the teacher uses creativity he grows as a teacher and this influences self-esteem, defined in the interviewee's speech as "starts to have a greater shine", exemplifying how the teacher brings his "brand". In the following excerpt from the speech, this importance of creativity is highlighted:

It is very easy for you to explain the functioning and such, for example, of a pedagogical practice, but it is necessary to give strength to themselves, to the teachers. That they can give their own imagination, their own pedagogical creation and not take those ready-made things yet. So culturally for us, it has this meaning. Value the teacher and the potential that this teacher has much more, instead of delivering something ready for him to present in class. That he can create in his own mind, from his own experience, from his own experience, he creates something [...]. But it is important that the idea comes from them from the teacher, to take advantage of exactly what he has best. (Founder)

For Gauntlett, everyday creativity, enabled by Web 2.0, gives people the power to express themselves and share their creations on platforms like YouTube and Facebook. Web 2.0 tools make it possible for everyone to share their creations with a global audience, resulting in new types of social capital. (Gauntlett, 2018). This connection between the digital and physical creates a new form of social interaction and learning, where doing becomes a form of active participation in communities.

Gauntlett's contemporary, Chris Anderson published in 2012: *Makers: The New Industrial Revolution*. Anderson explored the economic dimension of maker culture, arguing that the maker movement represents a new industrial revolution. With the advancement of accessible technologies like 3D printers and open-source tools, anyone could design, manufacture, and distribute products, democratizing production.

We realized in the interviews the importance of technological tools for maker culture in education, such as the 3D printer and the laser cutting machine. These tools democratize production, beyond the economic dimension brought by Chris Anderson, making the creation process more accessible and allowing teachers and students to explore new possibilities as we observe in this excerpt from the interview:

"I see maker culture, when I hear the term maker culture, the first thing that came to my mind is to use technology, some concept more of getting your hands dirty, an example, the laser cutting machine, the electronic 3D printer in a way that can help teachers in pedagogical practices in schools, something in this sense". (DEVELOPMENT AND TECHNICAL TEAM)

Anderson (2012) argues that manufacturing has become more accessible than ever, with unprecedented creative potential. He saw maker culture as an opportunity for small businesses and individuals to compete with large corporations, driven by digital fabrication tools that were previously inaccessible. Anderson's central idea is that maker culture is not only a creative practice, but also an economic engine, changing the way products are manufactured and distributed globally.

Finally, in 2016, Dale Dougherty, considered the "father" of the "maker movement", published: *Free to Make: How the Maker Movement is Changing Our Schools, Our Jobs, and Our Minds*. Dougherty, who founded *Maker* magazine and *Maker Faire*, formalized the concept of Maker culture, highlighting its impact on education and the job market. For Dougherty, the Maker movement is more than a trend; it's a profound shift in the way people learn and create.

Dougherty (2016) sees the Maker movement as a force that empowers individuals, allowing them to take control of their own learning and creation. The Maker movement is not limited to the production of objects. He cultivates a mindset that believes in the possibility of accomplishing anything through the application of creativity and curiosity. He also believes that the maker movement has the power to transform education, as it provides students with an environment where learning is hands-on and collaborative, helping to develop crucial skills such as problem-solving and critical thinking. The issues of democratization and empowerment appeared in the speech of a teacher interviewed from the indigenous school:

I think that the maker culture comes so that we can solve a problem based on what we have. Using creativity, getting my hands dirty and producing, making my main objective which was to make them the indigenous protagonists, because as the materials we produced were in Guarani I also have no knowledge of the language, I needed it to be really produced by them, for me the maker culture is this, it is hands-on, it is working with creativity, teamwork, partnership, making the student the protagonist. (Teacher)

Considering the theoretical contributions that support the maker culture and the Brazilian legislation that recommends teaching and learning practices with such approaches, we can observe in the interviews that maker culture connects with REXLAB projects, in particular, the Program for the Integration of Technology in Education (INTECEDU), which includes an articulated set of research and extension projects that are being developed in a procedural and continuous way since 2008.

3 INTECEDU PROGRAM FRAMEWORK

The Remote Experimentation Laboratory - REXLAB, of the Federal University of Santa Catarina - UFSC, was created in 1997, founded by Prof. Dr João Bosco da Mota Alves, being part of the laboratories of INE/CTC (Department of Informatics and Statistics of the Technological Center). The name came about in 1997, when the first remote laboratory was developed, called Remote Experiment Lab, which originated the name REXLab.

Figure 1*Rexlab Logo*

Source: RexLab (2024).

One of the principles of REXLAB is open access technology, so we bring an interpretation of the laboratory logo according to Silva, Silva Nardi, Bilessimo and Alves (2024) because these ideas can be observed in this analysis. The color used (green) refers to social and technological issues; the lowercase initial "r" represents the branch, more specifically the branches of the tree; the treetops suggest virtual transmission of information; and the ellipse is formed by the speed of the internet.

Figure 2

Remote Lab



Source: field visit at the RExLab makerspace, 2024.

Rexlab in its creation began with remote experiments with programming languages for microcontrollers. We made a field visit to the REXLAB Makerspace where we observed the structure set up for teaching microcontrollers, the user can load his own program on the microcontrolled remote platform, using the Internet as a communication channel, and run the program, later receiving all the results on his PC, again via the Internet.

REXLAB develops several projects such as RELLE – Learning Environment with Remote Experiments, which is an environment that allows the manipulation and management of remote experiments. Labs4STEAM, an open platform for sharing pedagogical practices. The Indigenous Apoi@Educação, a bilingual platform for sharing pedagogical practices in Guarani and Portuguese and MORE, an Online Reference mechanism hosted at SETIC. In this research, the focus is on the InTecEdu program, which has a virtual teaching and learning environment <https://intecedu.rexlab.ufsc.br/>

In 2008, REXLAB began the implementation of the Technology Integration Program in Education (INTECEDU) for the integration of digital technologies in basic education. The program's structure includes open educational resources, free software and open hardware, and virtual and remote laboratories for practice in STEM (Science, Technology, Engineering and Mathematics) areas. For Silva, Silva Nardi, Bilessimo and Alves (2024) the program has its actions structured around two axes:

- a) training that aims to train teachers in relation to technologies
- b) integrate digital technologies into teaching activities.

The construction of the framework by REXLAB proposes strategies that seek to address the four guiding assumptions of the InTecEdu Program:

1. The need for more attractive environments for teaching and learning in basic education;
2. The growing use of mobile devices and the internet by children and adolescents;
3. The need for teacher training for the use of ICT in pedagogical practice;
4. The lack of infrastructure, especially in Brazilian public schools.

The work plan of the framework (INTECEDU) is composed of five "Work Packages" (WP) components:

WP.1 - Project Management;

WP.2- Provision of resources and infrastructure for the development of the program; WP.3 - Strategies related to teachers;

WP.4 - Strategies related to students; and WP.5 - Dissemination and exploitation of results.

According to Silva, Nardi Silva, and Bilessimo (2020, p.173), the framework uses the TPACK (Technological Pedagogical Content Knowledge) model. The authors describe that for the construction of the framework, an initial diagnosis was carried out with the teachers, seeking their perception in relation to their knowledge: technological, pedagogical and disciplinary/content and how they integrated technology in their classrooms. The model, inspired by the Maker Culture, sought to allow basic education teachers to be the protagonists of the integration of technology into their lesson plans.

Regarding strategies related to teachers, the program INTECEDU carried out actions with the objective of qualifying teachers to integrate technology into their lesson plans, from 2016 to 2019 REXLAB held a 120-hour course entitled "Integration of Digital Technologies in Basic Education Disciplines", offered as an extension course at UFSC, 398 teachers participated in the course and one of the strategies used was the provision of digital didactic content, produced by them, in the InTecEdu VLE Program. Therefore, it is part of the The Program INTECEDU a virtual teaching and learning environment (VLE InTecEdu) to house digital didactic content produced by Basic Education teachers and lesson plans produced by them. According to Silva, Nardi

Silva, and Bilessimo (2020, p.189) among the resources made available, teachers had access to Virtual and Remote Laboratories, with lesson plans in the subjects of Science (Elementary School) and Physics and Biology (High School), 20 remote laboratories were made available to support practical activities. The integration of technology in the lesson plans occurred through the availability of VLE content and tablets in the classroom, where 3,252 students were served (1,898 elementary school - early years; 1,266 elementary school - final years and 88 school years - high school).

As part of the documentary research, the data found from the INTECEDU program are 2020 to 2024, it served 45 Basic Education schools, from the public school network (including 04 rural and 01 rural indigenous school), in the states of Santa Catarina, Rio Grande do Sul, Minas Gerais and Sergipe. In these 338 teachers, 660 classes and 16,512 students, accessed (totaling 16.3 million accesses) didactic content produced by the teachers at AVEA.

In the period 04/2020 to 06/24, 62 distance learning courses were offered (with a workload of 20 to 140 hours). In all, 11,757 teachers from the 27 federative units of Brazil participated in the training and met the requirements to obtain the certificates. Certificates issued by UFSC in the form of extension courses.

Currently, the following courses are active: "Maker Edu: innovative practices of educational materials and robotics in Basic Education"; and, "Maker Culture in the classroom - Creating Educational Materials" for 179 teachers from the municipality of Santa Rosa do Sul in partnership with the municipal government; 89 teachers from the state network, in partnership with CRE Araranguá; course Innovating in Education with Digital Skills and Remote Laboratories, for 381 professors at the national level, in partnership with PPGIE/UFRGS; Programming Course with Arduino for 86 undergraduate students from UFSC and the external community; Introduction to Robotics course for 190 students from the

following schools: Governador Pedro Ivo Campos, from Santa Rosa do Sul/SC; Maria Garcia Pessi, in Araranguá/SC; Sebastião Toledo dos Santos, in Criciúma/SC; Antônio Silva State School, Timóteo/MG.

4 METHODOLOGY

The research used documentary research to analyze the initiatives and resources made available by REXLAB/UFSC. The data sources for documentary research were:

- a) Scientific productions: Survey and analysis of scientific articles, books and theses produced by researchers linked to REXLAB/UFSC.
- b) Online platforms: Investigation of online platforms maintained by REXLAB/UFSC, such as repositories of teaching materials, online courses, seeking information about the actions and resources made available.

The data collection procedure of the research was interviews with eight informants and the data analysis method was the Thematic Analysis of Braun and Clarke. According to these authors, TA becomes widely recognized as a unique and valuable method in its own right, along with other more established qualitative approaches, TA is an accessible, flexible, and increasingly popular method of analyzing qualitative data.

The choice of TA was due to its configuration as a method that allows: to identify, organize and systematically offer insights into patterns of meaning (themes) in a set of data. By focusing on the meaning of a data set, it allows the researcher to see and make sense of meanings and experiences. Among the various patterns that can be identified in any given dataset – the goal of thematic analysis is to identify those relevant to answer the research question (Braun and Clarke, 2012).

The Thematic Analysis was carried out in six phases: below we briefly describe the phases of TA that were used in the research, with reference to Braun and Clarke, 2012.

Phase 1: Familiarization with the data.

Phase 2: Systematic analysis of the data through coding.

Phase 3: Research of Themes, analysis moving from codes to themes.

Phase 4: Review of potential themes, the themes under development will be reviewed against the coded data and the entire dataset.

Phase 5: Defining and Naming themes, definition of TA themes. Phase 6: Produce the report.

4.1 UNIVERSE OF PARTICIPATING SUBJECTS AND RESEARCH LOCATION

Members of REXLAB/UFSC participated in this research: a founder, two Coordinators, four members of the Development and Pedagogical Team and two teachers from the public school system. An online project presentation meeting was held with the three members of REXLAB on 08/06/2024 and a field visit on 08/19/2024 at the REXLAB makerspace, inaugurated in 2019, located at the Federal University of Santa Catarina Campus Araranguá. The makerspace was a renovation carried out in the same place where REXLAB already operated with the installation of new equipment.

The structure has: remote laboratories, spaces for prototyping, 3D printing, coffee space, meeting space for videoconferences, recording studio, coworking and environment for the application of methodologies for teacher training.

4.2 INTERVIEW SCRIPT

The qualitative interviews were structured based on the general strategy described by Taylor, Bogdan and Devault (2016), based on the use of open and descriptive questions on general topics. To ensure that key topics and the same areas were explored with all respondents, we used an interview script. As highlighted by Taylor, Bogdan, and Devault (2016, p.123) whether or not you use a formal interview script, it's always a good idea to try to create a set of descriptive, open-ended questions before an interview.

To conduct the interviews, we developed a set of open questions, we sought to explore different perspectives and ensure the comfort of the participants. The research was carried out in pairs, the script served for both interviewers to explore the same areas with the interviewees. The interviews were conducted by video call through Google meet during the months of August and September 2024. To facilitate data collection, we use the Google Chrome extension Tactiq for transcription of meetings.

To ensure the ethics and integrity of the research, ensuring the rights and autonomy of the participants, all interviewees signed the Informed Consent Form (ICF). This document deals with the objectives of the research, the interview procedures and ensures confidentiality about participation.

a) Formal interview script:

1. Who are you on Rexlab?
2. What is your participation in the Framework Program for the integration of Technology in Education, developed by Rexlab?

3. How did the idea of building the Framework come about?
4. Tell us a little about your experience with the Education Kit?
5. What are the difficulties and challenges during the implementation of the program with the Framework?
6. Tell us a little about the meaning of Maker Culture?
7. What are the essential elements in a maker planning?
8. What are the differences between the simple use of games in learning and the maker pedagogical practice?
- 9- What level of reach or contribution do you understand REXlab represents for the concept of Maker Culture?

5 INTERVIEW RESULTS

The analysis of the interviews had the purpose of focusing on the universe of the concept of "maker culture". From the results of the interviews, we first tried to outline the profile of the 8 interviewees. The analysis of the first question of the script: Who are you in REXLAB?, showed that the combination of different profiles of respondents contributed to the richness of the survey, ensuring a more comprehensive view, as the diversity of experiences and perspectives allows for a more complete analysis of the topic in question.

Among the profiles of the interviewees, we had the founder and manager of REXLAB who guaranteed a vision of the history, goals and actions of the program. The inclusion of collaborators and scholarship holders, with different areas of expertise, allowed an understanding of the inner workings of REXLAB and the various activities it develops. The participation of teachers from the state public school system and indigenous school, who had direct contact with REXLAB's resources and materials, provided a perspective on the practical application of maker culture in the classroom, the challenges and opportunities encountered in the process.

Table 3

Profile of the interviewees

PROFILE	MANAGEMENT		DEVELOPMENT AND TECHNICAL TEAM				APPLICATION OF TRAINING	
	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	Participant 7	Participant 8
Who are you at RexLab?	Founder	Manager	Collaborator	Scholar	Scholar	Scholar	Professor at network state public	Public school teacher

Activities Developed	Acts how a mentor and encouraging	Coordinator and teacher	Data analysis support	Technical support to teachers and in the creation of educational kits.	Support in the workshops	Workshop coordination	Physics teacher. Received the Kits from robotics of the REXLAB and applied it with the students.	Indigenous School. Participated in REXLAB training such as the ODS Maker Course.
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Source: The authors

There are many actors participating in Rexlab, in different roles and with diversified contributions to the construction of the Project as a whole. From Table 1 it is possible to have a glimpse of the participatory levels and the hierarchy of attributions existing in the Rexlab Project which this work deals with, can be grouped into three basic categories: Management, Technique and Application.

Participants classified in the Management category (Participants 1 and 2) stand out for their strategic and leadership role, with roles that involve creating an institutional vision for RexLab, conceptually designing the project, and tracking progress. These roles are essential to ensure that the project's goals are achieved in an efficient and sustainable manner, as well as to establish an environment conducive to innovation and encouragement to overcome challenges. The project management has an approximate role in the articulation between the different actors.

In the Development Team or Technical Team, scholarship holders and other volunteer collaborators who offer technical and pedagogical support (Participants 3, 4, 5 and 6) work. Its performance is directly linked to the implementation of innovative technologies and methodologies in the educational context. The functions range from data analysis and technical support to teachers to conducting workshops and effective production of materials conceived from the ideas of teachers and their classes.

The third category - Application of Training - covers Participants 7 and 8 and emphasizes the practical application of technologies in the school environment. Basically, they are teachers from the participating education networks and make up the final link in the RexLab work chain, where the knowledge and technologies developed are applied in real contexts.

The actors of the Rexlab team cater to a large audience that can also be characterized by its diversity. As an example, it is possible to mention the use of the robotics kit by a physics

teacher and the production of a game with a theme about the treatment of waste in the environment by a teacher who works in an indigenous community; both conceived ideas with their students, received support and the materiality of their ideas in Rexlab and applied the productions in their classes, which demonstrates the successful integration of technological tools in the curriculum and the project's reach in areas of attention to cultural and social issues. These participants form the backbone of the project, being responsible for the practical execution of the ideas developed in the strategic planning phase. Workshop coordination, in particular, ensures that the technological tools and kits are adapted to the needs of the needs of the teachers and students involved.

After familiarizing the data with the mapping of the interviewees, a systematic analysis of the data was carried out through the identification of common topics in the interviewees' statements. The common topics reveal nine main items that allow a better and more detailed global perception of Rexlab's work:

- a) Topic 1: History and origin of REXLAB - Description: initial development and expansion activity of the laboratories;
- b) Topic 2: Teacher training - Description: Courses and training to enable teachers in the use of educational technologies;
- c) Topic 3: Financial challenges - Description: Difficulty in obtaining financing and maintaining infrastructure;
- d) Topic 4: Integration of technologies - Description: Implementation of educational kits and learning platforms for basic education and higher education;
- e) Topic 5: Student Involvement - Description: Active participation of basic education students in maker and robotics projects.
- f) Topic 6: Digital and social inclusion - Description: Promotion of accessibility and digital inclusion through projects that reach disadvantaged communities.
- g) Topic 7: Technical Challenges - Description: Infrastructure limitations, access to devices and teachers' difficulties with digital platforms.
- h) Topic 8: Maker Culture in Education - Description: Impact of the Maker philosophy on the development of practical and creative skills of students and teachers.
- i) Topic 9: Sustainability and Scaling Up - Description: Need to develop sustainable practices and expand projects to more schools.

Table 4 seeks to allow the comparative analysis of the answers of the participants in the interviews of this work, presenting the points of view of each one in objective phrases that represent the essence of each answer:

Table 4 represents a synthesis of the interviewees' perceptions regarding the main common topics addressed. The analysis of the answers indicates that the perception that REXLAB has a potential for relevance in the theoretical and technical support for teacher training. Their role is described as encouraging and facilitating the implementation of educational technologies, strengthening autonomy and digital inclusion.

With respect to the Framework that was the object of this work, the idea that the Framework arose from the need to structure the integration of technologies in education, promoting teacher autonomy and enabling innovative practices in the classroom, stands out. One of the most positive aspects of the project are the kits produced with the participants, which are described as generators of engagement and teachers and students, a motivating and transforming factor in the teaching-learning process.

In the matter of the challenges mentioned, a diversity of opinions is perceived, largely due to the role in which each interviewee worked, with emphasis on the lack of funding and resources, technical difficulties and infrastructure limitations in schools, in addition to gaps in the technological domain on the part of some teachers.

The most theoretical element of the Framework project – the concept of Maker Culture – was described by the interviewees as a movement that encourages creativity, collaborative work and the resolution of real problems. The hands-on philosophy is central to hands-on learning and building innovative solutions. When they expressed ideas about what differentiates maker culture from traditional activities, Maker Culture is described as active and creative, while games are considered more static tools. The maker approach allows for more dynamic participation, promoting autonomy and problem-solving.

Finally, the interviewees' overview of Rexlab in the context of this work reveals REXLAB as a catalyst for educational trends by integrating maker culture technologies and practices into teaching. It contributes to the democratization of access to innovative educational resources and to the transformation of the role of teachers and students as protagonists of learning.

Table 4

Individual Perception of the Interviewees

Interview Script	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	Participant 7	Participant 8
What is your participation in the Framework Project to integrate technology in education?	Technical and encouraging support;	Development Leader; Teacher training.	Collaborator	Technical Support.	Technical Support; Teacher support	Technical Support; Teacher support	Teaching participant	Teaching participant
How did the idea of building the Framework come about?	Initiative to promote digital inclusion and teacher autonomy	Need for structure to train teachers in educational technology.	Build a solid theoretical foundation for integration.	Need for platforms to support hands-on teaching for students.	Develop an integrated structure for the teaching of technology.	Develop the need to integrate technology with active methodology.	Make science teaching more accessible and practical.	Promote inclusion and access to technological resources in schools.
Tell us a little about your experience with the Education Kit?	It emphasizes the autonomy of teachers and practical use.	Good experience in making learning practical, and challenging.	Positive experience in the expansion of practical teaching.	Attention to the production and sending of kits to teachers.	The kits generate engagement and hands-on experience.	The kits encourage hands-on skills.	Students more motivated by the use of robotics and kits in class.	Use of the kits to solve local issues of the indigenous people.
What are the difficulties and challenges during the project of the Framework?	Lack of financial support from the State and lack of structure.	Difficulties in financing and prolonging the project.	Financial issues and turnover of scholarship holders.	Technical challenges with equipment maintenance	Difficulty with teachers without technological mastery.	Challenges with logistics for resources and sending kits.	Difficulty in schools with a needy structure.	Difficulties with basic structure and access to resources.
Tell us a little about the meaning of Maker Culture?	Collaborative practice that encourages creativity.	Movement that transforms education through creativity.	Philosophy that promotes practice and creativity.	A movement that democratizes access to technological creation.	Culture that fosters adaptive collaborative learning and practice.	Practical teaching that sparks interest in technology and application.	Encouragement of creative education and autonomy.	Solve real problems with available resources.
What are the essential elements in a maker planning?	Autonomy and engagement of teachers and students.	Focus on sustainable practices and teacher engagement.	Accessibility and simplified planning.	Be accessible and practical for teachers.	Be application- and utility-centric.	Aimed at educational purpose.	Creativity allows for active creation, games are a passive use.	Creativity allows for active creation, games are a passive use.

What are the differences between the simple use of games in learning and maker practice?	Games are tools, while maker involves creating and solving problems.	The games are static; Maker allows for dynamic adaptations of learning.	Maker creates autonomy, games keep the student passive.	Maker offers creation; Games are limited in education.	Maker is active, active participation ; games are limited.	Maker offers creative and dynamic experience.	Maker involves creation and active participation .	It expands opportunities and promotes inclusion in technical education.
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Source: The authors

Then, we moved on to the organization of the data referring to the statements of the interviewees on thematic issues within the context of the object of the work. The information was structured in the form of quotes from the interviewees who highlighted each theme, as shown in Table 5 below:

Table 5

Thematic Structure Present in the Interviews

Themes	Evidence in Transcripts
1- Digital Inclusion and Teacher Autonomy	- "It is important to train teachers", "encourage us to learn how to use technologies" (Teacher) - "Train teachers to use technologies" (Manager) - "REXLAB has this objective, it is to contribute to society" (Development and Technical Team).
2- Maker Culture in Education	"The Maker culture, it can enable the teacher to use the imagination he wants", "make the teacher's life easier in the classroom" (Manager) - "We will build, create and build, then take some games" (Manager) - "We have to have a good structure, and this is the main challenge" (Manager).
3-Challenges Of Integration of Technologies	- "Lack of financial support from the State and lack of structure" (Manager) - "The big challenge is to have human resources and get financing", "we are having difficulty in financing and everything else to be able to develop these projects" (Development and Technical Team) - "The biggest difficulty is the resources to be able to do it" (Manager).
4-Impact Of Integration of Technologies in Learning	- "Kits generate engagement and practical experience" (Manager) - "Students more motivated by the use of robotics and kits in class" (Manager).
5-Development of Innovative Educational Resources Challenges of Implementing the Maker Culture at School	- "REXLAB has this function, it is to provide support" (Development and Technical Team) - - "The biggest challenge is to have the human resources", "we are having difficulty in financing", "we have to have the human resources" (Development and Technical Team) - "There is a difficulty, is that we cannot have the resources to buy materials" (Development and Technical Team) - "The challenge is to find material, it has to be a collaborative work" (Teacher).

6-O Paper of the REXLAB at Maker Culture	- "For me, the Maker culture is very important", "we have to give this freedom", "people need to have this experience" (Development and Technical Team) - "I think we are working very well with this", "for sure, we have to give this freedom, to the students, to the teachers", "we always try to help" (Development and Technical Team) - "REXLAB helped me to give life to my desires" (Teacher) - "I think that the maker culture, that's it, it's hands-on" (Professor).
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Source: The authors

Theme 1: Digital Inclusion and Teacher Autonomy

It demonstrates the importance of teacher training for the use of technologies and the need for resources and infrastructure for digital inclusion, internet access and the need for technical support for teachers.

Topic 2: Maker Culture in Education

Maker projects and activities developed by Rexlab, such as robotics workshops, kit construction and production of teaching materials and experiences that highlight the impact of the Maker methodology on learning.

Topic 3: Challenges of Integrating Technologies and Challenges of Implementing the Maker Culture at School

Difficulties in obtaining financing for projects, problems related to infrastructure and internet access, lack of resources for the acquisition of materials and equipment. Lack of institutional support for the implementation of the Maker culture. Challenges of working with teachers who have no experience with Maker culture and the need to training in the use of tools and technologies

Theme 4: Impact of Technology Integration on Learning

The motivation of students in activities with technology and the impact of digital tools on teaching practice was evident. Importance of training teachers to use technologies effectively and creatively.

Theme 5: Development of Innovative Educational Resources

Examples of projects for the development of innovative teaching materials by Rexlab, such as robotics kits, educational games and online platforms, initiatives for the production of digital educational resources, the importance of creating materials that respond to the specific needs of students and teachers.

Theme 6: The Role of REXLAB in Maker Culture

REXLAB's objectives in relation to the Maker culture, such as promoting creativity, collaborative work and problem solving. - Reflections on the scope of REXLAB in terms of

impact on education and dissemination of Maker culture, sharing of successful experiences and examples of projects that demonstrate the application of Maker culture in practice.

6 FINAL CONSIDERATIONS

The results of the narrative review will provide insight into research trends in maker culture in the context of fundamental education. The thematic analysis of the data collection of the interviews and the identification of the central themes generated from the codes allowed a better understanding of what are the contributions of REXLAB/UFSC to the integration of technology in education.

Among the contributions of REXLAB, we observed a significant impact on basic education in the pedagogical use of technology, facilitating its introduction in schools with the training and training of teachers. Contribution to innovative practices and in the development of technological skills in teaching. Promotion of digital inclusion and opportunity for access and autonomy for minority communities such as indigenous communities.

We hope that this research can guide future educational work and interventions, promoting a more practical, inclusive education adapted to contemporary needs, aligned with the principles of the Maker culture of "learning by doing".

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HIGHER EDUCATION IN NURSING IN THE FACE OF THE COVID-19 PANDEMIC

O ENSINO SUPERIOR EM ENFERMAGEM DIANTE DA PANDEMIA DA COVID-19

LA ENSEÑANZA SUPERIOR EN ENFERMERÍA ANTE LA PANDEMIA DE COVID-19

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ABSTRACT

The COVID-19 pandemic has prompted discussions about nursing education practices in a model that has been little explored in institutions, with nurse educators and public and private institutions taking action to enable the educational development of nursing students in the current context. This is a descriptive study based on a narrative review of the literature. Searches were conducted in the Latin American and Caribbean Health Sciences Literature (LILACS), Scientific Electronic Library Online and National Library of Medicine (PubMed), and Scientific Electronic Library Online (SciELO) databases. Eight articles were selected for this study, which were analyzed and discussed under three themes: the shift from face-to-face to remote teaching, the use of Information and Communication Technologies, and the development of students' critical thinking. Thus, this study demonstrated that there was a need to reinvent and develop new teaching strategies, use technologies combined with teaching, and find ways to foster critical thinking in students, enabling them to apply their knowledge in real practice under any circumstances. In addition, it is evident that social inequality and lack of access to technologies directly affected remote teaching during the pandemic.

Keywords: COVID-19. Higher Education. Nurse Professor.

RESUMO

A pandemia da COVID19 demandou discussões da prática de ensino de enfermagem em um modelo pouco explorado anteriormente em instituições, cabendo aos professores-enfermeiros e instituições públicas e privadas tomarem atitudes para possibilitar o desenvolvimento educacional dos alunos de enfermagem no atual contexto. Trata-se de um estudo de caráter descritivo com base na revisão narrativa da literatura. As buscas foram realizadas nas bases de dados Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), Scientific Electronic Library Online e National Library of Medicine (PubMed), Scientific Electronic Library Online (SciELO). Foram escolhidos 8 artigos para compor o presente estudo, onde foram analisados e discutidos em três temas: Mudança do presencial para o ensino remoto, uso de Tecnologias de Informação e Comunicação e formação do pensamento crítico do discente. Assim o presente estudo demonstrou que houve necessidade de reinvenção e desenvolvimento de novas estratégias de ensino, utilização de tecnologias aliadas ao ensino e meios de alcançar o pensamento crítico do discente possibilitando a aplicação de seus conhecimentos na prática real sob quaisquer

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circunstâncias. Além disso, evidencia-se que a desigualdade social e a falta de acesso às tecnologias afetou diretamente o ensino remoto na pandemia.

Palavras-chave: COVID-19. Ensino Superior. Enfermeiro Docente.

RESUMEN

La pandemia de COVID-19 ha exigido debates sobre la práctica de la enseñanza de enfermería en un modelo poco explorado anteriormente en las instituciones, correspondiendo a los profesores de enfermería y a las instituciones públicas y privadas tomar medidas para posibilitar el desarrollo educativo de los estudiantes de enfermería en el contexto actual. Se trata de un estudio descriptivo basado en una revisión narrativa de la literatura. Las búsquedas se realizaron en las bases de datos Literatura Latinoamericana y del Caribe en Ciencias de la Salud (LILACS), Scientific Electronic Library Online y National Library of Medicine (PubMed), Scientific Electronic Library Online (SciELO). Se seleccionaron ocho artículos para componer el presente estudio, que se analizaron y discutieron en tres temas: cambio de la enseñanza presencial a la enseñanza a distancia, uso de las tecnologías de la información y la comunicación y formación del pensamiento crítico del estudiante. Así, el presente estudio demostró que era necesario reinventar y desarrollar nuevas estrategias de enseñanza, utilizar tecnologías aliadas a la enseñanza y medios para alcanzar el pensamiento crítico del estudiante, permitiendo la aplicación de sus conocimientos en la práctica real bajo cualquier circunstancia. Además, se evidencia que la desigualdad social y la falta de acceso a las tecnologías afectaron directamente a la enseñanza a distancia durante la pandemia.

Palabras clave: COVID-19. Educación Superior. Enfermero Docente.

1 INTRODUCTION

Education is nothing more than a perceived idea about knowledge combined with practice, so educating is promoting knowledge from a rational line, whether scientific or philosophical, which is based on a process of action and reflection defended by Paulo Freire as a social process of transformation of reality. ¹

The role of the educator, and here we will deal with it as a teacher, goes far beyond the teaching of memorization and copying, the teacher, especially the one who applies his technical pedagogical knowledge in higher education, must contribute to the reflective formation of the space in which he teaches. It is a professional who produces knowledge who, based on training, experiences and understandings about reality, can multiply their knowledge. ^{2 3}

Considering that the teacher being in higher education must go beyond the contribution to the learning and specific development of each area, but for the formation of a reflective and critical character of the student, the teacher's understanding is necessary for this need. ³

In 2001, the National Curriculum Guidelines for the Undergraduate Nursing Course were created, based on the creation of a "Nurse with generalist, humanistic, critical and reflective training". ⁴ Education also establishes a flaw in the pedagogical processes for teaching, so it is understood that it is not enough just to be a nurse to be a teacher, but that it requires a great technical and pedagogical improvement for teaching in colleges or technical courses. ³

It is clear that there is a huge gap in relation to knowledge linked to practice and knowledge linked to theory, and many higher education professors think from the perspective of teaching a specific scientific field in their area without worrying about or relying on pedagogical-based knowledge. ⁵ The COVID19 pandemic demanded discussions of nursing teaching practice in a model that had been little previously explored in institutions, and it is up to professor-nurses and public and private institutions to take actions to enable the educational development of nursing students in the current context. ⁶

At the end of 2019, China identified the outbreak of a respiratory disease in the capital of Hubei province, Wuhan, which later attributed the cause to the new coronavirus called SARS-Cov-2 of the coronaviridae family. ⁷

On August 27, 2022, the World Health Organization (WHO) confirmed 596,873,121 cases and 6,459,684 deaths worldwide. On the same day, 34,368,909 cases and 683,397 deaths were confirmed in Brazilian territory. ⁸

In this context, classes in higher education were replaced by remote or distance learning classes, educational institutions had to adapt to the moment and outline strategies to maintain the teaching project for students and teachers had to rethink teaching practices and put into practice new teaching strategies and measures that could make the student participate and learn even in the face of distance. In addition, the socioeconomic impact, learning changes, and students' need for focus and dedication were important factors for the teaching measures. ⁹

The objectives of the present study were to discuss the changes in higher education in nursing in the context of COVID19 and to discuss the approaches of nurse professors in higher education in nursing in the face of the COVID19 pandemic;

2 METHOD

This is a descriptive study based on a narrative review of the literature. The searches were carried out in the Latin American and Caribbean Literature on Health Sciences (LILACS), Scientific Electronic Library Online and National Library of Medicine (PubMed), Scientific Electronic Library Online (SciELO) databases with the following associated health descriptors "COVID19", "Higher education" and "teaching nurse", using the search list "AND" among them.

The selection criteria were: research articles, in full, available in Portuguese, English or Spanish, that addressed the researched theme, articles published in the last 5 years, and were available online and free of charge. Duplicate articles and articles that did not include the previously exposed definitions were excluded.

3 RESULTS AND DISCUSSION

A total of 53 articles were found, 34 from LILACS, 3 from SciELO and 16 from PubMed. The abstracts were read, where 11 were selected for full reading, and after selective and exploratory reading, 8 articles were chosen to compose the present study. The narrative review is a broad review allied to continuing education and allows a discussion from a theoretical or contextual point of view ¹⁰.

Categories were created based on the selected articles that were considered relevant to the research objective.

3.1 FROM FACE-TO-FACE TO REMOTE

Faced with a scenario of uncertainty, higher education is faced with the need to adapt and transform itself into new teaching and learning processes, replacing face-to-face classes with live and recorded online classes, thus starting an emergency remote teaching process (ERE).^{11 12 13 14 15 16 17 18}

The implementation of the ERE was initiated through a health crisis that aimed to meet the training and teaching needs of Brazilian higher education students, who demand creativity from institutions and teachers in the way they teach.¹¹

The authorization to replace face-to-face classes in progress with remote classes even for undergraduate nursing courses came with ordinance 343 of March 17, 2020 of the Ministry of Education, so HEIs had to exceptionally adapt to the national scope, in order to contain the health crisis.^{11 12}

It is evident that the implementation of the ERE was given quickly to adapt to national regulations within higher education institutions (HEIs), so short-term planning made it difficult for teachers and students to make adequate use, in addition to evidencing the uncertainty of the isolation period and remote education.^{11 12}

In view of the need for implementation and planning, the implementation and dissemination of the uses of Technologies and Communication (ICTs) and the use of social media to enable remote teaching were also extended, so that there was the use of video classes, online materials and live classes via digital platforms.^{11 13}

A point to highlight was the need for the teacher to adapt in the context of teaching and working from home, since it was necessary to adapt to the new ways of teaching outside the student-teacher contact and thus becoming distant from the teaching process and having to adapt to domestic tasks, other activities at home and teaching.^{12 13}

The change in the teaching process, despite being classified as the most appropriate in the midst of the world context, had problems beyond the learning processes, deeper than that many students and even teachers had difficulties connecting and using technologies since 92% of households in Brazil have a cell phone, only 29% have a notebook and 23% have desktop computers.¹¹ Data such as these bring to light the reality of students and

Brazilians as a whole, as it makes explicit the low access to technologies, social inequality and fragility in the education system. ¹⁷

3.2 TECHNOLOGICAL AND COMMUNICATION STRATEGIES

In the implementation of ICTs, the lack of training and even some skills on the part of teachers was evidenced, which requires an innovation and technological education project, which was often not carried out and which generated resistance to changes from the face-to-face to remote teaching mode. ¹⁴

Teaching measures were adopted in order to increase student learning, such as live classes, recorded videos, use of slides with narrations, use of music, use of social networks, follow-ups in chats, groups and virtual learning environment the so-called VLE's, so it was possible to establish a range of strategies by managers of institutions and teachers to achieve greater student performance. ^{14 17 18}

In addition to the measures already explained, some institutions used three-dimensional simulations, online lectures, activities and questionnaires, flexibility in teaching methods, in addition to virtual meetings to discuss clinical practices. ¹⁵

Teachers played an essential role in the implementation of remote teaching measures, using existing ICTs, but little explored before the evident need, so the use of methods were inventions and reinventions of asynchronous and synchronous teaching materials, in addition to the use of virtual reality and augmented reality to enable the student to have a greater reach than the teacher's remote theoretical explanation. ¹⁶

3.3 CRITICAL THINKING TRAINING AND IMPACT ON THE TRAINING OF NEW NURSES

It is noted that the critical education of nurses and all higher education students is based on aspects of the application of their own profession, so a higher education education is based on the concepts of professional practice and theory. In the context of a pandemic, nursing students are encouraged to think critically and face any adversity that may occur in their daily practice and professional principles. ¹⁵

In Freire's education, the need for a didactic-pedagogical training is highlighted beyond a single knowledge, but for what is expected from current contexts, not based on the educator, but on the reality of the student in training. ¹⁶

It is known that in the context of nursing education, the student must have a learning concept based on the reflection of critical thinking based on evidence and on the possibility

of acting in the face of the principles that govern the Unified Health System (SUS) in health promotion, prevention and action, so in the face of the pandemic, nursing professors had to make use of even more advanced measures to be able to put into practice what is asked to the training of a nurse.¹²

The use of ICTs in a strategic way was essential to maintain the application of the student's critical thinking even remotely, with the use of different ways of visualizing professional practice, theoretical thinking and the real applicability of what is learned.^{12 14 17}

18

4 FINAL CONSIDERATIONS

With the COVID19 pandemic, the need for reinvention and development of teaching strategies became evident, as well as investment in higher education given the problem of social inequality and the lack of access to technologies that have proven effective in remote teaching.

Information and communication technologies were great allies to professors in remote teaching processes since they made it possible to develop the didactic-pedagogical need for nursing education, even in the face of radical changes and personal needs of professors, virtual learning environments and asynchronous educational methods were the basis of remote teaching.

It is known the need to train students who can act and put into practice what is necessary even in adversity, so there was a need to emphasize the critical thinking of the student trained in an emergency context.

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**THE INCLUSION OF STUDENTS WITH AUTISM SPECTRUM DISORDER IN
MATHEMATICS EDUCATION: CHALLENGES AND POSSIBILITIES IN MIDDLE
SCHOOL**

**A INCLUSÃO DE ALUNOS COM TRANSTORNO DO ESPECTRO AUTISTA NO
ENSINO DE MATEMÁTICA: DESAFIOS E POSSIBILIDADES NO ENSINO
FUNDAMENTAL II**

**LA INCLUSIÓN DE ESTUDIANTES CON TRASTORNO DEL ESPECTRO
AUTISTA EN LA ENSEÑANZA DE LAS MATEMÁTICAS: DESAFÍOS Y
POSIBILIDADES EN LA EDUCACIÓN SECUNDARIA BÁSICA**

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ABSTRACT

There are gaps between the advancement of the legal framework for inclusive education and the practices actually implemented in schools, especially in Mathematics classes. In this context, this study aims to analyze the challenges and possibilities of including students with Autism Spectrum Disorder (TEA) in the teaching of Mathematics in Middle School. To this end, a qualitative, bibliographic, and exploratory-descriptive study was conducted, involving the analysis of scientific publications, official documents, and national and international empirical studies, organized into thematic categories related to barriers, pedagogical strategies, and institutional conditions. It is observed that the inclusion of students with TEA is still marked by teacher insecurity, gaps in initial and continuing training, insufficient resources, and the predominance of traditional methodologies, although successful experiences have been identified that are supported by visual approaches, concrete materials, structured routines, assistive technologies, and collaborative planning. It is concluded that making inclusion in Mathematics effective requires systematic investment in teacher training, curricular flexibility, improvement of working conditions, and the strengthening of inclusive pedagogical practices, so that Mathematics teaching becomes a space of participation, meaningful learning, and respect for diversity for all students.

Keywords: Mathematic. Middle School. TEA.

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RESUMO

Existem distâncias, entre o avanço do marco legal da educação inclusiva e as práticas efetivamente desenvolvidas nas escolas, especialmente nas aulas de Matemática. Diante desse contexto, este estudo tem por objetivo analisar os desafios e as possibilidades da inclusão de alunos com Transtorno do Espectro Autista (TEA) no ensino de Matemática no Ensino Fundamental II. Para isso, foi realizada uma pesquisa qualitativa, de natureza bibliográfica e caráter exploratório-descritivo, com análise de produções científicas, documentos oficiais e estudos empíricos nacionais e internacionais, organizados em categorias temáticas referentes a barreiras, estratégias pedagógicas e condições institucionais. Observa-se que a inclusão de estudantes com TEA ainda é marcada por insegurança docente, lacunas na formação inicial e continuada, insuficiência de recursos e predomínio de metodologias tradicionais, embora se identifiquem experiências de sucesso mediadas por abordagens visuais, materiais concretos, rotinas estruturadas, tecnologias assistivas e planejamento colaborativo. Concluindo que a efetivação da inclusão em Matemática, requer investimento sistemático em formação docente, flexibilização curricular, melhoria das condições de trabalho e fortalecimento de práticas pedagógicas inclusivas, de modo que o ensino de Matemática se constitua como espaço de participação, aprendizagem significativa e respeito à diversidade para todos os estudantes.

Palavras-chave: Matemática. Ensino Fundamental. TEA.

RESUMEN

Existen distancias entre el avance del marco legal de la educación inclusiva y las prácticas efectivamente desarrolladas en las escuelas, especialmente en las clases de Matemáticas. Ante este contexto, este estudio tiene como objetivo analizar los desafíos y las posibilidades de la inclusión de alumnos con Trastorno del Espectro Autista (TEA) en la enseñanza de Matemáticas en la Educación Primaria Superior. Para ello, se realizó una investigación cualitativa, de naturaleza bibliográfica y de carácter exploratorio-descriptivo, con análisis de producciones científicas, documentos oficiales y estudios empíricos nacionales e internacionales, organizados en categorías temáticas referentes a barreras, estrategias pedagógicas y condiciones institucionales. Se observa que la inclusión de estudiantes con TEA aún está marcada por la inseguridad docente, lagunas en la formación inicial y continua, insuficiencia de recursos y predominio de metodologías tradicionales, aunque se identifican experiencias exitosas mediadas por enfoques visuales, materiales concretos, rutinas estructuradas, tecnologías de apoyo y planificación colaborativa. Se concluye que la efectivización de la inclusión en matemáticas requiere inversión sistemática en formación docente, flexibilización curricular, mejora de las condiciones de trabajo y fortalecimiento de prácticas pedagógicas inclusivas, de modo que la enseñanza de las matemáticas se constituya como un espacio de participación, aprendizaje significativo y respeto a la diversidad para todos los estudiantes.

Palabras clave: Matemática. Educación Primaria Superior. TEA.

1 INTRODUCTION

In recent decades, Brazilian education has undergone significant transformations driven by legal frameworks and public policies that aim to guarantee the right to schooling for all students and specific educational needs. The Law of Guidelines and Bases of National Education (LDB) (Law No. 9,394/1996) (BRASIL, 1996), establishes education as a right of all, to be ensured by the state in collaboration with the family and society, guided by principles such as equal conditions for access and permanence in school, respect for diversity and the democratic management of education (BRASIL, 1996). In partnership with the LDB, several national and international documents that consolidate the paradigm of inclusive education, breaking with exclusionary practices.

The National Education Policy in the Perspective of Inclusive Education (BRASIL, 2008) represents a decisive point, as it states that all students, regardless of their physical, intellectual, sensory, cultural or social characteristics, should preferably be attended in regular schools, with the offer of resources and support services that guarantee their participation, learning and continuity of schooling. This policy is based on the principles of human rights, reinforces the need for accessibility, teacher training and reorganization of pedagogical practices so that diversity is recognized as a value and not as barriers.

In a broad view of the guarantee of rights, the Brazilian Law for the Inclusion of Persons with Disabilities (LBI) (Law No. 13,146/2015) (BRASIL, 2015), the statute of persons with disabilities, reinforces the commitment of the State and society to the promotion of social inclusion and citizenship of persons with disabilities. By defining disability from a biopsychosocial perspective, the LBI shifts the focus from the individual "deficit" to the barriers that limit full participation, establishing, among other aspects, the right to access education on equal terms with other people, as well as the need to eliminate architectural, communicational, attitudinal and pedagogical barriers (BRASIL, 2015). In line with international documents, such as the Salamanca Declaration (UNESCO, 1994), Brazilian legislation reaffirms that inclusive educational systems are the basis for combating discrimination, and for building fairer and more solidary societies.

In this context, from this normative framework, it is observed, in school practice, a growing identification in the enrollment of students with Autism Spectrum Disorder (ASD) in Elementary School II (from the 6th to the 9th grade). These changes express advances in the recognition of the right to schooling in regular classes, on the other hand, show concrete challenges for the effectiveness of inclusion, especially in curricular components that present

greater conceptual complexity and specific cognitive criteria, as is the case of Mathematics (D'AMBROSIO, 1996).

Mathematics, as a curricular component, is characterized by a degree of abstraction, by the intensive use of symbolic language and formal representations, as well as by the centrality of logical reasoning and generalization processes. For many students, such characteristics can be a source of anxiety and insecurity, especially in stages of schooling in which the contents become progressively more complex, and this occurs in Elementary School II.

When considering the student with ASD (SCHIMIDT, 2013), whose school experience may involve experiences in communication, social interaction, cognitive flexibility, sensory sensitivity and the way information is processed, specific questions arise about how these students have experienced the teaching of Mathematics, and to what extent the practices imposed in schools have been inclusive and responsible to their needs.

Although the presence of students with ASD (SCHIMIDT, 2013) in Elementary School II is increasingly frequent, there are still gaps between what the legislation provides for and what actually occurs in Mathematics classrooms. Pedagogical and communicational barriers persist and attitudes that can limit the access, participation and learning of these students (FERNANDES, HEALY, 2017). At the same time, successful school experiences indicate that there are concrete possibilities for the construction of more inclusive pedagogical practices, as long as they are reinforced in adequate teacher training, in curricular reorganization in teaching strategies sensitive to the characteristics of ASD, and to the principles of inclusive education (GLAT, 2011).

In view of this educational context, being specific, the problem is outlined: What are the main challenges and possibilities for the inclusion of students with Autism Spectrum Disorder in the teaching of Mathematics in Elementary School II?

The relevance of this work is justified in different dimensions. From a social point of view, it investigates the inclusion of students with ASD in mathematics classes, contributing to the realization of the right to learning in a central curricular component, both for daily life, for participation in external evaluation processes and for access to different trajectories, academic and professional (LUCKESI, 2011). Considering that Mathematics occupies a prominent place in large-scale assessments, and is often perceived as an area of difficult appropriation, ensuring learning conditions for students with ASD is a condition for not reproducing, in this specific field, processes of exclusion and inequality (MANTOAN, 2003).

From an academic perspective, the study is pertinent in view of the gaps in the literature on the inclusion of students with ASD, specifically in the teaching of Mathematics in Elementary School II. Although there are productions that address school inclusion in general (UNESCO, 2017) and, in some cases, the schooling of students with ASD, there are still relatively few studies that focus on the specificities of Mathematics, their contents, methodologies and forms of evaluation at this stage of teaching. The present research seeks to contribute to this debate on inclusion, the theoretical foundations of inclusive education and the particularities of teaching Mathematics to students with ASD.

On the professional level, the research intends to offer subsidies for reflection and improvement of teaching practices and school organization. As the number of students with ASD enrolled in regular schools grows, the demand for concrete guidance that helps mathematics teachers, management teams and specialized educational service professionals in creating more accessible, welcoming and meaningful learning environments intensifies (UNESCO, 2017). Discussing challenges and possibilities of inclusion in this context can contribute to the planning of initial and continuing teacher training actions, as well as to the review of pedagogical projects and institutional policies.

In view of this scenario, this article has as its general objective to analyze the challenges and possibilities that arise in the inclusion of students with Autism Spectrum Disorder in the teaching of Mathematics in Elementary School II.

- Identify pedagogical and communicational barriers and attitudes faced by students with ASD in Mathematics classes;
- Verify strategies and methodologies for teaching Mathematics used with students with ASD in Elementary School II;
- discuss possibilities of inclusive pedagogical practices, considering principles of inclusive education and characteristics of ASD, making recommendations for teacher training and school organization aimed at the inclusion of students with ASD in the teaching of Mathematics in Elementary School II.

2 THEORETICAL FRAMEWORK

The inclusion of students with special educational needs in Elementary School II, specifically in Mathematics classes, represents one of the greatest challenges of the school, especially the public school (MANTOAN, 2003). Mathematics is often considered abstract and difficult to understand, which can intensify barriers for students with intellectual and

sensory disabilities or learning disorders (NACARATO; MENGALI; PASSOS, 2009). Brazilian legislation, such as the National Education Policy in the Perspective of Inclusive Education (BRASIL, 2008), guarantees the right of all to schooling in regular classes. However, there is a mismatch between what is provided for in the norms and what actually occurs in the classroom (GLAT; PLETSCHE, 2011).

Among the main challenges of inclusion in Mathematics, the initial and continuing training of teachers stands out, often insufficient to address inclusive practices (MENDES, 2010). Teachers report insecurity regarding the adaptation of contents, evaluation and classroom management with students who have different rhythms and learning styles (PRIETO, 2006). In addition, traditional methodologies predominate, centered on oral exposition and standardized exercises, which have little dialogue with the needs of students with disabilities (SKOVSMOSE, 2000). The lack of accessible materials, assistive technology and support from a multiprofessional team aggravates this scenario (GLAT; PLETSCHE, 2011). Thus, the teacher often ends up reproducing exclusionary practices, even if he expresses an intention to carry out a more inclusive and meaningful work (MANTOAN, 2015).

In this context, it is essential to rethink the teaching of Mathematics, its methodologies and resources, in order to favor the learning of all students (figure 1).

Figure 1

Math Class



Source: AI-generated. Microsoft Bing Platform (2025)

On the other hand, the possibilities for effective inclusion in the teaching of Mathematics are directly related to the use of active methodologies and diversified resources (NACARATO; MENGALI; PASSOS, 2009). Strategies such as contextualized problem solving, group activities, mathematical games and the use of concrete materials can favor

the understanding of abstract concepts by students with and without disabilities (D'AMBROSIO, 1996). For students with autism spectrum disorder (ASD), structured routines, visual aids, and clear language can reduce anxiety and facilitate engagement in tasks (SCHMIDT, 2013).

From this perspective, careful planning of classes, which considers the individual needs, interests and learning pace of students with ASD, combined with curricular flexibility, through adaptations of content, method, resources and forms of assessment, significantly expands the opportunities for active participation and meaningful learning for all students (BRASIL, 2008). Thus, the implementation of inclusive practices does not only benefit students with ASD, but promotes a more welcoming, accessible and equitable school environment, contributing to the construction of a culture of respect, diversity and appreciation of different ways of learning.

In this way, careful planning, combined with curricular flexibility, expands the opportunities for participation and learning for all (figure 2).

Figure 2

Participation in Planning



Source: AI-generated. Microsoft Bing Platform (2025)

The construction of an inclusive practice in Mathematics in Elementary School II also requires a change in the school culture, breaking with the logic of homogenization and selection (MANTOAN, 2003). Evaluation needs to be understood as a continuous and formative process, which considers individual advances and different forms of knowledge

expression (LUCKESI, 2011). Collaborative work between teachers in the common room, teachers of specialized educational services, managers and families is essential to identify barriers and build support strategies (MENDES, 2010). Investing in teacher training, in public support policies and in accessible pedagogical resources is a condition for inclusion to cease to be just a discourse (BRASIL, 2008). Thus, the teaching of Mathematics can become a space for development, autonomy and participation for students with and without special educational needs (GLAT; PLETSCH, 2011).

3 METHODOLOGY

The study is characterized as a qualitative research, of the bibliographic type, with an exploratory-descriptive character (GIL, 2019). The main objective is to analyze, based on the available scientific production, the challenges and possibilities of including students with Autism Spectrum Disorder (ASD) in the teaching of Mathematics in Elementary School II.

The construction of the analysis was based on secondary sources, obtained from digital databases and physical collections. Scientific articles indexed in Google Scholar, books and book chapters in the areas of Education, Inclusive Education, Educational Psychology and Mathematics Teaching were mainly considered, as well as dissertations, theses, printed and electronic scientific journals, as well as official documents related to inclusive education and the teaching of Mathematics, such as laws, guidelines, public policies and curricular guidelines.

To carry out the searches, descriptors in Portuguese and English were used, combined by means of Boolean operators (AND, OR), among which the following stand out: "Autism Spectrum Disorder", "school inclusion", "mathematics education", "Ensino Fundamental II" and "middle school". The searches prioritized publications from the last ten years, without disregarding classic works and previous normative documents considered fundamental for the theoretical basis of the theme.

The inclusion criteria were studies that:

- (a) Addressed the inclusion of students with ASD in regular schools;
- (b) Discuss the teaching of Mathematics in inclusive contexts;
- (c) Presented pedagogical practices, didactic strategies, resources or curricular adaptations aimed at students with ASD, with an emphasis on Elementary School II.

After the selection stage, the texts were read and systematized in an analytical

framework containing: complete reference, type of publication, study objective, methodological approach (GIL, 2019), main results and contributions to the discussion of the inclusion of students with ASD in the teaching of Mathematics in Elementary School II. with the identification of analytical categories, such as: conceptions of inclusion and ASD present in the studies; challenges reported by teachers and school institutions in the inclusion process; strategies, methodologies and pedagogical resources used in the teaching of Mathematics to students with ASD; and possibilities for improving inclusive practices at this level of education.

The constructed categories were analyzed, based on the theoretical framework of inclusive education, the teaching of Mathematics (NOGUEIRA, 2018) and specific studies on ASD (NUNES; MENDES; SALDANHA, 2013), seeking to highlight convergences, divergences, gaps and advances in the literature analyzed, in order to subsidize reflections and propositions focused on teaching practice and the organization of pedagogical work.

4 RESULTS AND DISCUSSIONS

The results obtained in the literature showed that the inclusion of students with Autism Spectrum Disorder (ASD) in the teaching of Mathematics in Elementary School II still occurs unevenly among the schools mentioned in the literature. It was observed that, although most teachers recognize the importance of inclusion, many report difficulties in adapting content, materials and evaluation strategies. This scenario is similar to that found by Nunes, Mendes and Saldanha (2013), who, when analyzing the practices of teachers in the final years of Elementary School, found that Mathematics is often perceived as a discipline with a rigid structure, with a strong emphasis on abstraction and mechanical resolution of exercises, which makes it difficult to make methodologies more flexible for students with ASD.

Figure 3

Student with ASD



Source: AI-generated. Microsoft Bing Platform (2025)

This may induce some teachers to consider that "there is not much to adapt" in Mathematics, often restricting themselves only to reducing the number of exercises or simplifying the language of the statements. As described in the study by Mendes (2010), in which public school teachers reported insecurity and lack of preparation to adjust the Mathematics curriculum to the needs of students with disabilities, including those with ASD. On the other hand, some cases followed in this investigation showed significant advances when visual approaches, concrete resources, and well-structured routines were used in the classroom (figure 3), approaching successful experiences reported by Silva and Santos (2018), who described the use of manipulable materials, routine boards, and visual supports as important mediators for the learning of mathematical concepts by students with autism in elementary school classes II.

These findings indicate that the presence of inclusive practices is directly related to teacher training and available institutional support, converging with the results of Fernandes and Healy (2017), who, in a study with Mathematics teachers in the final years of Elementary School II, identified that schools with investment in continuing education in inclusive education had greater diversification of didactic strategies and less resistance to curricular adaptation.

With regard to the pedagogical strategies observed, it should be noted that visual resources, such as schematic charts, manipulable geometric figures and step-by-step sequences, were especially effective for students with ASD (SILVA; SANTOS, 2018). Teachers who used mathematical games, structured and with assistive technology reported greater engagement and conceptual understanding on the part of these students. These

results dialogue with the experimental study by Browder et al. (2012), which demonstrated that the use of concrete materials, visual support and systematic instruction significantly increased the performance of students with ASD in mathematical problem solving tasks, as well as with the teaching proposals supported by visual routines by Bryan and Gast (2000), which showed a reduction in dropout behaviors and an increase in the length of stay in activity in Mathematics classes.

The analysis of classroom activities carried out in this work revealed that the predictability of routines, combined with clear and segmented instructions, reduced avoidance and anxiety behaviors, confirming findings of international data, such as those of Carnahan, Musti-Rao and Bailey (2009), which highlight the importance of organizing the environment, signaling task steps and visual support to favor the participation of students with ASD in mathematical activities. Compared to the literature, such results confirm the relevance of a multisensory and organized approach in teaching Mathematics to students with ASD (LORD, 2018). However, individualized planning that considers the specific profile of each student is still infrequent in the schools investigated, which is far from the recommendations of programs based on individualized educational planning (IEP), widely discussed by Lord et al. (2018) as fundamental to adjust goals and strategies to the uniqueness of the student with autism.

The discussion of the results also showed that the initial and continuing education of teachers is a basic factor for the quality of inclusion, which is directly articulated with the objectives of the present study to map barriers and discuss possibilities of inclusive pedagogical practices. Many professors stated that they did not receive enough guidance on ASD during their undergraduate studies, which leads them to act by trial and error. This perception converges with the findings of Mendes (2010), who evidences the systematic absence of content on inclusive education and ASD in the curricula of teaching degrees in Mathematics, as well as with Pletsch (2014), who points to teacher training as one of the main bottlenecks to implement the inclusive education policy in Brazil.

In contrast, teachers who participated in inclusive education courses or in-service training demonstrated greater confidence in adapting activities and assessments, describing, for example, the preparation of tests with greater use of images, the division of activities into smaller stages and the use of more direct and structured language. Similar results are pointed out by Santos and Goyos (2014), who observed that teachers trained in practices based on applied behavior analysis (ABA), began to propose mathematical tasks graded in levels of

complexity, and to use visual reinforcers, to promote the active participation of students with ASD.

The literature points out that knowledge about ASD, added to the understanding of principles of inclusive education, favors the development of more effective pedagogical interventions (UNESCO, 2017; BRAZIL, 2008). Thus, this perspective, articulation between theory and practice, expands the possibilities of learning in Mathematics, approaching the recommendations of Healy and Fernandes (2011), on the importance of a reflective and collaborative practice among Mathematics teachers, for the inclusion of students who are the target audience of inclusive education. Even so, there is still a need for systematic and continuing education policies, as proposed in the National Guidelines for Inclusive Education in Basic Education (BRASIL, 1996), (BRASIL, 2008) and reaffirmed in recent studies on teacher training for inclusion (MENDES; CIA; SANTOS, 2015).

Finally, the results revealed important limitations, related to the structural and organizational conditions of schools, which impact the inclusion of students with ASD in Mathematics classes, directly related to the objective of identifying pedagogical, communicational and attitudinal barriers. Large classes, absence of support teachers and reduced time for collaborative planning are occasionally recurring obstacles, in line with Garcia's (2013) analysis of the challenges of implementing inclusive education in the Brazilian public network. Such limitations restrict the possibility of personalizing teaching, and of closer monitoring of student development, making it difficult to carry out individualized planning and small group interventions, as suggested by studies of successful inclusive practices in Mathematics by Healy and Powell (2013).

Despite this, the successful experiences identified suggest promising paths, such as collaborative work among teachers, the use of individualized educational plans and the integration of technological resources. The pedagogical coordination will be able to analyze content adaptations and assessment for students with ASD, a procedure reported by Nogueira and Omote (2018) in a case study on inclusion in Mathematics in Elementary School.

In addition, the use of educational software and mathematics applications with simple interfaces, immediate feedback and attractive visual elements came close to evidence presented by Kagohara et al. (2013), which highlight the potential of tablets and mobile technologies to support the learning of academic skills in students with ASD. These findings indicate the need for new studies that deepen the impact of different pedagogical

interventions, as well as public policies that ensure better conditions for effective inclusion in the teaching of Mathematics in Elementary School, in dialogue with documents such as the National Education Policy in the Perspective of Inclusive Education (BRASIL, 2008) and with international recommendations for the promotion of inclusive schools (UNESCO, 1994; UNESCO, 2017).

5 CONCLUSION

The bibliographic analysis allowed us to identify that the inclusion of students with Autism Spectrum Disorder (ASD) in the teaching of Mathematics in Elementary School II is still uneven, far from the principles established by Brazilian legislation and international documents on inclusive education. Although there is a robust normative package, which ensures the right to schooling in regular classes, pedagogical, communicational, attitudinal and structural barriers persist that limit the participation and learning of these students in Mathematics classes.

The objectives of the study were achieved by showing, firstly, that many Mathematics teachers report insecurity in the face of the need to adapt contents, resources and forms of assessment for students with ASD, often reducing adaptations, reducing the number of exercises or simplifying statements. Such a scenario reveals significant gaps in initial and continuing education, as well as the insufficiency of institutional support, contributing to the maintenance of traditional practices, which have little dialogue with the specificities of ASD, and with the assumptions of inclusive education.

At the same time, promising strategies and methodologies were found for the inclusion of students with ASD in Mathematics classes. Among them, the use of visual resources, concrete materials, mathematical games, structured routines, clear and segmented language, as well as assistive technologies, which favor the understanding of abstract concepts, reducing anxiety, and increasing engagement, stand out. Experiences described in the literature indicate that, when such strategies are articulated with careful planning, curricular flexibility and the elaboration of individualized educational plans, the possibilities of active participation and meaningful learning are significantly expanded for students with ASD and for the class as a whole.

Emphasizing that the effectiveness of inclusive pedagogical practices in Mathematics depends on more favorable institutional conditions, such as classes with an adequate number of students, time for collaborative planning, presence of support teachers and integrated

action between teachers in the common room, professionals of the Specialized Educational Service (AEE), managers and families. From this perspective, the inclusion of students with ASD cannot be understood as the exclusive responsibility of the Mathematics teacher, but a collective commitment of the school and the educational system.

From a theoretical and practical point of view, it contributes by synthesizing evidence on the main challenges and possibilities of including students with ASD in the teaching of Mathematics in Elementary School II, pointing out ways for teacher training, the organization of pedagogical work and the implementation of public policies. It is reaffirmed the need to invest in systematic processes of initial and continuing education that contemplate ASD, and inclusive education, in dialogue with the specificities of Mathematics, as well as in support policies that guarantee adequate material, technological and human resources.

It is concluded that there are still gaps in the scientific production on the subject, especially with regard to empirical studies that analyze the impact of different pedagogical interventions in real classroom contexts. It is suggested, therefore, that new research be carried out that deepens the relationship between ASD characteristics, Mathematics teaching strategies and learning outcomes, contemplating different teaching networks and school realities. Moving in this direction is an essential condition for the teaching of Mathematics to consolidate itself as a space for development, autonomy and participation for all students, contributing to the construction of an effectively inclusive school.

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HISTORY TEACHING AND WOMEN'S HISTORY (1930–1945): A PROPOSAL FOR HISTORICAL-DIGITAL LITERACY WITH THIRD-YEAR HIGH SCHOOL STUDENTS

ENSINO DE HISTÓRIA E HISTÓRIA DAS MULHERES (1930-1945): UMA PROPOSTA DE LETRAMENTO HISTÓRICO - DIGITAL COM OS ESTUDANTES DA TERCEIRA SÉRIE DO ENSINO MÉDIO

ENSEÑANZA DE LA HISTORIA E HISTORIA DE LAS MUJERES (1930–1945): UNA PROPUESTA DE ALFABETIZACIÓN HISTÓRICO-DIGITAL CON ESTUDIANTES DEL TERCER AÑO DE EDUCACIÓN MEDIA

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ABSTRACT

This article presents a reflection on History teaching through the integration of historical-digital literacy and Women's History, based on a didactic experience developed with high school students from a public school in Espírito Santo, Brazil. Grounded in the principles of the New Cultural History and Freirean critical pedagogy, the study used the *Jornal das Moças* newspaper (1930–1945) as the main source for the production of educational podcasts. The proposal aimed to promote meaningful and critical learning by encouraging the analysis of gender representations and student protagonism through the use of digital technologies. The results show that the podcast, in addition to fostering students' autonomy and authorship, contributes to the dialogue between past and present, revealing the transformative potential of digital media in History teaching.

Keywords: History Teaching. Historical-Digital Literacy. Podcast.

RESUMO

O artigo apresenta uma reflexão sobre o ensino de História a partir da integração entre o letramento histórico-digital e a História das Mulheres, com base em uma experiência didática desenvolvida com estudantes do Ensino Médio de uma escola pública do Espírito Santo. Fundamentado nos princípios da Nova História Cultural e na pedagogia crítica freireana, o estudo utilizou o periódico *Jornal das Moças* (1930–1945) como fonte principal para a produção de podcasts educativos. A proposta visou promover uma aprendizagem significativa e crítica, estimulando a análise das representações de gênero e o protagonismo discente por meio do uso das tecnologias digitais. Os resultados evidenciam que o podcast, além de favorecer a autonomia e a autoria dos alunos, contribui para o diálogo entre passado e presente, revelando o potencial transformador das mídias digitais no ensino de História.

Palavras-chave: Ensino de História. Letramento Histórico-Digital. Podcast.

RESUMEN

El artículo presenta una reflexión sobre la enseñanza de la Historia a partir de la integración entre la alfabetización histórico-digital y la Historia de las Mujeres, basada en una experiencia

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didáctica desarrollada con estudiantes de Educación Media en una escuela pública del estado de Espírito Santo, Brasil. Fundamentado en los principios de la Nueva Historia Cultural y en la pedagogía crítica freireana, el estudio utilizó el periódico *Jornal das Moças* (1930–1945) como fuente principal para la producción de pódcast educativos. La propuesta tuvo como objetivo promover un aprendizaje significativo y crítico, estimulando el análisis de las representaciones de género y el protagonismo estudiantil mediante el uso de tecnologías digitales. Los resultados evidencian que el pódcast, además de favorecer la autonomía y la autoría de los estudiantes, contribuye al diálogo entre pasado y presente, revelando el potencial transformador de los medios digitales en la enseñanza de la Historia.

Palabras clave: Enseñanza de la Historia. Alfabetización Histórico-Digital. Pódcast.

1 INTRODUCTION

The teaching of History, especially in Basic Education, faces challenges related to student motivation and the disconnection between historical content and the realities experienced by students. In many school contexts, a traditional approach still predominates, centered on memorization and chronological linearity, which limits the formation of a critical historical consciousness (RÜSEN, 2001; BITTENCOURT, 2008).

In this scenario, this article derives from my master's dissertation defended in the ProfHistória Program at the Fluminense Federal University (UFF) in 2024, whose objective was to investigate how historical-digital literacy can contribute to the teaching of Women's History through the analysis of historical sources and the production of podcasts.

The project, carried out with students in the 3rd grade of high school, was based on the periodical *Jornal das Moças* (1930–1945), one of the main communication vehicles aimed at the female public during the Vargas government. This magazine, while propagating conservative moral and behavioral values, also revealed tensions and gaps that make it possible to understand the social representations of the feminine in urban Brazil in the 1930s and 1940s.

The proposal was based on the observation that Women's History still occupies a marginal space in the school curriculum. This invisibility stems from a historical process of erasure, the result of a patriarchal culture that structured historical knowledge around the male, white, and elitist experience (PERROT, 1988; SCOTT, 1992). By proposing a critical and technological approach, it sought to break with traditional teaching and promote an emancipatory practice (FREIRE, 1987; hooks, 2020).

2 THEORETICAL FRAMEWORK

2.1 THE HISTORY OF WOMEN AND GENDER REPRESENTATIONS

The emergence of Women's History as a historiographical field is deeply linked to the epistemological transformations that marked the twentieth century, especially from the 1970s onwards, with the strengthening of the so-called *New Cultural History*. This approach questioned the great narratives centered on political events and male figures, opening space for new themes and historical subjects (BURKE, 1992; CHARTIER, 1990). In this context, women came to be understood not as secondary characters, but as agents of social and cultural processes.

According to Michelle Perrot (1988), the absence of women in history is not due to the lack of their participation, but to a silencing institutionalized by the structures of power and by historiographical writing itself, constructed under a male and bourgeois gaze. This silencing, according to the author, is part of a patriarchal logic that has naturalized female invisibility, confining them to the private and domestic space.

From the feminist movements of the 1960s and 1970s, and the development of gender studies, this situation began to be tensioned. Joan Scott (1992) proposed to understand gender not only as an identity issue, but as a category of historical analysis capable of revealing the power relations and cultural meanings attributed to sexual differences. For the author, to study gender is to study the way in which power is inscribed in social and symbolic structures, influencing both the lives of women and men.

In Brazil, authors such as Mary Del Priore (1997), Carla Pinsky (2006) and Rachel Soihet (1997) contributed significantly to the consolidation of Women's History and gender relations. They demonstrated that female experiences are multiple, crossed by class, race, religion and regionality. Thus, there is no single history of women, but plural histories, which must be understood within their specific contexts.

The women's press, for example, becomes a privileged source for investigating gender representations and symbolic constructions about the role of women in society. According to Tânia Regina de Luca (2006), magazines aimed at the female public — such as *Jornal das Moças*, the focus of this research — were spaces for sociability and moral, cultural and aesthetic education, contributing to shaping behaviors and spreading values.

These periodicals expressed an ambiguity: at the same time that they reproduced norms of submission and domesticity, they also conveyed discourses of modernity and emancipation. In the case of *Jornal das Moças* (1930–1945), there is an attempt to reconcile the ideal of the "modern woman" with the conservative model of the Estado Novo, which reinforced motherhood and obedience as feminine virtues.

This tension reveals that representations are not neutral reflections of reality, but fields of symbolic dispute, in which different voices — including female voices — express themselves. Burke (1992) and Chartier (2002) remind us that discourses are arenas of power and negotiation. Therefore, analyzing the representations of women in historical sources requires understanding the mechanisms of production, circulation, and appropriation of these discourses within culture.

By working with this material with Basic Education students, the proposal is to promote the critical reading of historical documents and the deconstruction of gender stereotypes that still persist in society. As Louro (1987) states, the school is one of the main spaces for the reproduction and contestation of gender identities. Including Women's History in the curriculum is, therefore, a political and pedagogical act, which expands the notion of citizenship and combats the exclusionary narratives of the past.

2.2 TEACHING OF HISTORY, CURRICULUM AND SENSITIVE THEMES

The teaching of History is a social and political practice. It is not limited to the transmission of contents, but involves the formation of critical subjects capable of interpreting the world and intervening in it. Paulo Freire (1987) already warned that education should be an act of liberation, and not of domestication; teaching History is, in this sense, teaching how to read the world in its historicity.

However, the school curriculum still largely reflects conservative and Eurocentric views. As Apple (2005) points out, the curriculum is a space of dispute, where certain knowledge is legitimized while others are silenced. The National Common Curriculum Base (BNCC, 2018), although it brings advances in recognizing cultural and gender diversity, still has gaps in the approach to Women's History, mentioning them only in a peripheral way.

Working with sensitive topics — such as gender, sexuality, and race — in the teaching of History is a challenge, especially in contexts marked by conservative discourses. Pereira and Seffner (2018) argue that these themes should be treated as opportunities to develop historical empathy and citizen awareness. By confronting students with painful or controversial realities, the History teacher enables them to understand the continuities and ruptures of violence and social inequalities over time.

In this sense, the teaching proposal discussed here — centered on the analysis of the *Jornal das Moças* — allowed us to problematize the representations of the feminine and discuss the permanence of patriarchal patterns in the social imaginary. As bell hooks (2020) highlights, critical teaching needs to be a space of affection and dialogue, where teachers and students recognize each other as historical subjects and learn collectively.

The experience reported in this work materializes what hooks (2013) calls "engaged pedagogy": an educational practice that values lived experiences, the plurality of voices and the collective construction of knowledge. By addressing Women's History in the classroom,

the idea of neutrality of teaching is broken, as an ethical and political stance is taken in the face of historical inequalities.

2.3 HISTORICAL-DIGITAL LITERACY AND THE NEW LANGUAGES OF HISTORY

The insertion of digital technologies in the educational process should not be seen as a mere modernization of resources, but as a paradigmatic change in the way of producing, communicating and learning History. According to Danilo Alves da Silva (2018), historical-digital literacy consists of developing skills that allow the student to critically understand the past using digital tools for research, analysis and narrative.

This conception expands the notion of historical literacy proposed by Rüsen (2001), by incorporating digital media as spaces for the construction of historical consciousness. Thus, the student is not only a consumer of information, but a producer of historical narratives in virtual environments, which favors intellectual autonomy and youth protagonism.

The use of podcasts, in this context, stands out for its dialogical and collaborative nature. As Souza (2016) observes, sound media combines orality and technology, rescuing the narrative tradition of History and making it accessible to different audiences. By writing scripts, recording and editing episodes, students exercise multiple skills: research, argumentation, listening, authorship and empathy.

In addition, the podcast represents a space for resistance and democratization of knowledge, as it allows historically silenced voices — such as those of women — to be heard. Farias (2020) emphasizes that, when the teaching of History appropriates this language, it approaches the communicational practices of contemporary youth, making learning more meaningful and connected with the lived world. The BNCC (2018) reinforces that technologies must be used critically and creatively, to expand citizen participation and reflective thinking. In this sense, historical-digital literacy is not only a matter of technical mastery, but also ethical and epistemological: it is about teaching the student to read the past, understand the present and act on the future using digital languages as tools for emancipation.

As Malerba (2017) points out, digital culture introduces new forms of production and circulation of memory. Audiovisual and sound narratives transform the way individuals relate to historical time, making the teaching of History a sensory, creative and critical experience.

In this way, historical-digital literacy does not replace traditional teaching, but reconfigures it, by integrating the analysis of sources, historical research and digital

communication. This approach allows History to become more accessible, participatory and meaningful, especially in a context where young people are immersed in virtual environments and sharing networks.

By articulating Women's History, critical teaching and technology, the present study reaffirms the potential of digital media — especially the podcast — as an instrument for democratizing historical knowledge and promoting a more inclusive and plural school culture.

3 METHODOLOGY

The research developed has a qualitative and interpretative character, structuring itself as an investigation of an applied nature, focused on the pedagogical practice in the teaching of History. The case study was adopted as an approach, since the focus was to understand the dynamics of learning and construction of historical knowledge in a specific school context, from a concrete didactic experience.

The research field was a public school located in Espírito Santo. Twenty-four students from the third grade of high school, aged between sixteen and eighteen, participated in the proposal. The project was developed over a semester of 2023 and 2024, integrating regular History classes, under the mediation of the teacher-researcher.

The development of the research occurred in four interconnected moments, organized from the perspective of workshop-classes (BARCA, 2004), which privilege the collective construction of knowledge and the constant problematization of historical sources and narratives. The first moment consisted of raising students' awareness of the theme of Women's History, with conversation circles and a survey of previous knowledge. In this stage, the absences and invisibilities of women in textbooks were discussed, in addition to presenting the objectives of the project and the role of women in contemporary historiography.

The second moment involved working with historical sources, centered on the reading and analysis of the periodical *Jornal das Moças* (1930–1945), available digitally in the collection of the National Library. Recurring sections of the magazine were selected, such as "Gospel of Mothers", "Women's Journal" and "Box", which addressed themes related to morals, beauty and female behavior. The students, organized in groups, carried out a critical reading of the texts, identifying gender representations, stereotypes and contradictions between discourses of modernity and conservatism.

The third moment corresponded to the appropriation of digital technologies as pedagogical tools. In this stage, basic notions of historical-digital literacy were introduced

(SILVA, 2018), exploring how digital media can be used in the production and dissemination of historical knowledge. The students participated in practical workshops on scripting, recording and audio editing, learning about the stages of creating an educational podcast. The choice of this media was due to its narrative potential and its approach to the youth cultural universe, as argued by Souza (2016) and Farias (2020).

Finally, the fourth moment consisted of the production of podcasts. Each group prepared an original script, selecting excerpts from historical sources and relating them to contemporary issues, such as feminism, the role of women in the labor market, and the influence of the media in the construction of gender identities. The professor acted as a mediator, guiding the discussions and assisting in the conceptual and technical reviews. The final episodes were socialized in an internal exhibition of the institution, open to the community, which favored the expansion of the debate and student protagonism.

Throughout the process, the data were recorded through observations, notes in a field diary, student productions and recordings of collective discussions. These materials were later analyzed from the perspective of interpretative analysis, seeking to understand the transformations that occurred in the students' historical understanding and in the representations of the feminine.

The methodology, therefore, articulated practice and reflection, combining elements of action research, critical teaching and historical-digital literacy. This structure allowed us to evaluate not only the final products — the podcasts — but also the formative process experienced by the students. The qualitative approach, supported by the interaction between theory and practice, made it possible to interpret learning experiences as collective and dynamic constructions, in which historical knowledge is manifested through language, narrative and technology.

In summary, the methodology used aimed to integrate the teaching of History, the critical analysis of sources and media production, promoting meaningful and contextualized learning. By involving students as protagonists of the process, the project reaffirmed the importance of school research as a space for emancipation, dialogue and reconstruction of historical knowledge, in line with the principles of Freire's pedagogy and with the formative objectives of contemporary education.

4 RESULTS AND DISCUSSIONS

The analysis of the periodicals revealed that the *Jornal das Moças* functioned as a device of symbolic control over female behavior, reinforcing ideals of docility, modesty and submission. The sections "Gospel of Mothers" and "Women's Journal" advised readers to obey their husbands and to take care of the home, presenting motherhood as a natural destiny.

However, the workshops allowed the students to identify contradictions: in some passages, the magazine exalted modernity, work and women's education, albeit in a limited way. This ambiguity aroused discussions among students about the advances and setbacks of the female condition in the Vargas Era, establishing bridges with the present.

The results indicate that the podcast, by requiring research, argumentation and cooperation, stimulates student protagonism and critical thinking. In addition, it expands access to historical knowledge by circulating on open digital platforms, democratizing scientific and school dissemination.

5 CONCLUSION

The teaching of History needs to dialogue with contemporary languages to remain relevant and meaningful. The experience reported in this article demonstrates that the integration between Women's History and historical-digital literacy is an effective strategy to promote transformative learning.

The use of the podcast as a pedagogical tool favors the exercise of authorship, the mastery of oral language and the development of historical awareness. More than a technological resource, it is a social practice that connects the past to the present, bringing the school closer to the cultural experiences of students.

It is concluded that the teaching of History must assume an ethical and political commitment to diversity, inclusion and human rights. Forming critical subjects implies teaching how to read the world and rewrite it, as Paulo Freire (1987) argues. Thus, historical-digital literacy, combined with Women's History, constitutes a powerful path to a liberating and plural education.

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CONTINUOUS TRAINING OF PUBLIC SCHOOL TEACHERS

FORMAÇÃO CONTINUADA DOS PROFESSORES DA REDE PÚBLICA

FORMACIÓN CONTINUA DE LOS DOCENTES DE LA RED PÚBLICA

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ABSTRACT

This article aims to discuss the main challenges and possibilities related to the continuing education of public school teachers, highlighting public policies, training practices and the importance of teacher engagement in this process. The methodology is a bibliographical research with a descriptive and exploratory approach. The results showed that the continuing education of public school teachers is a complex challenge, but essential for the construction of quality education. Ensuring adequate conditions so that teachers can participate in relevant training, connected to their reality, is a commitment that must be assumed by managers, public policies and society in general. In this sense, it was concluded that overcoming structural difficulties and valuing the professional development of teachers are necessary paths to transform public education into a more effective and humanizing learning space.

Keywords: Professional Development. Continuing Education. Public Policies.

RESUMO

O presente artigo tem por objetivo discutir os principais desafios e possibilidades relacionados à formação continuada de professores da rede pública, destacando políticas públicas, práticas formativas e a importância do engajamento docente nesse processo. A metodologia se trata de uma pesquisa bibliográfica de abordagem descritiva e exploratória. Os resultados mostraram que a formação continuada de professores da rede pública é um desafio complexo, mas fundamental para a construção de uma educação de qualidade. Garantir condições adequadas para que os professores possam participar de formações relevantes, conectadas à sua realidade, é um compromisso que deve ser assumido por gestores, políticas públicas e pela sociedade em geral. Nesse sentido, concluiu-se que superar as dificuldades estruturais e valorizar o desenvolvimento profissional dos professores são caminhos necessários para transformar a educação pública em um espaço de aprendizagem mais efetivo e humanizador.

Palavras-chave: Desenvolvimento Profissional. Formação Continuada. Políticas Públicas.

RESUMEN

El presente artículo tiene como objetivo discutir los principales desafíos y posibilidades relacionados con la formación continua de los docentes de la red pública, destacando las políticas públicas, las prácticas formativas y la importancia del compromiso docente en este

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proceso. La metodología consiste en una investigación bibliográfica con un enfoque descriptivo y exploratorio. Los resultados mostraron que la formación continua de los docentes de la red pública es un desafío complejo, pero fundamental para la construcción de una educación de calidad. Garantizar condiciones adecuadas para que los docentes puedan participar en formaciones relevantes y conectadas con su realidad es un compromiso que debe ser asumido por los gestores, las políticas públicas y la sociedad en general. En este sentido, se concluyó que superar las dificultades estructurales y valorar el desarrollo profesional de los docentes son caminos necesarios para transformar la educación pública en un espacio de aprendizaje más efectivo y humanizador.

Palabras clave: Desarrollo Profesional. Formación Continua. Políticas Públicas.

1 INTRODUCTION

The continuing education of public school teachers has been a fundamental element for improving the quality of education in Brazil. In a scenario of constant social, cultural, and technological changes, it is essential that teachers are constantly updated, improving their pedagogical practices and keeping up with new educational demands. According to Gatti (2019), continuing education needs to be seen as a systematic process and articulated with the real needs of the school context, contributing to professional appreciation and student learning.

With regard to initial and continuing education (FIC) or professional qualification according to MEC data, they are organized to prepare for productive and social life, promoting the insertion and reinsertion of young people and workers in the world of work. This includes professional training, improvement and professional updating courses for workers at all levels of education. It includes special courses, freely offered, open to the community, as well as professional qualification courses integrated into the training itineraries of the educational system.

In Brazil, since the 1990s, the policy of state intervention in education, implemented through educational reforms embodied in the new law of guidelines and bases of national education (No. 9394/96), has proposed the implementation of more participatory structures and the decentralization of certain levels of decision-making. The intention is that with the rationalization and control in the use of public resources, greater efficiency and productivity are achieved.

It is observed that all the discussions and challenges regarding teacher training and its perspectives for the twenty-first century have made many specialists pay greater attention to the process of initial and continuing teacher training, as this process needs to be rethought through the new political-cultural demands for a new profile of teaching professionals (Kuenser, 2011). In addition, the narrowness of research practices has been a cause for concern in this area.

The continuing education of public school teachers, despite being recognized as an essential factor for improving the quality of education, still faces several obstacles in its implementation. In view of this reality, the following research problem arises: What are the main challenges and possibilities related to the continuing education of public school teachers?

The choice to address the theme of continuing education of public school teachers is justified by its relevance in the Brazilian educational context. Investing in the permanent training of teachers is one of the most effective ways to ensure quality education, capable of meeting social demands and promoting the integral development of students.

This article aims to discuss the main challenges and possibilities related to the continuing education of public school teachers, highlighting public policies, training practices and the importance of teacher engagement in this process. The methodology is a bibliographic research with a descriptive and exploratory approach.

2 THE FIELD OF TEACHER TRAINING

Despite the broad debate that has been taking place in Brazil in the last thirty years about the training of teachers for secondary education, this issue remains far from being adequately addressed, as it is intended to change a reality that has been dragging on for decades. Among the many divergences, there are at least some aspects on which there is consensus: the shortage of teachers, notably in some areas and regions, the insufficiency and inadequacy of policies and proposals for this training, and their severe impacts on the quality of education.

Recently, access to the stages of Basic Education was contemplated in Law 13.005/2014, which approved the PNE for the 2014-2024 decade. In High School, goal 3 highlights the opportunity to enroll in High School by 2024, 85% of young people belonging to the age group 15 to 17 years old, a school stage appropriate to the aforementioned age group. The proposal is justified when it is found that approximately 4.3 million young people belonging to the 15 to 17 age group were not enrolled in high school in 2015. It reveals, on the one hand, the systematic denial of access and permanence in High School; and, on the other hand, the challenge of the federated entities to carry out what this PNE goal sets for the service by 2024 (Brasil, 2014).

The training of teachers to work in basic education will be carried out at a higher level, in a licentiate course, of full graduation, in universities and higher institutes of education, admitted, as a minimum training for the exercise of teaching in early childhood education and in the first 5 (five) years of elementary school, the one offered at the secondary level in the normal modality (BRASIL, 1996). This understanding is broadened when one considers, among other factors, according to Kuenzer (2011, p. 671), "the inequality in the distribution of qualification among disciplines, a fact that has been repeatedly pointed out in recent

decades. Thus, only 53% of teachers who work in high school have training compatible with the subject they teach."

In their book, Silva Jr. et al. (2020) emphasize that the need for teacher professionalization is now an unquestionable fact. Uncertainty arises, however, when asked about the capacity of university professors to act as educators of teachers for basic education.

Admitting the limitations of a professional training for basic education supported only by typically university standards and forms, the participation of trainers from basic education became indispensable for an integrated training process that would harmoniously contemplate the knowledge produced at the university and the knowledge built by reflection and research directly developed on the work of school institutions.

It is emphasized that the change in education is related to the training of teachers and the innovation of their pedagogical practices, especially in the classroom, in addition to being associated with the school's educational projects. Teacher training involves three general aspects: (formal) knowledge for practice (the teacher knows for him); knowledge (tacit/experimental) in practice (in practice how theory is and is articulated); knowledge of practice Political (broad), Sociologist (community), Intellectual (classroom) (Gatti, 2019).

Considering the formative needs in our current society, how the school and teachers have sought to meet such needs, sometimes in continuing education courses, sometimes in initial training courses. It is necessary to reflect on the possibilities of teacher training in being able to train learning professionals capable of meeting the demands of today's society.

2.1 CONTINUING EDUCATION AND ITS IMPORTANCE FOR THE QUALITY OF EDUCATION

Initial training, despite being a fundamental moment for professional development, is not enough to meet the demands of daily school life. Continuing education emerges as a means of constant updating, allowing teachers to reflect on their practice and seek more appropriate pedagogical strategies. Tardif (2014) states that teaching knowledge is built throughout the career, and continuing education is an opportunity to strengthen pedagogical and specific knowledge of the areas of activity.

Speaking of what would be the continuing education of teachers, being an educational process, for a long time, it has been like improvement, training, qualification, recycling, permanent education and continuing education. However, nowadays it is important to review

these terms that are so present in the daily discourse of teachers and other levels of education administration.

According to Gatti (2019), continuing education is a need that is increasingly pointed out and felt by everyone. This is still offered in ways that have many similarities with initial training. It is carried out by offering courses, in order to define contents in advance, without taking into account problematic situations, difficulties for teachers to develop professionally. Educational systems structured by the provision of basic education work in a scheme of offering courses in blocks and do not invest in the systematic survey of problematic situations for the definition of strategies and training actions.

In this conception, the continuing education of teachers should encourage the appropriation of knowledge by teachers, towards autonomy, and lead to a critical-reflective practice, covering the daily life of the school and the knowledge derived from the teaching experience. It is also highlighted that continuing education is a fundamental condition for the rereading of experiences and learning. An integration into the daily life of teachers and schools, considering the school as a place of action, the curriculum as a space for intervention and teaching as an essential task.

In this sense, it is necessary to defend a process of teacher training in which schools are conceived as an essential institution for the development of a critical democracy and also for the defense of teachers as intellectuals who combine reflection and practice, at the service of the education of students so that they are reflective and active citizens (Giroux, 1997).

In addition, continuing education is directly related to educational results. Studies such as that of Nóvoa (2017) indicate that teachers who regularly participate in professional development programs demonstrate a greater ability to adapt to curricular and technological innovations.

3 PUBLIC POLICIES AND CONTINUING EDUCATION PROGRAMS

In recent decades, several public policies have been implemented with the objective of promoting the continuing education of teachers in the public network. Programs such as PNAIC (National Pact for Literacy at the Right Age) and BNCC (National Common Curriculum Base) have promoted large-scale training actions, aiming to update teachers in relation to the new guidelines and teaching methodologies.

In 2014, during the Dilma Rousseff government, Law No. 13,005/2014 was approved, creating the National Education Plan (PNE 2014-2024), which totals 10 guidelines, 20 goals

with strategies, with a very different structure from the previous plan. Of the 20 goals, numbers 14, 15, 16, 17 and 18 refer to the valorization of education professionals, and are considered strategic for the other goals to be achieved. In relation to continuous training, the "[...] initial and/or continuous training is mentioned in several goals of the PNE, often in a secondary way, related to the goal in one of the strategies to designate a need for specific training" (Hypolito, 2015, p.522).

One of the institutionalized actions in dealing with continuing education is the National Policy for teacher training, instituted by Decree No. 8,752/2016, which has as one of its dimensions the continuing education created after Michel Temer assumed the presidency. Regarding continuing education, it includes regulation and research and information. Its lines of action are: National Common Curriculum Base (BNCC); Literacy; Early Childhood Education; New High School; Technology and Innovation; Education in Human Rights and Diversity; Environmental education; and Training of Managers. Professional Master's Degrees, Specialization Courses, with international cooperation, through the creation of a Management Committee composed of the MEC, Consed, Undime and the training institutions, are proposed.

There are also some programs that are being carried out, and they are listed on the Capes website⁴ (Brazil, 2019). It is worth mentioning that only on October 26, 2020, Opinion No. 14/2020 was approved, instituting the "National Curriculum Guidelines for the Continuing Education of Basic Education Teachers and the National Common Base for the Continuing Education of Basic Education Teachers (BNC-Continuing Education)", giving continuing education a role of complementarity to initial training, and not of articulation. In addition, the document does not take into account the training needs of the subjects and is linked to the implementation of the BNCC.

However, according to Oliveira and Lopes (2021), there are still gaps between what the policies propose and what is actually implemented in schools. Many teachers report lack of time, inadequate infrastructure and training with an excessively theoretical character, with no direct connection to pedagogical practice.

Fanizzi and Santos (2017), when investigating the public policy aimed at the continuing education of teachers in the early years of Mathematics in the Municipal Secretariat of São Paulo between 2005 and 2012, found that, despite the existence of the policy, there is a great mismatch between the official guidelines and the practical appropriation of teachers, evidencing discontinuities between the planning and the effectiveness of the training action

4 CHALLENGES FOR THE EFFECTIVENESS OF CONTINUING EDUCATION

Among the main challenges faced by teachers in the public network, work overload stands out, which often prevents effective participation in training activities. In addition, the lack of resources and the lack of institutional support compromise the effectiveness of the programs offered.

Another factor pointed out by Lima and Souza (2020) is the low valuation of continuing education as a State policy. Many programs are discontinuous and dependent on momentary political interests, making it difficult to build a culture of permanent training in schools.

For continuing education to achieve its objectives, it is essential that actions are planned in a participatory way, considering the real demands of teachers and the school context. The promotion of in-service training, the encouragement of the creation of learning communities and the use of educational technologies are some alternatives that can make the process more dynamic and meaningful.

In addition, investing in professional development and creating policies to encourage training are important steps to strengthen teacher identity and improve the quality indices of public education.

According to Bernardes, Silva and Ditomaso (2023), continuing education faces both internal and external obstacles, such as long working hours, lack of salary appreciation and absence of consistent institutional offer by the Department of Education, making it difficult for teachers to effectively participate.

Galindo and Inforsato (2020) point to a paradox: although continuing education is widely recognized as a strategy for teacher improvement, many actions do not promote significant changes in pedagogical practices, failing to change conceptions and teaching methodologies in a lasting way. França and Battini (2016) highlight the disconnect between training proposals (usually technical and disconnected from the school reality) and the teacher's practice, noting that initiatives often replicate "ready-made" theoretical content, without considering the context and subjects of the school.

Mattia and Maquêa (2018) add that rapid technological advances impose challenges to teacher identity, requiring teachers not only to know, but also to know how to critically integrate technologies into pedagogical practices, which demands more reflective and contextual training.

5 FINAL CONSIDERATIONS

Through this study, it was realized that the continuing education of teachers in the public network is a complex challenge, but fundamental for the construction of quality education. Ensuring adequate conditions for teachers to participate in relevant training, connected to their reality, is a commitment that must be assumed by managers, public policies and society in general.

In this sense, overcoming structural difficulties and valuing the professional development of teachers are necessary ways to transform public education into a more effective and humanizing learning space. It is also essential that public policies for continuing education be planned in a participatory way, involving the teachers themselves in the diagnosis of their training needs.

It is noteworthy that when programs are created without dialogue with the school reality, there is a risk that they will become ineffective initiatives, distant from pedagogical demands and regional specificities. Valuing teacher listening and integration between universities, education departments, and schools are essential strategies to ensure that courses and workshops have real applicability in daily school life.

Finally, it is emphasized that continuous training of public school teachers is an action that directly reflects on the teaching-learning process and on the quality indices of education. Therefore, it is essential to seek to overcome structural challenges, ensure adequate funding and strengthen professional valorization, so that a more democratic, critical and emancipatory continuing education policy can be built.

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**MATHEMATICS EDUCATION AND DIGITAL TECHNOLOGIES: REFLECTING
ON THE POTENTIAL FOR MATHEMATICS EDUCATIONAL PROCESSES**

**EDUCAÇÃO MATEMÁTICA E TECNOLOGIAS DIGITAIS: REFLETINDO O
POTENCIAL PARA PROCESSOS EDUCACIONAIS DE MATEMÁTICA**

**EDUCACIÓN MATEMÁTICA Y TECNOLOGÍAS DIGITALES: REFLEXIONANDO
SOBRE EL POTENCIAL PARA LOS PROCESOS EDUCATIVOS DE
MATEMÁTICAS**

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ABSTRACT

The advancement of digital technologies, in various contexts of our society, where individuals operate, influence, and modify human interactions, is directly related to the cultural, political, and economic needs of humanity. Educational spaces/processes are one of these contexts where these technologies are being introduced and expanding their reach. In this context, this paper proposes to reflect on the contributions made possible by digital technologies to mathematics education processes, considering the importance of understanding their use within school spaces as a support tool for mathematics education processes and their potential that emerges from social practices. However, we cannot consider these tools as the complete solution for all mathematics education processes because they may not be developed for educational purposes, but their use can contribute to bringing students closer to social reality from the moment that the didactic-pedagogical planning provides opportunities that stimulate reflections on themes related to society, creativity, autonomy, spatial notions, and the construction of mathematical knowledge.

Keywords: Mathematics Education. Educational Processes in Mathematics. Digital Technologies.

RESUMO

O avanço das tecnologias digitais, em diversos contextos da nossa sociedade, onde os sujeitos operam, influenciam e modificam as interações humanas relaciona-se diretamente às necessidades culturais, políticas e econômicas da humanidade. Os espaços/processos educacionais é um desses contextos em que essas tecnologias estão sendo inseridas e ampliando sua zona de popularização. Nesse contexto, propõe-se refletir sobre as contribuições possibilitadas pelas tecnologias digitais para processos educacionais de matemática na perspectiva de se considerar relevante compreender a importância da sua utilização dentro dos espaços escolares como ferramenta de apoio aos processos educacionais em matemática e o seu potencial que emerge a partir das práticas sociais. No entanto, não podemos depositar nessas ferramentas a solução completa para todos os processos educacionais em matemática porque pode não serem desenvolvidas para fins

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educacionais, mas, seu uso pode contribuir para aproximar a realidade social dos discentes a partir do momento que no planejamento didático-pedagógico oportunize situações que estimulem reflexões sobre temáticas relacionadas à sociedade, criatividade, autonomia, noções espaciais e a construção do conhecimento matemático.

Palavras-chave: Educação Matemática. Processos Educacionais de Matemática. Tecnologias Digitais.

RESUMEN

El avance de las tecnologías digitales en diversos contextos de nuestra sociedad, donde los individuos operan, influyen y modifican las interacciones humanas, está directamente relacionado con las necesidades culturales, políticas y económicas de la humanidad. Los espacios/procesos educativos son uno de esos contextos donde estas tecnologías se están introduciendo y expandiendo su alcance. En este contexto, este artículo propone reflexionar sobre las contribuciones de las tecnologías digitales a los procesos de educación matemática, considerando la importancia de su uso dentro de los espacios escolares como herramienta de apoyo para la educación matemática y su potencial emergente de las prácticas sociales. Sin embargo, no podemos considerar estas herramientas como la solución completa para todos los procesos de educación matemática porque pueden no estar desarrolladas con fines educativos. No obstante, su uso puede contribuir a acercar a los estudiantes a su realidad social, siempre que la planificación didáctico-pedagógica cree oportunidades que estimulen la reflexión sobre temas relacionados con la sociedad, la creatividad, la autonomía, la conciencia espacial y la construcción del conocimiento matemático.

Palabras clave: Educación Matemática. Procesos Educativos en Matemáticas. Tecnologías Digitales.

1 INITIAL CONTRIBUTIONS

Technological development, within the various contexts in which individuals operate daily to enhance their social processes, has always been directly interconnected with their social needs, through the organization of a set of actions relevant to strengthening both individual and collective survival.

This development becomes perceptible from the moment human beings, through their own knowledge, began to create tools capable of enabling activities such as hunting, fishing, navigation, land demarcation, communication and information, agriculture, among others. This process soon became common for addressing an increasing number of individual and collective demands—whether at home, at work, during meals, or on trips—with the potential to assist in performing everyday activities, even optimizing manual tasks in shorter periods of time.

Given this potential, technological advances have enabled the development of humanity. However, we cannot overlook the behavioral shifts that emerge when individuals perceive the growing presence of technology across social contexts. Such behaviors are shaped by society itself, which views technological progress as a major novelty—one that requires reflection on the necessary precautions regarding the most appropriate ways to integrate it into human interactions. These same considerations must be extended to educational processes, given the need to educate individuals technologically so that they may enhance their critical participation in everyday dynamics.

It becomes necessary to consider an educational process because various segments of our society are increasingly influenced by the presence of digital technologies that emerge daily among individuals and within educational spaces. This presence is also clearly observed in schools. It becomes evident not only in the relationships/interactions among students and teachers but also in the school environment itself, when it provides technological infrastructure capable of being pedagogically explored.

Digital technologies, linked to different social contexts, are present in educational processes—particularly in mathematics—with the potential to engage learners through various computer-based environments. However, didactic–pedagogical contexts must be created in which students become protagonists of their own learning and enhance their collaborative actions to prevent inappropriate use.

Considering society's deep involvement with different digital environments, it becomes necessary to reflect upon whether the presence of digital environments ensures solutions to educational problems.

From a technical standpoint, one might assume there is no real need for concern as long as individuals can manipulate machine-based tools (Lima Jr., 2005). However, the relationship between individuals and machines must be understood beyond manipulative and technicist processes. This means providing educational contexts in which individuals can function technologically.

Functioning technologically does not imply denying the place of machines and their potential contributions to enabling new dynamics within educational processes. Instead, it means fostering educational contexts where individuals exercise their autonomy, acting and thinking mathematically, and contributing to the development of knowledge—especially mathematical knowledge.

In this perspective, Freire (2021) argues that, like education itself, the presence of technology in society also carries a political dimension that benefits certain social groups while excluding others. Therefore, individuals must remain attentive to the political character that accompanies the incorporation of technology into educational spaces. This political dimension must be considered during discussions and use, particularly of digital technologies. Although their potential is acknowledged by the political system, investments in integrating such resources into schools remain insufficient, and when they occur, their functionality is often limited, serving mostly hegemonic state interests.

This perspective becomes especially clear in reports from the National Telecommunications Agency (Anatel), which indicate that by the end of 2022, 3,400 schools in Brazil had no access to electricity, 9,500 had no Internet access, and 46,100 lacked computer labs. These data call for reflection on the neglect of public policies concerning digital technology integration into educational processes, especially when compared to economic investments.

Society perceives this neglect when public investments prioritize boosting the productive sector of the economy, favoring the development of machine-based devices such as tablets, smartphones, video-call applications, Internet platforms, Google Maps, and social networks—built with the understanding that such devices would support and satisfy the ideals of a hegemonic, capitalist society.

In this perspective, Santos, Freitas, Queiroz, and Santos (2025, p. 3) challenge these assumptions, asserting that:

“technological resources should not—and cannot—remain restricted to ideas that solely strengthen industrial production, expanding machine-based devices with exclusive objectives of industrial growth, comfort, economic empowerment, or other desires tied to a capitalist, hegemonic society supported by consumerist principles.” (Santos, Freitas, Queiroz & Santos, 2025, p. 3)

Even acknowledging the incentives for technological production, we cannot ignore the advancement of digital technologies and their relevance in decision-making across different social contexts. These contexts justify the importance of educational spaces providing continual training for individuals so that they are prepared to use such technologies according to their personal and professional needs.

These needs are also evident in the field of Mathematics Education, which draws upon knowledge from both Mathematics and Education to enable individuals to act and think mathematically—not only within scientific knowledge, but also in their ability to intervene when necessary in their social contexts. In other words, we must establish foundations that allow us to advance in the use of technologies not merely as machine-based devices but as resources through which individuals can function technologically.

Whether in academic or professional spheres, Education must help individuals advance within their social contexts without fostering dependence on digital technologies. This can be achieved by exploring the tools available. To do so, it is necessary to redesign didactic–pedagogical objectives for activities in educational processes, promoting an education characterized by opportunities for autonomous mathematical thinking within digital contexts and enabling individuals to become protagonists in their social contexts in response to real-life needs.

Such educational development must reach a space shaped by indicators marked by the participants themselves and interrelated with fundamental principles of Mathematics Education. In other words, attention must be given to indicators that enable individuals to perceive the relationship between their social contexts and the mathematical knowledge addressed during educational processes.

When referring to the foundational principles of Mathematics Education, we highlight the need for methodological approaches—such as Mathematical Modeling, Ethnomathematics, Mathematics Didactics, and Technologies in Mathematics Education

(including digital technologies)—to reach educational processes within a perspective of Critical Education. That is, an education constituted through actions interconnected among individuals and derived from elements present in Social Practices (Saviani, 2011).

These principles arise from curiosity and lead to investigation, especially within digital environments, and yet they are often unaddressed, remaining restricted to the mere exploration of technological resources (computers, the Internet, social networks, software, digital platforms, etc.) that enter educational spaces timidly under political discourse claiming they will improve educational quality.

Regarding digital technologies, one may overlook their educational potential for mathematical reasoning, but one cannot ignore their presence across social contexts. As such, Dalbosco (2006, p. 12) emphasizes the need to characterize digital technology as:

“equipped with resources that enhance didactic–pedagogical processes, constructed through various elements (hardware and software), ranging from multimedia equipment and Internet access to educational software, virtual reality tools, and intelligent tutoring systems.” (Dalbosco, 2006, p. 12)

He also highlights concerns about how such technologies have been used in educational spaces, noting that merely inserting a technology into didactic–pedagogical processes is not enough to guarantee individuals’ intellectual development. Nor does it ensure that we are connecting to students’ social contexts. In other words, “these resources only make sense in education when inserted into pedagogical contexts with well-designed objectives and strategies” (Dalbosco, 2006, p. 13).

In daily experiences exploring a digital technology not developed for teaching mathematics, one can perceive the importance of didactic-pedagogical planning for its use in order to allow individuals to freely exercise mathematical action/thinking, thus enhancing their learning. In this case, it is the Google Earth technology developed for locating properties (land and residences) on a digital map, providing information related to real estate sector processes.

In initial contacts, one notices an enchantment with the various functionalities offered by Google Earth, such as marking with different polygonal shapes, area calculations, distance between points, and perimeter, but, with a critical eye towards mathematical action/thinking, one can see the didactic-pedagogical potential that this technology offers to be explored during educational processes in mathematics, particularly geometry. The fascination initially

refers to understandings of knowledge related to Basic Education by providing contexts involving the study of geometry where pragmatic and meaningless approaches predominate, creating difficulties for learners. Difficulties that extend to higher education when studying Analytical Geometry, Plane Geometry, and Spatial Geometry.

In this context, reflecting on Mathematics Education and Digital Technologies from the perspective of their contributions to educational processes, without attributing the understanding that from this moment on there is a solution for any and all educational processes in mathematics, we can consider it as one of the ways to enhance the geometrically acting/thinking of individuals.

2 ON MATHEMATICS EDUCATION

Mathematics Education, as a field of knowledge, has contributed to creating educational processes in mathematics that allow individuals to act according to their singularities, expressing their ways of acting and thinking mathematically. Nonetheless, it is still clearly noticeable in educational spaces (textbooks, audiovisual materials, etc.)—and among teachers—the presence of didactic actions shaped by the praxis of mathematics as an exact science, rather than as a domain composed of the plural forms of knowledge present in society.

These forms of knowledge have the potential to be explored through methodological approaches that emerge from research in the field of Mathematics Education. Such studies demonstrate the concern of the mathematical research community with social aspects connected to the everyday lives of individuals involved in mathematics educational processes—concerns that became more visible to society as the field of Mathematics Education began to take shape around the 1980s.

Even acknowledging this historical marker, the literature on mathematics shows that mathematical knowledge has long been linked to people's daily lives. This can be observed in the presence of mathematical elements—numbers, symbols, geometric shapes, measurement units, among others—that have gradually evolved as humans recognized their usefulness in socioeconomic relations and interactions. These relationships emerged from the need to count, measure, demarcate land, calculate taxes, conduct commercial transactions, and even create calendars. In other words, contexts in which individuals use their knowledge while experiencing and exploring their social practices.

These processes originated from social and cultural knowledge shaped by the needs of individuals in each community, across different civilizations, according to their customs. Today, they can be identified in systematized form in educational settings, recorded in textbooks, audiovisual materials, magazines, newspapers, and other media. This development has occurred over time in response to changing social contexts, yet its existence dates back to prehistoric times and to contributions from ancient civilizations—Egypt, Mesopotamia, Babylon, Ancient Greece, Indo-Arab culture, among others—and continues to evolve according to contemporary needs (Silva, 2014).

Concerns about how to carry out such advancements—questioning why, for what purpose, and for whom—are shaped by the elements present in the practices themselves and the pursuit of individual and collective improvement. These questions have always been part of social interactions and today constitute some of the central objects of study in Mathematics Education as a research field.

Although still considered a relatively young field, Mathematics Education has been expanding its scope of inquiry and maturing through the production of knowledge that questions and refines the guidelines that structure mathematics education as both a professional and scientific field. In this sense, Kilpatrick (1996, p. 112) argues that:

“There is a necessary interconnection between the scientific and professional aspects of mathematics education: the scientific side cannot develop much further unless it is somehow applied to professional practice, and professional development requires specialized knowledge that only scientific investigation can provide.”

Regardless of the direction—whether professional or scientific—its relevance for developing Mathematics Education and strengthening mathematics educational processes is recognized. This aligns with the reflections set forth in the BNCC regarding competencies and skills. The document guides basic education teachers on aspects to be explored in educational contexts, including:

“mathematical processes and tools, including digital technologies, available for modeling and solving everyday, social, and interdisciplinary problems, validating strategies and results.” (Brazil, 2017, p. 223)

Although this orientation appears in the BNCC as something new, it is important to highlight that these technological resources have long been present as machine-based

devices (Lima Jr., 2005)—that is, without being accompanied by didactic actions aimed at fostering students' mathematical thinking.

Digital Technologies, considered a methodological trend within Mathematics Education, have historically been underexplored in educational spaces due to limited access to computer labs, curriculum orientations, textbook content, and insufficient teacher education. Still, their presence has always been part of ongoing discussions regarding educational improvement.

Silva (2000) and Bairral (2009) argue that computer-based environments and digital technologies enable distinct contexts and diverse cognitive changes, supporting the idea that they influence mathematical reasoning when solving problems, interpreting solutions, and fostering autonomous and social development.

Digital technologies expanded their educational potential with the growth of the Internet and the emergence of digital tools designed specifically for educational contexts. Among these are: YouTube, digital platforms, websites, blogs, chats, digital games, and software such as GeoGebra, Kahoot, Matlab, Maple, Mathematica, SPSS, among others.

Across social contexts, digital technologies continue to evolve, and Artificial Intelligence (AI) has emerged strongly with the popularization of ChatGPT, Gemini, DeepSeek, and others. This expansion has empowered individuals in daily activities, enabling new educational possibilities.

Exploring AI within mathematics education has increasingly become an object of research in the field, as scholars seek to understand its impact on academic training and interpersonal relations. In his reflections, Zatti (2023) argues that AI can enhance the quality of mathematics education by providing dynamics distinct from traditional approaches. However, he warns that prudence is necessary, since the rapid integration of AI into society has also revealed contradictions relative to humanitarian values and principles of racial and gender equity, public policy, anti-racism, and social and economic justice.

Thus, Mathematics Education, as a knowledge field, has contributed—and can continue contributing—to strengthening didactic–pedagogical actions intertwined with the sociopolitical contexts of educational spaces. That is, it can enable individuals to expand their knowledge not merely through the application of techniques, as Freitas and Lima Junior (2021, p. 129) emphasize:

“Technique, as a human action, has always been explored as a potential element for knowledge development. However, in school settings—be it textbooks, curriculum matrices, classroom plans, assessments, written activities, educational videos, TV programs—there is a didactic–pedagogical process that constantly denies the intuitive and experimental origins of this knowledge, the forms of knowing that constitute it, and consequently, the subjectivity of those involved in educational processes.” (Freitas & Lima Junior, 2021, p. 129)

Within this context, the goal is to promote students’ autonomy without ignoring the social practices inherent in their lived experiences, which can meaningfully contribute to educational processes. These contributions emerge through the knowledge and research developed with mathematical objects, especially in the triad of Arithmetic, Algebra, and Geometry—present not only in physical spaces of society but also in digital environments, such as governmental platforms, entertainment applications, commercial interfaces, among others.

3 ON DIGITAL TECHNOLOGIES

Overcoming the difficulties experienced by individuals (teachers and students) in mathematics educational processes has long been a concern reflected in academic literature, textbooks, classroom discussions, school meetings, scientific conferences, and other forums. In parallel with this pursuit of improvement, didactic–pedagogical reflections have emerged that align with the idea of enhancing digital technological resources for use within these processes, fostering an educational relationship/interaction mediated by digital environments.

Among the digital technological resources, we highlight the Internet, computers, tablets, software, smartphones, digital games, robots, virtual reality glasses, among others, which have always been freely explored across society, defining these environments as digital. However, within educational spaces, it must be emphasized that the simple use of these resources is not sufficient to achieve learning objectives. Their use must be accompanied by didactic–pedagogical planning aligned with theoretical–methodological propositions for application within educational processes.

In this context, Dalbosco (2006, p. 38) reflects that:

“the inclusion of new technologies in the educational process is a one-way path; however, it is necessary to exercise caution when appropriating these technologies so they may be adequately applied in pedagogical activities. The mere use of technologies does not necessarily bring significant contributions to education—

especially when they are treated as the most important component of the educational process or used without human reflection.” (Dalbosco, 2006, p. 38)

This consideration is supported by Gravina and Santarosa (1999, p. 74), who emphasize the need to create educational contexts that can promote paradigm shifts in education, while warning that such shifts cannot be achieved through technological devices alone. That is, teachers must act as:

“critical and careful participants in the process of using digital tools. Computers alone do not guarantee this transformation and, in many cases, may deceive users through the visually appealing technological resources offered, which simply reinforce the same characteristics of a school model that prioritizes the transmission of knowledge.” (Gravina & Santarosa, 1999, p. 74)

A critical and reflective individual—capable of acting and thinking mathematically based on their own knowledge—must not fall back on a reproduction of mathematical structures such as formulas, theorems, axioms, and definitions. Instead, learning should involve elements that stimulate engagement through interactive, exploratory, and investigative processes that advance understanding. Within this context, discovery, investigation, induction, experimentation, abstraction, generalization, visualization, and interpretation should naturally flow among individuals during educational processes, particularly in mathematics.

Concerns about how technology should be explored in educational contexts, addressed by Dalbosco (2006), Gravina and Santarosa (1999), are echoed in Brazil (1998, p. 14), which states that—regardless of the specific technology—its use must “enrich the educational environment, promoting the construction of knowledge through active, critical, and creative participation from students and teachers.” This reflection reappears in Brazil (2018, p. 9), which establishes that students must be prepared to:

“understand, use, and create digital information and communication technologies critically, meaningfully, reflectively, and ethically across different social practices (including school practices), to communicate, access and disseminate information, produce knowledge, solve problems, and exercise protagonism and authorship in personal and collective life.” (Brazil, 2018, p. 9)

Even though we are immersed in a context where digital technologies play a vital role in human survival and social participation, educational processes must recognize the political

inequalities reflected in the distribution of these resources across schools—especially those located in areas with poor infrastructure or socioeconomic vulnerability.

This inequality is evident in access to the Internet, which is now considered a basic resource, yet still not universally available in schools. A study conducted by researchers from the Center for Studies and Research in Network Technology and Operations (Ceptro.br), part of NIC.br (Brazilian Internet Steering Committee), found that while 89% of Brazilian public schools have Internet access, this number drops to 62% when considering whether students can actually use the resource for educational purposes (NIC.br, 2024, p. 5).

The study also reports stark regional disparities—schools in the North and Northeast have significantly lower connectivity and poorer Internet quality. When comparing rural and urban schools, the disparities are even more pronounced.

Another obstacle to implementing digital environments in schools is the neglect of public authorities, who are responsible for providing continuing professional development for teachers—not only for technical training but also for fostering critical reflection on the use of technologies. Such training is essential, but teachers also need opportunities to incorporate these reflections into their own pedagogical praxis.

Among the digital environments most commonly found in schools is the computer lab, which typically contains only computers—and often an insufficient number compared to class sizes. Despite the widespread presence of computers in various areas of daily life, schools have not adopted them with the same enthusiasm; their educational potential remains underexplored due to limited visibility, lack of training, or insufficient institutional support. That is, public authorities and some educators display notable sluggishness regarding the introduction of digital technologies in educational processes.

Digital technologies can offer many contributions to mathematics education. For instance, graphics displayed using GeoGebra can assist in understanding abstract mathematical concepts; geometric solids can be animated, making learning more interactive and less static. Beyond GeoGebra, tools such as Geoplan, Ruler and Compass, Winplot, Exercise Generators, Measurement Converters, and others can enhance mathematics education and help build foundational digital competencies.

Even with the wide availability of mathematical software, we emphasize that many of these tools are developed by individuals who are not familiar with pedagogical or epistemological aspects of mathematics education. As a result, some content may be limited or conceptually imprecise. In these cases, it falls to individuals—especially teachers—to

recognize and address potential inaccuracies during educational activities, using investigative methodologies. As Skovsmose (2008, p. 21) describes, an investigative scenario invites students to ask and explore questions such as:

“Yes, what happens if...?” “Why does this occur?” “Yes, but why...?”

The goal is not correction for its own sake, but rather reflection that emerges from the learner’s own knowledge and experience.

Even when a digital technology is not originally designed for educational purposes, it may still be used effectively in this way, provided that observation, reflection, and creativity are involved in classroom planning. This means an Investigative Scenario can indeed emerge in such contexts.

For example, Word, PowerPoint, and Excel can be used to explore graphical representations of points, lines, planes, tables, two- and three-dimensional shapes, perspective geometry, measurement, data representation, table creation, financial education, and arithmetic algorithms.

YouTube offers opportunities to stimulate creativity through audiovisual production or analysis. Google tools can support mathematical investigation. Google Earth, for instance, allows for exploration of geometric forms (regular and irregular), coordinate geometry, and geographic localization of properties.

These and other digital platforms present in social practices represent just a few of the many possibilities for integrating everyday technologies into educational processes. When included in planning with a clear didactic–pedagogical purpose, they may greatly enrich mathematics learning.

Such purpose emerges when individuals act and think mathematically, based on their own knowledge, in response to situations they encounter throughout academic formation and professional aspirations. According to Skovsmose (2014), in reflections on Critical Mathematics Education, an Investigative Scenario helps strengthen mathematics education by fostering non-linear learning with multiple possibilities—where learning develops freely from the meanings individuals construct through their own questioning.

Ultimately, these contexts must be approached reflectively, in relation to their theoretical contributions and practical applicability, so that they can be integrated into mathematics educational processes and practices within social contexts.

4 DERIVABLE CONTRIBUTIONS]

Mathematics educational processes contextualized through the use of digital technologies enable the construction of mathematical knowledge based on learners' perceptions, as they become responsible for both the learning moment and their own development. Through the visualization of symbolic representations within digital environments, mathematical knowledge appears in more concrete situations, facilitating the recognition of concepts related to area, perimeter, distance, and volume; the identification of angles; the development of spatial reasoning; graphical representations; table construction; financial education; and more.

These technologies also provide a bridge between mathematical knowledge and students' realities, fostering engagement, creativity, interest, critical thinking, autonomy, and collaborative work. By using digital technologies as support, it becomes possible to work within the field of Mathematics Education by designing activities that aim to stimulate investigative scenarios and reflections on issues linked to the social practices of learners.

Digital technologies influence and modify social interactions, communication methods, work dynamics, and forms of action and reasoning. Therefore, educational environments cannot deny their presence or relevance within learning processes. It is not advisable to ignore the potential of digital technologies, especially considering that outside of school, students witness the rapid transformation brought about by these tools, experiencing them often without reflection or sufficient technical understanding.

By inserting digital technologies into mathematics educational processes, we contribute to bringing students' lived contexts closer to the school environment, promoting an educational process centered on developing critical thinking and autonomy, preparing them to face challenges associated with these digital resources.

It is important to highlight the need for adequate teacher training for the effective use of these digital tools. Continued professional development is essential, both for technical proficiency and for cultivating a critical perspective on technological applications. This ensures that such tools are not used merely to break routine in the classroom but are guided by didactic–pedagogical intentions directed toward learners' development.

In this context, we observe that digital technologies—even those not originally designed as educational tools—can be used as didactic–pedagogical resources with significant contributions to mathematics educational processes. These contributions have the potential to strengthen knowledge construction and develop digital competencies and skills,

especially in the field of Mathematics Education. In other words, by critically exploring the tool, its use can contribute to the improvement of educational processes and the intellectual development of learners.

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MATHEMATICAL MODELING AND SCENARIOS FOR INVESTIGATION: THE DEVELOPMENT OF A CRITICAL STANCE TOWARDS THE SOCIAL REALITIES OF STUDENTS

MODELAGEM MATEMÁTICA E CENÁRIOS PARA INVESTIGAÇÃO: O DESENVOLVIMENTO DA POSTURA CRÍTICA FRENTE ÀS REALIDADES SOCIAIS DOS ESTUDANTES

MODELIZACIÓN MATEMÁTICA Y ESCENARIOS DE INVESTIGACIÓN: EL DESARROLLO DE UNA POSTURA CRÍTICA ANTE LAS REALIDADES SOCIALES DE LOS ESTUDIANTES

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ABSTRACT

This paper aims to present the contribution of Mathematical Modeling to the construction of different Scenarios for Investigation in the teaching and learning of Mathematics in higher education courses. The search for different Scenarios for Investigation can stimulate student engagement through activities that encourage their connection with real-life situations and their professional experiences. Thus, we highlight the guiding question of this research: What are the contributions of Mathematical Modeling in the construction of different Scenarios for Investigation in higher education? According to our studies, we found different scenarios constructed according to different mathematical entities and with a high degree of reference to real life. It is worth noting that, in all the situations studied, we considered the interdisciplinary aspect between mathematical objects, undergraduate programs, and, above all, how this aspect presents itself in relation to the possible professional roles of future graduates. To support the definition of different Investigation Scenarios, we base ourselves on the theoretical assumptions of Skovsmose (2000) and Alro and Skovsmose (2010), in addition to the main ideas adopted by Bassanezi (2010) and Biembengut and Hein (2000) regarding teaching and learning with Mathematical Modeling. To this end, we rely on academic works selected from CAPES databases that considered the teaching and learning of mathematical objects in relation to the construction and analysis of models. In this sense, we adopted an investigative stance based on documentary research in a qualitative approach. Among the research analyzed, we highlight Investigation Scenario 1, portrayed in this work, which evidences the construction of a Mathematical Model for studying the lifespan of an overpass as a function of local vehicle flow. The constructed model pointed to mathematical arguments that support the group's estimates, and its analysis was supported by the students' critical stances on the well-being of the population and the use of public funds. We consider that mathematical models encourage learning based on different Scenarios for Investigation, such as those related to social functions or other problems existing outside the educational universe that are close to the students' experiences.

Keywords: Mathematical Modeling. Scenarios for Investigation. Higher Education.

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RESUMO

O presente tem a proposta de apresentar a contribuição da Modelagem Matemática frente a construção de diferentes Cenários para Investigação no ensino e na aprendizagem da Matemática em cursos superiores. A busca pelos diferentes Cenários para Investigação poderá estimular o envolvimento do aluno a partir de atividades que instiguem sua aproximação com situações reais e de suas vivências profissionais. Assim, destacamos a questão norteadora desta pesquisa: Quais as contribuições da Modelagem Matemática na construção de diferentes Cenários para Investigação no ensino superior? De acordo com nossos estudos, encontramos diferentes cenários construídos segundo diferentes entidades matemáticas e com alto grau de referência a vida real. Vale destacar que, em todas as situações estudadas, consideramos o aspecto interdisciplinar entre objetos matemáticos, às graduações e, sobretudo, como este aspecto se apresenta frente às possíveis atuações profissionais do futuro egresso. Para que possamos subsidiar a definição de diferentes Cenários para Investigação, fundamentamo-nos nos pressupostos teóricos de Skovsmose (2000) e Alro e Skovsmose (2010), além disso, acrescentamos as principais ideias adotadas por Bassanezi (2010) e Biembengut e Hein (2000) a respeito do ensino e da aprendizagem com Modelagem Matemática. Para tanto, apoiamo-nos em trabalhos acadêmicos selecionados em bases de dados da CAPES que considerou o ensino e aprendizagem de objetos matemáticos frente à construção e análise de modelos. Nesse sentido, adotamos uma postura investigativa com base em pesquisas documentais numa abordagem qualitativa. Dentre as pesquisas analisadas, destacamos o Cenário para Investigação 1 retratado neste trabalho que evidencia a construção de um Modelo Matemático para estudo de tempo de vida de um viaduto em função do fluxo de veículos local. O modelo construído apontou para argumentos matemáticos que sustentam as estimativas do grupo e sua análise foi suportada por posturas críticas dos alunos sobre o bem-estar da população e sobre o uso do dinheiro público. Consideramos que os modelos matemáticos incentivam a aprendizagem com base em diferentes Cenários para Investigação como os relacionados às funções sociais ou demais problemas existentes fora do universo educacional que estejam próximos das experiências dos estudantes.

Palavras-chave: Modelagem Matemática. Cenários para Investigação. Ensino Superior.

RESUMEN

Este artículo tiene como objetivo presentar la contribución de la Modelización Matemática a la construcción de diferentes Escenarios de Investigación en la enseñanza y el aprendizaje de las Matemáticas en cursos de educación superior. La búsqueda de diferentes Escenarios de Investigación puede estimular la participación estudiantil a través de actividades que fomentan su conexión con situaciones de la vida real y sus experiencias profesionales. Por lo tanto, destacamos la pregunta guía de esta investigación: ¿Cuáles son las contribuciones de la Modelización Matemática en la construcción de diferentes Escenarios de Investigación en la educación superior? Según nuestros estudios, encontramos diferentes escenarios construidos según diferentes entidades matemáticas y con un alto grado de referencia a la vida real. Cabe destacar que, en todas las situaciones estudiadas, consideramos el aspecto interdisciplinario entre los objetos matemáticos, los programas de pregrado y, sobre todo, cómo este aspecto se presenta en relación con los posibles roles profesionales de los futuros graduados. Para fundamentar la definición de los diferentes Escenarios de Investigación, nos basamos en los supuestos teóricos de Skovsmose (2000) y Alro y Skovsmose (2010), además de las ideas principales adoptadas por Bassanezi (2010) y Biembengut y Hein (2000) respecto a la enseñanza y el aprendizaje con Modelado Matemático. Para ello, nos apoyamos en trabajos académicos seleccionados de las bases de datos de CAPES que consideraron la enseñanza y el aprendizaje de objetos matemáticos en relación con la construcción y el análisis de modelos. En este sentido, adoptamos una postura investigativa basada en la investigación documental con un enfoque cualitativo. Entre las investigaciones

analizadas, destacamos el Escenario de Investigación 1, presentado en este trabajo, que evidencia la construcción de un Modelo Matemático para estudiar la vida útil de un paso elevado en función del flujo vehicular local. El modelo construido apuntó a argumentos matemáticos que respaldan las estimaciones del grupo, y su análisis se sustentó en las posturas críticas de los estudiantes sobre el bienestar de la población y el uso de fondos públicos. Consideramos que los modelos matemáticos fomentan el aprendizaje basado en diferentes escenarios de investigación, como los relacionados con las funciones sociales u otros problemas ajenos al ámbito educativo que son cercanos a las experiencias de los estudiantes.

Palabras clave: Modelado Matemático. Escenarios de Investigación. Educación Superior.

1 INTRODUCTION

The purpose of this research is to present the contribution of Mathematical Modeling in the construction of different Scenarios for Investigation in the teaching and learning of Mathematics in higher education courses. We consider that understanding Mathematical Modeling guided by a perspective of Critical Mathematics Education can reorganize environments in which students use mathematics to solve problems originating in reality. This approach allows the solution found to be problematized and questioned and to be based on reflections, the identification of the variables included, and the real reasons for their choices.

For Skovsmose (2010), radical changes that have occurred in the classroom have allowed the traditional methodology employed to be replaced by thematic approaches and work with projects, referring to the idea of Critical Mathematics Education. According to the author, "Critical Mathematics Education is concerned with the way in which Mathematics in general influences our cultural, technological and political environment and with the purposes for which mathematical competence should serve" (Skovsmose, 2010, p. 18).

Skovsmose (2010) consolidates the idea that there is a need to adopt a critical stance to be assumed by Mathematics Education and that it should not be based solely on textbooks. He also highlights that critical thinking through mathematics becomes relevant, since it is always present and everywhere.

The aforementioned author argues that from Mathematics in action it is possible to establish hypothetical situations, study their particular details, in addition to grounding the constitution of a wide variety of social phenomena that make Mathematics part of society.

Thus, in traditional models of mathematics teaching, the communication patterns between teacher and student become repetitive and, some, dominant. Therefore, it is essential to break such communication patterns based on investigative approaches that discuss activities as action.

In this sense, our research question is: What is the contribution of Mathematical Modeling in the face of the construction of different Scenarios for Investigation?

With the expectation of providing new forms of learning from the active and effective participation of the student in the construction of their knowledge, we evidence the identification of these scenarios built from mathematical models that instigate more complex, unpredictable investigation processes that aim at the construction of knowledge and communication practice.

2 RATIONALE

Unlike the traditional approach based on the solution of exercises in class, on the role of the teacher as disseminator of the content and on the role of the students as passive receivers of this information, *problem solving, thematic approaches, work with projects, etc.* (ALRO and SKOVSMOSE, 2010, p.52) have instigated researchers in the search for investigative approaches that discuss the activity no longer as an inspection agent.

Among the investigative approaches, we consider that the mathematical models built from the perspective of a Critical Mathematics Education will allow to congregate and involve students and teachers around common ideas and objectives, making their participation active. In addition, the collection and capture of a high volume of well-crafted information can contribute to the development of critical thinking, creativity and initiative in the search for a solution to these models. It is worth mentioning that these models may constitute possible Scenarios for Investigation.

From the perspective of Skovsmose (2000) and Alro and Skovsmose (2010), Research Scenarios are those that invite students to formulate questions and seek explanations, allowing both students and teachers to engage in interdisciplinary environments inherent to their academic and professional backgrounds.

For Fazenda and Godoy (2023, p. 31),

Interdisciplinarity is a category of action of reflective doing, of what happens between two or more people and objects. It is the subject-object relationship and between subjects through which it is possible to integrate and uniquely know from zones of permeability of dialogues and the reading of different worlds.

Interdisciplinarity requires, in practice, a deep immersion in daily work and the understanding of hidden aspects of the act of learning and the aspects expressed, putting them into question (FAZENDA and GODOY, 2023). In this sense, interdisciplinarity allows a change in behavior, inviting us to new experiences.

Also according to the authors, although official documents point to the relevance of interdisciplinary aspects related to the multidisciplinary of social, economic and cultural factors, in practice, it is common to see students establish the relationships between the various contents and disciplines of the course on their own. In this way, in an attempt to meet the complexity of the situations experienced by individuals, school mathematics defends the critical participation of students in society and in their integral formation as citizens.

3 THEORETICAL FOUNDATION

As theoretical assumptions of our investigation, we consider the main ideas of Bassanezi (2010) and Biembengut and Hein (2000) regarding Mathematical Modeling and Skovsmose (2000) and Alro and Skovsmose (2010) regarding the investigative approach promoted by Scenarios for Investigation.

3.1 THE ROLE OF MATHEMATICAL MODELING

According to Bassanezi (2010), Mathematical Modeling can be considered both as a scientific research method and as a teaching strategy. When referring to Mathematical Modeling as a scientific method or research instrument, it is possible to consider that it can stimulate the construction of new ideas and experimental techniques. In addition, it is a method that allows extrapolations, interpolations and forecasts, in addition to suggesting priorities for resource applications and research, thus promoting better decision-making. When we refer to modeling as a teaching and learning strategy, we can consider the emphasis of undergraduate courses on developing applicable mathematical disciplines, and of stricto-sensu graduate courses that seek to bring the student's mathematical creativity in the study of phenomenological situations based on mathematical models.

Biembengut and Hein (2000) point out that the need to restructure curricula and teaching methods aims to develop the students' potential based on the ability to think critically and independently.

However, Bassanezi (2010) explains that a large part of mathematical knowledge has been built exclusively within the field of Mathematics without concern for the external use of its knowledge. The author adds that there is currently a consensus among different professionals who consider that the skills of a physicist, an engineer, or a biologist are allied to mathematical competence. In view of the above, it becomes possible to apply this pattern of thought to different areas of knowledge that start to consider that their theories are modeled through mathematical language.

A Mathematical Model is defined as "a consistent set of equations or mathematical structures, elaborated to correspond to some phenomenon – this can be physical, biological, social, psychological, conceptual or even another Mathematical Model" (BASSANEZI, 2010, p. 174)

The author considers that mathematical concepts and structures can be adapted to the phenomena of reality, just as the phenomena of reality can serve as a source of obtaining

new concepts and mathematical structures. There is, therefore, a combination of both alternatives.

For Biembengut and Hein (2000), the formulation of models requires a detailed mathematical formulation consisting of a set of symbols and mathematical relations that translate a phenomenon or problem. Such models are described by numerical expressions, formulas, diagrams, graphs, geometric representations, tables, etc. However, it is worth noting that the models come from approximations that, even in a simplified view, seek to portray the reality of the researched situation. It is up to the teacher or researcher to identify which mathematical content best suits the proposed problem, based on their intuition, creativity and knowledge and, thus, adopt the best available strategy that will be submitted to each of the steps necessary for the construction of the model.

Biembengut and Hein (2000, p.13) cite Mathematical Modeling as "[...] an art, by formulating, solving and elaborating expressions that are valid not only for the particular solution, but that also serve, later, as a support for other applications and theories".

Mathematical Modeling is a dynamic process used to obtain and validate mathematical models that reflect a portion of reality from the selection of arguments and parameters considered essential.

Biembengut and Hein (2000) add that the procedures for constructing a model can be grouped into three well-defined stages according to Table 1:

Table 1

Stages of Mathematical Modeling

1. Interaction	2. Mathematization	3. Mathematical Model
1.1 Recognition of the problem situation	2.1 Formulation of the problem = > hypothesis	3.1 Model Interpretation
1.2 Familiarization: search for theoretical references that support the proposed problem.	2.1.1 Classify the information (relevant and non-relevant) and identify the facts involved;	3.2 Validation
	2.1.2 Decide which factors to be pursued based on the hypotheses;	
	2.1.3 Select the relevant and constant variables involved;	
	2.1.4 Select appropriate symbols for these variables;	

	2.1.5 Describe relationships in mathematical terms.	
	2.2 Problem solving in terms of the model	

Source: prepared by the author, 2024.

Table 1 presents the steps described by Biembengut and Hein (2000) for the construction of a Mathematical Model. The first stage, called Interaction, consists of the recognition of the problem-situation and the study of the theoretical framework that will support the construction and subsequent analysis of the data and information obtained. In the second stage, called Mathematization, there is the raising of hypotheses of the problem-situation, as well as the investigation of which variables, constants and relationships will be described in the model. It is at this stage that the construction and resolution of the Mathematical Model also occurs. And, finally, in the third stage, there is an analysis of the implications of the solution found in the proposed Mathematical Model and its validation from the identification of the degree of approximation and reliability with the problem-situation. It is important to note that, if the model does not meet the needs, it is important to return to the Mathematization stage and check the adjustment of hypotheses, variables, etc.

Bassanezi (2014) points out that an ideal model is one that not only explains the results but is also capable of predicting new results or situations that do not match the expected. In many cases, the model needs to be reformulated based on modifications in the variables or in the previously established laws of formation.

With the proposal to identify how Mathematical Modeling can contribute to the creation of different Research Scenarios, it is up to us to point out the main considerations about these scenarios from the perspective of Skovsmose (2000) and Alro and Skovsmose (2010).

3.2 RESEARCH SCENARIOS AS LEARNING ENVIRONMENTS

For Skovsmose (2000), the Scenario for Investigation instigates an environment that can support an investigative work based on the formulation of questions such as: "What happens if ...?", or "Why is this ...?" that can be instigated from the valorization of dialogue. Thus, the Scenario for Investigation constitutes a new learning environment, as it invites students to formulate questions and seek explanations, making them involved in the process of knowledge exploration.

They also point out that many studies on communication still focus on traditional Mathematics classes, being understood as traditional, the environment in which textbooks

occupy a central role, where teachers bring new content and students solve exercises. The act of correcting and finding errors characterizes the general structure of the class.

However, it is noticeable that radical changes have taken place in the classroom, as there is a gradual replacement of the traditional methodology by thematic approaches and by work with projects that refer to the idea of Critical Mathematics Education. SKOVSMOSE (2000) "states that Critical Mathematics Education is concerned with the way in which Mathematics in general influences our cultural, technological and political environment and with the purposes for which mathematical competence should serve" (p.18).

In traditional models of mathematics teaching, the patterns of communication between teacher and student become repetitive and dominant. The exercise paradigm is a unique aspect of traditional Mathematics, playing a fundamental role in the organization of classes, in the pattern of communication between teacher and student and in the role that Mathematics plays in society as a whole. An example of this scenario is when Mathematics has a supervisory function based on exercises that, in general, are prepared by authors of textbooks, turning them into pre-established elements as a practice in the classroom. However, according to Skovsmose (2000), the exercise paradigm has "been challenged by problem solving, thematic approaches, work with projects, etc." (p. 52) that correspond to a set of methodologies expressed by the author as investigative approaches. The activity should be discussed as an action and not as a compulsory activity as exercises are.

Table 2 is presented below, which represents a simplified model of different forms of reference and learning environments:

Table 2

The different learning environments

	Exercise Paradigm	Scenarios for Investigation
References to pure mathematics	(1)	(2)
References to semi-reality	(3)	(4)
Real-world references	(5)	(6)

Source: Adapted from Skovsmose, 2000

For Alro and Skovsmose (2010) and Skovsmose (2000), the exercises that are situated in a semi-reality (3) express an artificial situation and are presented based on an agreement established between teacher and student. Among the principles present in this agreement is that the semi-reality is completely described in the statement of the exercise

and no external information is relevant to its resolution. In this sense, semi-realities are worlds without sensory impressions and with exact values, since they are solely defined by measurements. There is no discussion of the context and the goal is to find a single correct answer.

The authors present that there are also exercises that refer to pure mathematics (1) and that are described by imperative formulations such as, for example, "Solve the question ...", "Reduce the expression ...", or even, "Build the figure ... ". They consider that all the activities mentioned are linked to the exercise paradigm and that "the teaching of traditional mathematics is closely associated with the resolution of exercises referring to pure mathematics or semi-realities" (Alro and Skovsmose, 2010, p. 55). There are also reality-based exercises that offer a type of learning (5).

They also emphasize that a great effort has been made when it is proposed to use real-life data in the elaboration of exercises, thus starting to ponder on the reliability of the calculations and on the information that the exercise presents. In this way, reality-based exercises open a gap in the traditional teaching of Mathematics because it allows the questioning of the information contained in them.

Leaving the exercise paradigm ((1), (3) and (5)), we move on to a very different learning environment that constitutes the Research Scenarios ((2), (4) and (6)). In them, students participate in the investigation process and formulate questions such as, for example, *What happens if ...?*, or even, *Why is it this way ...?* The Scenarios for Investigation can also be related to semi-realities (4), but this environment is no longer used as a resource for the production of exercises, but for students to move on to new explorations and explanations, enabling the construction and improvement of strategies by the students. Other scenarios point to real-life situations (6) that are found in the current that adopts work with projects in Mathematics Education.

Skovsmose (2000) adds that leaving the exercise paradigm and working based on different Research Scenarios makes teachers and students leave their comfort zone and enter a risk zone. And he poses the following question: "What are the possible gains of working in a risk area associated with a research scenario?" (p.58). As an answer, the following are pointed out: possibility of greater involvement and cooperation of students, different communication patterns and new learning qualities in an open process associated with the Scenario for Investigation.

However, it is worth mentioning that a good part of Mathematics Education still alternates environments (1) and (3), showing a bleak picture of what happens in the traditional classroom. The studies reveal that there is no recognition of the possibility of other learning environments allowing which allows a differentiation between the tradition of school mathematics and the tradition of investigative mathematics.

The author adds that the learning environment of type (6) has challenged the tradition of school mathematics, however, he encourages that the challenges also be organized in terms of the learning environments of types (2) and (4). It shows that the environment of type (6) is not the only alternative to the exercise paradigm. In fact, "I don't want to suggest that a learning environment represents the ultimate goal for critical mathematics education or not." (SKOVSMOSE, 2000, p.15).

Thus, it is pertinent to state that Mathematics Education should move between the different environments of the matrix and that the exercises should not be abandoned. The learning environments matrix can be used as an analytical instrument to identify which different learning environments have been experienced, what time is spent by one or two environments, and what difficulties are encountered in moving from one to the other.

There must be a harmony between the parameters of a learning environment, that is, between the way that "meaning is produced, tasks are organized, the textbook is structured, communication is developed, etc." (SKOVSMOSE, 2000, p. 17). In addition, the movement between different learning environments, especially towards Research Scenarios, will cause a high degree of uncertainty that should not be eliminated.

4 METHODOLOGY

In order to answer the guiding question of this research, we sought to describe data from a qualitative investigation.

Borba (2010) states that qualitative research in Mathematics Education has been a great challenge since Mathematics teachers work with quantities. However, attention should be paid to the type of information you want to obtain. In a qualitative investigation, researchers are more interested in the process and not only in the results or products. Relevance is given to the meaning that is described in an intuitive way.

As an exploratory technique of the data, we opted for documentary analysis, which can be a valuable technique for approaching qualitative data. This technique involves the analysis of documents that seeks to identify information from hypotheses raised.

According to Lüdke and André (2013, p. 45), "documents also constitute a powerful source from which evidence can be taken to support the researcher's assertions and statements".

Thus, we set out to select documents that would provide us with sufficient and reliable information to answer the guiding question of our research. And for this purpose, we searched for documents such as theses and dissertations in the databases of the Coordination for the Improvement of Higher Education Personnel (CAPES), particularly in the Catalog of Theses and Dissertations and in Capes Journal. The selection of the works considered the following search terms: "Mathematical Modeling", "Scenarios for Investigation", "Critical Mathematics Education" and the combination between them.

Among the criteria established for the selection of the works, we mention: works that contemplated the descriptors "Mathematical Modeling", "Scenarios for Investigation"; "Critical Mathematics Education", "Mathematical Modeling and Research Scenarios", "Mathematical Modeling and Critical Mathematics Education", works that contemplated mathematical disciplines in higher education; works that contemplated the construction of mathematical models; and research papers published in Portuguese and courses in Brazil.

The following is the number of searches found in both databases:

Table 3

Number of searches according to search terms

Search Terms	CAPES Thesis and Dissertation Catalog	CAPES Journal
Mathematical Modeling	7441	2133
Scenarios for Investigation	3784	2219
Critical Mathematics Education	651	1164
Mathematical Modeling and Scenarios for Research	25	9
Mathematical Modeling and Critical Mathematics Education	74	81

Source: elaborated by the author, 2024

Lopes and Pacheco (2023), identify a lack of empirical studies on Mathematical Modeling, which highlights the need for increased research in this field of investigation. In addition, the authors argue that, although there are literature review studies that analyze scientific production, few studies evidence the production of knowledge involving Mathematical Modeling from the perspective of Critical Mathematics Education in the context of higher education.

4.1 LITERATURE REVIEW

To identify the possible Scenarios for Investigation listed by Skovsmose (2000) and Alro and Skovsmose (2007), we searched the database of Catalogs of Theses and Dissertations and CAPES Journal, research related to different mathematical objects addressed in higher education and Mathematical Modeling. After selecting the researches, we chose to highlight the results pointed out in two works that show the role of Mathematical Modeling in the construction of different Scenarios for Investigation.

4.1.1 The First Scenario for Investigation

In a research carried out in the first semester of 2006 for students of a Geography course at a public university in Paraná, Araújo (2012) presents a Mathematical Modeling project guided by Critical Mathematics Education. In it, the author seeks to interpret the students' critical being from the proposal of the modeling activity. As a result of her analysis, the researcher found how the students interpreted what it means to be critical after their insertion in their realities. It points out that the evidence of different realities occurred after the support of these students in mathematical certainties to reach the conclusions of the project.

In the first stage of the project's development, Araújo (2012) presented the students with the discussion about what Mathematical Modeling is and how to approach it from a critical perspective. After the discussion, the students were asked to prepare a work plan for the project, define possible themes and form groups. Among the topics presented, the following are mentioned: Transposition of the São Francisco River, Physical impacts on the implementation of hydroelectric plants, socioeconomic aspects of the Green Line project in Belo Horizonte, Climate Legends, among others.

After the selection of the themes by the groups, the students were instructed to define the objective of the research and to understand how mathematics would be used in this project. The partial reports of the project of each group were presented each month, being a propitious moment for each one to receive guidance not only from the teacher/researcher but also from the other groups present. Araújo (2012) mentions that in all discussions he always sought to bring up his concern in relation to Critical Mathematics Education.

At the end of the semester, all projects were presented orally to the next class.

Araújo's (2012) research brings an interpretation of the critical approach of Mathematical Modeling in relation to the theme: socioeconomic aspects of the Green Line

construction project in Belo Horizonte. Throughout the research, the author alternates her role between teacher and researcher depending on the events that occur in the classroom or outside it. However, he points out that at many times he had to play both roles concurrently.

Among the specific objectives of her research, she presents: to verify, through mathematical calculations, the veracity of the arguments and data presented by the government to justify the need for the Green Line project; ii) to estimate the useful life of the new viaduct built, in order to demonstrate how long the Green Line project will support the constant growth of the flow of vehicles in the delimited section.

In summary, it was necessary to identify the real need to build a viaduct and its impacts on the region under study.

To achieve the result of the research, the groups developed data collection through interviews with pedestrians and merchants in the region considered by the research so that they could report the inconveniences and expectations about the work from the mathematical study of traffic. At this point, the author highlights that the groups presented a critical attitude towards the theme and the reality of the local population at the end of the interviews. Among their perceptions, the students mention that there was no concern on the part of the government with the objective of creating projects that would mitigate the impacts of this work. After evidence of a critical awareness on the part of the students, there was a continuity in the mathematical treatment of the project.

With the help of a student from the university's Civil Engineering course, the group selected a series of formulas used in Traffic Engineering that estimated the useful life of the new viaduct built. At the end of the selection, the following expression was chosen: , where: C is the capacity of the stretch with continuous flow; W is the adjustment factor for lane width and side clearance, C is the adjustment factor for trucks, and $\hat{O}$ is the adjustment factor for buses. $C = 2000 \cdot w \cdot c \cdot \hat{o}$

Araújo (2012) exposes that the use of mathematical formulas or models and the questioning of their origin is desirable in a modeling approach according to Critical Mathematics Education. Among the desired questions is the origin of tables to establish the values of w , c and $\hat{o}$. It is worth noting that the group adopted the values provided by HCM-1965, without informing what this acronym meant. After the author's investigation, she

discovers that it refers to the *Highway Capacity Manual*,² which corresponds to a manual and the main alternative for analyzing capacity and quality of service in Brazil for the evaluation of road infrastructure. Araújo (2012) also highlighted that the group did not bother to update the data in the table with values that were in accordance with their reality. The factors, and were adopted by the group, and were not questioned, leading to the result of vehicles/hour in each of the lanes of the viaduct. As the viaduct had three lanes, it was enough to calculate, arriving at the value of 5384 vehicles/hour as its maximum capacity. $w = 0,97c = 0,95\hat{d} = 0,97C = 2000 \times 0,97 \times 0,95 \times 0,97 = 1788C = 3 \times 1788$

After searching for information at the Belo Horizonte Transport and Transit Company (BHTRANS), the flow of vehicles at peak hours would be 3600 vehicles/hour, however, as it is old information offered by the company, the group chose to make an estimate in view of the lack of current information.

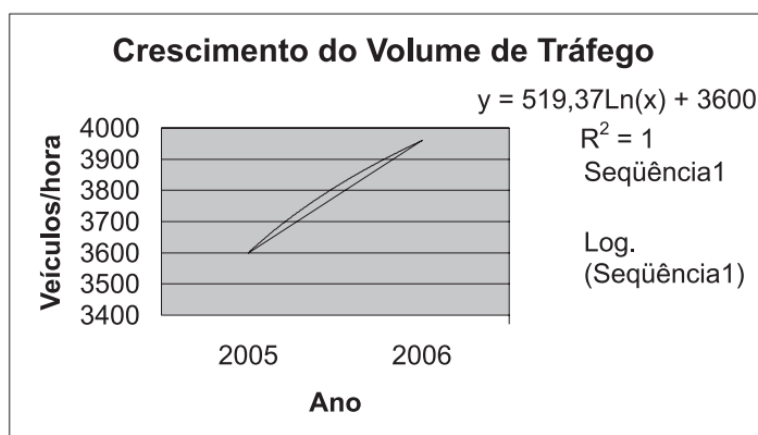
The questioning about the lack of information offered by public agencies was also perceived as a critical stance adopted by the group and was mentioned at various times in its reports.

In addition to the previous calculation, the group decided to add 10% to the flow of vehicles that will pass at the beginning of the implementation of the viaduct, however, he did not offer arguments to support this decision. There is an assumption on the part of Araújo (2012) that there were two values: that of 2005, with 3600 vehicles/hour; and the 2006 version, with vehicles/hour. According to the author, the choice of the two points occurred because the group intended to use the $3960 = (3600 + 360)$ *Excel software* to obtain a function that would allow an estimate of the useful life of the viaduct. With the use of the *software*, the group chose the trend line that would express the rapid growth of the flow of vehicles at the beginning of time with the subsequent decrease, since the traffic density would increase as a function of time. The trend line describes a linear regression of what is expected. Thus, the growth in traffic flow was expressed by the logarithmic function that allowed calculating the year in which the value of y approaches the capacity of the viaduct equal to 5364 vehicles/hour. $y = 519,37 \cdot \ln(x) + 3600$

² HCM is one of the most important references for transportation professionals. The document defines the capacity of an infrastructure as follows: "capacity of a facility is the maximum hourly rate, reasonably expected, at which people or vehicles cross a point or a uniform section of a lane or lane during a given period of time in a given condition of lane, traffic and operation"

Figure 1

Traffic Volume Growth between 2005 and 2006



Source: Araújo, 2012, p. 853

As a result, the maximum capacity of the viaduct would be reached in 29 years, since in 2005 the value of x in the function would be equal to 1. However, considering that the modeling project began in 2006, then the new calculation would take 27 years for the viaduct to reach the limit capacity.

Even though the arguments were built with imprecise estimates, the group's main motive was to reach conclusions from mathematical arguments.

According to Araújo (2012), the group's conclusion was quite frustrating, since they hoped to confirm the veracity of the calculations and data presented by the government that would justify the need for the Green Line Project. The author supports the hypothesis that, because they were students of a mathematical discipline and future geographers, the students felt supported by the traditional classes of mathematics teaching.

However, the group demonstrated a critical attitude by showing concern for the well-being of the population and the use of public money, something that mathematical calculations could not measure.

Araújo (2012) realizes that this theme is worth deepening from new research that investigates the role of Mathematical Modeling in Critical Mathematics Education.

4.1.2 The Second Scenario for Investigation

The second scenario we considered for our analysis adopted the methodology of Mathematical Modeling in the evaluation of the environmental impact caused by the discharge of a pollutant load into a river. The practice took place in the Calculus III discipline

of an Environmental Engineering course at a public university in Paraná. The presented Mathematical Model describes the transport of a pollutant that can be solved numerically.

Oliveira and Pires (2020) point out that at the same time that Mathematical Modeling is a useful tool in assessing environmental impact and in decision-making, it is also a very motivating teaching methodology for students. In addition, they consider that the practice of Mathematical Modeling allows students to experience real situations, based on the analysis of real contexts and not just hypothetical situations.

As a process of interaction with the context, the authors make a brief presentation of the concept of transport of contaminants from rivers and some mathematical models involved. They add that in order to work with Mathematical Modeling, the teacher must be clear about the objectives to be achieved, such as motivation, recognition or the results of the models.

In order to clarify the practical usefulness of certain concepts presented in the discipline of Calculus III in the 1st semester of 2017, the authors adopted the pedagogical practice of Mathematical Modeling through the approach of problematizing themes related to the environment. The suggestion of the theme was presented by the same authors, and aimed to evaluate whether the pollution released by residents in the city of Pontal do Paraná can affect the quality of water and, consequently, tourism and the regional economy. It was noticeable that after the authors raised such questions, there was greater attention and participation of the students to the explanations and thus a change in attitude.

For Oliveira and Pires (2020), there are different mathematical models that describe physical, chemical, and biological processes that occur in water bodies such as rivers, lakes, and reservoirs and that represent the system of interest.

In order to study water quality, the authors considered the following parameters:

Dissolved Oxygen (DO): represents the condition of water quality;

Biochemical Oxygen Demand (BOD): establishes the degree of water pollution.

Thus, DO and BOD interact and their relationship is exposed by the equations that express the oxygen level of a river subjected to a pollutant:

$$\frac{dC_5}{dt} = -a_2 \cdot \left(\frac{C_6}{K_d + C_6} \right) \cdot C_5 - a_1 \cdot C_5 + R_5 \quad (1)$$

$$\frac{dC_6}{dt} = -a_2 \cdot \left(\frac{C_6}{K_d + C_6} \right) \cdot C_5 - k_d \cdot C_6 + R_6 \quad (2)$$

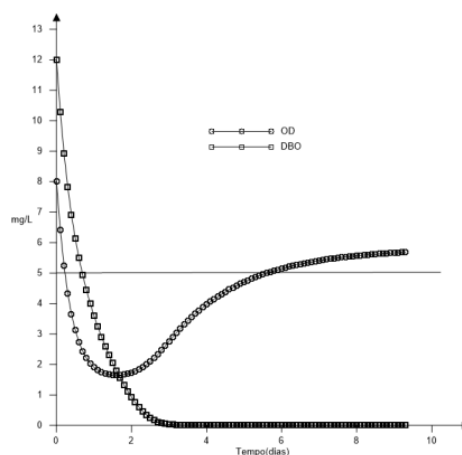
where, it represents the OD and represents the BOD. $C_5C_6^3$

According to the authors, there are eleven parameters that can be evaluated in the model, however, there was a restriction for the study of two of them, the one that represents the DO and the one that represents the BOD. C_5C_6

The authors highlight that three classes were used, two theoretical and one in the laboratory for later analysis of the data through graphs generated by Excel. The validation stage of the model was proven based on scientific studies that proved its effectiveness (Cunha and Ferreira, 2006).

Figure 2

Comparison between DO and BOD



Source: Oliveira and Pires, 2020, p.11

As a result, the authors identified that the discharge of sewage into the river, given by BOD, causes a critical decay in the level of oxygen in the water. However, the oxygen level rises again after one day, stabilizing at around 6 mg/L. The students concluded that the water would only be adequate from the 5th day after contamination by the sewage discharge, after considering that the oxygen level must be above 5 mg/L for the water to be considered adequate. The degradation of the environment was also proven because, even after 10 days, the DO concentration that was 8 mg/L did not return to normal.

³ For more information, see:

<https://www.scielo.br/j/csp/a/TDnPPt7Yzdbx8WDmXYK8nFg/?format=pdf&lang=pt>

5 DISCUSSIONS

We present our analysis and discussions about the mathematical models employed in both scenarios discussed earlier.

We first consider the first Scenario for Investigation. In relation to the aspects and stages defined in the Mathematical Modeling, it is possible to affirm that the group, with the guidance of the teacher, followed the stages of Interaction, Mathematization and Mathematical Model following the ideas of Biembengut and Hein (2000). In this stage, there was a discussion of the role of Mathematical Modeling and its approach from a critical perspective. To this end, the group participated in the preparation of the work plan and defined the respective themes. In the Mathematization stage, the group defined the objective of the research and understood how mathematics would be used in this project. It was the moment when the hypotheses were raised and the variables x (year) and y (flow of vehicles/hour), the constants w , c and $\hat{o}$ and the relationships described were investigated based on the expression investigated by the group members. The group's communication was a crucial factor for the investigation and decision-making. In the Mathematical Model stage, the implications of the solution found in the proposed model were analyzed. However, it did not obtain a significant degree of approximation and reliability with the problem-situation, since the values of the constants, and were not questioned. However, the previous calculation allows the discussion of other concepts related to local traffic capacity, such as how the variables are characterized and what are the parameters of the project, the study of the variation of annual, monthly, daily or hourly traffic, among other concepts. It will be up to the students, in case of interest, to deepen the theme. $C = 2000$. $w.c.\hat{o}w = 0,97c = 0,95\hat{o} = 0,97$

In addition, the group's simplified estimate, when considering the 10% increase in the flow of vehicles after one year of the implementation of the viaduct, did not bring arguments to support the calculations. As stated by Bassanezi (2012), when the model does not meet the needs, it is necessary to return to the Mathematization stage and verify the adjustment of hypotheses, variables, etc. However, it is worth highlighting the relevance of this problematization, in view of the study of the logarithmic function and linear regression. $y = 519,37.\ln(x) + 3600$

As pointed out by Araújo (2012), the objective of his research was to address Mathematical Modeling according to Critical Mathematics Education, a function that was fully successful in the discussions presented by the group in all stages of the project.

From the perspective of Skovsmose (2001), it is necessary to highlight the relevance of mathematical application and the elaboration of real mathematical models that relate important social activities. These models should provide *insights* into the hypotheses and an understanding of the entire process in society.

Thus, the proposal of the project was to abandon the exercise paradigm and propose a learning environment focused on Scenarios for Investigation that, according to Alro and Skovsmose (2010) are open and allow students to formulate questions, plan and participate in the investigation process. In the Green Line Project proposal, we identified a high degree of reference to the real world that corresponds to the learning environment of type (6) in the matrix established by the authors previously cited. We also highlight that the group sought to get closer to the respective purposes of the activity and assumed responsibility for the investigation process, from conducting interviews, formalizing the Mathematical Model studied and presenting the results to the other groups. In this way, we consider that there was effective communication based on cooperation and new forms of learning.

Regarding the second Scenario for Investigation, Oliveira and Pires (2020) show that the practice of Mathematical Modeling provided excellent results in relation to student performance, with a higher approval rate compared to previous semesters, ranging from 25 to 30% to 74%. Another point to be highlighted by them is that the students themselves requested complementary training that was offered as an extension course. At the end of the course, a group was formed in the area of environmental modeling.

In our analysis, we considered that all stages of Mathematical Modeling were considered from the perspective of Biembengut and Hein (2010), namely: (i) Interaction: there was the identification of the problem-situation, familiarization with the environmental context and the selection of mathematical models already validated by theoretical references; (ii) Mathematization: even in possession of the model validated by other researches, the students formulated the hypothesis and solved the problem in terms of the model. The parameters that represent the OD and the BOD were selected. This step requires knowledge about the mathematical entities used in the formulation of the model; (iii) Mathematical Model: the interpretation of the solution evidenced after analysis of the graph: BOD: there is a critical decay of the oxygen level in the river and the identification of the ideal level of oxygen in the water and the period in which the water would be contaminated. The validation of the model was presented by the theorists who founded the Mathematical Model presented in the

Interaction stage. In the Mathematical Model phase, the implications of the solution derived from the investigation were analyzed, as well as the evaluation of its relevance. C_5C_6

In both scenarios presented, the Mathematical Modeling discussed as a teaching method reinforces the emphasis of mathematics for the student's education, greater development of problem-solving skills and greater interest in the applicability of mathematics.

6 CONCLUSION

In our article, we seek to highlight how Mathematical Modeling is related to different Scenarios for Investigation in a critical perspective of teaching and learning. Thus, we report research that deals with mathematical models and, in this way, allows us to leave the comfort zone employed by traditional practices in class and return to situations that encourage risk, uncertainties, dialogue and the search for solutions in a collaborative way. We are supporters of Skovsmose's (2000) ideas that scenarios for investigation are not the only solutions to be employed in a classroom, and that we should move between different learning environments, including the practice of exercises. In the same way, we point to the question posed by Skovsmose (2000, p. 58): *What are the possible gains of working in a risk zone associated with an investigation scenario?* However, there is still no clear distinction applied in class about the tradition of school mathematics and the tradition of investigative mathematics. We continue to search for answers to this question, as well as invite other researchers and enthusiasts on the subject to continue with this discussion.

Despite the bleak picture that shows that a good part of Mathematics Education still alternates environments (1) and (3), the challenge for researchers is to encourage not only the environment (6), but also to bring discussions about the learning environments of types (2) and (4). And one of the possibilities of discussion about the transition between the various environments can occur from Mathematical Modeling.

We realized that already consolidated mathematical models certify our veracity and, therefore, the validation stage of the model is restricted to its interpretation and analysis of the data. Thus, many existing models can serve as an important source of investigation and readjustment according to the research objectives. The setting and the choice of models will occur in the Interaction phase in which we make contact with the study context, as well as the theoretical knowledge that will support our analysis.

We emphasize that the study of both mathematical models allows for a deeper understanding of the themes, bringing to light more in-depth discussions about other related

concepts, such as what is meant by traffic capacity, which variables and parameters should be considered, or even what are the interactions between the other substances in the proposed model to describe the transport of a pollutant. Therefore, the interdisciplinary role between concepts, disciplines and areas of knowledge becomes evident.

As presented in our research, an ideal model is one that not only explains the results but also predicts new results or unexpected situations or situations that do not match what was expected. We can consider that the group of the first scenario investigated had a series of doubts about the effectiveness of the values found, as well as failed to consider further explanations about some values found. However, these are doubts that instigate us to seek other and new answers so that we can further deepen the analysis of the aforementioned research as well as collaborate with the continuity of the study.

Although there is considerable interest in the results obtained in the mathematical models, in both scenarios, the researchers were interested in investigating how significant the critical posture of the students is in relation to the situations experienced, questioning the statements, the government's performance, the well-being of the local population and the use of public money.

Thus, we conclude that Mathematical Modeling has a significant role when it is desired to work with Investigation Scenarios of types (2), (4) and (6) as shown by the matrix of Alro and Skovsmose (2010) and Skovsmose (2000).

We leave it up to the reader to consider future research that portrays the transition between these learning environments, bringing their real contributions, perspectives and difficulties.

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ARTICULATION BETWEEN CURRICULUM, METHODOLOGIES AND DIGITAL TECHNOLOGIES: PATHWAYS TO PEDAGOGICAL INNOVATION

ARTICULAÇÃO ENTRE CURRÍCULO, METODOLOGIAS E TECNOLOGIAS DIGITAIS: CAMINHOS PARA INOVAÇÃO PEDAGÓGICA

ARTICULACIÓN ENTRE CURRÍCULO, METODOLOGÍAS Y TECNOLOGÍAS DIGITALES: CAMINOS HACIA LA INNOVACIÓN PEDAGÓGICA

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ABSTRACT

The objective of this article is to investigate the relationship between curricula, methodologies and digital technologies to improve pedagogical mediation and knowledge construction. Through a bibliographical research, works that address curricular innovation and the use of technologies in the educational context were analyzed, making it possible to identify concepts, obstacles and opportunities of this relationship in current education. The analysis revealed that the combination of these elements is crucial for the realization of a more dynamic, inclusive education that is aligned with the needs of 21st century society, emphasizing the value of critical and planned pedagogical mediation by teachers. Obstacles such as inadequate infrastructure, few policies that contribute to innovation and minimal provision of continuing education for teachers were also pointed out. Thus, it is considered that the research made it possible to understand how this relationship contributes to the improvement of pedagogical practice and the advancement of learning, also indicating the possibility for future studies that deepen innovative practices in different school environments, aiming to strengthen a more effective and inclusive education.

Keywords: Curriculum. Methodologies. Technologies.

RESUMO

O objetivo do presente artigo é investigar a relação entre currículos, metodologias e tecnologias digitais para aperfeiçoar a mediação pedagógica e a construção do conhecimento. Através de uma pesquisa bibliográfica, foram analisadas obras que abordam a inovação curricular e a utilização de tecnologias no contexto educacional, possibilitando identificar conceitos, entraves e oportunidades dessa relação na educação atual. A análise revelou que a junção desses elementos é crucial para a realização de uma educação mais dinâmica, inclusiva e alinhada as necessidades da sociedade do século XXI, enfatizando o valor da mediação pedagógica crítica e planejada dos professores. Também foram apontados entraves como a infraestrutura inadequada, poucas políticas que contribuem a inovação e oferecimento mínimo de formações continuadas para os professores. Assim, considera-se que a pesquisa possibilitou compreender como essa relação colabora para o aperfeiçoamento do fazer pedagógico, do avanço da aprendizagem, indicando também, a

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possibilidade para estudos futuros que aprofundem as práticas inovadoras em diferentes ambientes escolares, visando fortalecer uma educação mais eficaz e inclusiva.

Palavras-chave: Currículo. Metodologias. Tecnologias.

RESUMEN

El objetivo de este artículo es investigar la relación entre currículos, metodologías y tecnologías digitales para mejorar la mediación pedagógica y la construcción de conocimiento. A través de la investigación bibliográfica, se analizaron trabajos que abordan la innovación curricular y el uso de tecnologías en el contexto educativo, lo que permitió identificar conceptos, obstáculos y oportunidades de esta relación en la educación actual. El análisis reveló que la combinación de estos elementos es crucial para lograr una educación más dinámica e inclusiva, alineada con las necesidades de la sociedad del siglo XXI, destacando el valor de la mediación pedagógica crítica y planificada por parte del profesorado. También se señalaron obstáculos como la infraestructura inadecuada, las escasas políticas que contribuyen a la innovación y la escasa oferta de formación continua para docentes. Por lo tanto, se considera que la investigación permitió comprender cómo esta relación contribuye a la mejora de la práctica pedagógica y al avance del aprendizaje, lo que también indica la posibilidad de futuros estudios que profundicen en prácticas innovadoras en diferentes entornos escolares, con el objetivo de fortalecer una educación más efectiva e inclusiva.

Palabras clave: Currículo. Metodologías. Tecnologías.

1 INTRODUCTION

The incorporation of digital technologies in the school curriculum has become a priority for the improvement of pedagogical practice in current education, because, in a panorama marked by rapid technological evolution, it is necessary to understand how curricula and methodologies can be articulated with digital technologies to enable a more assertive pedagogical mediation and deep learning. In view of this, the question that guides this study is: how can the use of digital technologies collaborate to improve curricula and improve the way of teaching and learning in education in these new times?

The importance of this issue is the urgency of reviewing the school curriculum so that it dialogues with the needs that the twenty-first century presents, incorporating new technologies not only as auxiliary tools, but as structuring elements of educational practice. Curricular innovation, combined with appropriate pedagogical methodologies, can increase teaching and learning opportunities, making them more dynamic, interactive and contextualized. Furthermore, the training of teachers and the critical analysis of the use of technologies are essential for this articulation to be effective and meaningful, avoiding the mechanical or superficial use of technological mechanisms.

The article entitled *Articulation between Curriculum, Methodologies and Digital Technologies: Paths to Pedagogical Innovation* aims to investigate the relationship between curricula, methodologies and digital technologies to improve pedagogical mediation and learning. Thus, this study dialogues with some authors who discuss this theme, reflecting on the relevance of pedagogical mediation in the use of information technologies, emphasizing Moran, Masetto and Behrens (2006, p. 54), who state that "to know is to integrate information into our reference, into our paradigm, appropriating it, making it meaningful to us". The methodology used for bibliographic research, which, according to Gil (2017), consists of the analysis and reflection on academic productions already published, such as books, articles and chapters of works relevant to the theme. This approach made it possible to understand the current moment of knowledge about the incorporation of digital technologies into the curriculum and pedagogical methodologies, identifying challenges, possibilities and tactics for educational improvement. The bibliographic research is adequate in this work, to enable a solid and updated theoretical foundation, crucial for the promotion of effective pedagogical proposals.

The following chapter initially addresses the concepts of curriculum, pedagogical methodologies, citing some examples, and digital technologies, followed by the analysis of

the interrelations between these elements from the perspective of educational innovation. Then, pedagogical mediation is discussed as a central element for the effective application of technologies in teaching, based on the contributions of authors researched in academic databases such as *SciELO*, *Google Scholar* and specialized journals in the educational field. In the end, these are final considerations that point to the obstacles and opportunities for incorporation into the current educational environment.

Thus, it is expected that this study will contribute to the academic debate and to the pedagogical practice, offering subsidies so that educators, managers and organizers of public policies can reflect on the value of the relationship between curricula, methodologies and digital technologies. From this reflection, it becomes possible to envision trajectories for a more meaningful, inclusive teaching and learning process aligned with contemporary social and technological demands.

2 CURRICULUM, METHODOLOGY AND TECHNOLOGY: EXAMPLES AND INTERRELATIONS

The school curriculum is understood as the planned organization of the contents, skills and values that guide the education of students, seeking to meet the needs of the contemporary individual. Innovative curricula have sought objectives and interdisciplinarity, promoting expressive and contextualized learning experiences; Thus, Santos, Boechat, and Carmo (2024) emphasize that the promotion of curricula that incorporate active methodologies and the strategic use of technology enables individualized, participatory, and engaged learning, aligned with student demands and social transformations.

Pedagogical methodologies refer to the strategies and approaches used by educators to facilitate the act of teaching and learning, and the incorporation of digital technologies enhances these methodologies, making teaching more dynamic and collaborative. Moran et al. (2006, p. 32) point out that "we move very quickly from books to television and video and from these to the computer and the Internet, without learning and exploring all the possibilities of each medium", reducing that the use must be critical and planned to ensure effective results.

The relationship between curriculum, methodologies and technology is essential for educational innovation, as the curriculum defines what needs to be learned, the methodologies indicate how it will be mediated, and technology offers resources that expand pedagogical possibilities. For example, the application of Problem-Based Learning (PBL) and

the Flipped Classroom, mediated by digital platforms, promotes students' collaborative performance and critical thinking. In addition, adaptive educational apps allow the content to be adjusted to each student's time and way of learning, favoring personalized teaching, according to Santos et al. (2024). These practices show how the articulation between curriculum, methodologies and technology can transform learning into a more lively and meaningful process.

For this integration to be effective, it is essential that teachers act as critical mediators, capable of articulating curriculum, methodologies and technologies with reflection and contextualization. In this sense, Scherer and Brito (2020) emphasize that the continuous training of teachers and investment in adequate technological infrastructure are indispensable conditions to leverage curricular innovation, and that this is not limited to the use of new tools, but requires a profound change in the way of teaching and in the structuring of teaching.

The articulation between curriculum, methodologies and technology is an aspect of great importance for paving a more meaningful, inclusive education aligned with the demands of the twenty-first century, collaborating for the formation of critical, independent students prepared for the reflection of the contemporary world, contributing to a learning that goes beyond the simple transmission of content.

3 FINAL THOUGHTS

The research carried out allowed us to reflect a little on the way of articulating curricula, methodologies and digital technologies in contemporary society and with the bibliographic research, it was possible to identify that this relationship is vital for the improvement of pedagogical practices, emphasizing the value of critical mediation and the reformulation of the way of teaching and learning to meet current demands. It was observed that the planned and reflective use of digital technologies increases the chances of a more meaningful and personalized teaching and learning, although there are still barriers related to the lack of training for teachers, precarious school infrastructure and educational policies that need to be reformulated.

The analysis also indicated that pedagogical mediation continues to be the central element for the success of this articulation, reinforcing the priority in the appropriate use of technologies and a critical and contextualized approach, however knowing that this research is not exhaustive, but rather suggests the execution of future investigations that empirically

explore innovative practices in different school environments, considering regional and socioeconomic specificities, being able to collaborate in the structuring of more effective procedures that strengthen the articulation between curriculum, methodologies and digital technologies, enabling an education that can meet the needs of twenty-first century society.

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THE PODCAST IN YOUTH AND ADULT EDUCATION

O PODCAST NA EDUCAÇÃO DE JOVENS E ADULTOS

PODCASTS EN LA EDUCACIÓN DE JÓVENES Y ADULTOS

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ABSTRACT

The presence of technology in the classroom has become a reality, with it finding a multitude of possibilities that help teachers in their pedagogical work. Thus, this work addresses one of the most common and easily produced media resources, the result of technological advances today, the podcast. Due to its popularity, this resource gains space in this work, whose main objective is to understand its importance and applicability in the educational environment. To this end, we sought to develop bibliographical research that could unveil the origin and results of the use of this tool in schools, in addition to developing a proposal for using the podcast in a youth and adult education school, therefore requiring a brief on-site research at the school in question in order to verify the real possibility of implementing the tool in the routine of the institution visited. Finally, it can be understood that the characteristics of the use of digital tools in education is increasingly a reality that cannot be ignored by educators, but improved for appropriate use according to each educational reality.

Keywords: Digital Media. Podcast. Teaching. Learning. Young People and Adults.

RESUMO

A presença da tecnologia em sala de aula tem se tornado uma realidade e com ela encontramos uma enormidade de possibilidades que auxiliam os professores no fazer pedagógico. Assim, o presente trabalho aborda um dos recursos midiáticos, fruto dos avanços tecnológicos, mais comuns e de fácil produção na atualidade, o podcast. Devido a

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sua popularidade, este recurso ganha espaço neste trabalho, cujo objetivo principal é compreender sua importância e aplicabilidade no ambiente educacional. Para tanto, buscou-se desenvolver pesquisas bibliográficas que pudessem desvendar a origem e os impactos do uso desta ferramenta nas escolas, além de desenvolver uma proposta de uso do podcast em uma escola de educação de jovens e adultos, sendo necessário, portanto, uma breve pesquisa in loco na escola em questão a fim de verificar a real possibilidade de implantação da ferramenta na rotina da instituição visitada. Por fim, pôde-se compreender que o fenômeno do uso das ferramentas digitais em educação é cada vez mais uma realidade que não pode ser desprezada pelos educadores, mas aprimorada para o uso um adequado de acordo com cada realidade educacional.

Palavras-chave: Mídias Digitais. Podcast. Ensino. Aprendizagem. Jovens e Adultos.

RESUMEN

La presencia de la tecnología en el aula se ha convertido en una realidad, y con ella, encontramos una amplia gama de posibilidades que asisten al profesorado en su labor pedagógica. Por ello, este trabajo aborda uno de los recursos multimedia más comunes y fáciles de producir, fruto de los avances tecnológicos en la actualidad: el podcast. Debido a su popularidad, este recurso se ha incluido en este trabajo, cuyo principal objetivo es comprender su importancia y aplicabilidad en el entorno educativo. Para ello, se realizó una investigación bibliográfica para descubrir el origen y el impacto del uso de esta herramienta en las escuelas, además de desarrollar una propuesta para el uso de podcasts en una escuela de educación de jóvenes y adultos. Por lo tanto, fue necesario un breve estudio in situ en la escuela en cuestión para verificar la posibilidad real de implementar la herramienta en la rutina de la institución visitada. Finalmente, se pudo comprender que el fenómeno del uso de herramientas digitales en la educación es cada vez más una realidad que los educadores no pueden ignorar, sino mejorar para un uso adecuado según cada realidad educativa.

Palabras clave: Medios Digitales. Podcast. Enseñanza. Aprendizaje. Jóvenes y Adultos.

1 INTRODUCTION

The construction of knowledge has undergone a strong change in recent years, being influenced by the increasing presence of media technologies in classrooms. Whether by the initiative of teachers or by the direct action of the force of technological advances that present new consumption options every day, the use of media resources has become a reality, and education professionals who do not wake up to this reality are doomed to be recognized as true "dinosaurs" in the classroom. and it is necessary that media education is constituted as a right of students.

Among the numerous options that the media and technological universe presents to teachers, it is up to the teacher to make the decision to choose the tool that will best meet the objectives of his class. Thus, the present work proposes to discuss how technological tools, especially the *podcast*, contribute to the dynamics of the teaching-learning process.

To this end, extensive bibliographic research was used that could give ballast to the questions presented. In addition, it was decided to use as a research field the Youth and Adult Education Center (CEJA) ¹¹ existing in the city of Tianguá, since the school serves mostly adult students, aged over 20 years, who know and master the use of the tools present in *smartphones*. Older students are also those who grew up listening to radio programs and, as a result, bring favorable conditions to learn through the use of radissonoros resources, such as podcasts.

In the words of Ferrari et al. (2020, p. 27), "if the future seems uncertain, one thing is clear: we will be increasingly challenged by the uninterrupted growth in the volume of information and new technologies". Thus, it is up to teachers to think of strategies that arouse interest in studies, strategies capable of providing students with opportunities to learn from their conception of the world (Faria, 2010, s.p.).

There is no doubt that by appropriating the different digital learning tools, as proposed in this work with the use of the *podcast*, the present study is justified from the idea that the use of digital tools is a *sine qua non* condition for contemporary educational practices (Brasil, 2002, s.p.).

Therefore, it is essential for any and all educational training in our schools that the teacher performs his or her work effectively in order to ensure that students, whether young

¹¹ The Ofélia Portela Moita Youth and Adult Education Center, known as "D. Estrela", is a state public school in Ceará and serves young people and adults who have left school and wish to return to school. It is located in the center of the city of Tianguá and has students from several cities in the region who are looking for a second opportunity in their student life.

people **or** adults, enjoy the right to have technology as an ally in the learning process and that all actors in this process understand that the use of technology in learning is not only a right, but also a duty of all who are responsible for education (Lenharo; Cristovão, 2016, p. 310).

2 MULTIMEDIA RESOURCES IN EDUCATION

Over the past few years, we have experienced numerous changes in the routine and dynamics of the classroom, providing new opportunities for teaching and learning. In this regard, it is known that technological advances are the main driving forces of this movement of change, resulting in accessible and necessary digital content for use at all educational levels (Amorim; Silva, 2009, p. 365).

Education, in this sense, is increasingly integrated, or why not say intertwined, trapped in a multiform tangle of possibilities and conditions that force educators to adapt to the various realities that are part of the students' daily lives, under penalty of, if they do not do so, they will be labeled outdated, backward or even dinosaurs. as previously said.

In the face of these issues, multimedia resources are today strong allies of educators. Teachers at different levels of education must be attentive and ready to use it in their classes, projects, dynamics, experiences or experiences. With this, it is believed that the teaching and learning process will serve an increasingly demanding audience and connected to technological innovations and also to a range of information available in the palm of their hand. Since "it doesn't matter exactly where you live, your age or what you do: more and more we are and will all be deeply impacted by so much information. All the time, from a very early age" (Ferrari; Ochs; Machado, 2020, p. 21).

Dorigoni and Silva (2007, p. 6) present a brief summary of the historical trajectory of the use of media in education. According to the authors, there are reports that between the 1940s and 1970s, "the telephone, cinema, radio, magazines and television constituted a system, which, as it developed, became a state-of-the-art apparatus by integrating other more recent technological advances such as cell phones, interactive TV and the Internet". As early as 1980, technological advances brought new elements to daily life, and it was therefore necessary for the school to contribute to a responsible and meaningful use of these new educational tools.

Thus, it cannot be denied how important the means of communication and information technologies are and how they are increasingly present in all areas of social life. Thus, the

school should not be a place of confrontation or difficulties in absorbing the transformations in the ways of learning as a result of current technological advances (Dorigoni; Silva, 2007, p. 10).

On this, still in 1999, Kalinke stated,

Technological advances are being used by practically all branches of knowledge. Discoveries are extremely fast and are available to us with a speed never before imagined. The Internet, cable and open television channels, multimedia resources are present and available in society. We are always one step away from anything new. On the other hand, the world reality makes our students increasingly informed, updated, and participants in this globalized world (Kalinke, 1999, p.15).

Almost twenty-six years later, since Kalinke's publication, the relevance of the above statement is notorious. Educators and education professionals must, more than ever, make a difference in the lives of their students. Thus, according to Ponte (2004) and Farias (2010, s.p.), the school continues to be a school, it does not end with the arrival of technology, it will just cease to be as we know it today and will not lose its main function in relation to current education and future generations.

Regarding the use of multimedia in schools, Rathbone (1995, p. 9) states that "the word multimedia simply means something that can communicate in various ways", since it refers to the combination of different types of media, such as text, images, audio, video and graphics, in a single presentation or communication system.

Commonly used in several areas, especially in our case in education, multimedia plays a fundamental role in the digital age, where the convergence of technologies and devices allows the creation and consumption of content in varied and increasingly accessible ways. Multimedia in education provides a more dynamic and effective approach to teaching, meeting the needs of students and better preparing them for the digital and globalized world in which we live.

It is in this context that the *podcast* emerges as a tool that communicates with the multimedia universe, becoming another important interface in the contribution of the act of teaching and learning. In short, *podcast* is "a media process that emerges from the publication of audio files on the internet" (Primo, 2005, p. 7) and as such, its production requires much less equipment to work than other media tools, namely:

[...] it is enough for the producer to have a medium-capacity computer, headphones or speakers on his PC, a microphone (of a much reduced price in simpler models, around R\$10), an audio recording and editing program, such as Audacity and a medium-speed internet connection. (Freire, 2010 apud Freire, 2015, p. 1038)¹²

In this, it is clear that the use of the tool in question does not require large investments, and it is possible to adapt devices and equipment already existing in schools for the implementation of a podcast creation project that meets the needs of students and teachers.

2.1 PODCAST IN YOUTH AND ADULT EDUCATION: A CONTRIBUTION TO CEJA DONA OFÉLIA

The Ofélia Portela Moita Youth and Adult Education Center is known as "CEJA Dona Estrela" and is located in the municipality of Tianguá, Ceará. One of its educational objectives is to offer schooling to young people, adults and the elderly who wish to continue their studies, from Elementary School to High School. To this end, the school develops pedagogical actions aimed at a specific audience that often has no other way to continue its student life due to the lack of schooling for this audience.

At CEJA, the offer of continuity of studies takes place for both elementary and high school in the blended modality, serving an audience over the age of 15, for elementary school, and over 18 years old, for high school.

It is in this reality and context that the offer of media education emerges as a great differential to serve this specific audience, formed mostly by adults. In its constitution, the JSCA offers schooling in a "blended" way, thus meeting a characteristic of the *podcast*, as it is an "extremely powerful alternative technology to be used at the service of the teaching and learning process, both in the distance modality (*e-learning*) or as a complement to face-to-face teaching (*b-learning*)" (Junior; Coutinho, 2008, p. 136). Its biggest differential is, without a doubt, the possibility, through the audio format, of being heard anytime and anywhere.

In this sense, by serving young people and adults who mostly work or take care of the home, the JSCA is an ideal environment for the *podcast* to be used as a media tool to support teaching, since the production of digital educational content of this type is of great relevance, thanks to its feasibility, novelty and feasibility (Amorim; Silva, 2009, p. 362).

In line with the United Nations (UN) Sustainable Development Goals (SDGs), providing young people and adults with the opportunity to educate through technological resources is

¹² At current prices, the value of a simple lavalier microphone costs R\$ 25.00 (twenty-five reais).

to meet the "global call to action to end poverty, protect the environment and climate, and ensure that people, everywhere, can enjoy peace and prosperity". As noted in target 4.4 of these goals, which provides: "by 2030, substantially increase the number of young people and adults who have relevant skills, including technical and professional skills for employment, decent work and entrepreneurship" (UN, 2015).

These "relevant skills, including technical and professional skills" will undoubtedly be better acquired and developed when that traditional model of teaching is set aside, making use of modern tools that enable learning not only in the classroom, but also in different environments and schedules, as is the case of the use of *podcasts* as a teaching tool.

3 FINAL CONSIDERATIONS

The use of *podcasts* as an educational tool in teaching young people and adults has demonstrated significant impacts, providing an innovative and accessible approach to the learning process. Along this path, it has become evident that this modality of auditory content not only captivates the audience, but also promotes the democratization of knowledge, meeting the diverse needs and learning styles.

Podcasts offer flexibility, allowing students to access content anytime and anywhere, breaking down the geographical and temporal barriers that often limit learning. This trait is especially valuable for young people and adults who, due to professional and family commitments, are looking for educational options that fit their schedules.

Additionally, the auditory nature of *podcasts* encourages imagination and creativity, making learning more engaging and memorable. For many students, this alternative approach represents a relief from traditional methods, providing a more dynamic and personalized experience.

Through educational tools such as podcasting, students have access to a wide range of experts, practitioners, and researchers, enriching their perspectives and offering valuable *insights* into the real world. This contributes to the formation of critical and informed individuals, capable of facing the complex challenges of contemporary society. It should be noted that educators play a key role in selecting and creating relevant content, guiding students, and evaluating the impact of the *podcast* on the learning process.

Finally, *podcasts* emerge as a powerful educational tool for young people and adults, transforming the way we learn and teach. Its potential for democratizing knowledge, flexibility

and stimulating creativity positions this modality as an important educational ally in the current contemporary reality.

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**ENVIRONMENTAL EDUCATION, STUDENT PROTAGONISM AND
COOPERATION: A PROPOSAL FOR CREATING AN ECO-SCHOOL**

**EDUCAÇÃO AMBIENTAL, PROTAGONISMO ESTUDANTIL E COOPERAÇÃO:
PROPOSTA DE CRIAÇÃO DE UMA ECO-ESCOLA**

**EDUCACIÓN AMBIENTAL, LIDERAZGO ESTUDIANTIL Y COOPERACIÓN:
UNA PROPUESTA PARA LA CREACIÓN DE UNA ECOESCUELA**

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ABSTRACT

This article discusses environmental education from a critical perspective, linked to student protagonism and cooperation, and proposes the creation of an eco-school as a pedagogical and political strategy for Brazilian basic education. Based on theoretical references in environmental education, whole-child education, cooperativism and education for sustainable development, it analyzes the potential of school as a space for the formation of ecological, critical and supportive subjects, capable of ethically and responsibly intervening in the socio-environmental reality. The article advocates the importance of interdisciplinary and participatory projects, implemented through science clubs and cooperative practices, articulated with the principles of the Eco-Schools Programme, as pathways to build a culture of sustainability in everyday school life. Finally, it presents the expected results and the possible formative, institutional and community impacts of implementing an eco-school, with emphasis on the development of autonomy, student authorship and environmental citizenship.

Keywords: Environmental Education. Student Protagonism. Cooperativism. Eco-School. Whole-Child Education.

RESUMO

Este artigo discute a educação ambiental em sua perspectiva crítica articulada ao protagonismo estudantil e à cooperação, propondo a criação de uma eco-escola como estratégia pedagógica e política para o contexto da educação básica brasileira. A partir de referenciais teóricos da educação ambiental, da educação integral, do cooperativismo e da educação para o desenvolvimento sustentável, analisa-se o potencial da escola como espaço formador de sujeitos ecológicos, críticos e solidários, capazes de intervir na realidade socioambiental de maneira ética e responsável. Defende-se a importância de projetos interdisciplinares e participativos, materializados em clubes de ciências e em práticas cooperativas, articulados aos princípios do Programa Eco-Escolas, como caminhos para a construção de uma cultura de sustentabilidade no cotidiano escolar. Por fim, apresentam-se os resultados esperados e os possíveis impactos formativos, institucionais e comunitários

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da implementação de uma eco-escola, com ênfase no desenvolvimento da autonomia, da autoria discente e da cidadania ambiental.

Palavras-chave: Educação Ambiental. Protagonismo Estudantil. Cooperativismo. Eco-Escola. Educação Integral.

RESUMEN

Este artículo aborda la educación ambiental desde una perspectiva crítica, articulada con el protagonismo estudiantil y la cooperación, proponiendo la creación de una ecoescuela como estrategia pedagógica y política para el contexto de la educación básica brasileña. Con base en marcos teóricos de la educación ambiental, la educación integral, el cooperativismo y la educación para el desarrollo sostenible, analiza el potencial de la escuela como espacio para la formación de sujetos ecológicos, críticos y solidarios, capaces de intervenir en la realidad socioambiental de forma ética y responsable. Defiende la importancia de los proyectos interdisciplinarios y participativos, materializados en clubes de ciencias y prácticas cooperativas, articulados con los principios del Programa Ecoescuelas, como vías para la construcción de una cultura de sostenibilidad en la vida escolar cotidiana. Finalmente, presenta los resultados esperados y los posibles impactos formativos, institucionales y comunitarios de la implementación de una ecoescuela, con énfasis en el desarrollo de la autonomía, la autoría estudiantil y la ciudadanía ambiental.

Palabras clave: Educación Ambiental. Protagonismo Estudiantil. Cooperativismo. Ecoescuela. Educación Integral.

1 INTRODUCTION

The intensification of the socio-environmental crisis in recent decades has provoked profound questions about the social function of the school and about the ways of forming subjects capable of critically understanding the relations between society and nature, overcoming naturalizing and reductionist views that restrict environmental education to specific practices of sensitization or recycling of waste, without questioning the social structures that produce inequalities and degrade the environment. From this perspective, it is essential to conceive environmental education as a political and ethical process that challenges the daily school life and calls on students, educators and the community to rethink habits, values and forms of collective organization, in the horizon of a social transformation guided by socio-environmental justice. (Guimarães, 2004)

At the same time, the Brazilian educational scenario is marked by historical challenges, such as curricular fragmentation, inequalities of access and permanence, the precariousness of teaching work, and the difficulty of consolidating pedagogical practices that recognize students as subjects of rights and producers of knowledge, which requires proposals that articulate integral education, student participation, and commitment to the territory. In the face of these challenges, the discussion about student protagonism gains centrality, understood as the possibility for students to take an active role in identifying problems, making decisions and building solutions, especially when it comes to socio-environmental issues that cross their local realities. (Moll, 2004)

In this context, the proposal to create an eco-school seeks to articulate critical environmental education, student protagonism and cooperation in an institutional pedagogical project that permeates the curriculum, management and daily practices, mobilizing the school community around shared actions of care for life and the environment. The eco-school is no longer just a physical space and becomes a political-pedagogical project that values dialogue, investigation, student authorship and cooperative practices, inserting the school in local and global networks of education for sustainable development, and constituting itself as a strategy for ecological and citizenship training in the Brazilian context. (UNESCO, 2012)

2 THEORETICAL FOUNDATION

2.1 CONCEPTS OF CRITICAL ENVIRONMENTAL EDUCATION

Critical environmental education understands the environment as a result of the historical and social relations between human beings and nature, refusing naturalistic views that treat environmental problems as mere ecological imbalances and emphasizing the need to analyze the economic, political, and cultural structures that produce inequalities and exclusions. This perspective values dialogue, problematization, and a critical reading of reality, inviting students and educators to investigate the root causes of environmental degradation, as well as the power relations that cross access to natural resources, so that they can build collective and emancipatory responses. (Carvalho, 2012)

When discussing the formation of the ecological subject, critical environmental education highlights that it is not only about transmitting information about ecosystems, natural cycles, or conservation techniques, but about favoring processes of subjectivation in which subjects recognize themselves as part of nature and co-responsible for its preservation, developing ethical sensitivity, empathy, and commitment to the common good. This ecological subject is the result of educational experiences that articulate affectivity, reflection and action, which presupposes pedagogical practices that dialogue with daily life and with the concrete problems of the territories in which the school is inserted. (Carvalho, 2012)

This approach also emphasizes the importance of understanding environmental education as a field in dispute, in which different societal projects confront each other, from conservative perspectives that seek to adapt individual behaviors without altering the social order, to transformative proposals that question development models based on the unlimited exploitation of resources and the commodification of life. Critical environmental education is aligned with this second horizon, in which the school is called to problematize hegemonic discourses and to open space for plural and counter-hegemonic readings of the environment. (Guimarães, 2004)

The educational practice inspired by critical environmental education requires participatory and dialogical methodologies, in which the investigation of socio-environmental problems is done collectively, articulating scientific knowledge, popular knowledge and experiences lived by students, favoring the shared construction of meanings about the environment. By privileging research as an educational principle, this perspective challenges the transmissive model of teaching and strengthens the idea that knowledge arises from

curiosity, doubt and confrontation between different points of view, which enhances student protagonism. (Carvalho, 2012)

Finally, critical environmental education seeks to overcome episodic practices, carried out on commemorative dates, to constitute itself as a structuring axis of the school's political-pedagogical project, permeating disciplines, spaces and formative times, which implies rethinking the curriculum and the forms of organization of school life in dialogue with the socio-environmental demands of the territory, reinforcing the inseparability between education, democracy and sustainability. (Guimarães, 2004)

2.2 INTEGRAL EDUCATION AND STUDENT PROTAGONISM

Integral education, understood as that which aims at the global development of subjects in their intellectual, physical, emotional, social, ethical and aesthetic dimensions, constitutes an important reference for thinking about eco-school proposals that articulate knowledge, times and formative spaces, breaking with the disciplinary fragmentation that still marks a good part of Brazilian schools. By recognizing that children, adolescents and young people learn inside and outside the classroom, in relationships with the community, with culture and with nature, integral education broadens the scope of pedagogical action and strengthens the idea of school as a hub for articulating diverse educational experiences. (Moll, 2009)

This perspective considers that student protagonism is not only a motivational strategy, but a political and pedagogical principle that affirms students as subjects of rights and knowledge, capable of making decisions, planning actions, managing projects and evaluating processes, which requires the school to create effective participation devices, such as assemblies, unions, science clubs and youth councils. among others. By assuming concrete responsibilities in environmental and social initiatives, students experience citizenship in a practical way and begin to recognize themselves as agents of transformation. (Moll, 2009)

The guidelines present in the National Common Curricular Base reinforce the centrality of integral education and student protagonism by defining general competencies linked to responsibility and care for the environment, argumentation, critical thinking and empathy, indicating that the school should promote experiences that articulate knowledge, values and attitudes in continuous and contextualized processes. In this sense, eco-school projects dialogue directly with the socio-emotional and cognitive competencies foreseen for basic

education, contributing to the construction of training paths consistent with national educational policies. (Brazil, 2017)

Student protagonism linked to integral education also supposes the revision of power relations within the school, questioning authoritarian and hierarchical practices and valuing dialogue, listening and co-responsibility between educators and students, which brings the eco-school proposal closer to critical pedagogies that defend processes of collective construction of knowledge, anchored in experience and in the problematization of concrete reality. Under these conditions, protagonism ceases to be an abstract discourse and materializes in shared practices of management and production of knowledge. (Freire, 2020)

By articulating integral education and student protagonism in projects aimed at sustainability, the school creates conditions for students to relate their life trajectories to socio-environmental challenges, developing research, community intervention, art and communication projects that dialogue with the territory, strengthening identities, bonds and belongings, and contributing to a broader understanding of learning as a process lived with joy, creativity and meaning. (Alves, 2005).

2.3 COOPERATIVISM, WORK AND CITIZENSHIP AT SCHOOL

Cooperativism, understood as a form of collective organization based on mutual aid, democratic management and equitable distribution of results, offers important contributions to thinking of the school as a space for citizenship formation, insofar as it values the active participation of all in decision-making and in the conduct of projects, stimulating shared responsibility and commitment to the common good. When transposed to the school context, cooperativism enables the creation of experiences in which students organize themselves to plan, execute and evaluate socio-environmental actions, learning to work in groups and negotiate interests in solidarity. (Robaina, 2018)

In eco-school initiatives, cooperativism can be expressed in the creation of groups responsible for different fronts, such as school gardens, waste reduction campaigns, environmental education actions in the community, mapping of socio-environmental problems in the surroundings and communication projects for sustainability, among others, strengthening the idea that each student contributes with their skills to a common project. This dynamic fosters the learning of important social skills, such as knowing how to listen, argue, respect differences and build consensus, which are essential for citizenship. (Robaina, 2018)

The link between cooperativism, work and citizenship in school is also made explicit when the projects involve partnerships with community organizations, neighborhood associations and local cooperatives, which broadens the educational horizon of students and connects them to concrete experiences of solidarity economy and collective organization of work in their territories. This approach strengthens the perception that the school is not isolated, but is part of a network of actors who can act together in the promotion of rights and in the defense of decent living conditions. (Moll, 2004)

By incorporating cooperative principles into pedagogical and school management practices, the eco-school contributes to the construction of an institutional culture in which decisions are discussed, responsibilities are shared, and conflicts are treated as learning opportunities, which reinforces the ethical and political dimension of education and favors the development of an active citizenship committed to social transformation. (Robaina, 2018)

2.4 ECO-SCHOOLS PROGRAM AND ITS PRINCIPLES

At the international level, the proposals for sustainable schools and programs such as eco-schools reinforce the importance of integrated approaches that articulate curriculum, management and infrastructure from the perspective of sustainability, assuming that the school environment is a privileged space to promote changes in values and practices towards fairer and more balanced societies. These programs emphasize the participation of students in all stages, from diagnosis to evaluation, as well as community involvement, constituting relevant references for the construction of eco-schools in the Brazilian context. (UNESCO, 2012)

The central principles of an eco-school include the integration of environmental issues in all areas of knowledge, democratic and participatory management, the adoption of sustainable practices in the use of resources, such as water and energy, and the promotion of awareness-raising and mobilization actions in the community, always articulated with critical reflection on development models and socio-environmental inequalities. In this way, the eco-school becomes a living laboratory in which new ways of organizing collective life are experimented, aligned with values of solidarity and intergenerational responsibility. (Carvalho, 2012)

Another central characteristic of these programs is the emphasis on project-based learning and the investigation of the territory, which implies that students actively participate in the identification of problems, the formulation of hypotheses, the search for information and

the construction of intervention proposals, breaking with the logic of passivity and memorization that still marks many school practices. The eco-school, therefore, favors the development of investigative, communicative and collaborative skills, fundamental for the formation of critical and creative subjects. (UFRGS, 2020)

The construction of an eco-school also presupposes continuous training processes for educators, managers and other education professionals, so that they can resignify their practices, deepen knowledge about environmental education and sustainable development and learn to work in an interdisciplinary way, in teams that plan collectively and dialogue with the community. These training processes strengthen the school's identity as an institution committed to sustainability and the transformation of the local reality. (UFRGS, 2020)

2.5 SCIENCE CLUBS AS SPACES FOR RESEARCH AND STUDENT AUTHORSHIP

Science clubs, when conceived as spaces for investigation and student authorship, constitute privileged devices for the promotion of critical environmental education and student protagonism, insofar as they allow students to formulate questions, develop hypotheses, plan experiments, collect data and disseminate results, in an environment that values curiosity, creativity and collaborative work. In these spaces, science is presented as a situated and historical social practice, and not as a set of ready-made truths, which favors a more critical and reflective relationship with scientific knowledge. (UFRGS, 2020)

By articulating science clubs to the eco-school proposal, the school can develop projects that involve the monitoring of water quality, the study of local biodiversity, the monitoring of energy consumption indicators, the analysis of solid waste produced in the institution, among other initiatives that bring the curriculum closer to the reality experienced by students, strengthening the understanding that scientific research can contribute directly to the solution of problems of the everyday. This approximation broadens the meaning of learning and reinforces the link between science and citizenship. (Carvalho, 2012)

Science clubs also function as spaces for expression and authorship, in which students produce scientific dissemination materials, such as panels, models, videos, podcasts and exhibitions, which can be shared with the school community and the surroundings, contributing to the democratization of access to knowledge and to the construction of a culture of valuing science. By assuming the authorship of projects and products, students strengthen their self-esteem and their awareness that they can influence the public debate on socio-environmental issues. (Alves, 2005)

These research spaces can also establish partnerships with higher education institutions, museums and science centers, expanding the cultural and scientific repertoire of students and favoring contact with different areas of research, which can influence future professional choices and awaken scientific vocations in contexts where access to these experiences is often limited. Such partnerships reinforce the idea that the eco-school is also a space for scientific initiation and training for citizenship. (UFRGS, 2020)

Finally, by promoting science clubs that dialogue with critical environmental education, the school contributes to the formation of subjects who not only understand scientific concepts, but are also capable of discussing ethical, political and social implications of science and technology, developing a responsible posture in the face of innovations and environmental impacts associated with different development models. which is fundamental for the construction of an active environmental citizenship. (Carvalho, 2012)

3 EDUCATIONAL CONTEXT AND JUSTIFICATION OF THE PROPOSAL

3.1 SOCIO-ENVIRONMENTAL CHALLENGES IN THE BRAZILIAN SCHOOL CONTEXT

The Brazilian school context is crossed by strong socioeconomic inequalities that are expressed in precarious infrastructure conditions, lack of access to adequate basic sanitation, food insecurity and absence of green areas, among other problems that directly affect the daily lives of students and educators and highlight the connections between social vulnerability and environmental degradation. In many communities, the school is one of the few public facilities present, which places it in a strategic position to promote actions that articulate education, health, environment and human rights. (Moll, 2004)

In addition, the presence of solid waste accumulated in the surroundings of schools, the lack of adequate water and energy management, and the lack of spaces for coexistence and contact with nature reveal that the school environment itself often reproduces unsustainable practices, which hinders the formation of subjects committed to sustainability, since the pedagogical discourse does not always find support in the concrete reality experienced by students. Facing this contradiction is a central challenge for any environmental education proposal. (Guimarães, 2004)

At the curricular level, there are still difficulties in integrating the socio-environmental theme in a transversal and continuous way, as it is often treated in a fragmented way, limited to certain curricular components, such as Science or Geography, or even restricted to commemorative dates, which prevents students from understanding the complexity of the

relationships between environment, economy, politics and culture. This fragmentation compromises the formation of a systemic view of reality and hinders the construction of collective projects of socio-environmental intervention. (Brazil, 2017)

Another important challenge concerns the initial and continuing training of educators, which does not always consistently contemplate the contributions of critical environmental education and the participatory methodologies necessary to work with complex and controversial issues, such as climate change, conflicts over land and water, and environmental injustice. Without adequate training support, many teachers feel insecure to address such topics, which limits the school's transformative potential. (UFRGS, 2020)

These challenges are accentuated in contexts marked by urban violence and by processes of stigmatization of peripheral communities, in which young people often experience discrimination and exclusion that affect their relationship with school and with the future, requiring pedagogical proposals that associate care, welcoming, and affirmation of rights with critical reflection on socio-environmental living conditions. contributing to the construction of horizons of hope and social participation. (Freire, 2020)

3.2 POTENTIAL OF THE SCHOOL AS A SPACE FOR ECOLOGICAL TRAINING

Despite these challenges, the school has great potential as a space for ecological education, as it brings together children, adolescents, young people and adults on a daily basis around educational practices that can be guided by values of care, solidarity and responsibility for life. By articulating scientific knowledge and popular knowledge, the school can favor the construction of critical understandings about socio-environmental problems and stimulate engagement in collective actions for their transformation, becoming a reference for the community in environmental education processes. (Carvalho, 2012)

The National Common Curriculum Base recognizes this potential by indicating that basic education should promote the development of skills related to responsibility and care for the environment, data-based argumentation, empathy and cooperation, which opens up possibilities for schools to organize their pedagogical projects around generative themes linked to sustainability and social justice. In this horizon, the eco-school constitutes a possible realization of these guidelines, by materializing in the institutional daily life the competencies provided for in national policies. (Brazil, 2017)

By proposing the creation of an eco-school, it is recognized that the school environment, with its courtyards, classrooms, canteens, bathrooms and external areas, can

be re-signified as a laboratory of environmental education, in which practices of waste management, rational use of water and energy, cultivation of vegetable gardens and gardens, healthy eating and respectful coexistence are experimented with. articulating material and symbolic aspects in the construction of an institutional culture guided by sustainability. In this way, each space in the school becomes an opportunity for ecological learning. (Carvalho, 2012)

This formative potential is also expressed in the possibility of the school being inserted in education programs and networks for sustainable development at the local, national and international levels, which favors the exchange of experiences, the circulation of pedagogical materials and participation in joint campaigns and projects, expanding the repertoire of practices and strengthening the school's identity as an institution committed to sustainability and global citizenship. (UNESCO, 2012)

3.3 NEED FOR INTERDISCIPLINARY AND PARTICIPATORY PROJECTS

The complexity of socio-environmental problems requires interdisciplinary approaches that break with the compartmentalization of content and allow students to articulate knowledge from different areas, such as Science, Geography, History, Portuguese Language, Mathematics and Arts, among others, in the analysis of concrete situations. Interdisciplinary projects allow environmental issues to be treated in their historical, social, economic, cultural and ethical dimensions, contributing to the formation of a broader and more critical view of reality. (Guimarães, 2004)

The national curriculum guidelines reinforce the importance of pedagogical practices that promote the integration of curricular components and the construction of study and intervention projects that start from problems relevant to the school community, articulating research, group work and production of records, which is in line with the eco-school perspective, which presupposes the elaboration of collectively constructed action plans, involving different areas of knowledge. In this process, student protagonism is a central element. (Brazil, 2017)

The effective participation of students in the conception, planning and evaluation of interdisciplinary projects is a fundamental condition for these projects not to be reduced to specific activities, but to become formative processes in which the subjects recognize themselves as authors of their learning trajectories, assuming responsibilities and perceiving

the impact of their actions in the school and community environment. This participation strengthens bonds of belonging and commitment to the school. (Moll, 2009)

The construction of interdisciplinary and participatory projects aimed at sustainability also demands processes of continuing education of educators, which support them in reflecting on their practices, in the preparation of materials and in the experimentation of active methodologies, such as projects, workshops, conversation circles and field investigations, among others, which contributes to the eco-school not being just a proposal for students, but also a movement for teacher professional development. (UFRGS, 2020)

3.4 ECO-SCHOOL AS A PEDAGOGICAL AND POLITICAL STRATEGY

The eco-school can be understood simultaneously as a pedagogical and political strategy, because, at the same time that it proposes active, interdisciplinary and participatory methodologies for working with socio-environmental themes, it also affirms a political position in favor of environmental justice, democracy and the defense of rights, confronting visions that restrict education to technical training or to mere preparation for the labor market. In this sense, the eco-school is part of broader projects for the construction of sustainable and solidary societies. (Guimarães, 2004)

As a pedagogical strategy, the eco-school values research, problematization and experimentation, favoring the construction of meaningful learning that starts from the students' reality and returns to this reality in the form of transformative actions, such as campaigns, interventions in the physical space, production of communication materials and articulation with social movements, among other initiatives. This dynamic breaks with the dichotomy between theory and practice and strengthens the idea that learning is also intervening in the world. (Freire, 2020)

On the political level, the eco-school assumes that environmental education is not neutral, as it involves a dispute of values, interests and projects for the future, and therefore seeks to explain and discuss with students and the community the contradictions present in development models that produce wealth for a few and degrade the environment, while at the same time affirming the possibility of building alternatives based on cooperation, in the solidarity economy and in the democratic management of the commons. This posture gives the school an active role in the public debate. (Robaina, 2018)

The eco-school also presents itself as a strategy for the concrete implementation of educational policies that provide for the transversality of environmental education and integral

training, by organizing the political-pedagogical project around axes of sustainability and participation, building annual action plans, defining goals and indicators and establishing forms of monitoring and evaluation, in order to ensure continuity and coherence of actions, avoiding being limited to isolated initiatives. (Brazil, 2017)

Finally, by constituting itself as an eco-school, the institution strengthens its identity before the community and networks of partners, affirming itself as a space that not only discusses theory, but also carries out concrete practices of care for the environment and the construction of fairer social relations, which contributes to the formation of ecological, critical and supportive subjects and to the consolidation of a culture of sustainability that can radiate beyond the school walls. (Carvalho, 2012)

4 EXPECTED OUTCOMES AND POTENTIAL IMPACTS

4.1 DEVELOPMENT OF STUDENT PROTAGONISM

One of the main results expected from the creation of an eco-school is the strengthening of student protagonism, expressed in the students' ability to identify problems, propose solutions, organize actions and evaluate processes, assuming an active role in the construction of the pedagogical project and in the management of school spaces. By participating in assemblies, science clubs, thematic commissions and working groups, students exercise decision-making, dialogue and collective responsibility. (Moll, 2009)

Student protagonism is also manifested in the authorship of research and socio-environmental intervention projects, in which students define topics of interest, elaborate questions, seek information from different sources, build records and disseminate results at fairs, exhibitions and events, which contributes to the development of scientific, communicative and social skills and to the recognition of their voice in the public space. This authorship reinforces self-esteem and the feeling of belonging to the school. (UFRGS, 2020)

The active participation of students in decisions related to the organization of physical space, such as the creation of vegetable gardens, gardens, murals and living environments, also favors protagonism, as they imply choices about priorities, use of resources and forms of coexistence, which requires negotiation and consensus-building. When they see their ideas materialized in the school environment, students realize that their action has a real impact, which encourages engagement in new initiatives. (Brazil, 2017)

This process can contribute to the resignification of the students' relationship with the school, especially in contexts in which they usually experience experiences of exclusion and

devaluation, since the protagonism recognizes their knowledge, their cultures and their forms of expression as legitimate, opening space for creativity, affectivity and humor. elements that make learning more meaningful and pleasurable, bringing the school closer to its life projects. (Alves, 2005)

4.2 STRENGTHENING THE CULTURE OF SUSTAINABILITY IN THE SCHOOL

In this regard, it is expected to strengthen a culture of sustainability in the school, understood as a set of values, norms, practices and meanings that guide the relationships between people and with the environment towards care, responsibility and intergenerational solidarity. This culture is expressed in everyday decisions, such as the rational use of water and energy, waste reduction, healthy eating, respect for biodiversity, and the appreciation of green spaces, among other dimensions that can be worked on pedagogically. (Carvalho, 2012)

The construction of this culture requires that the theme of sustainability is not limited to isolated projects, but is incorporated into the political-pedagogical project, the rules of coexistence and the management of the school, including purchasing criteria, infrastructure planning and organization of times and spaces, so that students, educators and other professionals perceive coherence between the discourse and the institutional practice. The eco-school, in this sense, acts as a visible reference of commitment to sustainability. (Guimarães, 2004)

Practices such as the implementation of selective collection systems, the creation of pedagogical gardens, the planting of trees, the organization of campaigns to reduce food waste and the care with the cleanliness of collective spaces contribute to the consolidation of sustainable habits, especially when accompanied by processes of critical reflection on the structural causes of environmental degradation and on inequalities in access to natural resources. avoiding moralizing and individualizing approaches. (UFRGS, 2020)

The culture of sustainability is also related to the way the school deals with conflicts and differences, valuing dialogue, mediation and the search for collective solutions, which can materialize in restorative justice projects, mediators' councils and listening spaces, among other devices that contribute to the construction of more welcoming and safe environments. fundamental for learning and participation. Thus, sustainability is understood in its social and relational dimension. (Moll, 2009)

By consolidating a culture of sustainability, the eco-school contributes to the formation of the ecological subject, who integrates knowledge, values and practices in their relationship with the world, recognizing the interdependence between human beings and nature and taking responsibility for their individual and collective choices, which can be reflected in changes in behavior beyond the school space, reaching families and communities. (Carvalho, 2012)

4.3 INTEGRATION BETWEEN SCHOOL, FAMILIES AND COMMUNITY

The implementation of an eco-school has the potential to deepen the integration between school, families and the community, to the extent that socio-environmental projects require the participation of different social actors and can be organized in partnership with residents' associations, health units, universities, public agencies and civil society organizations. This integration expands the reach of educational actions and favors the construction of support networks around sustainability. (UFRGS, 2020)

Activities such as joint efforts to care for the school space, science fairs, environmental education workshops open to the community, waste collection campaigns, conversation circles on socio-environmental issues and visits to public facilities can involve family members and residents of the surrounding area in shared learning processes, in which everyone recognizes themselves as subjects of knowledge and rights. which contributes to the democratization of the school and to the strengthening of the social fabric. (Moll, 2004)

The participation of families in management instances, such as school councils and extended meetings, can also be qualified when the theme of eco-school is on the agenda, as debates on the use of resources, investment priorities and the organization of environmental projects raise discussions about social justice, rights and duties, enabling the collective construction of decisions and co-responsibility for the direction of the school. This dimension strengthens active citizenship. (Robaina, 2018)

The integration between school and community is further enhanced when students become communicators of the eco-school's actions, producing informative materials, community radio programs, blogs, posters and public presentations that disseminate knowledge and invite participation, which expands the circulation of ideas about sustainability and reinforces the role of the school as a center of cultural and scientific irradiation in the territory. This communication strengthens bonds of trust and mutual recognition. (UFRGS, 2020)

By favoring this integration, the eco-school contributes to environmental education being understood as a shared responsibility and not just as a school task, which can generate lasting impacts on the organization of community life and on the way residents relate to public spaces, natural resources and environmental policies, consolidating a more participatory and sustainable perspective of local development. (UNESCO, 2012)

4.4 CONTRIBUTIONS TO THE SCIENTIFIC AND CIVIC EDUCATION OF STUDENTS

The eco-school offers favorable conditions for the scientific training of students, by promoting research projects that articulate observation, experimentation, recording and analysis of data on concrete socio-environmental phenomena, such as water quality, diversity of species in green areas, waste generation and energy consumption, among others, strengthening the understanding of science as a process of collective construction of knowledge. This experience contributes to the development of critical thinking and the ability to interpret scientific information present in everyday life. (UFRGS, 2020)

At the same time, the eco-school favors citizenship education, as it places students in situations that require ethical and political choices, such as the definition of priorities in projects, the discussion of environmental impacts of different forms of production and consumption, and the analysis of public policies related to the environment, stimulating reflection on rights, responsibilities and participation in decision-making spaces. Thus, science and citizenship are worked on in an articulated way. (Guimarães, 2004)

The articulation between scientific and citizen education is expressed, for example, when students use data collected in investigations to develop proposals aimed at public managers or to mobilize the community in specific actions, such as afforestation campaigns, care for local rivers or improvement of urban cleaning services, among other initiatives that demonstrate the power of school research as an instrument of social intervention. In this context, scientific knowledge gains political meaning. (Freire, 2020)

The eco-school also contributes to expanding students' access to scientific initiation experiences, whether through science clubs, participation in fairs and exhibitions, or partnerships with higher education institutions, which can influence future academic trajectories and stimulate interest in scientific careers, especially among young people from groups historically excluded from these spaces. contributing to democratizing the scientific field. This democratization is in line with the perspective of integral education and equity. (Moll, 2009)

Finally, by articulating scientific and citizen education in a perspective of critical environmental education, the eco-school collaborates in the construction of ecological subjects capable of understanding the complexity of environmental issues and of acting responsibly and in solidarity in different spaces of social life, which becomes particularly relevant in a context of global socio-environmental crisis and the need to transition to fairer and more sustainable development models. (Carvalho, 2012)

5 CONCLUSION

The proposal to create an eco-school, articulating critical environmental education, integral education, student protagonism and cooperation, proved to be a powerful strategy to face the socio-environmental challenges present in the Brazilian school context, while contributing to resignify the role of the school as a space for the formation of ecological, critical and solidary subjects. By integrating curriculum, management, and daily practices around sustainability, the eco-school strengthens an institutional culture that values care for life and collective responsibility, going beyond one-off and fragmented actions.

The theoretical foundations discussed, anchored in authors who reflect on environmental education, integral education, cooperativism and education for sustainable development, indicate that the formation of ecological subjects requires pedagogical processes that articulate critical reflection, investigation, participation and cooperation, in dialogue with the experiences and territories of the students. In this sense, the eco-school presents itself as a privileged space to materialize principles of environmental justice, democracy and solidarity, materializing guidelines present in Brazilian educational policies.

The expected results and potential impacts analyzed indicate that the eco-school can contribute significantly to the development of student protagonism, to the strengthening of the culture of sustainability, to the integration between school and community and to the scientific and civic training of students, broadening horizons of hope and social participation in contexts often marked by inequalities and exclusions. In the end, it is reaffirmed that the construction of eco-schools requires political commitment, investment in training and willingness to experiment with new ways of organizing school life, recognizing education as a practice of freedom and reinvention of the world.

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**EDUCATION AND ECOLOGICAL CITIZENSHIP: TEACHING PRACTICES FOR
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**EDUCACIÓN Y CIUDADANÍA ECOLÓGICA: PRÁCTICAS DE ENSEÑANZA
PARA ESCUELAS QUILOMBOLAS Y SERTANEJAS**

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ABSTRACT

This chapter analyzes the relevance of education and ecological citizenship in quilombola and sertanejo contexts, highlighting how these territories broaden the meaning of Science teaching by integrating the Caatinga biome, local culture, and traditional knowledge as constitutive dimensions of the educational process. It argues that the school, by articulating scientific knowledge and community memory, becomes a strategic space for the development of critical awareness, social participation, and sustainable practices. Based on a comprehensive literature review, the chapter discusses the theoretical foundations of Ecological Citizenship, Critical Environmental Education, and the Ecology of Knowledge, while also examining the pedagogical practices of quilombola schools and the Pedagogy of Living Together in the Semiarid region. Finally, it highlights the convergences, tensions, and challenges involved in constructing a contextualized education committed to territorial preservation, the appreciation of traditional identities, and the formation of ecological subjects.

Keywords: Ecological Citizenship. Quilombola Education. Semiarid Region. Traditional Knowledge.

RESUMO

Este capítulo analisa a relevância da educação e da cidadania ecológica em contextos quilombolas e sertanejos, destacando como esses territórios ampliam o sentido do ensino de Ciências ao integrar a Caatinga, a cultura local e os saberes tradicionais como dimensões constitutivas do processo formativo. Defende-se que a escola, ao articular conhecimento científico e memória comunitária, torna-se espaço estratégico para o desenvolvimento da consciência crítica, da participação social e de práticas sustentáveis. A partir de uma revisão bibliográfica abrangente, o capítulo discute os fundamentos teóricos da Cidadania Ecológica, da Educação Ambiental Crítica e da Ecologia de Saberes, analisando também as práticas pedagógicas das escolas quilombolas e a Pedagogia da Convivência no Semiárido. Por fim, evidencia as convergências, tensões e desafios que atravessam a construção de uma educação contextualizada e comprometida com a preservação territorial, a valorização das identidades tradicionais e a formação de sujeitos ecológicos.

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Palavras-chave: Cidadania Ecológica. Educação Quilombola. Semiárido. Saberes Tradicionais.

RESUMEN

Este capítulo analiza la relevancia de la educación y la ciudadanía ecológica en contextos quilombolas y sertanejos, destacando cómo estos territorios amplían el sentido de la enseñanza de Ciencias al integrar la Caatinga, la cultura local y los saberes tradicionales como dimensiones constitutivas del proceso formativo. Se sostiene que la escuela, al articular el conocimiento científico y la memoria comunitaria, se convierte en un espacio estratégico para el desarrollo de la conciencia crítica, la participación social y las prácticas sostenibles. A partir de una revisión bibliográfica exhaustiva, el capítulo discute los fundamentos teóricos de la Ciudadanía Ecológica, la Educación Ambiental Crítica y la Ecología de Saberes, analizando también las prácticas pedagógicas de las escuelas quilombolas y la Pedagogía de la Convivencia en el Semiárido. Finalmente, evidencia las convergencias, tensiones y desafíos que atraviesan la construcción de una educación contextualizada y comprometida con la preservación territorial, la valorización de las identidades tradicionales y la formación de sujetos ecológicos.

Palabras clave: Ciudadanía Ecológica. Educación Quilombola. Semiárido. Saberes Tradicionales.

1 INTRODUCTION

Education and ecological citizenship become especially significant when the teaching of Science takes place in quilombola and sertanejo territories. In these realities, working on environmental content requires an approach that recognizes the Caatinga as an educational space, values the traditional knowledge of the community and connects scientific knowledge to experiences lived in everyday life. The environment, culture and local identity become fundamental elements to understand natural phenomena and reflect on sustainable practices.

In this context, pedagogical practices need to encourage investigation, critical thinking, and the active participation of students in the preservation of the territory. By integrating observation activities, dialogue with community memory and analysis of the environmental challenges of the region, the teaching of Science contributes to forming subjects aware of their role in society. The school, thus, becomes a space for the construction of ecological citizenship, strengthening the students' commitment to sustainability and to the values that guide life in quilombola and sertanejo communities.

The twenty-first century imposes on humanity environmental challenges of unprecedented proportions, ranging from climate change and the accelerated loss of biodiversity to the water crisis and growing socio-environmental inequality. Against this backdrop, the traditional notion of citizenship, focused primarily on civil and political rights within the confines of the nation-state, proves to be insufficient. It is imperative to develop an Ecological Citizenship (EC), which transcends geographical and temporal borders, incorporating responsibility towards the environment and future generations (DOBSON, 2003).

Ecological Citizenship requires a profound reorientation of values, attitudes and practices, and it is at this point that education assumes a central and irreplaceable role. The school, as a space for training and critical reflection, is the privileged locus² for sowing the awareness that the human being is an integral part of nature, and not its dominator. In Brazil, this task takes on even more complex and rich contours when it turns to traditional communities, such as quilombolas and sertanejas, whose histories of resistance and ways of life are intrinsically linked to the conservation and sustainable use of their territories.

² It refers to the place, space or context where a certain phenomenon occurs, and can indicate both a physical and symbolic position within a social, biological or cultural process.

Quilombola communities and populations in the Brazilian semi-arid region, often marginalized in hegemonic debates³ on development and education, are, paradoxically, holders of a vast and sophisticated body of environmental knowledge. Its land, water and natural resource management practices, passed down orally through generations, represent true lessons in sustainability and resilience.

Focusing on traditional communities, such as quilombolas and sertanejas, is essential because these groups keep knowledge, practices, and ways of life that contribute to environmental conservation and the construction of more balanced relationships with nature. In many of these territories, knowledge about water management, responsible land use, agroecological practices, and respect for biodiversity is transmitted between generations, constituting a valuable sociocultural heritage. Recognizing and integrating this knowledge into the educational process broadens students' understanding of sustainability and strengthens collective identity, promoting self-esteem, belonging, and appreciation of historical roots.

Schools located in these territories play a strategic role in articulating scientific and cultural knowledge, preparing students to act critically in the face of environmental challenges that directly affect their lives. In this way, the focus on these communities not only qualifies teaching, but also reinforces the right to contextualized, inclusive education that is socially committed to the preservation of the territory and the strengthening of traditional identities.

Studying the teaching practices of Ecological Education and Citizenship in these schools is not only an exercise in recognizing cultural diversity, but an epistemological and political necessity. It is in quilombola and sertanejo schools that Environmental Education (EE) can manifest itself in its most critical and transformative form, articulating the struggle for territorial and social rights with the defense of the environment. The focus on these realities allows the decolonization of the curriculum, valuing the Ecology of Knowledge proposed by Boaventura de Sousa Santos, where scientific knowledge dialogues horizontally with ancestral knowledge (SANTOS, 2007).

The objectives of this chapter focus on developing a comprehensive literature review on the theme "Education and ecological citizenship: teaching practices for quilombola and sertanejo schools". It seeks to analyze the theoretical foundations that sustain Ecological

³ Discussions marked by the predominance of certain groups, discourses, or perspectives that become dominant in a social, political, or scientific context, influencing the way topics are understood, legitimized, and reproduced in society.

Citizenship, Critical Environmental Education and the Ecology of Knowledge; to map the scientific production related to Environmental Education and the pedagogical practices developed in quilombola schools; to investigate teaching methodologies and the Pedagogy of Coexistence with the Semi-arid in the backcountry context; and to identify the points of convergence, as well as the challenges that the promotion of ecological citizenship in the different territories analyzed cross.

To achieve these objectives, the chapter is structured in five main sections, in addition to this Introduction and the References. Section 2 presents the Theoretical Foundations that support the discussion. Section 3 deepens the relationship between Quilombola School Education and the environment. Section 4 discusses Education in the Semi-arid Region and the Pedagogy of Coexistence. Section 5 sets out the convergences, tensions, and challenges encountered between the two contexts. Finally, Section 6 brings together the Final Considerations of the study, synthesizing the findings and pointing out perspectives for future research and practices.

2 THEORETICAL FOUNDATIONS: ECOLOGICAL CITIZENSHIP, ENVIRONMENTAL EDUCATION AND TRADITIONAL KNOWLEDGE

The articulation between Ecological Citizenship, Environmental Education and Traditional Knowledge reveals a powerful way to think about contextualized and socially committed educational practices. Ecological Citizenship proposes that subjects assume ethical and collective responsibilities in the face of socio-environmental issues, going beyond individual actions and recognizing the interdependence between human beings and nature. Environmental Education, especially in its critical aspect, contributes to this training by promoting reflection, social participation and awareness of the inequalities that affect the territories.

Moving forward in the perspective of a sustainable society implies, among many other things, making industries more efficient, reducing waste and reducing the production of toxic or non-toxic waste; control water pollution; carry out forest management; recycle materials. (BRASIL, 1998, p.220).

Inserted in this scenario, traditional knowledge, especially quilombola and sertanejo knowledge about land management, water use, and coexistence with the climate, become fundamental, as they express sustainable practices built historically and capable of dialoguing with scientific knowledge. The integration of these three dimensions strengthens

the autonomy of communities, values their identities and broadens students' understanding of the complexity of environmental relations.

By recognizing traditional knowledge as an essential part of the construction of ecological citizenship, it breaks with the hierarchical view that for a long time privileged only scientific knowledge. In quilombola and sertanejo communities, this knowledge is born from the direct relationship with the territory, from the observation of natural cycles, from the conscious use of resources and from the practices of resistance that have ensured the survival of these peoples over generations. When incorporated into the school curriculum, they allow students to understand the environment not only as an object of study, but as a space of life, memory, and identity. This appreciation strengthens belonging and expands the critical capacity of students in the face of environmental challenges that historically affect these populations.

Thus, integrating Environmental Education into community practices favors the construction of situated pedagogical projects, which dialogue with the socio-environmental reality of the territories. The school, by working with themes such as conservation of the Caatinga, social technologies for coexistence with the semi-arid region or sustainable management of food and water, brings teaching closer to everyday life and promotes meaningful learning.

The environmental principles and values promoted by a pedagogy of the environment must be enriched with a pedagogy of complexity, which induces in students a vision of multicausality and the interrelations of the different processes that integrate their world of life in the different stages of psychogenetic development; that generates critical and creative thinking based on new cognitive capacities (LEFF, 2013, p. 243)

This approach favors the formation of subjects who recognize their role in environmental, social and cultural transformations, making ecological citizenship a concrete and everyday practice. Thus, education is no longer just a transmitter of content and becomes a collective process of knowledge construction, respect for diversity, and active defense of socio-environmental rights.

2.1 ECOLOGICAL CITIZENSHIP (EC): CONCEPT, EVOLUTION AND DISTINCTION

Ecological Citizenship emerges as a response to the civilizational crisis and the insufficiency of the liberal citizenship model. The concept, popularized by authors such as Loureiro (LOUREIRO, 2008) and Dobson (DOBSON, 2003), proposes an expansion of the

scope of citizenship beyond the human sphere, including responsibility towards the natural world.

Traditional citizenship is, in essence, anthropocentric, territorial and legalistic. It is based on the relationship between the individual and the State, guaranteeing rights and duties within a delimited geographical space. In contrast, Ecological Citizenship is biocentric or ecocentric, transnational and ethical. It is based on the idea that rights and duties extend to the entire planet and to all forms of life, and that responsibility is not limited to the present, but is projected into the future (intergenerational justice).

Therefore, Ecological Citizenship presupposes a critical education capable of recognizing that environmental problems are not only of a natural order, but also political, social and cultural. For Loureiro (2008), the environmental crisis is inseparable from the forms of production, consumption and inequality that characterize the current economic system. In this way, the EC requires subjects who understand socio-environmental conflicts, denounce ecological injustices and are able to propose sustainable alternatives in their territories. It is an active citizenship, which is not limited to voting or complying with norms, but which is expressed in transformative practices, such as the defense of common goods, the care of local ecosystems and the construction of more solidary and sustainable ways of life.

Another essential aspect is that the EC recognizes the value of traditional knowledge and populations that have historically developed forms of harmonious coexistence with the environment, such as quilombola communities, indigenous peoples and sertanejo populations. These groups, throughout their trajectories, have consolidated sustainable management practices, rational use of natural resources and strategies for caring for the territory that challenge the dominant exploratory logic. By integrating this knowledge into the contemporary debate, Ecological Citizenship strengthens a plural, intercultural and democratic perspective, reaffirming that the construction of environmentally just societies depends on valuing the multiple forms of existence and relationship with nature.

Table 1

Characteristic	Traditional Citizenship (Liberal)	Ecological Citizenship (EC)
Focus	Rights and duties of the individual in the nation-state	Responsibility to the planet and future generations
Prospect	Anthropocentric (the man in the center)	Biocentric/Ecocentric (life and the ecosystem at the center)

Scope	Territorial (limited by the State)	Transnational/Planetary
Nature	Legalist and political	Ethics, politics and culture

2.2 THE ETHICAL AND POLITICAL DIMENSION OF ECOLOGICAL CITIZENSHIP

CE is not just a set of individual practices (such as recycling or saving water), but an ethical and political stance that calls for the transformation of social and economic structures. Politically, it manifests itself in the struggle for Environmental Justice, which recognizes that negative environmental impacts (pollution, disasters, scarcity) fall disproportionately on vulnerable populations, such as quilombola and sertanejo communities.

The ethical dimension of the EC implies the recognition of otherness, that is, the ability to put oneself in the place of the "other" – be it a marginalized human being, an animal, a plant or an ecosystem. This ethics of alterity is crucial for overcoming the predatory model and for building a more just and sustainable society (DUTRA, 2012).

2.3 CRITICAL AND TRANSFORMATIVE ENVIRONMENTAL EDUCATION (EE)

Critical and Transformative Environmental Education (EE) emerges as an approach that goes beyond merely informative or behavioral practices, understanding the environment as a field of social, political and economic disputes. Authors such as Paulo Freire and Carlos Frederico Loureiro argue that environmental education is to train subjects capable of understanding the structural causes of the ecological crisis and acting to transform them. Freire (1996) states that *there is no neutral education*, emphasizing that all pedagogical practice involves political choices.

Loureiro (2007), in turn, points out that:

Critical EE seeks to overcome superficial environmentalism, proposing a social reading of nature and the conflicts that cross it. Laurel (2007)

By stating that this perspective articulates ecological awareness, social justice and human emancipation, the author reinforces that to educate environmentally is to form subjects capable of critically analyzing reality and acting to transform it in a collective and socially just way.

Thus, the Critical and Transformative EE understands that environmental change depends on collective participation and articulation between school, community and territory. Guimarães (2004) emphasizes that *educating for the environment implies educating for*

citizenship and for the transformation of reality, reinforcing that education should stimulate the protagonism and autonomy of populations in the face of environmental challenges. This perspective also values local knowledge, recognizing that traditional, quilombola, and sertanejo communities build sustainable practices that confront the hegemonic model of development. In this way, critical EE broadens the meaning of education, understanding it as a continuous process of reflection and action capable of strengthening more just, solidary and ecologically balanced ways of life.

Environmental Education, since its formalization in international conferences (such as Tbilisi, 1977), has evolved from a merely informative and conservationist approach to a critical and transformative perspective. Critical EA, defended by authors such as Loureiro (LOUREIRO, 2004) and Guimarães (GUIMARÃES, 2004), rejects neutrality and assumes a commitment to social transformation.

Critical Environmental Education understands that the environmental crisis is essentially a social, political, and economic crisis. Therefore, its purpose goes far beyond teaching content about the environment: it seeks to unveil the structural causes of environmental degradation, especially those related to the capitalist model of production and consumption; promote political participation and social organization in the defense of environmental rights; and to articulate in an inseparable way the environmental and social dimensions, combating environmental racism and the different forms of injustice that affect, above all, the most vulnerable groups⁴. In this way, EA Crítica is committed to an education that understands the environment as a space for dispute and social transformation.

2.4 THE ROLE OF EE IN THE FORMATION OF ECOLOGICAL SUBJECTS

The product of Critical EE is the ecological subject, an individual who is aware of his or her interdependence with the environment and who acts reflexively and proactively in mitigating socio-environmental impacts (COSTA; AGUIAR, 2020). In quilombola and sertanejo schools, the formation of this subject is enhanced by the local reality itself, where the struggle for survival and the direct relationship with the territory already provide the substrate for an engaged education.

⁴ Quilombola communities are among the most vulnerable groups due to environmental racism, which manifests itself in the unequal distribution of environmental risks and impacts. Historically marginalized in terms of access to public policies, basic infrastructure, and territorial protection, these communities face greater exposure to contamination, scarcity of water resources, land violence, and the absence of adequate sanitation. Environmental racism, therefore, is not only a consequence, but a structural form of discrimination that reinforces inequalities and directly threatens the quality of life, health, and cultural identities of quilombolas.

Critical Environmental Education (EE) has as its horizon the formation of the ecological subject, understood as one who recognizes his interdependence with the environment, understands socio-environmental conflicts and acts in an ethical and committed way in the transformation of reality (COSTA; AGUIAR, 2020). This subject does not arise spontaneously: it is the result of a continuous, reflective, and politicized educational process, which questions the structures of society and strengthens collective practices of care, solidarity, and environmental justice. It is an education that requires historical awareness, a critical reading of the world and the ability to act on it, resuming the Freirean perspective that *"education does not transform the world, education changes people, and people transform the world"* (FREIRE, 2000).

In this context, Critical EE takes on a profoundly transformative character, as it breaks with a neutral or technicist view of the environmental crisis and understands it as the result of structural inequalities that cross race, territory and social class. Quilombola and sertanejo communities, often forgotten by public policies, are among the groups most affected by environmental racism, which unequally distributes risks, pollution and degradation (ACSELRAD, 2004). It is in these territories that EE becomes even more urgent, as it gives visibility to injustices, strengthens collective identities and enables subjects to understand and face the historical marginalization to which they have been subjected.

As a result, the intensification of the global environmental crisis and climate change amplifies the challenges faced by traditional populations, who already live with water scarcity, deforestation, land grabbing,⁵ and the impacts of predatory economic policies. According to Loureiro (2008), Critical EE should enable subjects to understand such crises as part of an economic model that prioritizes exploitation and profit, putting at risk not only ecosystems, but also entire cultures. Thus, to form ecological subjects, especially in quilombola schools, is also to form subjects of resistance, capable of taking a stand in the face of injustices and elaborating collective practices of confrontation.

The teacher, in this process, plays an essential role as a mediator and articulator of knowledge. For Freire (1996), the educator is the one who enables a critical reading of the world, stimulating dialogue, autonomy and reflective thinking. At EA Crítica, the teacher acts as a facilitator of experiences that connect science, territory and culture, valuing the history

⁵ The word "land grabbing" originated from an ancient technique where forged documents were placed in a box with crickets. The insects' excrement accelerated the oxidation of the paper, causing it to acquire a yellowish and aged appearance in a short time.

of communities and strengthening contextualized environmental awareness. Its role is not to transmit ready-made truths, but to create conditions for students to interpret environmental problems from their reality and build collective solutions.

Finally, it is essential to highlight that quilombola communities are guardians of ancestral knowledge that is fundamental for environmental preservation. Their ways of life, agroecological practices, techniques for sustainable use of the land, and spiritual relationship with the territory constitute knowledge transmitted by the older generations, the "ancestors", as many communities call them, which, according to Santos (2018), *"produce their own epistemologies and ways of understanding the environment that resist colonial and capitalist logic"*. By recognizing that quilombolas are specialists in environmental preservation, EA Crítica reaffirms the importance of this knowledge as ecological and cultural heritage, reinforcing that any sustainability project must consider, value and learn from these populations.

2.5 TRADITIONAL KNOWLEDGE AND ECOLOGY OF KNOWLEDGE

The Ecology of Knowledge, a concept coined by the Portuguese sociologist Boaventura de Sousa Santos (SANTOS, 2007), proposes a horizontal dialogue between scientific knowledge and non-scientific knowledge, such as traditional, popular and ancestral knowledge.

The Ecology of Knowledge is the idea that scientific knowledge is not the only valid knowledge and that it must enter into dialogue with other knowledge, such as traditional, popular and indigenous knowledge, to build a more just and sustainable society. (SANTOS, 2007).

The Ecology of Knowledges, by breaking with the epistemological monopoly of scientific knowledge, recognizes that different cultures produce legitimate ways of interpreting the world, of managing the environment and of constructing modes of existence. Santos (2010) states that *"no form of knowledge is complete in itself"* and that modern science only becomes truly democratic when it recognizes its incompleteness and opens itself to intercultural dialogue. This perspective is fundamental to overcome the hierarchy that has historically inferiorized popular, quilombola, indigenous and sertanejo knowledge, classifying them as "less rational" or "less developed".

In this sense, traditional knowledge plays a strategic role in the construction of alternatives in the face of the environmental and climate crisis. Several contemporary studies

demonstrate that ancestral practices of sustainable management — such as traditional swiddens, agroforestry systems, selective seed collection techniques, and community forms of territorial management — contribute to the maintenance of biodiversity, the protection of springs, and the balance of ecosystems (ALMEIDA, 2019). This knowledge, transmitted orally between generations, constitutes social technologies of great ecological and cultural value, which resist the predatory logic of global capitalism.

From the perspective of the Ecology of Knowledge, the school is no longer an exclusively transmitting space for scientific content and becomes an environment for dialogue, recognition and appreciation of epistemological diversity. Loureiro and Layrargues (2021) highlight that *"environmental education is only strengthened when it incorporates the experiences and practices of the communities that live the ecological reality of their territories"*. This means that, in quilombola and sertanejo contexts, the educational process must consider elements such as the collective way of life, the spiritual relationship with the land, rituals, the memory of ancestors and respect for nature as part of cultural identity.

In addition, by dialoguing with traditional knowledge, the Ecology of Knowledges recognizes that quilombola communities and native peoples have been protagonists in environmental defense. Contemporary researchers such as Benatti and Pantoja (2022) show that traditional territories are, proportionally, the most preserved areas in the country, even facing land violence, environmental racism, and the absence of public policies. Such communities are guardians of essential knowledge to face the climate crisis, as their ways of living demonstrate that it is possible to maintain a relationship of care and reciprocity with the environment.

Finally, by articulating science and ancestral knowledge, the Ecology of Knowledge reinforces the idea that sustainability will not be built from a single rationality, but from the convergence between multiple knowledges. For Carvalho and Silva (2023), *"the ecological transition requires a plurality of voices and practices, especially those that have been historically silenced"*. Thus, recognizing the epistemic value of quilombola, indigenous, riverside and sertanejo communities is not only an act of historical justice, but an essential path to face the socio-environmental challenges of the twenty-first century. The ecology of knowledges, therefore, presents itself as an ethical, political, and epistemological alternative for the construction of more sustainable, democratic, and inclusive societies.

2.5.1 The Critique of the Hegemonic Vision of Science and the Valorization of Ancestral Knowledge

Modern science has often imposed a worldview that has disqualified and made invisible the knowledge of traditional communities. The Ecology of Knowledges, on the contrary, recognizes that the sustainability and resilience of these communities are the result of a practical and deep knowledge about the local ecosystem.

In quilombola and sertanejo schools, Critical EE must operate from this Ecology of Knowledge, integrating the formal curriculum with management practices, stories, myths and social technologies developed locally. It is from this dialogue that Ecological Citizenship becomes concrete and meaningful for students, as it is rooted in their own identity and territory.

The abyssal thinking that structures modern Western science is the main target of this criticism, because, according to Boaventura de Sousa Santos (2007), it establishes a radical line that separates "valid" knowledge from "non-existent". This division, which dates back to the colonial era, results in a global cognitive injustice, where popular, peasant and indigenous knowledge are relegated to the category of beliefs or opinions, devoid of epistemological relevance. The Ecology of Knowledge emerges, therefore, as an ethical and political imperative to overcome this exclusion, proposing the co-presence and articulation between scientific knowledge and the various forms of knowledge that have been historically silenced.

Critical Environmental Education (EAC), by adopting the perspective of the Ecology of Knowledge, becomes a pedagogy of resistance and emancipation, as pointed out by Nóra (2025). It moves away from the merely instrumental view of environmental education, which focuses only on changing individual behavior, to question the structural roots of the ecological crisis, closely linked to social injustice and epistemic domination, as Isabel Carvalho (2004) argues. In quilombola and sertanejo communities, this means that the curriculum must be a space for the decolonization of knowledge, where local history and cosmology are recognized as matrices of sustainable territorial management.

The valorization of ancestral knowledge does not imply a total rejection of science, but rather its contextualization and the recognition of its incompleteness, a central principle of the Ecology of Knowledge of Boaventura de Sousa Santos (2007). Scientific knowledge, with its capacity for analysis and systematization, must enter into a process of translation with traditional knowledge, so that both can mutually enrich each other. For example, the empirical knowledge of backcountry farmers about the resistance of native seeds to drought can be

dialogued with genetics and agronomy, resulting in more adapted and resilient solutions for the semi-arid region.

In this sense, the school becomes a laboratory of interculturality, where the territory is the main source of research and learning. Management practices, social technologies (such as water harvesting and food production systems) and traditional medicine, developed over generations, are elevated to the status of relevant knowledge, as observed in studies on the Serra da Guia Quilombo (2025). By integrating these elements, EAC strengthens the identity of students and the autonomy of their communities, preparing them not only for citizenship, but for dignified permanence in their territories.

Ultimately, the construction of a full Ecological Citizenship, rooted in these contexts, requires an epistemological rupture that replaces the search for the universal and abstract validity of knowledge with the search for plausibility and social relevance, one of the pillars of Boaventura de Sousa Santos' post-abysal thought (2007). It is from the recognition of the diversity of knowledge and the fight against cognitive injustice that it is possible, in fact, to build a fairer and more sustainable future, where environmental conservation and social justice go hand in hand, respecting the richness of the ecologies of knowledge that flourish in deep Brazil.

3 QUILOMBOLA SCHOOL EDUCATION AND THE RELATIONSHIP WITH THE ENVIRONMENT

Quilombola School Education (EEQ) is a field of study and pedagogical practice that was consolidated from the historical struggle of rural black communities for recognition and rights. The intrinsic relationship of these communities with the territory and nature makes Environmental Education (EE) and Ecological Citizenship (EC) structuring axes and not just transversal themes.

The EEQ arises as a direct result of the historical struggles of quilombola communities for the affirmation of their territorial, cultural and identity rights. As Arruti (2006) points out, quilombos constitute spaces of resistance and social reinvention, in which education has always been articulated with the defense of the territory. In this sense, the quilombola school cannot be understood only as a space for the transmission of content, but as part of a collective life project, deeply rooted in the relationship with the environment.

The **relationship between territory, nature and ancestry** occupies a central place in the sociocultural organization of quilombola communities. According to Almeida (2010),

the territory is "a space of memory, of reproduction of life and of maintenance of modes of existence". In this way, sustainable environmental practices are part of the quilombola daily life not as an isolated technique, but as an expression of a way of life that respects ecological cycles, traditional knowledge and community bonds. Environmental Education, in this context, ceases to be complementary content to become an organic axis of training.

EEQ, by dialoguing with Environmental Education and Ecological Citizenship, breaks with hegemonic teaching models that disregard local realities and collective identities. For Silva and Silva (2019), the quilombola school needs to work from the "pedagogy of the territory", valuing practices such as community land use, sustainable extractivism, care for the waters, and rituals linked to nature. Thus, teaching is articulated with life and strengthens critical environmental awareness, capable of questioning inequalities and promoting autonomy.

Ecological Citizenship gains an expanded meaning when observed from the quilombola context. While in traditional approaches it appears centered on the individual, in quilombola communities it takes on a collective and communitarian character. According to Gonçalves and Costa (2021), quilombola environmental citizenship is based on "shared care for the territory" and on the understanding that the protection of natural assets is indispensable for the continuity of community life. The school, therefore, works as a space to strengthen these understandings.

Finally, **EEQ integrated with Environmental Education** contributes to the reaffirmation of identity, the appreciation of ancestral knowledge and the strengthening of socio-environmental justice. Gomes (2017) argues that contextualized pedagogical practices enable students to understand the relationships between environmental racism, unequal access to natural resources, and the struggle for rights. In this way, the quilombola school becomes a space of resistance, emancipation and production of new meanings for Ecological Citizenship, articulating the past, present and future of rural black communities.

3.1 THE LEGAL FRAMEWORK AND THE NATIONAL CURRICULUM GUIDELINES FOR QUILOMBOLA SCHOOL EDUCATION (DCNS/EEQ)

The legal recognition of EEQ is a fundamental milestone for the decolonization of the Brazilian curriculum. Resolution CNE/CEB No. 8, of November 20, 2012, defines the National Curriculum Guidelines for Quilombola School Education in Basic Education (BRASIL, 2012).

These guidelines establish the right to a differentiated education, which respects and values quilombola history, culture, identity and territoriality.

The EEQ is based on principles such as the pedagogy of ancestry, the relationship with the territory and the appreciation of traditional knowledge. The territory, in this context, is not only a physical space, but a space of memory, of the production of life and of resistance.

The implementation of the DCNs/EEQ represents a significant advance in the recognition that the Brazilian curriculum, historically Eurocentric, needs to dialogue with other rationalities and epistemologies. As Gomes (2017) points out, the quilombola presence in schools requires the incorporation of anti-racist perspectives and the appreciation of African ancestry, breaking with homogeneous teaching patterns. Thus, the legal framework not only legitimizes rights, but inaugurates new pedagogical practices committed to diversity.

Resolution CNE/CEB No. 8/2012 states that Quilombola School Education must be built collectively, involving leaders, community associations and guardians of traditional knowledge. According to Arruti (2006), the social organization of quilombola communities is based on cooperation and community life, which requires that the school curriculum also adopt participatory forms of construction. In this way, educational practices begin to reflect the cultural dynamics of the territory itself.

Another important point of the Guidelines is the understanding that the quilombola school must strengthen the autonomy of the communities in the management of their own life projects. Almeida (2010) emphasizes that the quilombola territory is a political space, where memory, land and the continuity of the traditional way of life are disputed. In this sense, the DCNs reinforce that the school cannot be disconnected from territorial struggles, and must act as a tool for protection, care and environmental appreciation.

Territoriality, as a curricular axis, also guides contextualized pedagogical practices. Activities related to cultivation, sustainable extractivism, water use and biodiversity management are understood as legitimate knowledge that should be included in the curriculum. According to Silva and Silva (2019), traditional quilombola ecological knowledge has great educational potential, as it articulates science, culture, and spirituality. This approach reinforces that learning about the environment is also learning about belonging, collectivity, and identity.

Finally, by bringing school, territory and ancestry closer together, the DCNs/EEQ strengthen a critical and situated environmental education. Ecological Citizenship, in this context, is not limited to individual behaviors, but involves the collective defense of the

territory, the preservation of traditional practices, and resistance against forms of environmental racism that directly impact quilombola communities. Thus, the EEQ becomes an instrument of social justice, ensuring that rural-quilombola schools develop curricula that are alive, affective and committed to sustainability and black identity.

3.2 TERRITORIALITY AND IDENTITY AS CURRICULAR AXES

In the DCNs/EEQ, territoriality and identity are inseparable. The curriculum must be built from the local reality, transforming the school's surroundings – the countryside, the river, the forest, the yard – into living learning laboratories. Ecological Citizenship, therefore, is taught and experienced in practice, through the community management of natural resources and the defense of the territory against external threats.

Quilombola territoriality, as Sueli Carneiro (2021) points out, is deeply linked to the fight against epistemicide⁶, that is, against the historical erasure of knowledge produced by black populations. By assuming the territory as a source of knowledge and as a pedagogical text, the quilombola curriculum breaks with school practices that disregard the black experience in the construction of Brazil. This rupture is essential for an education that recognizes the value of the knowledge produced within communities and by African ancestry.

Lélia Gonzalez (2020) also contributes to this perspective by stating that black identity in Brazil is constituted from "processes of cultural, linguistic, and territorial resistance." His reflection dialogues directly with the DCNs/EEQ, as it reinforces that quilombola pedagogy must promote the recognition of Afroterritoriality⁷, the spiritual, historical, and symbolic connection between black people and the space they inhabit. Thus, the territory is not only the setting for learning, but the foundation of collective existence itself.

Kabengele Munanga (2019) adds that the construction of black identities requires confronting the colonial logic that has historically defined the quilombola territory as a marginal space. For the author, the curriculum needs to act against stigmas and promote the appreciation of memory, traditional agricultural systems, forms of community organization and African cosmologies present in quilombos. Ecological Citizenship, in this context,

⁶ A systematic process of **suppression, erasure, and delegitimization of the knowledge, cultures, and ways of life of oppressed groups**, such as black and indigenous peoples, by a dominant culture, usually Eurocentric and Western.

⁷ Defined as "the way of existing, learning and resisting that emerges from the historical, spiritual and ecological relationship between black populations and the territories that collectively build, care for and resignify. It is a living territoriality, woven by ancestral memory, traditional knowledge, community protection of nature and the affirmation of quilombola identity, where land is understood not as a resource, but as a relationship and continuity of life." (SILVA, Manoel Messias, 2025).

reinforces practices of resistance that guarantee environmental preservation as a continuity of community life.

Cida Bento (2022), when discussing institutional racism and environmental inequalities, points out that rural black communities live under constant territorial violation, whether by land grabbing, agribusiness, or the absence of public policies. Incorporating this analysis into the curriculum, especially in quilombola education, is essential for students to understand that environmental defense is also the defense of human rights and social dignity. The school, therefore, becomes a strategic space for denunciation, critical awareness and collective mobilization.

Finally, Djamila Ribeiro (2023) emphasizes that the recognition of black identities involves valuing the narratives of these communities. When the school uses the countryside, the backyard, the rivers, the traditional festivities, medicinal plants and handicrafts as curricular contents, it is producing what the author calls "politics of existence", which affirm life, history and belonging. This expands environmental education beyond technicist practices and places it as an ethical, political and cultural dimension of quilombola formation.

3.3 THE LITERATURE REVIEW ON EE IN QUILOMBOLA SCHOOLS

Scientific production on EE in quilombola schools has grown, especially in theses and dissertations, reflecting the importance of the theme. The analysis of this literature reveals some central themes:

- **Sustainable Use of Resources and Land Management:** Many studies focus on quilombola agricultural and extractive practices, such as agroecology and the use of medicinal plants, integrating this knowledge into the teaching of Science and Biology. The pedagogical garden, for example, is cited as an effective practice to promote sustainability and food security (SILVA et al., 2024).
- **Traditional Medicine and Ancestral Knowledge:** The valorization of popular healing and knowledge about the properties of plants is seen as a form of cultural rescue and pedagogical practice in defense of sustainability (SILVA et al., 2024).
- **Relationship with the Territory and Struggle for Rights:** EE in quilombola schools is intrinsically political, as it is linked to the struggle for land titling and the guarantee of rights. Training for social participation and ecological citizenship is an explicit objective in several studies (LÚCIO, 2023).

The systematic review of the literature points out that the school often still makes local knowledge invisible, and a continuous effort is needed for public policies and pedagogical practices to consider the culture and territory of quilombos (DUARTE et al., 2024). In addition to sustainable management practices, several studies point out that Environmental Education (EE) in quilombola schools in the Northeast strengthens **cultural identity and the appreciation of local knowledge**.

For Santos (2022), including music, cuisine, traditional festivities, and handicrafts in the curriculum enables meaningful learning, as it connects the student to their history and collective memory. This integration makes the school a space of cultural resistance and environmental preservation simultaneously.

Another aspect highlighted in the literature is the need for a **dialogical and community pedagogy**, which dialogues with traditional knowledge and contemporary challenges. According to Oliveira and Matos (2023), the teaching of Science and Biology in quilombola schools in the Northeast should articulate experimental practices with knowledge of family farming, water management, and native flora. This approach favors the formation of critical citizens who are aware of the importance of sustainability in their territory.

The relationship between **territory and the struggle for rights** continues to be central to research on EE in quilombos. Costa (2021) observes that the school acts as an agent of empowerment by teaching students about environmental legislation, protection of green areas, and the importance of land titling. From this perspective, Ecological Citizenship becomes a daily practice, based on the defense of the territory and the preservation of natural resources, strengthening community autonomy.

The valorization of **traditional medicine and ancestral knowledge** is another recurring axis. Silva and Andrade (2022) highlight that quilombola schools can incorporate the study of medicinal plants and popular healing practices into pedagogical projects, simultaneously promoting community health and respect for biodiversity. This approach shows how scientific knowledge and traditional knowledge can dialogue and complement each other in school education.

Therefore, the literature review indicates that, although the advances are remarkable, there are still challenges for the full integration of EE into the quilombola curriculum. According to Freitas (2023), there are gaps in teacher training, in the availability of pedagogical resources, and in the institutional recognition of local knowledge. Overcoming these barriers requires robust public policies, continuing education, and the active

engagement of communities in the construction of environmentally sustainable educational practices.

3.4 TEACHING PRACTICES AND PEDAGOGICAL PROJECTS

The most successful teaching practices in quilombola schools are those that break with the traditional disciplinary structure and adopt an interdisciplinary and contextualized approach, valuing the territory, ancestry, and community knowledge. Community research projects, for example, involve students in the investigation of the history, culture and environmental practices of the community itself, using interviews with the elders, mapping of the territory and direct observation of productive activities.

Curricular integration becomes possible by using the festive calendar and the productive cycle of the community planting, harvesting and celebrations as thematic axes for the teaching of various disciplines, including Science, Biology and Environmental Education. In this sense, the Political-Pedagogical Project (PPP) assumes a central role, and must be elaborated in a participatory way, involving students, teachers, families, and community leaders, ensuring that the principles of Quilombola School Education (EEQ) and Critical Environmental Education are present in all school actions (Gonçalves, 2024; Souza, 2022).

According to Silva (2023), in quilombola communities in Paraíba, the implementation of pedagogical gardens and agroecological systems at school strengthens not only scientific learning, but also the affective and cultural bond with the land. These practices allow students to understand the importance of environmental preservation and sustainability while experiencing the ancestral knowledge transmitted by their families. The school, therefore, ceases to be just a space for formal teaching to become a living laboratory for learning, research and care for the territory.

In Rio Grande do Norte, Ferreira's research (2022) demonstrates that the articulation between traditional festivals, community rituals, and the teaching of school content promotes meaningful learning, as it brings students closer to their own sociocultural context. By integrating history, culture and environmental practices, the school contributes to the formation of critical citizens, aware of their rights and the importance of defending the quilombola territory. Environmental education, therefore, is not treated as an isolated subject, but as a transversal axis that runs through all school activities.

Lima and Carvalho (2023) point out that projects for mapping the territory and cataloguing medicinal plants in quilombola schools stimulate student protagonism and the

appreciation of local knowledge. Students learn to identify native species, understand ecological cycles, and apply this knowledge in practical actions, such as community gardens and natural health workshops. This type of approach strengthens autonomy and collective responsibility, central characteristics of quilombola Ecological Citizenship.

Therefore, recent literature highlights the importance of pedagogical strategies that promote intergenerational dialogue. According to Costa (2022), the participation of elders and community leaders in school activities ensures that traditional knowledge is transmitted authentically, reinforcing quilombola identity and cultural preservation. This articulation between community and school makes it possible for the territory to be understood not only as a physical space, but as a source of memory, knowledge and resistance, consolidating Environmental Education as an instrument of social justice and sustainability.

Finally, Environmental Education in quilombola schools proves to be a powerful instrument of Ecological Citizenship as it is based on identity, ancestry and the defense of the territory. By transforming the school into a space of resistance and production of contextualized knowledge, the autonomy of communities, cultural appreciation, and the formation of critical subjects engaged in the construction of a more just, sustainable, and democratic future are strengthened (Ferreira, 2022; Lima & Carvalho, 2023).

4 EDUCATION IN THE SEMI-ARID REGION AND THE PEDAGOGY OF COEXISTENCE

It is based on a critical understanding of the territory, overcoming stereotyped views that reduce the Sertão to drought and backwardness. As Roberto Malvezzi (2007) states, the semi-arid region "is not condemned by drought, but by the lack of adequate policies and the lack of understanding of its biome". Thus, education assumes a strategic role in valuing the climate, soil, culture and ways of life of the sertanejo population, promoting a positive and realistic reading of the region. This renewed look allows us to understand the semi-arid region as a place of potentialities and not of fatalism.

It is within this perspective that the **Pedagogy of Coexistence with the Semi-arid emerges**, a proposal disseminated by ASA Brasil, which argues that "it is not a matter of fighting against drought, but of living with it" (ASA, 2013). This pedagogy breaks with the traditional model of combating drought, based on emergency and welfare policies, and proposes a contextualized education, aligned with the real needs of the communities. In this sense, Aquino (2015) reinforces that coexistence is "a pedagogical practice that integrates local knowledge, social technologies and community participation". Thus, the school starts to

work with themes such as water collection, sustainable agriculture and preservation of the caatinga.

Education contextualized in the semi-arid region is also articulated with Freire's thought. Paulo Freire (1987) reminds us that education needs to start from the concrete reality of the subjects, stating that "there is no more knowledge or less knowledge: there is different knowledge". This principle guides pedagogical practices that value the experience of farmers, quilombolas, rural youth, and traditional communities. By integrating this knowledge into the curriculum, the school strengthens the sertanejo identity and breaks with a teaching that is detached from everyday life. As Sena and Santos (2018) point out, coexistence is also a "process of emancipation", as it forms critical subjects who are aware of their territory.

Another fundamental element is the appreciation of the culture of the Semi-arid region. Andrade (2011) indicates that the Northeast is the result of a deep relationship between "land, climate and society", and that understanding the territory requires recognizing its history and resistance. Thus, practices such as productive backyards, community meetings, oral memory, regional music, agroecological fairs and caatinga management techniques are now part of the school curriculum. As research by ASA (2013) shows, when the community enters school, the educational process becomes more meaningful and strengthens ecological citizenship.

Finally, Education in the Semi-arid Region and the Pedagogy of Coexistence point to the construction of an education committed to social justice, sustainability and autonomy. This perspective breaks with models imposed from outside and values solutions built with the community. As Malvezzi (2007) summarizes, the semi-arid region "is viable, beautiful and fertile when looked at by those who live in it". Thus, educating in the semi-arid region means promoting critical hope, recognizing the power of the territory and forming subjects capable of transforming their own reality.

4.1 THE CONTEXT OF THE BRAZILIAN SEMI-ARID REGION: CHALLENGES AND POTENTIALITIES OF THE CAATINGA

The Brazilian semi-arid region is a territory of great sociocultural diversity, where the Caatinga appears as an exclusive biome and deeply interconnected to the ways of life of traditional populations. According to Alencar and Moura (2021), understanding the semi-arid region requires looking beyond climatic conditions, recognizing the sertanejo and quilombola populations as historical protagonists of this space. The title of this chapter, when addressing

the challenges and potentialities of the Caatinga, calls for an analysis that integrates environment and culture, highlighting that quilombola communities build their existences in constant dialogue with this unique biome.

The Caatinga is home to a rich biodiversity adapted to the irregularity of rainfall, sustaining productive practices that, historically, are managed by rural black populations. Studies by Gomes (2020) show that many quilombola communities in the semi-arid region have developed agricultural systems based on the diversity of native plants, the solidarity economy, and the sustainable use of resources. This ancestral relationship with the territory reveals that the semi-arid region is not a space of absolute scarcity, but of sophisticated ecological knowledge that guarantees the continuity of life even in adverse conditions. Thus, the title highlights not only the environmental challenges, but also the potentialities built by these peoples.

The history of public policies for the semi-arid region, however, is marked by inequalities that directly affected quilombola communities. As Santos (2019) states, "drought relief" programs reinforced concentrated power structures, benefiting large landowners while marginalizing traditional groups. In quilombola communities, this exclusion is expressed in limited access to water, lack of territorial recognition and the absence of structuring investments. The title of the chapter, by mentioning "challenges", should include this political and social dimension, recognizing that these communities have historically been silenced in decisions about the use of Caatinga resources.

Despite the adversities, the quilombola communities of the semi-arid region have stood out in the construction of practices of coexistence with the semi-arid region based on autonomy and cultural strengthening. Research by Oliveira and Brito (2022) shows that social technologies – such as dams, plate cisterns, productive backyards, and seed banks – have been incorporated into quilombola practices, increasing water and food security. These examples illustrate the "potentialities" cited in the title, showing that the Caatinga can be managed responsibly when traditional knowledge is recognized and valued. In this context, quilombola protagonism becomes central in the formulation of sustainable strategies for the semi-arid region.

Finally, understanding the semi-arid and the Caatinga from the perspective of quilombola communities means shifting one's gaze from a vision that associates the sertão only with scarcity, to a vision that recognizes resistance, creativity, and ancestry. As Lima (2023) points out, quilombos are spaces of memory and struggle, but also of ecological and

social innovation. Thus, the title *Challenges and Potentialities of the Caatinga* is only complete when we integrate the experience of these peoples, who constitute an essential part of the environmental and cultural history of the Semi-arid region. Therefore, discussing this biome requires understanding how it sustains, inspires, and is transformed by the quilombola knowledge that has been reinventing life in the hinterland for centuries.

4.2 OVERCOMING THE "DROUGHT INDUSTRY" FROM THE PERSPECTIVE OF COEXISTENCE

The Pedagogy of Coexistence, developed by social movements in the countryside, such as the Articulation of the Brazilian Semi-Arid (ASA), proposes a break with the logic of combat. Instead of fighting against the climate, the focus is on adaptation and valuing local knowledge to live with dignity in the semi-arid region (MATTOS, 2010). This paradigm shift is the core of Ecological Citizenship in the Sertão, as it transforms the sertanejo from a passive victim into an active and resilient subject.

Authors such as Malvezzi (2012) claim that the so-called "drought industry" fed on the idea that the population of the semi-arid region would be unable to survive without grandiose external interventions, favoring political and economic elites. This view reinforced the concentration of water, land and resources, perpetuating historical inequalities. The perspective of Coexistence, however, "deconstructs this imaginary" (MALVEZZI, 2012), by demonstrating that simple, low-cost practices based on popular knowledge such as rainwater harvesting, agroecology and sustainable management of the Caatinga have proven effectiveness. Thus, overcoming the drought industry is not only technical, but profoundly political.

Coexistence with the Semi-arid strengthens an ecological ethic⁸ based on care, rational use of resources and community cooperation. For Sampaio and Silva (2018), this approach is directly articulated with the notion of Ecological Citizenship, since it encourages practices of social participation, water autonomy and protagonism of rural populations. In this model, water ceases to be an instrument of power and becomes a right ensured by social technologies, built in collective efforts and collective training processes. In this way, the

⁸ field that guides human responsibilities towards nature, recognizing that all living beings, ecosystems and elements of the environment have their own value and must be considered in moral decisions. It proposes a relationship of respect, care and environmental justice, defending practices that ensure ecological balance, the protection of territories and the well-being of present and future generations.

pedagogy of coexistence reveals itself to be a transformative educational practice, which articulates learning, territory and social emancipation.

The quilombola communities of the semi-arid region exemplify the power of this approach. Many quilombos have historically developed techniques for land management, water storage and sustainable use of the Caatinga that dialogue with the principles of Coexistence. According to Oliveira (2021), these practices express an ancestral relationship with the territory, marked by reciprocity and collective management. By recognizing this knowledge, the Pedagogy of Coexistence breaks with the Eurocentric logic of "combat" and incorporates black and sertanejo epistemologies as the foundation of sustainability. Thus, overcoming the drought industry also means recognizing the contribution of these traditional peoples to the construction of a fairer and more autonomous semi-arid region.

The perspective of Coexistence requires that schools, universities and public policies commit to the critical formation of the new generations. As Albuquerque (2020) argues, educating for Coexistence is to promote an ecological reading of reality, allowing subjects to understand the climatic, social, and political aspects that structure life in the Sertão. The school, especially in the quilombola and sertanejo regions, becomes a privileged space to cultivate Ecological Citizenship, showing that living in the semi-arid region is not facing a natural enemy, but learning to build sustainable relationships with the environment and the community. Thus, Coexistence ceases to be just a technical proposal and becomes an ethical, political and pedagogical project.

4.3 RURAL EDUCATION AND THE PEDAGOGY OF COEXISTENCE WITH THE SEMI-ARID

Rural Education, as a teaching modality, seeks to guarantee the right to education for rural populations, respecting their specificities. In the semi-arid region, it is directly articulated with the Pedagogy of Coexistence, which is manifested in specific principles and methodologies:

- **Contextualization:** The curriculum should start from the student's reality, using the environment, culture and the local economy as a starting point for knowledge.
- **Interdisciplinarity:** Living with the semi-arid region requires the integration of knowledge, such as water management (cisterns, underground dams), food production (agroecology) and local culture.

- **Pedagogy of Alternation:** Adopted by Agricultural Family Schools (EFAs), this methodology alternates school-time with community-time, allowing the student to apply theoretical knowledge in their reality and bring the practical knowledge of the family to the classroom (NASCIMENTO, 2016).

Rural Education in the Semi-arid region also reinforces the appreciation of traditional knowledge, a subject widely discussed by Caldart (2015), who states that the school should be a space where knowledge of the land, water, native plants and community practices are recognized as legitimate and fundamental for the construction of scientific knowledge. This means that the school does not replace the knowledge of the community, but integrates it, allowing the student to perceive his peasant identity as a strength and not as an obstacle. Thus, the Pedagogy of Coexistence strengthens educational processes that reaffirm the sertanejo culture and territorial belonging.

Another central aspect is the role of rural populations in the construction of the curriculum and school practices. For Fernandes (2020), Rural Education should be thought of "with" the subjects of the countryside and not just "for" them, ensuring direct participation in pedagogical decisions, such as choosing projects, organizing the calendar, and prioritizing generating themes. This community involvement is an essential element of Coexistence with the Semi-Arid Region, as it allows the school to respond to real needs, such as water security, food sovereignty, protection of the Caatinga, and strengthening of agroecological practices. Thus, the educational process approaches community life and becomes more meaningful.

Finally, the articulation between Rural Education and the Pedagogy of Coexistence contributes to the formation of a critical Ecological Citizenship committed to social transformation. According to Araújo (2019), educating in the semi-arid region implies teaching students to understand climate dynamics, the historical inequalities that have marked the region, and the importance of social technologies to live with dignity. This means that the school must promote a political and ecological reading of the territory, encouraging practices that develop autonomy, solidarity and collective responsibility. In this way, education in the semi-arid region becomes an essential tool to overcome the logic of combating drought and build a project for the future based on sustainability and social justice.

5 CONVERGENCES AND CHALLENGES FOR ECOLOGICAL CITIZENSHIP

The construction of Ecological Citizenship in Brazil emerges as an urgent need in the face of socio-environmental crises that cross urban, rural, quilombola and sertanejo territories. More than a theoretical concept, it is expressed as daily practice, active participation and shared responsibility for the preservation of the commons. In this scenario, different contexts such as semi-arid schools, traditional communities and quilombola educational spaces reveal their own paths of social and environmental engagement, evidencing that ecological citizenship is not homogeneous, but plural and rooted in the cultural and territorial realities of each people.

However, despite the convergences around valuing the environment, social justice and community participation, challenges persist that hinder the consolidation of this citizenship. Socio-environmental inequality, the lack of continuous public policies, and the invisibility of traditional knowledge still limit the construction of transformative practices. Thus, reflecting on the convergences and challenges that cross different educational experiences allows us to understand how Ecological Citizenship can be strengthened as an ethical and political project, capable of promoting new forms of coexistence, resistance and care for life in all its dimensions.

5.1 POINTS OF CONVERGENCE: WHAT THE QUILOMBOLA AND SERTANEJO EXPERIENCES TEACH

The educational experiences developed in quilombola and sertanejo schools converge in the recognition of the territory as a basis for the formative process. For Costa (2022), both realities affirm that community life and the environment constitute the raw material of learning, allowing the school to dialogue with practices of resistance, water management, land management, and biodiversity preservation. In the case of the quilombola communities of Paraíba, this dialogue is even more intense because of the ancestral relationship with the Caatinga and the collective memory of resistance to environmental racism and land inequality.

Another point of convergence is the valorization of culture as a structuring axis of student education. Research by Mendonça and Paes (2021) shows that quilombola schools, as well as rural schools in the hinterland, understand culture as a pedagogical element, integrating artisanal knowledge, traditional cuisine, land care practices, and community celebrations into curricular approaches. This strengthens the ethnic-racial and territorial

identity of young people, allowing them to recognize themselves as part of a collective with its own history.

The importance of community participation in educational processes is also highlighted. In both contexts, school planning involves meetings with families, community councils and local leaders, creating a democratic and situated management. Freire and Gomes (2023) state that this participation articulates education, territorial struggle, and community strengthening, especially in vulnerable communities that face environmental injustices, such as lack of access to water and degradation of the Caatinga biome.

Thus, both quilombos and sertanejo communities share the challenge of survival in territories marked by water vulnerability and socioeconomic inequality. These difficulties, far from weakening educational processes, become engines of pedagogical innovation. For Vieira (2020), schools in these territories develop methodologies for climate adaptation, school agroecology, preservation of native seeds, and strengthening of social technologies. Thus, both realities are positioned as poles of Ecological Citizenship and environmental justice.

5.2 THE CENTRALITY OF TERRITORY AND CULTURE IN THE CONSTRUCTION OF THE CURRICULUM

The centrality of territory and culture in the construction of the curriculum represents a break with traditional models that ignore the experiences, identities and sociocultural practices of students. When the territory is recognized as a space for the production of knowledge and not just as a backdrop, the curriculum begins to dialogue directly with reality, environmental challenges, community experiences and the local way of life. In this sense, the territory is not understood only as a geographical space, but as a set of historical, affective and symbolic relationships that structure community life. Culture, in turn, becomes the structuring axis of the training process, ensuring that ancestral knowledge, collective memories, and traditional practices assume the status of legitimate and curricular knowledge.

Thus, by incorporating territory and culture as central elements, the curriculum takes on a contextualized and democratic perspective, capable of promoting belonging, identity, and critical awareness. This approach is aligned with the Ecology of Knowledge defended by Boaventura de Sousa Santos, which proposes the dialogue between scientific knowledge and popular knowledge, recognizing epistemic diversity as an educational power. In quilombola and sertanejo schools, this centrality consolidates pedagogical practices that

value the land, ancestry, resistance, and local environmental dynamics, contributing to an education focused on citizenship, sustainability, and social justice. In this way, the curriculum becomes alive, meaningful and committed to the concrete reality of the subjects who build and experience it.

For Batista (2022), the territory expresses ancestry, struggle, and rights, making learning be crossed by the materiality of quilombola life: the coco de roda dance, resistance agriculture, sustainable extractivism, and care for water sources. The territory becomes, therefore, a living pedagogy, which shapes contents, methodologies and school times.

In the same way, in schools in the countryside of the semi-arid region, guided by the Pedagogy of Coexistence, the territory is understood as a dynamic educational space. According to Rodrigues (2021), practices such as visiting underground dams, studying the flora of the Caatinga, soil analysis, and agroecological management are part of the curriculum because they respond to the real needs of the community. The semi-arid region, in this sense, is no longer seen as a hostile environment and becomes a territory of potential. Culture also occupies a structuring role in the curricular organization of these spaces. In the quilombola communities of Paraíba, culture is understood as a memory of resistance and as a tool for identity affirmation. For Nóbrega and Lira (2023), working on quilombola culture in school means valuing erased histories, strengthening self-esteem, and building anti-racist practices. In the broader sertanejo context, the sertanejo culture such as the aboio, the reisado, the fairs, the knowledge of the swidden and the respect for the rainfall cycle also becomes a pedagogical device to interpret the territory and its socio-environmental relations.

The construction of the territorialized and culturally situated curriculum promotes a broader understanding of Ecological Citizenship. This is because it allows us to see the environment as a network of relationships between nature, history and society. Carvalho (2022) states that territory-based curricula broaden students' critical perception by revealing environmental, racial, and economic inequalities that impact quilombos and vulnerable rural communities. Thus, the curriculum becomes an instrument of social transformation and defense of the territory.

Table 2

Axis of Convergence	Quilombola Schools	Sertaneja Schools

Relationship with the Territory	Territory as a space of ancestry, memory and resistance; struggle for land titling.	Territory as a space for coexistence and resilience; overcoming the logic of drought.
Ecology of Knowledge	Appreciation of traditional medicine, forest management and ancestral knowledge.	Valuing social technologies for water collection and agroecological practices.
Ecological Citizenship	Training of political subjects in the defense of the territory and against environmental racism.	Formation of autonomous and transformative subjects, capable of living with dignity in the semi-arid region.
Methodology	Pedagogy of Ancestry; community research projects.	Pedagogy of Coexistence; Pedagogy of Alternation.

In both cases, Ecological Citizenship is inseparable from **Social Justice** and **Environmental Justice**. It is not an abstract EE, but an education engaged in solving the concrete problems of the community, such as water scarcity, the threat of deforestation or cultural invisibility.

6 CONCLUSION

The analysis developed in this chapter allowed us to verify that Education and Ecological Citizenship, when examined from the perspective of quilombola and sertanejo realities, reveal a fertile field of pedagogical practices that emerge directly from the territory, ancestral memories and historical resistance of these communities. The synthesis of the findings demonstrates that, in these contexts, Ecological Citizenship goes beyond the conceptual dimension and presents itself as a living social practice, marked by the defense of the land, the appreciation of cultural traditions, the protection of common goods and the collective construction of sustainable ways of life. The literature review shows that quilombola and sertanejo schools play a central role in the formation of ecological subjects, politically engaged, aware of socio-environmental inequalities and capable of elaborating alternatives to face them.

When observing Quilombola School Education, guided by the National Curriculum Guidelines and committed to valuing black identity, one can perceive an educational model that breaks with colonial narratives and fosters processes of ethnic-racial affirmation, community belonging and defense of ancestry. In the sertanejo schools of the semi-arid region, anchored in the Pedagogy of Coexistence, practices emerge that recognize the Caatinga as a space for life and learning, overcoming discourses of scarcity and replacing

them with perspectives of autonomy, creativity and resistance in the face of climatic adversities. These two models, although distinct, converge to a conception of environmental education that is critical, transformative, and deeply committed to social justice.

The contributions of these traditional communities to education and to the environmental debate are significant and often underestimated by hegemonic educational policies. The quilombola and sertanejo legacy reveals that the contemporary environmental crisis cannot be overcome only by technological innovations or conservation discourses, but rather through a radical revision of the values that guide society, the democratization of decision-making, and the effective inclusion of historically silenced voices. The wisdom accumulated by generations of quilombola families — such as those in Paraíba, who fight for the preservation of their territories, culture and ways of life — demonstrates that sustainability is also memory, identity and territorial security.

In this sense, the Ecological Citizenship taught and practiced in these schools works as a permanent exercise of criticism and social reconstruction. It invites each subject to recognize their responsibility in the protection of life, to value local knowledge and to understand that the socio-environmental struggle is inseparable from the struggle for human rights, racial equity and historical justice. By illuminating these practices, this chapter reinforces that quilombola and sertanejo experiences are true beacons that point to possible paths to a future in which development and environmental care go hand in hand, guided by an ethic of solidarity, respect for diversity, and harmonious coexistence with nature.

Thus, Brazilian society is called to support, strengthen and respect these educational experiences, which are presented as real alternatives in the face of a world marked by ecological crises, extreme inequalities and territorial conflicts. Recognizing the power of these communities, especially the quilombolas of Paraíba, who transform the school into a space of resistance and hope, is fundamental to build an ecological citizenship that is plural, inclusive and truly emancipating.

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**CURRICULAR POLICIES IN THE TEACHING OF HISTORY IN BASIC
EDUCATION BASED ON ICT**

**AS POLÍTICAS CURRICULARES NO ENSINO DE HISTÓRIA NA EDUCAÇÃO
BÁSICA A PARTIR DAS TDIC**

**POLÍTICAS CURRICULARES EN LA ENSEÑANZA DE LA HISTORIA EN
EDUCACIÓN BÁSICA BASADAS EN LAS TIC**

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ABSTRACT

The dissemination of digital technologies has significantly transformed learning spaces and practices, expanding methodologies and tools available for teaching. In schools, these changes have affected both administrative management and pedagogical mediation. However, integrating Digital Information and Communication Technologies (DICT) into History teaching in Basic Education is not a simple task, as it depends on internal factors (infrastructure, access to devices, and technical skills) and external ones (public policies, curricula, and social demands). This paper analyzes how three official documents — the National Curriculum Parameters (1997/1998), the National Curriculum Guidelines for Basic Education (2013), and the National Common Core Curriculum (2017) — address the use of DICT in History teaching, discussing the potential and limitations of their inclusion. The study shows that, although progress has been made in recognizing digital technologies as part of the educational process, challenges remain regarding practical implementation, teacher training, and inequalities in access.

Keywords: History Teaching. Digital Technologies. Curriculum. Basic Education. Educational Policies.

RESUMO

A difusão das tecnologias digitais transformou de maneira significativa os espaços e as práticas de aprendizagem, ampliando metodologias e instrumentos disponíveis para o ensino. No ambiente escolar, tais mudanças repercutiram tanto na gestão administrativa quanto nas formas de mediação pedagógica. Contudo, a incorporação das Tecnologias Digitais de Informação e Comunicação (TDIC) ao ensino de História na Educação Básica não se mostra uma tarefa simples, pois depende de fatores internos (infraestrutura, acesso a equipamentos e domínio técnico) e externos (políticas públicas, currículos e demandas sociais). Neste trabalho, buscamos analisar como três documentos oficiais — os Parâmetros Curriculares Nacionais (1997/1998), as Diretrizes Curriculares Nacionais para a Educação Básica (2013) e a Base Nacional Comum Curricular (2017) — abordam o uso das TDIC no ensino de História, discutindo potencialidades e limites de sua inserção. O estudo evidencia

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que, embora haja avanços no reconhecimento das tecnologias digitais como parte do processo educativo, permanecem desafios relacionados à efetivação prática, à formação docente e às desigualdades de acesso.

Palavras-chave: Ensino de História. Tecnologias Digitais. Currículo. Educação Básica. Políticas Educacionais.

RESUMEN

La expansión de las tecnologías digitales ha transformado significativamente los espacios y las prácticas de aprendizaje, ampliando las metodologías y herramientas disponibles para la enseñanza. En el ámbito escolar, estos cambios han impactado tanto la gestión administrativa como la mediación pedagógica. Sin embargo, la incorporación de las Tecnologías Digitales de la Información y la Comunicación (TDIC) a la enseñanza de la historia en la educación básica no es una tarea sencilla, ya que depende tanto de factores internos (infraestructura, acceso a equipos y conocimientos técnicos) como externos (políticas públicas, currículos y demandas sociales). En este trabajo, buscamos analizar cómo tres documentos oficiales —los Parámetros Curriculares Nacionales (1997/1998), las Directrices Curriculares Nacionales para la Educación Básica (2013) y la Base Curricular Nacional Común (2017)— abordan el uso de las TDIC en la enseñanza de la historia, analizando el potencial y las limitaciones de su inclusión. El estudio destaca que, si bien se ha avanzado en el reconocimiento de las tecnologías digitales como parte del proceso educativo, persisten desafíos relacionados con la implementación práctica, la formación docente y las desigualdades en el acceso.

Palabras clave: Enseñanza de la Historia. Tecnologías Digitales. Currículo. Educación Básica. Políticas Educativas.

1 INTRODUCTION

The growing diffusion of digital technologies has expanded the spaces and forms of learning, enabling the use of new resources, devices and pedagogical methodologies. The school environment was inevitably impacted by this process, both in its administrative routines and in teaching and learning practices.

However, pedagogical mediation supported by digital resources is not a simple task. Its implementation requires careful planning, contemplating internal factors — such as infrastructure, availability of equipment and technical mastery on the part of teachers and students — and external factors, related to public policies, social demands and the pedagogical intentions that guide teaching practice. In this scenario, it is also essential to reflect on the role of official curricula and educational policies, which can both favor and limit the significant use of Digital Information and Communication Technologies (DICT) in Basic Education.

The history of the discipline of History in Brazil is marked by epistemological, methodological and curricular disputes. As Bittencourt (2018) points out, the transformations that have occurred in the teaching of the discipline have raised debates about historiographical issues, but also about its place in curricular projects in different national and international contexts. These discussions intensified after the redemocratization of the country in the 1980s and the promulgation of the 1988 Constitution, which paved the way for the Law of Guidelines and Bases of National Education (LDBEN No. 9,394/96) and for the elaboration of new curricular references.

In this context, the idea of a "pedagogy of the citizen" was consolidated as a guideline for the teaching of History, seeking to articulate school content with training for democracy. However, this perspective coexists with trends of a technical and market nature, which associate teaching with the logic of competitiveness and the instrumental use of digital technologies (Bittencourt, 2018; Crary, 2014). Thus, the discipline remains tensioned between proposals aimed at the critical formation of the subject and discourses that privilege adaptation to the demands of the digital world and the market.

In view of this scenario, it is essential to analyze how the official curriculum documents deal with the incorporation of DICT into the teaching of History. Following Costa (2019), this study focuses on three strategic references for Brazilian education: the National Curriculum Parameters (1997/1998), the National Curriculum Guidelines for Basic Education (2013) and the National Common Curriculum Base (2017). Unlike Costa's approach, which highlighted

the discourses on technology, we sought to verify to what extent these documents effectively guided the insertion of digital technologies in the teaching of History.

To this end, some questions guide our reflection: Which digital resources are mentioned in official documents? How are DICT understood as support or challenge to the teaching of History? Can they contribute to processes of critical appropriation of historical knowledge or, on the contrary, reinforce exclusionary and technicist practices?

As a theoretical contribution, we dialogue with Christian Laville (1999), who analyzed the changes in the teaching of History in Western societies in the post-World War II period, highlighting the centrality of citizenship education. This framework allows us to establish approximations with the Brazilian context, marked by disputes around curricula, identities and public policies.

Thus, we seek to draw a critical overview of the curricular policies that guide the teaching of History in Basic Education, especially considering the possibilities and limits of the use of DICT in this process.

2 THE NATIONAL CURRICULUM PARAMETERS (PCN)

The proposals of the National Curriculum Parameters (PCN) of 1998 (Brasil, 1998) represent a significant milestone in the history of Brazilian education. In addition to its guiding function, the document sought to establish a legal framework capable of guaranteeing the democratization of the Brazilian educational system. Extended to all levels of education and school systems, the PCN included schools located in indigenous and quilombola communities.

According to the document, "its function is to ensure the coherence of investments in the educational system, socializing discussions, research and recommendations, subsidizing the participation of Brazilian technicians and teachers, especially those who are more isolated, with less contact with the current pedagogical production" (Brasil, 1997, p. 13).

The central innovation of the PCN (Brasil, 1997) lies in the introduction of transversal themes, which should permeate the curricular disciplines, which were also replanned to meet educational demands. In elementary school, the curricular subjects — Arts, Sciences, Geography, History, Portuguese Language and Mathematics — began to adopt an interdisciplinary approach. The cross-cutting themes defined were: Ethics, Health, Environment, Sexual Orientation, Cultural Plurality, Work and Consumption.

After extensive discussion with state and municipal education departments, consultations with experts from different areas of knowledge and the participation of education professionals, the PCN were approved by the Basic Education Chamber of the National Education Council (CNE). According to the document, they should constitute a national reference for education systems, being adequate according to local educational realities.

Thus, it is understood that the implementation of the PCN resulted from intense social struggles and the changes desired by society and education professionals. Among the most relevant developments, the introduction of the study of the History of Africa (Law 10.639/03), Afro-Brazilian cultures, and the History of indigenous peoples (Law 11.645/08) (Bittencourt, 2018) stand out.

In the construction of the PCN, there is an attempt to overcome what Guimarães (2009) calls a "huge gap" between the knowledge produced in universities and that taught in basic education. For Mendes (2020), such a perception highlights the dualism between theory and practice that marked the consolidation of History as a disciplinary field in Brazil and teacher training in the area.

Another aspect highlighted by Mendes (2020) refers to the hierarchy between academic knowledge and school knowledge. For a long time, it was believed that university centers should concentrate theoretical-methodological reflections, while the teaching of History remained restricted to the application of pedagogical techniques, with little access to academic discussions.

During the discussions on the curricular reformulation and the reinsertion of History as a specific discipline of what we currently know as elementary education, a growing approximation between the teaching of History and the academy was evidenced (Mendes, 2020). During this period, the dialogue between researchers and high school teachers was intensified, coinciding with the expansion of graduate courses in History, which had a significant presence of basic education teachers. This academic production was partially absorbed by the editorial expansion in the area of the teaching of History and historiography (Brasil, 1998, p. 28).

The debates fostered prioritized didactic alternatives to the centralized model of expository classes and the exploration of new languages that would bring teacher and student closer together, recognizing the importance of student participation for the teaching-learning process.

The consolidation of Social Studies, which replaced History and Geography from Law No. 5,692/71, during the military regime, constituted, together with Moral and Civic Education, the foundations of historical study, combining historical and geographical contents centered on concentric themes (Brasil, 1997, p. 23). In this context, the aim was to deconstruct the student as a passive subject and a mere receiver of knowledge.

The curricular proposals began to incorporate debates between various historiographical tendencies, directing historians to problems related to social, cultural and everyday history. According to the document, these reflections suggested "possibilities of revising, in elementary education, the formalism of historical approaches sustained by the political and administrative events of the states or exclusively by structural economic analyses" (Brasil, 1998, p. 28).

The guidelines indicated the importance of interdisciplinarity and the organization of teaching by transversal themes, aligning general curricular elements with cultural diversity, reflecting approaches inspired by critical and post-critical theories, valuing the construction of meanings on the factual narrative.

History remained in the curriculum, constituting the historical school knowledge, which, in dialogue with the social reality, the values of the new generations and the pedagogical knowledge, has preserved traditions and promoted innovations in contents, methods, didactic materials and educational purposes. This process reinforces the role of History in the diffusion and consolidation of ethnic, cultural, religious, social and national identities, continuously recreating the relationships between teacher, student, historical knowledge and social reality, with a view to the critical and reflective formation of individuals (Brasil, 1998, p. 29).

For Mendes (2020), the alignment between critical and post-critical theories and the PCN lies in the didactic reconfiguration, in which the contents are means and the transversal themes, purposes of teaching practice. The approach aims to foster skills and abilities for the formation of critical and participatory citizens, building knowledge in an interdisciplinary way, close to the realities of students.

The cross-cutting themes included ethics, cultural plurality, health, sexual orientation, work and consumption, and in the first cycles of elementary school the thematic axes were: I) Local and everyday history and II) History of population organizations. In the final cycles, the axes were: I) History of social relations, culture and work and II) History of representations and power relations.

During the elaboration of the PCN, the mention of technologies was limited, but the term "computer" was already highlighted, associated with work. The document emphasized the development of new technological artifacts, with a focus on operability, without clearly establishing relationships with teaching and learning. According to the text, "it is not enough to aim at training students for future qualifications in terms of traditional specializations, but rather it is about having in mind the **training** of students in terms of their training for the acquisition and **development of new skills** [...]" (Brasil, 1997, p. 27-28, emphasis added).

Despite the pioneering spirit of the text, there is still an ambiguous discourse between rupture with technicist models and assimilation of education and work proposals. Technology is presented as a dominant element, restricting the teacher's creativity and reducing the student to a mere responder of stimuli. (Brasil, 1997, p.31)

The document also recognizes the value of the textbook, but emphasizes the importance of the diversity of materials: "it is important to consider that the textbook should not be the only material to be used, because the variety of sources of information is what will contribute to the student having a broad view of knowledge" (Brasil, 1997, p. 67). In addition, the PCN highlight the relevance of using technologies, such as computers and calculators, to insert students into the contemporary world (Brasil, 1997, p. 67).

Costa (2019) observes that the neotechnicist methodologies, present in the PCN, excessively value artifacts to the detriment of human actions, which can compromise educational processes. Improvisation in the appropriation of technologies by teachers and students highlights the need for creative alternatives to achieve educational objectives (Brasil, 1997, p. 68).

The document recognizes the growing presence of new technologies, such as radio and television, in schools, signaling the need for their incorporation into the educational process (Brasil, 1997, p. 26). However, the appropriation of these tools remains largely dependent on the individual initiative of teachers and students, as evidenced during the COVID-19 pandemic.

Finally, the PCN constituted an important milestone for the teaching of History, defining skills to be valued, encouraging teacher participation and promoting debates on methodologies and the use of multiple tools, even if the ICT approach was still limited. Bittencourt (2011) reinforces the possibility of building a theoretical framework based on the PCN in the context of curricular reforms, highlighting the role of the teacher in transforming analog and digital tools into critical and reflective knowledge.

3 NATIONAL CURRICULUM GUIDELINES FOR BASIC EDUCATION (DCNEB)

Published in 2013, the document established a common national base, bringing guidelines for the organization, articulation, development and evaluation of the pedagogical proposals of the Brazilian education networks. Among its premises, the need for curriculum updating was highlighted, motivated by structural changes in the educational system, such as the expansion of Elementary Education from eight to nine years old and the mandatory free education for children and young people between four and 17 years old.

The preparation of the document was based on processes of studies, debates and public hearings, with the participation of state and municipal leaders, teachers, education professionals and representatives of private educational institutions. In this construction, the concern with educational inclusion is evident, highlighting the obligation of quality elementary education and access to education for children, young people and adults who did not have previous opportunities, respecting factors such as age, level of learning, social, cultural, emotional, physical and ethnic conditions (Brasil, 2013).

The educational stages are organized in Early Childhood, Elementary and High School Education, contemplating specific modalities such as Rural Education, Indigenous Education, Quilombola, Special Education, Youth and Adult Education in situations of deprivation of liberty and Technical Professional Education of Secondary Level. In addition, the document establishes guidelines for cross-cutting areas such as Youth and Adult Education, Environmental Education, Human Rights Education and Education of Ethnic-Racial Relations, including the Teaching of Afro-Brazilian and African History and Culture.

The central objectives of the document aim to fill gaps identified in the 1998 National Curriculum Parameters (PCN), redirecting educational proposals and reinforcing legal frameworks, such as the commitment to the Constitution and the promotion of critical reflection in the political-pedagogical projects of schools, as well as the orientation to the training of education professionals (Brasil, 2013).

In terms of perceptible changes in relation to the PCN, the document shows advances in the recognition of the student as an active subject of the educational process, as well as in the incorporation of Information and Communication Technologies (ICT) in the teaching and learning processes. In the section entitled "Curricular organization: concept, limits, possibilities", it is emphasized that, although the school is considered a space in which the political-pedagogical project must meet social demands, the methodological application is still close to traditional practices. However, students are treated as subjects who need "other

processes and procedures, in which learning, teaching, researching, investigating, evaluating occur in an inseparable way" (Brasil, 2013, p. 25).

The document constructs the figure of students as beings who

"[...] they learn to receive information quickly, they like the parallel process, to perform several tasks at the same time, they prefer to make their graphs before reading the text, while teachers believe that they keep up with the digital age only because they type and print texts, have e-mail, not realizing that **students were born in the digital age" (Brasil, 2013, p. 25, emphasis added).**

Such characterization highlights the recognition of the digital age as a factor that impacts learning, although the document critically indicates that simple contact with technologies does not guarantee understanding or full mastery of these tools. Thus, progress is made in the exploration of digital resources, including the use of computers, printers and e-mail, as well as computer skills and internet access. However, the premise that the presence born in the digital age automatically generates technological competence is contested, being considered dystopian, since the appropriation of technologies requires mediation and practice (Moran, 2004; Okada and Santos, 2004; Lévy, 2010).

The appropriation of technologies facilitates access to knowledge, enables the production and dissemination of knowledge, but requires gradual pedagogical mediation, considering the social and cultural context of the students (Rocha, 2015). In the teaching of History, technological insertion must be linked to tasks with historical significance, ensuring that the use of ICT is not limited to the instrumental, but contributes to the development of historical learning, defined as "an essential element of a cultural practice, which is a predefined condition and a determination in the entire teaching and learning process" (Rüsen, 2021, p. 15).

ICT is presented as assistive technologies, which support the production of languages and pedagogical activities, and its use in various school spaces, such as libraries, radio, television and cyberspace is recommended (Brasil, 2013, p. 25-26). The document emphasizes that technologies must be adapted to pedagogical needs, ensuring interactivity and proximity between theory and practice, as well as the construction of meaningful experiences for students.

The document also recognizes that scientific and technological knowledge is a fundamental condition for students to understand innovation processes and take a critical position in the face of social and technological demands:

"[...] Scientific knowledge, in current times, requires the school to exercise understanding, valuing science and technology from childhood and throughout life, in search of expanding the domain of scientific knowledge: one of the conditions for the exercise of citizenship. Scientific knowledge and new technologies are increasingly a condition for people to know how to position themselves in the face of processes and innovations that affect them" (Brasil, 2013, p. 26).

Within the scope of the political-pedagogical project and school regiment, two fundamental measures are recommended: (i) consider curiosity and research as the central core of learning, including virtual references in digital contexts; and (ii) provide for the continuing education of managers and teachers, ensuring continuous updating of the knowledge to be mediated and the adoption of appropriate methodologies, including ICT (Brasil, 2013, p. 49).

In this way, the contemporary teacher needs to develop skills beyond traditional teaching, interpreting and applying languages and technological instruments, acting cooperatively, using scientific and technological knowledge, skills that are often not contemplated in initial training (Brasil, 2013, p. 59).

The document also expands the use of ICT for distance learning, mentioning digital platforms, recorded classes and Distance Education (DE), respecting legal and structural limitations:

"[...] The LDB made the Distance Education modality official as valid for all levels and modalities of education (art. 80), except for Elementary Education (§ 4 of art. 32), which must be face-to-face, with distance learning being used as a complement to learning or in emergency situations" (Brasil, 2013, p. 250).

Teaching materials for distance education should favor self-directed pedagogical mediation, with dialogical texts, short paragraphs, connections with multiple didactic means (*hyperlinks*), self-assessment exercises, motivating visual support and face-to-face structured support centers.

In any media, the didactic material for Distance Education **must have** characteristics that favor the process of pedagogical mediation in a **self-directed way by the student**, privileging, for example, dialogic texts, relatively short paragraphs, connections with different didactic means to deepen the subject (*hyperlinks*), questions or learning exercises for constant self-evaluation, support of **illustrations, animations** and **didactic games**, in addition to a **visual identity** that favors and motivates learning.

Interactivity is an essential characteristic, as the student will seek to **build** his learning in an **autonomous relationship**. Another resource of the utmost importance that must be very well observed at the time of authorization to operate distance learning courses refers to the forecast and operating conditions of **the face-to-face support centers**. These centers are operational units for the decentralized development of pedagogical and administrative activities related to courses and programs offered at a distance. (Brazil, 2013, p. 250 – 251 emphasis added)

The insertion of ICT expands the educational reach, contributing to digital inclusion and the development of critical and reflective skills in students. Costa (2019) emphasizes that "education is not formatting" (p. 33), showing that education should promote critical appropriation, and not just passive consumption of technologies. History, by incorporating digital resources, expands methodological possibilities, offering concrete and abstract experiences that strengthen critical, sensitive and contextualized learning.

Learning structures in Brazil have undergone significant updates, increasingly incorporating the possibility of distance learning through digital tools. This technological expansion has expanded the reach of subjects who could have access to education, overcoming geographical and social barriers that have historically limited the inclusion of certain groups. However, the implementation of these resources required not only adequate pedagogical materials, but also the creation of an infrastructure capable of guaranteeing minimum access conditions for all students. Not everyone had, or has, devices such as computers, notebooks or smartphones, devices that in certain periods were not even available in the Brazilian market.

From this perspective, it is opportune to return to Cerri's (2001) assumptions about learning, according to which what students learn or do not learn transcends what is formally provided for in official documents. In other words, the effectiveness of learning involves dimensions that go beyond the prescribed curriculum, including social, cultural, and technological factors that directly impact educational processes.

In the teaching of History, these potentials and problems are manifested in a particular way. Learning is not restricted to the teacher-student relationship within the classroom; It extends to broader social interactions, involving the body of knowledge, narratives, and opinions circulating in the media, social institutions, and the public sphere in general. In contexts of educational massification and low teacher-student interactivity, the links between historical permanences and ruptures, as well as symbolic constructions and reconstructions, tend to weaken, impairing the critical appropriation of historical knowledge.

The contemporary world, marked by rapid technological and social transformations, has required the school to expand its field of action beyond the physical space, occupying virtual environments and incorporating digital resources. The generation of knowledge, inserted in the information society, is characterized by continuous flows of data and unprecedented speeds of production and circulation of knowledge, a phenomenon widely cited in educational documents as a milestone of internet accessibility and new forms of teaching-learning. This dynamic has transformed the way educational processes are conducted, requiring both teachers and students to adapt to the new teaching conditions mediated by digital technologies.

Despite the advances, the theoretical and normative frameworks have gaps that remain the object of reflection by education professionals. Among these gaps are the challenges in incorporating ICT/DICT into school daily life, the tensions between technophile and technophobic teachers, as well as the conflicts resulting from the transition between analog and digital practices. In the teaching of History, this technological insertion was used as a tool to increase the theoretical-methodological approach, allowing greater exploration of historical sources, diversification of didactic resources and encouragement of the active participation of students, always in line with the curricular objectives of Basic Education.

Thus, the incorporation of digital technologies should not be understood only as an instrumental update of teaching, but as an opportunity to rethink pedagogical practices, strengthen critical thinking, and expand the possibilities of collective construction of historical knowledge. Such an approach requires planning, qualified teacher mediation and attention to inequalities of access, ensuring that technologies effectively contribute to the democratization of teaching and to the formation of historically conscious and active subjects.

According to Soares (2022), although in many regions the implementation has occurred in a precarious way, marked by the predominance of digital artifacts guided by the premises of the technopoly³, such initiatives represented advances that expanded, to a certain extent, the range of possibilities for immersion in historical knowledge. In addition, the dialogue with recent research, the dynamization of knowledge through interconnected media and the production of more attractive and diversified resources for students remain, to this day, as goals to be consolidated and developed.

³ It consists of the deification of technology, which means that he [the individual] seeks his authorization in technology, finds his satisfaction, and takes orders from technology. [...] Those who feel most comfortable in the technopoly are the people who are convinced that technical progress is humanity's supreme achievement and the instrument with which our deepest dilemmas can be solved. (Postman, 1994, p. 79)

4 NATIONAL COMMON CURRICULAR BASE (BNCC)

The National Common Curriculum Base – BNCC (Brasil, 2017), approved by the Ministry of Education (MEC), is a normative document that guides the Basic Education curriculum at the national level. Provided for by article 210 of the Federal Constitution (Brasil, 1988) and by article 26 of the Law of Guidelines and Bases of National Education (Brasil, 1996), its elaboration was driven by the National Education Plan (PNE, 2014) and presented in a preliminary version in 2015.

The process of building the BNCC was long and marked by intense debates, both in its formulation and in its subsequent revisions. After several changes, the definitive version referring to Early Childhood Education and Elementary Education was approved in 2017, while the version intended for High School was completed in 2018. From the beginning, his proposition was surrounded by questions about the relevance of a common base, especially in view of the continental dimensions of Brazil and its social, cultural and regional diversity.

One of the fundamental concepts taken up in the BNCC is that of competence, already present in the National Curriculum Parameters – PCN (1997) for High School. Competencies assume a structuring role by proposing the articulation between knowledge, skills, values and attitudes, shifting the focus from the simple transmission of content to the integral formation of students.

In the specific field of History teaching, a central point of discussion refers to the selection of contents that should compose the curriculum. Unlike what happened with the PCN, the BNCC seeks to value the teaching of local history and Afro-Brazilian history, seeking to reduce the predominance of an essentially Eurocentric narrative. Even so, the challenge remains to balance different historical perspectives without incurring in reductionism or critical emptying.

The discussion about curriculum, historical knowledge and power relations is crucial. As Selwyn (2014, p. 4) points out, ideology can be understood as a system of ideas, beliefs and values that guide action. In the same sense, Gabriel and Costa (2011) state that the constitution of hegemonies in the field of school historical knowledge occurs through the dispute around what should be considered true and, therefore, worthy of being taught. Thus, the choice of certain contents to the detriment of others is not neutral, but part of a political and cultural process of legitimization of knowledge.

Gabriel (2019) adds that the History curriculum tends to assume a prescriptive character, composed of previously defined contents that reinforce asymmetrical power

relations. In this way, the curriculum can act in maintaining the status quo, legitimizing practices that make cultural, ethnic, social, and gender minorities invisible, historically excluded from the processes of production and dissemination of knowledge.

In this context, it is also worth considering the role of technology in the educational process. Postman (1994, p. 79) warns of the risk of a "deification of technology", in which individuals begin to seek in it their main source of legitimacy and satisfaction, believing that technical progress is capable of solving the deepest dilemmas of humanity. This criticism becomes pertinent when we analyze how the BNCC incorporates, in a still limited way, digital information and communication technologies (DICT), often treated as neutral tools, without in-depth discussion of their social and pedagogical implications.

In view of this panorama, the construction of historical thinking in the context of the BNCC requires the delimitation of zones of contact, approximation and distancing, in order to define both the contents to be worked on and the intentions that guide learning. It is in this process that the proposal of the ten general competencies of the BNCC is inserted, which seek to ensure the learning and development rights of all students.

Figure 1

Competencies according to the BNCC



Source: Prepared by the authors.

The ten general competencies proposed by the BNCC dialogue with conceptions already defended since the 1990s, especially by the formulations of Perrenoud (2015). Although its original publication dates back to 1999, it is possible to identify significant advances in them, especially with regard to the incorporation of Digital Information and Communication Technologies (DICT), a recurring nomenclature in the document (Brasil, 2017). These competencies are intended for all stages of Basic Education – Early Childhood Education, Elementary School and High School – and seek to articulate the construction of knowledge, the development of skills and the formation of attitudes and values, in a perspective of integral education.

With regard specifically to the teaching of History, the general competencies break with a reductionist view of the discipline as a simple narration of facts, events and characters. There is also an effort to overcome a strictly Eurocentric approach, stimulating the construction of a more plural and critical view.

Among the competencies highlighted in the document (Brasil, 2017, emphasis added), some are directly connected to the teaching of History:

1. **"Value and use historically constructed knowledge** about the physical, social, cultural, and digital world to understand and explain reality, continue learning, and collaborate to build a just, democratic, and inclusive society" (Brasil, 2017, p. 9).
2. **"Exercise intellectual curiosity** and use the approach proper to the sciences, including investigation, reflection, critical analysis, imagination and creativity, **to investigate** causes, elaborate and test hypotheses, formulate and solve problems and create solutions (including technological) **based on knowledge from different areas**" (Brasil, 2017, p. 9).
6. **To value the diversity of knowledge and cultural experiences** and to appropriate knowledge and experiences that enable them to **understand the relationships of the** world of work and to make choices aligned with the exercise of citizenship and their life project, with freedom, autonomy, **critical awareness** and responsibility" (Brasil, 2017, p. 9).
7. **"Argue based on facts, data and reliable information, to formulate, negotiate and defend ideas,** points of view and common decisions that respect and promote human rights, socio-environmental awareness and responsible consumption at the local, regional and global levels, with **an ethical position** in relation to the care of oneself, others and the planet" (Brazil, 2017, p. 9).

In dialogue with the TDIC, the BNCC also establishes competencies that expand the possibilities of working in History, such as:

4. **"Use different languages** – verbal (oral or visual-motor, such as Libras, and written), body, visual, sound and **digital** – as well as knowledge of artistic, mathematical and scientific languages, to **express and share information, experiences, ideas and feelings in different contexts and produce meanings that lead to mutual understanding"** (Brasil, 2017, p. 9).
5. **"Understand, use and create digital information and communication technologies in a critical, meaningful, reflective and ethical way in the various social practices (including school ones)** to communicate, access and disseminate information, **produce knowledge**, solve problems and exercise protagonism and authorship in personal and collective life" (Brasil, 2017, p. 9).

The first two competencies allow the teaching of History to work from the exploration of multiple sources, narratives and cultural manifestations. This approach enables the student to perceive his own historical insertion, understand the time and space in which he lives, and establish relationships between his reality and the broader civilizational processes.

The following competencies, on the other hand, bring the student closer to the historical sources themselves, favoring not only critical reading, but also the production of meanings from them. On this point, the BNCC advances by introducing the notion of "historian attitude", a central concept for the methodological renewal of the teaching of History. This attitude unfolds in five cognitive operations: identification, comparison, contextualization, interpretation, and analysis (Brasil, 2017b).

5 STEPS TO THE "HISTORIAN ATTITUDE"

Figure 2

Cognitive operations for a historian attitude according to the BNCC



Source: Prepared by the authors.

This set of procedures breaks with the merely transmissive view of History and guides the student to think historically. In other words, it is not just about "memorizing facts", but about questioning evidence, building hypotheses, interpreting different versions of the past and analyzing social processes in their complexity. As Mauad (2018) points out, the historian attitude means questioning the past from the demands of the present, placing the student as an active subject in the construction of historical knowledge.

In addition, by associating this practice with DICT, space is opened for new ways of working with historical sources, such as digital files, Figure banks, videos, podcasts, and documents available on online platforms. Thus, the teaching of History can be expanded beyond the textbook, enabling a greater diversity of experiences and developing in the student a critical posture towards the information that circulates in the digital environment.

Associated with the concepts of History, it is understood that the identification process is linked to the description and recognition of the objects of study, functioning as an initial stage of approximation of the students with the contents. This movement enables students to establish relationships between what they know about their daily lives and new knowledge, expanding their perception of time and space and attributing meanings to the past based on their concrete reality. Comparison, on the other hand, corresponds to the ability to analyze

similarities and differences between sociocultural phenomena, which allows us to attribute new values, problematize established interpretations and realize that History is composed of permanences, but also of significant ruptures.

Contextualization, in turn, is related to the competence to situate historical knowledge in specific temporal, social and cultural frameworks, avoiding generalizations and favoring interpretations consistent with the period or society investigated. Interpretation represents one of the central points in the process of critical formation of the subject, as it stimulates the construction of hypotheses, problematization and the exercise of attributing meanings to the "historical object", bringing the student closer to an investigative posture. Finally, the analysis is articulated with the ability to question the knowledge presented, expanding the intellectual autonomy and critical sense of the student in contact with different narratives and sources.

For the consolidation of these stages of historical knowledge, it is essential to develop adjacent skills, such as reading, speaking, listening and writing, which function as basic instruments for the construction of meanings and representations. In addition, the use of multiple languages – artistic, mathematical, scientific and digital – enables the student to materialize learning in a more meaningful way. In this context, Digital Information and Communication Technologies (DICT) are an essential resource to stimulate the so-called "historical attitude", allowing to expand the possibilities of access to sources, diversify forms of analysis and promote practices that strengthen critical thinking.

This perspective dialogues directly with the conception of the historian attitude. As Mauad (2018, p. 40) states, assuming this posture means "inquiring into the past as one of the dimensions of the porous terrain of the present where traditions and residual behaviors reside, but from which, when problematized, critical knowledge emerges that impels us to action". In other words, it is a matter of understanding that the past is not a static datum, but rather a field of problematizations that, when revisited, favors the construction of significant learning for social and political life.

According to the BNCC, pedagogical decisions should be directed to the development of skills, expressed in the document as what students should "know" – that is, the contents and knowledge to be contemplated in the curriculum. However, the text also emphasizes that it is not enough to acquire knowledge in an abstract way, but that students must be able to mobilize it in practical situations, that is, they must "know how to do". Thus, the focus falls on the ability to articulate knowledge, skills, attitudes and values in order to face complex challenges of daily life, the exercise of citizenship and the world of work (Brasil, 2017).

It should be noted that the BNCC understands that such learning only materializes when articulated with local realities and the specific context of each institution. Therefore, schools and education networks have the autonomy to adapt the general guidelines to their concrete conditions, respecting the sociocultural characteristics of the students and the community. The document also emphasizes that this process requires the active participation of families and communities, strengthening the social role of the school as a space for democratic and collaborative formation.

With regard to DICT, the BNCC attributes to them a central role in the construction of the curriculum, recognizing them as components to be incorporated into pedagogical practices. The document mentions, for example, that it is up to the teacher to "select, produce, apply and evaluate didactic and technological resources to support the process of teaching and learning" (Brasil, 2017, p. 17). This recognition reinforces the need to understand digital culture not only as a context external to the school, but as an integral part of the students' education.

The text of the BNCC explains that digital technologies are present in all teaching modalities, from Early Childhood Education to High School, whether in the use of technological artifacts or in the exploration of digital environments. In this sense, the document notes that

"[...] Digital culture has promoted significant social changes in contemporary societies. As a result of the advancement and multiplication of information and communication technologies and the growing access to them due to the greater availability of computers, cell phones, tablets and the like, students are dynamically inserted in this culture, not only as consumers" (Brasil, 2017, p. 61).

However, the incorporation of DICT into the curriculum also raises problems. One of them refers to the view that digital culture is led only by young people, which can lead to interpretations that secondary the role of other social groups in the process of technological appropriation. Another issue concerns technological determinism, present in some readings that treat technology as an immediate solution to educational problems, without considering the pedagogical and critical dimensions of its use.

Furthermore, the BNCC does not discuss concrete ways of using such resources for educational purposes, limiting itself, in many passages, to highlighting their presence in the daily lives of students. It is also observed that the speed and fragmentation of the digital environment can induce the superficiality of information, favoring fast, synthetic and in-depth

analyses. This aspect is particularly problematic when contrasted with the school proposal, which requires reasoned argumentation, critical reflection and the construction of dense meanings.

The document itself recognizes this challenge by stating that:

"Young people have increasingly engaged themselves as protagonists of digital culture, getting directly involved in new forms of multimedia and multimodal interaction and social action in a network, which are carried out in an increasingly agile way. In turn, this culture also has a strong emotional appeal and **induces the immediacy** of responses and the ephemerality of information, privileging superficial analyses and the use of more synthetic Figures and forms of expression, different from the ways of saying and arguing characteristic of school life." (Brasil, 2017, p. 61, emphasis added).

This excerpt highlights the paradox of digital culture: at the same time that it expands access to information and enables new forms of expression and interaction, it also imposes challenges to critical deepening and the development of consistent school practices. For this reason, it is essential to think about the role of DICT in the teaching of History not only as instruments of technological mediation, but as critical resources, capable of enhancing historical learning, stimulating the protagonism of students and strengthening the construction of an active and reflective citizenship.

The texts of the BNCC are revealed, in many moments, synthetic, both in terms of the appropriation of digital elements and the methodological guidelines for the application of the contents in the context of didactic practice. In the case of the discipline of History, this limitation becomes even more evident, since, when we analyze the curriculum – whether in the descriptive part of the discipline, or in the competencies, skills and suggestions for approaches – we notice a low dialogicity in relation to the relevance of the pedagogical use of DICT and the articulation with the so-called transversal themes.

This situation imposes significant challenges on the school in fulfilling its formative function in the face of the new generations. More than transmitting content, the school institution must maintain its commitment to stimulating reflection and critical analysis, preparing students to deal with the multiplicity of information and media that make up contemporary digital culture. In this sense, it is essential that the school not only preserve its role of critical formation, but also incorporate new languages and ways of functioning of digital media. This incorporation must occur consciously, revealing both its possibilities of communication and its potential for manipulation, contributing to form subjects who make a

democratic and responsible use of technologies, capable of actively participating in digital culture.

In this context, the school can appropriate the communicative potential of the digital universe as a strategy to institute new ways of promoting learning, strengthening interaction, and enabling the collective construction of meanings between teachers and students (Brasil, 2017, p. 61).

In the field of specific competencies of Languages for Elementary Education, for example, it is observed that the BNCC establishes the valorization of the use of different forms of language. However, the document often brings this practice closer to everyday manifestations – such as venting on social networks – than to systematized uses in the school environment. The competence highlighted by the document states:

"Use different languages – verbal (oral or visual-motor, such as Libras, and written), body, visual, sound and digital – to express and share information, experiences, ideas and feelings in different contexts and produce meanings that lead to dialogue, conflict resolution and cooperation." (Brazil, 2017, p. 65).

With regard to the field of Human Sciences, the BNCC proposes that the curriculum be structured in such a way as to ensure that students develop the ability to reflect on different cultures and societies, respecting their historical times, territories and landscapes. The proposal seeks to promote social-cognitive, affective and playful experiences that contribute to the understanding of the individual, the social world and nature (Brasil, 2017). At this point, it is evident that the intention is that the teaching of History be articulated with the development of intellectual autonomy and the strengthening of democratic values, promoting reflection on ethics, politics and human development. As the document summarizes:

"In short, the area of Human Sciences should provide students with the ability to interpret the world, to understand social, political and cultural processes and phenomena and to act ethically, responsibly and autonomously in the face of social and natural phenomena." (Brazil, 2017, p. 356).

The specific competencies of Human Sciences for Elementary Education reinforce this perspective, highlighting, among others:

2. "To analyze the social, cultural and digital world and the technical-scientific-informational environment based on the knowledge of the Human Sciences,

considering their variations of meaning in time and space, to intervene in everyday situations and position themselves in the face of problems of the contemporary world." (Brazil, 2017, p. 357).

7. "Use cartographic, graphic and iconographic languages and different textual genres and digital information and communication technologies in the development of spatio-temporal reasoning related to location, distance, direction, duration, simultaneity, succession, rhythm and connection." (Brazil, 2017, p. 357).

Despite these guidelines, a critical point of the document is that there is no explicit reference to the need to adapt these competencies to the student's level of socio-psychological development, which can hinder the effectiveness of teaching.

In the specific case of History, the document relates the area to the formation of a critical consciousness through dialogue and respect for cultural, social and political plurality. However, there is also the possibility of constructing a historical determinism around the contexts of production, circulation and consumption of memory, which, in a way, tends to frame historical knowledge within already pre-established molds.

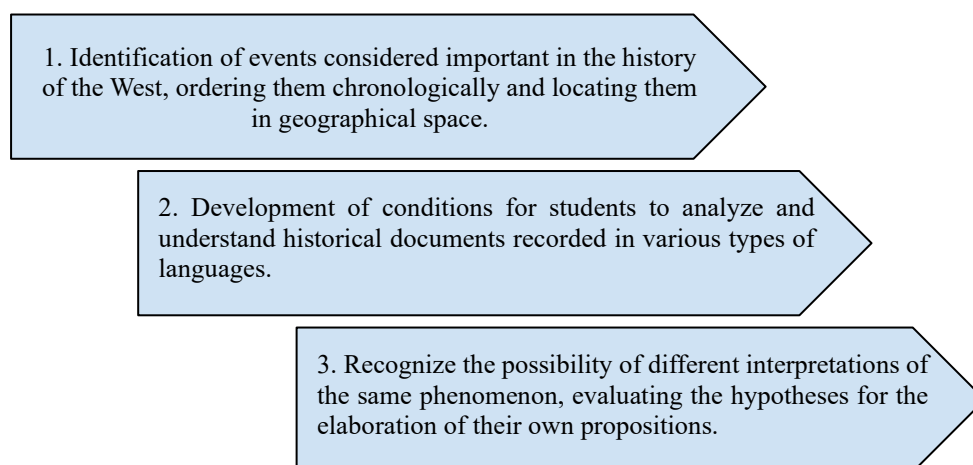
In the field of "specific competences in History for Elementary Education", the BNCC (2017, p. 402) points out some aspects that are close to the use of DICT, such as:

3. "To elaborate questions, hypotheses, arguments and propositions in relation to documents, interpretations and specific historical contexts, using different languages and media, exercising empathy, dialogue, conflict resolution, cooperation and respect."

7. "[...] To produce, evaluate and use digital information and communication technologies in a critical, ethical and responsible way, understanding their meanings for different groups or social strata." (Brazil, 2017, p. 402)element.

Despite these mentions, it is perceived that the BNCC, in the final years of Elementary School, still reduces the teaching of History to three basic procedures, which have little dialogue with the potential for integration of DICT and with the perspective of promoting collaborative and critical learning. These procedures, although relevant, are not enough to account for the complexity of the demands of contemporary digital culture.

Figure 3



Source: Brazil, 2017, p. 416.

Mendes (2020, p. 124) raises a recurring question among History teachers: what to do in the face of prescriptive curricula when the school reality presents poor or even no working conditions with DICT or to promote a critical contextualization that brings the contents closer to the students' lives? This issue reveals the abyss between curricular proposals and concrete teaching conditions, especially with regard to public schools, which often face structural and pedagogical limitations.

The author evokes resistance on the so-called "school floor", a space in which the teacher is urged to reinvent pedagogical practices to ensure meaningful learning. In this scenario, Mendes highlights the need for a History teaching that goes beyond the simple transmission of information and that is capable of valuing citizenship, combating "neotechnicism" — a concept discussed by Costa (2019) when criticizing the excessive emphasis on technicist approaches — and promoting approximations between the historical past and the practical past.

Such concepts, discussed by White (2014), help to problematize the way in which historical knowledge can be mobilized in the classroom. The historical past, according to White (2014, p. 20), "is a construction of a theoretical order, which exists only in the books and articles of historians: it is constructed as an end in itself, has little or no value to understand or explain the present, and does not provide any guide to act in the present or predict the future". In contrast, the practical past refers to everyday experiences that shape memory and guide action, functioning as a resource for dealing with personal, ethical, or

political dilemmas. As summarized by Mendes (2020, p. 124) based on White: it is the "past of memory, dream, and desire, as well as the resolution of problems, strategies, and tactics for life, whether personal or collective" (White, 2014, p. 19).

By articulating these two levels — the theoretical and the practical — the teaching of History can open paths for discussions that foster not only the problematization of the past, but also the understanding of the new problems emanating from contemporary society. This articulation is fundamental, as it allows the student to recognize History as a field of dispute of meanings, and not as a linear and closed account.

In this aspect, the question raised by Mendes gains strength: *"if the school does not have the technical or structural conditions for the use of DICT, what to do?"* The answer seems to point to the need to build alternative pedagogical practices, which privilege debate, critical investigation and the production of collective meanings. More than the dependence on technological tools, the teaching of History must seek strategies that allow students to connect with their own reality, interpreting it in a critical and transformative way.

The emptying of meanings in curricula and discussions about the teaching of History is an aspect that deserves critical attention in the analysis of the BNCC. Pereira and Rodrigues (2018) warn that History classes can lose their potential to problematize dominant identities and reconstruct collective memory, becoming more descriptive than reflective practices. The authors also point out that, although the BNCC includes content referring to black and indigenous populations, its approach is superficial, since it does not delve into the historical processes of silencing, exclusion, and resistance of these groups. This critique can be expanded to also include feminist movements, quilombolas and, more recently, agendas related to LGBTQIA+ communities, whose presence in official documents is still marked by gaps, absence of transversality or by a normative bias that does not account for the plurality of experiences.

When thinking about the field of History teaching articulated with the competencies of the BNCC, it is perceived that the expectation of production, evaluation and use of DICT (Digital Information and Communication Technologies) is presented as a desirable horizon, but it is often configured as a **pedagogical utopia**. In many educational institutions, material barriers — lack of infrastructure, outdated equipment, limited connectivity — make it impossible or restrict the meaningful use of these technologies. A more optimistic discourse could suggest the use of personal smartphones, given that part of the students have access to this resource. However, such a solution comes up against practical limitations: not

everyone has compatible devices, mobile data packages are often restricted, and there are difficulties in the use of software and applications, which impacts both the execution of the activity and its subsequent evaluation.

These challenges reveal that the problem is not only reduced to access to *hardware* (computers, *notebooks*, *tablets*, cell phones/*smartphones*), but also to the conditions of connectivity and software compatibility. In the school space, even if devices are available, it is necessary to think of activities that work in online and offline contexts, in order to avoid frustration in students. In addition, it is up to the teacher to critically evaluate the origin and reliability of the digital materials accessed, in a scenario in which the internet offers both vast free content and risks of misinformation.

Another point that generates tensions is the seventh competence of the BNCC, which proposes to "produce, evaluate and use digital information and communication technologies in a critical, ethical and responsible way, understanding their meanings for different groups or social strata" (Brasil, 2017, p. 402). The problem, as Costa (2019, p. 44) points out, lies in the fact that the BNCC seems to value the technical mastery of technologies more than their potential as a mediation for historical thought. Costa asks: *"how to think about criticality in the production/evaluation/use of DICT if one does not develop argumentation (seventh general competence)?"*element. In other words, the BNCC runs the risk of transforming technology into the protagonist of the process, relegating the formative role of the teacher and the valorization of the human experience to the background.

In elementary school, the analysis of skills reinforces this perception. In the early years, DICT appear timidly, as instruments for recording family or community memory (EF02HI08; EF02HI09), often reduced to technical supports for data preservation or compilation. In the 4th year, when dealing with the object of knowledge "The world of technology: the integration of people and social and cultural exclusions" (EF04HI08), the discussion does not focus on historical subjects, but on digital media themselves, resulting in a shallow approach and stuck to the technological apparatus, without delving into social issues, such as *cyberbullying* or other problems related to digital exclusion.

In the final years, only in the 9th grade does a skill appear, which, in theory, could articulate History and DICT: analyzing the transformations in local and global political relations generated by the development of digital technologies (EF09HI33). However, once again the approach is incipient, as it restricts the analysis to technological development itself, without exploring its concrete impacts on social, cultural and political relations of everyday life.

In view of this, it is clear that the BNCC still treats the incorporation of DICT in an instrumentalized and limited way, without exploring them as possibilities for the construction of historical meaning, dialogue with cultural diversity or problematization of social inequalities. The risk is that its implementation will become yet another emptied public policy, incapable of effectively transforming pedagogical practice. In order for DICT to play a significant role, it is necessary that teachers, in their collective training and planning, advance in the critical and creative recognition of the potential of digital technologies, articulating them with human mediation, historiographical debate, and the construction of a culture of collaboration and authorship.

In short, without this reflexive movement, the teaching of History will continue to run the risk of being reduced to the mere application of tools, without achieving its social function: to form critical subjects, capable of understanding the past, problematizing the present and projecting the future on a democratic and inclusive basis.

In this context, the incorporation of DICT is still configured as a path under construction and discussion in the school environment, requiring reflection on its forms of implementation and the adequate mediation of digital artifacts, articulated with activities in line with the curricular content. Dialogue, knowledge and recognition of the potential of DICT must be planned collectively among teachers, so that, when reaching students, pedagogical practices are immersed in a culture of collaboration, exchange of knowledge and collective construction. Otherwise, there is a risk of becoming just another public policy implemented without effective impact on the teaching process.

6 FINAL CONSIDERATIONS: BRAZILIAN EDUCATIONAL CONTEXTS AND CHALLENGES OF TEACHING HISTORY

Addressing Brazilian educational contexts has never been a simple task. Understanding the fabrics that form the structures responsible for governing our education systems over time requires a careful look at the historical, political and social conditions that shaped them. The organization and systematization of educational models require, therefore, that one consider not only the main pedagogical trends in circulation in the world, but also the particular ways in which they were appropriated and implemented in Brazil, the effective impacts on learning, the delimitation of theoretical fields and, above all, the power relations that permeate the formation of the school system.

From the so-called 1.0 to 4.0 model, we observe that, despite technological and

methodological advances, certain questions return recurrently, in a kind of circular movement, similar to walking in a labyrinth. In the daily teaching routine, this is reflected in persistent dilemmas: questions about curricular models, attempts to improve pedagogical practices based on different philosophical and ideological currents, difficulties in meeting student demands, structural precariousness, and challenges in the use of methodologies that meet the needs of different school realities.

When we observe the most recent scenarios, we notice the repetition of old problems under new guises. There are attempts to break with models considered outdated, but also the permanence of ingrained practices. The effort to reorganize the Brazilian educational system can be seen in official documents such as the LDBEN (1996), the PCN (1997), the DCNEB (2013) and, more recently, the BNCC (2017). Such normative frameworks represent attempts to bring the debate from the state level to the school community, although they are not free from tensions, disputes and ambiguities. Far from constituting neutral texts, they reveal ideological clashes, disputes for hegemony and different projects for society.

In the teaching of History, the impacts of these transformations were significant. Over the last decades, due to democratic movements and the critical performance of teachers, we have sought to include in the curriculum debates that problematize indigenous and Afro-descendant roots, without neglecting the great events of world history. This configuration shows that curricula are not the result of isolated constructions, but of processes permeated by power games, public policies and the influence of hegemonic currents that shape educational guidelines.

One of the main concerns in the teaching of History in Basic Education is to structure paths that allow the student to **build a significant link with historical knowledge**. Mendes (2020), inspired by the reflections of Eric Hobsbawm, highlights that the loss of connection of young people with the past is one of the greatest challenges for the teaching of History. For the British historian,

"The destruction of the past – or rather, of the social mechanisms that link our personal experience to that of past generations – is one of the most characteristic and dismal phenomena of the late twentieth century. For this reason, historians, whose job it is to remember what others forget, become more important than ever at the end of the second millennium" (Hobsbawm, 1995, p. 13).

This diagnosis is connected to the concept of presentism, developed by Hartog (2013), according to which the past loses social relevance as disciplinary knowledge. In short, it is a

belief that it is not possible to learn by investigating the past, reducing it to irrelevance in everyday life. This movement is echoed in recent political decisions, such as the removal of the teaching of History from the condition of mandatory subject in all grades of High School, which further weakens the space of the Human Sciences in the integral education of students.

In this scenario, the BNCC presents contradictions. Although it brings the promise of promoting a civic and critical education, many of its orientations lead to the predominance of practices centered on memorization ("memorization") and the instrumentalization of knowledge. The introduction of DICT (Digital Information and Communication Technologies), for example, appears in some parts of the Base, but in a decontextualized way, little articulated with the demands of research, social engagement or recognition of cultural and historical diversity. As a result, the potential of technologies to contribute to the production of historical knowledge and to the appreciation of historically silenced voices (indigenous, black, women, quilombola populations and LGBTQIA+, among others) is diluted in generic approaches and emptied of meaning.

These reflections demonstrate that, although there have been advances, we still face significant barriers to the full integration of technologies in education. Difficulties related to infrastructure, connectivity, and teacher training persist, which reinforces the need to understand DICT not only as tools, but as sociocultural mediations that can enhance — or limit — the construction of historical knowledge.

In summary, the Brazilian educational challenges, especially in the teaching of History, are not restricted to the elaboration of new documents or the introduction of technologies. It is about building pedagogical practices that value the past as a living dimension, linked to the present and the future, and that recognize digital technologies as tools for critical mediation and not just as technical devices. Without this movement, we run the risk of perpetuating an education marked by the emptying of meanings, incapable of forming critical subjects, capable of understanding the historicity of their own existence and of acting in society in an ethical and transformative way.

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**YOUTH AND ADULT EDUCATION (EJA) AND CURRICULUM IN BRAZILIAN
STRICTO SENSU RESEARCH: A SYSTEMATIC REVIEW IN THE BDTD (2000 -
2024)**

**EDUCAÇÃO DE JOVENS E ADULTOS (EJA) E CURRÍCULO NA PESQUISA
STRICTO SENSU BRASILEIRA: UMA REVISÃO SISTEMÁTICA NA BDTD
(2000-2024)**

**EDUCACIÓN DE JÓVENES Y ADULTOS (EJA) Y CURRÍCULO EN LA
INVESTIGACIÓN STRICTO SENSU BRASILEÑA: UNA REVISIÓN
SISTEMÁTICA EN LA BDTD (2000-2024)**

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ABSTRACT

Youth and Adult Education (EJA) constitutes a foundational field in Brazil, but it is historically marked by the insufficiency of specific pedagogical resources and practices, demanding a curriculum that dialogues with the diversity and trajectories of its subjects. Considering the imperative to understand the scientific basis supporting this modality, this work focuses on the articulation between EJA and Curriculum in Brazilian research. It aims to map the Stricto Sensu academic production, systematize the temporal evolution, and identify the thematic axes incident in the field. To this end, we proceed to the systematic literature review in the Brazilian Digital Library of Theses and Dissertations (BDTD), analyzing a corpus of 136 works published between 2000 and 2024. In this way, it is observed that there is an exponential growth in production, with a significant concentration in the Southeast-Northeast axis, and that research is polarized around three axes: the Integrated Curriculum/PROEJA, the tension between Prescribed versus Lived Curriculum, and the Critical-Emancipatory Foundation. Which allows us to conclude that the field is consolidated and expanding, driven by the persistent pursuit of a politically engaged and methodologically adaptable curriculum for the specificities of EJA.

Keywords: Youth and Adult Education. Curriculum. Systematic Review. Public Policies. Emancipation.

RESUMO

A Educação de Jovens e Adultos (EJA) constitui um campo fundamental, mas historicamente marcado pela insuficiência de práticas e materiais pedagógicos específicos, demandando um currículo que dialogue com a diversidade e as trajetórias dos sujeitos. Considerando o imperativo de compreender a base científica que apoia esta modalidade, o presente trabalho se concentra na articulação entre EJA e Currículo na pesquisa brasileira. Objetiva-se, portanto, mapear a produção acadêmica Stricto Sensu, sistematizar a evolução temporal, e

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identificar os eixos temáticos incidentes no campo. Para tanto, procede-se à revisão sistemática da literatura na Biblioteca Digital Brasileira de Teses e Dissertações (BDTD), analisando um corpus de 136 trabalhos publicados entre 2000 e 2024. Desse modo, observa-se um crescimento exponencial da produção na última década, com forte concentração no eixo Sudeste-Nordeste. Os resultados revelam que a pesquisa se polariza em torno de três eixos: o Currículo Integrado/PROEJA, a tensão entre Prescrito versus Vivido, e o Fundamento Crítico-Emancipatório. O que permite concluir que o campo se consolidou e se expandiu, impulsionado pela busca de um currículo politicamente engajado e metodologicamente adaptável às especificidades da EJA.

Palavras-chave: Educação de Jovens e Adultos. Currículo. Revisão Sistemática. Políticas Públicas. Emancipação.

RESUMEN

La Educación de Jóvenes y Adultos (EJA) constituye un campo fundamental en Brasil, históricamente marcado por la insuficiencia de prácticas y materiales pedagógicos específicos, exigiendo un currículo que dialogue con la diversidad y las trayectorias de sus sujetos. Considerando el imperativo de comprender la base científica que apoya esta modalidad, el presente trabajo se concentra en la articulación entre EJA y Currículo en la investigación brasileña. Se objetiva, por lo tanto, mapear la producción académica *Stricto Sensu*, sistematizar la evolución temporal, e identificar los ejes temáticos incidentes en el campo. Para ello, se procede a la revisión sistemática de la literatura en la Biblioteca Digital Brasileña de Tesis y Disertaciones (BDTD), analizando un corpus de 136 trabajos publicados entre 2000 y 2024. De este modo, se observa que hay un crecimiento exponencial de la producción en la última década, con fuerte concentración en el eje Sudeste-Nordeste. Los resultados revelan que la investigación se polariza en torno a tres ejes: el Currículo Integrado/PROEJA, la tensión entre Prescrito versus Vivido, y el Fundamento Crítico-Emancipatorio. Lo que permite concluir que el campo se consolidó y se expandió, impulsado por la búsqueda persistente de un currículo políticamente comprometido y metodológicamente adaptable a las especificidades de la EJA.

Palabras clave: Educación de Jóvenes y Adultos. Currículo. Revisión Sistemática. Políticas Públicas. Emancipación.

1 INTRODUCTION

Youth and Adult Education (EJA) is a fundamental and historically disputed field in the Brazilian educational scenario, being recognized as an essential modality for social inclusion and the right to lifelong education. However, this modality faces significant structural challenges, carrying the legacy of late and precarious schooling that manifests itself in dropout, low self-esteem of students, and lack of specific pedagogical materials and practices (Toledo, Amaral, and Pires, 2025). In view of the complexity and diversity of EJA subjects, the Curriculum emerges as a central element of debate, as its organization must transcend the static and merely compensatory view, articulating with the life experiences, culture, and social praxis of the students (Toledo and Amaral, 2023). Given the theoretical-practical relevance of the articulation between EJA and Curriculum, and the need to understand how this relationship has been investigated in the national academic environment, the present article proposes to map the Brazilian scientific production at the *Stricto Sensu* graduate level. Adopting the methodology of systematic review in sources such as the Brazilian Digital Library of Theses and Dissertations (BDTD), this investigation focuses on the analysis of studies that articulate "Youth and Adult Education" and "Curriculum" in the period from 2000 to 2024, aiming to systematize the temporal evolution, the regional asymmetries of production and, mainly, the most incident themes in the field.

2 THEORETICAL FRAMEWORK

Youth and Adult Education (EJA) is a teaching modality marked by historical, social and pedagogical specificities that require its own curricular and methodological approaches. The curriculum, as a social and political construction, assumes a central role in the mediation between the knowledge of the subjects of EJA and school knowledge. To understand how this articulation has been investigated in Brazilian academic production, this study adopts the systematic review as a methodological strategy, allowing mapping trends, gaps and relevant contributions. Next, the main theoretical foundations on EJA, curriculum and systematic review are discussed, based on authors who have dedicated themselves to deepening these themes.

2.1 YOUTH AND ADULT EDUCATION

Youth and Adult Education (EJA) is a modality that is inserted in the field of basic education with the objective of guaranteeing the right to schooling to those who, for different reasons, did not have access to or continuity of studies at the appropriate age. As established by the Law of Guidelines and Bases of National Education (LDB), in its articles 37 and 38, EJA must be organized in such a way as to respect the characteristics of the subjects who resort to it, promoting an education that considers their life trajectories, their previous knowledge and their working conditions and existence.

EJA subjects are marked by a diversity of experiences, identities and expectations. Many are workers, mothers, people in situations of social vulnerability or young people in age-grade distortion, who carry with them stories of exclusion and resistance. These students are subjects of the present and the future, whose memories and experiences must be recognized as constitutive elements of the educational process. For Arroyo (2006), it is essential that the EJA teacher understands these subjects as protagonists of their stories, valuing their knowledge and promoting pedagogical practices that dialogue with their realities.

The heterogeneity of classes is one of the main challenges faced by educators. This diversity manifests itself in terms of age, previous schooling, length of absence from school, working conditions, and expectations regarding education. As Silva (2010) points out, this plurality should be seen as a pedagogical power, and not as an obstacle, requiring the teacher to listen sensitively and have a flexible and contextualized practice. However, school dropout is still a recurring phenomenon in EJA, motivated by factors such as tiredness, learning difficulties, absence of public retention policies, and the distance between school and students' lives (Cunha, 2021).

Another relevant aspect is the low self-esteem of the students, often marked by previous frustrating school experiences. According to Negreiros et al. (2017), the return to school can reactivate feelings of failure and exclusion, and the teacher has the role of reconstructing the image that the student has of himself as a subject capable of learning. For this, it is necessary that teaching in EJA be guided by a pedagogy of welcoming, listening and valuing popular knowledge. As Freire (1996) argues, teaching requires respect for the autonomy of the learner and commitment to his or her critical and liberating education.

In addition, it is necessary to recognize that many EJA teachers face structural and pedagogical limitations, such as the absence of specific teaching materials and the lack of continuing education focused on this modality. As Toledo, Amaral and Pires (2025) point out, the teaching practice in EJA is still marked by the reuse of regular education materials, which

disregards the specificities of young, adult and elderly subjects, compromising the effectiveness of pedagogical actions. The authors argue that the construction of materials and strategies aimed at EJA is essential to ensure quality education, which respects the times, knowledge and contexts of students.

EJA, therefore, cannot be reduced to a compensatory function. It should be understood as a space for integral education, which articulates school knowledge with the knowledge of everyday life, promoting active citizenship and social transformation. As Soares and Cougo (2024) state, EJA is an opportunity to rewrite interrupted trajectories, to build new life projects, and to strengthen the protagonism of historically marginalized subjects.

2.2 CURRICULUM VITAE

The curriculum, as an expression of an educational project, is more than a list of contents to be taught. It represents a social, political and cultural construction that reflects the values, interests and disputes present in society (Sacristán, 2000). In Youth and Adult Education (EJA), this dimension is intensified, as the subjects who make up this modality bring with them life experiences, accumulated knowledge and expectations that challenge the traditional models of curricular organization. Therefore, thinking about the EJA curriculum requires breaking with homogeneous and excluding logics, recognizing diversity as a structuring principle.

The Law of Guidelines and Bases of National Education (Brasil, 1996), especially in its articles 37 and 38, establishes that the EJA curriculum must be adapted to the characteristics of the students, respecting their times, rhythms and learning conditions. This orientation is reinforced by the National Curriculum Guidelines for EJA (Brasil, 2000), which propose a flexible, interdisciplinary and contextualized organization, capable of articulating school knowledge with the knowledge of experience. As Freire (2014) argues, the curriculum should be based on the knowledge of experience, valuing popular knowledge and promoting an education that is, at the same time, meaningful and liberating.

In this sense, the EJA curriculum cannot be limited to the transmission of content. It should be conceived as a space for dialogue, where subjects can construct meanings, develop autonomy and exercise their citizenship. Biesta (2011) argues that the curriculum should promote not only technical qualification, but also the subjectivation of subjects and their critical insertion in the world. Giroux (2004) reinforces this perspective by stating that the curriculum is a field of dispute, where different projects of society confront each other.

Thus, an emancipatory curriculum must be committed to social justice, valuing diversity, and overcoming inequalities.

Thus, the EJA curriculum should be thought of as an instrument of transformation, capable of promoting the protagonism of the subjects and contributing to the construction of a more just and democratic society. As Dewey (1938) states, the curriculum should start from the student's experience and contribute to the intelligent reconstruction of his environment. This implies pedagogical practices that dialogue with the daily life of students, that value their knowledge and that promote the development of skills for life, work and social participation.

3 METHODOLOGY

The present research is a systematic review of the literature, of an exploratory nature, focused on the analysis and synthesis of results of multiple studies on a theme or topic under review. The main objective of this work was to analyze and discuss, through this review, the Brazilian scientific production regarding the use and debate of the Curriculum in Youth and Adult Education. Locus and Scope of Research

The stage of identification and collection of scientific literature focused on the works of the Stricto Sensu graduate program (Theses and Dissertations). The online search was carried out by consulting the Brazilian Digital Library of Theses and Dissertations (BDTD), managed by the Brazilian Institute of Information in Science and Technology (IBICT), in the case of the model study. BDTD aims to contribute to the integration and dissemination of academic and scientific production developed in Brazilian teaching and research institutions. The analysis cut adopted was established for the period from 2000 to 2024, aiming to map the evolution of research on EJA and Curriculum throughout the twenty-first century. Search Strategy and Descriptors

The collection of papers was carried out through the application of descriptors and Boolean operators, searching for papers by title, subject or abstract, combining the following terms: 'Youth and Adult Education' AND 'Curriculum'.

3.1 INCLUSION AND EXCLUSION CRITERIA AND ANALYSIS OF THE CORPUS

The inclusion criteria for this study (EJA and Curriculum) include Theses and Dissertations that addressed the articulation of the themes "Youth and Adult Education and Curriculum".

To ensure the rigor of the Systematic Review (EJA and Curriculum), the works that met

the thematic and temporal criteria were selected. The scope of the research resulted in the identification of a total of 136 works in the delimited period, 116 master's dissertations and 20 doctoral theses.

The analysis of the corpus of the 136 works in the study on EJA allowed the systematization of the temporal evolution, the identification of the areas of concentration (predominantly Education, with 41.47%), the institutional matrix (led by UNEB, with 27.21%) and, crucially, the identification of the three major thematic axes.

4 RESULTS AND DISCUSSIONS

The scope of the research resulted in the identification of 136 works in the delimited period, 116 master's dissertations and 20 doctoral theses. The main objective of this study is to systematize the temporal evolution of these studies, identify the areas of concentration, the regional asymmetries of production and, mainly, the most incident themes, contributing to the delimitation of new research agendas in the field.

Table 1

Number of Jobs (2000-2024)

Year	Dissertations	Theses	Annual Total
2000	1	0	1
2001	0	0	0
2002	0	0	0
2003	1	0	1
2004	1	0	1
2005	1	0	1
2006	1	2	3
2007	3	1	4
2008	3	0	3
2009	2	0	2
2010	9	3	12
2011	9	0	9
2012	4	1	5
2013	4	2	6
2014	11	2	13
2015	11	1	12
2016	11	2	13
2017	5	2	7
2018	13	2	15
2019	10	1	11
2020	10	3	13
2021	6	2	8
2022	6	4	10
2023	17	4	21
2024	17	2	19

GRAND TOTAL (2000-2024)	116	20	136
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Source: Authors

4.1 ANALYSIS OF TEMPORAL RESULTS

The table shows the evolution of research on EJA and Curriculum in Brazilian graduate studies. Of a total of 136 works in the period, most are Master's Dissertations (116 works), representing approximately 85% of the production, against only 20 Doctoral theses.

The analysis of the temporal distribution reveals a remarkable growth of studies throughout the twenty-first century:

- ✓ **Timid Beginning (2000-2005):** The initial period of the millennium showed an incipient production, with a maximum of 5 works per year and the absence of records in the years 2001 and 2002.
- ✓ **Exponential Growth:** From 2010 onwards, significant growth in production is observed, with annual totals consistently surpassing the 10-work mark.
- ✓ **Recent Peak:** The 2020s reach productivity peaks. The year 2023 is the most prominent in the entire time series, with 21 publications in total. The year 2024 follows the upward trend with 19 jobs registered.

This growth indicates that the EJA curricular debate has gained more and more space and relevance in the research agenda of Brazilian graduate studies, being a topic of sustained and growing interest in the recent period.

The temporal analysis of the academic production on EJA and Curriculum reveals a strong concentration of studies in the last decade, coinciding with the expansion of Professional Graduate programs and the deepening of discussions on PROEJA and teacher training.

4.2 YEARS HIGHER PRODUCTION

The four years of greatest production of theses and dissertations identified in the corpus (within the period 2000–2024) are:

1. **2023:** With 21 publications, this year represents the maximum peak of production on the topic, with a strong predominance of Dissertations (17).

2. 2024: Registers 19 publications, maintaining the high volume of interest in the theme in the most recent year of the complete historical series.
3. 2018: Presented 15 publications (13 Dissertations and 2 Theses), marking one of the high points of research in the second half of the 2010s.
4. 2014, 2016 and 2020: These three years are tied, each with 13 publications, indicating a consolidated level of research in the area from 2010 onwards.

4.3 PERIOD OF LOWER PRODUCTION

In contrast, the initial years of the series (2000 to 2005) have the lowest volume, and 2001 and 2002 did not record any publications identified in this sample on EJA and Curriculum. The year 2000, 2003, 2004 and 2005 registered only 1 publication each

It is crucial, in a systematic analysis, to verify the dynamics of academic production over time to identify periods of inflection and expansion of research. The growth observed in the period from 2000 to 2024 suggests that the EJA and Curriculum theme registered a marked and consolidated academic expansion in the second decade of the twenty-first century.

To deepen this dynamic, we analyzed the total volume of works in two intervals that define the "second decade of the twenty-first century": 2011–2020 and the most recent period, 2015–2024.

The period from 2011 to 2020 (the entire decade) demonstrates a massive and sustained growth in production compared to the first decade (2000–2010, with 45 papers). In this interval, a total of 104 works were accounted for (88 dissertations and 16 theses), which represents a much more expressive volume of production than that previously recorded. Although annual growth fluctuates (such as the declines in 2012 and 2017), research on EJA and Curriculum reaches a consistently high level, with an average of more than 10 annual publications. This volume indicates a consolidation of the theme in the Brazilian *Stricto Sensu* environment.

When we consider the most recent interval, 2015–2024, totaling 131 works (109 dissertations and 22 theses), the growth trend becomes even more evident. This interval reveals a significant and notable increase in production in the most recent years of the series, especially due to the concentration of the production peaks of the entire study. The years 2023 (with 21 publications) and 2024 (with 19 publications) exhibit the highest annual

volumes in the entire historical series, which corroborates the thesis of a phase of great effervescence and expansion of research.

In summary, the analysis of the data demonstrates that the second decade of the twenty-first century not only consolidated the topic on the research agenda (2011–2020), but also culminated in a phase of high expansion (2015–2024), with the final years of the time series reaching a volume that is almost double the average observed in the early 2000s. This pattern confirms a phase of intense discussion and deepening of curricular issues in the scope of Youth and Adult Education in Brazil.

4.4 AREAS OF KNOWLEDGE AND THE INSTITUTIONAL MATRIX OF RESEARCH

The analysis of the distribution of the 136 works by area of knowledge of the Graduate Programs (PPGs) reveals the institutional matrix that sustains the research on EJA and Curriculum in Brazil. The corpus demonstrates an overwhelming concentration in the Human Sciences, but with significant developments in areas of Specialized Education.

The following table presents the 5 areas of knowledge that produced the most research on the subject, in the period 2000–2024:

Table 2

Areas of Knowledge and the Institutional Matrix of Research

Rank	Knowledge Area	Percentage (%)
1	Education (General, Policies, Social Contexts)	41,47%
2	Youth and Adult Education (MPEJA – Specific Professional Masters)	25,58%
3	Science and Mathematics Teaching	17,44%
4	Agricultural and Vocational Education (PPGEA and EPT)	8,53%
5	Linguistics, Letters and Arts	6,98%

Source: Authors

4.5 THE CORE AREA AND THE AXES OF SPECIALIZATION

The research is predominantly anchored in Education (General), which alone represents 41.47% of the classifications and acts as the most productive and heterogeneous area. This area encompasses broad PPGs from several universities (such as UERJ, UFRRJ, UFPE, UFC, UnB) and addresses everything from the management of public policies and managerial reform in EJA, to issues of juvenilization and school culture in contexts of vulnerability (prison, gender).

However, a notable finding is the strong emergence of specialized programs. The area of Youth and Adult Education (Specific Professional Master's Degrees) occupies the second position, with 25.58% of the classifications. This concentration is largely driven by the Professional Master's Degree in EJA (MPEJA), with a strong presence of the State University of Bahia (UNEB). The centrality of this professional training program directs a large volume of research to themes directly linked to localized curricular practices, teacher training and the construction of didactic materials.

The other axes reflect the demand for curricular specificity within the modality:

Science and Mathematics Teaching (17.44%): This area, often represented by Professional Master's Degrees (such as those of UFPE, UEPB, and PROFMAT), demonstrates a significant interest in the development of pedagogical practices and specific teaching materials for the exact and natural sciences in EJA. Thematic focuses include Ethnomathematics, the Mathematics Curriculum, and the use of approaches such as Science, Technology, and Society (STS).

Agricultural and Professional Education (8.53%): This area is strategic because it focuses on PROEJA and the articulation between basic education and professional qualification. Programs such as the PPGEA at UFRRJ and PPGs of Professional Education in Federal Institutes (IFs) address the valorization of the knowledge of PROEJA students and the analysis of the function of disciplines such as Chemistry from the perspective of the integrated curriculum.

Linguistics, Letters and Arts (6.98%): Focuses on the specificity of the process of acquisition of reading and writing and the use of artistic and technological languages in the modality, addressing topics such as Digital Literacy, Literary Literacy and textual genres (such as curriculum vitae and autobiography).

The predominance of the area of Education (with 41.47%) followed by Professional and Specific Teaching Graduate Programs demonstrates that research on EJA and Curriculum in Brazil has a strong theoretical-structural basis, but with a growing practical and professionalizing demand, seeking specific curricular solutions for the various areas of knowledge.

4.6 INSTITUTIONAL CONCENTRATION AND DECENTRALIZATION OF RESEARCH

The analysis of the higher education institutions (HEIs) that contributed the most to the body of research on EJA and Curriculum reveals the underlying institutional matrix and the

geography of academic production, presenting a pattern of concentration different from that observed in broader studies.

Of the total of 136 works analyzed, the set of the five most prominent universities is responsible for 99 publications, totaling 72.79% of the production identified in the corpus.

The 5 Universities with the highest number of publications in the period 2000–2024 are:

Table 3

Institutional Concentration and Decentralization of Research

Rank	Acronym	Name of the Institution	Percentage of Total
1	UNEB	State University of Bahia	27,21%
2	UFRRJ	Federal Rural University of Rio de Janeiro	19,85%
3	UERJ	State University of Rio de Janeiro	11,76%
4	UFC	Federal University of Ceará	7,35%
5	UFPE	Federal University of Pernambuco	6,62%

Source: Authors

The highlight of the research in EJA and Curriculum falls on institutions located in the Northeast (UNEB, UFC, UFPE) and Southeast (UFRRJ, UERJ) regions. The Northeast is consolidating itself as a fundamental center of research on the subject, a finding that points to a decentralization of scientific production in relation to traditional axes such as São Paulo and Minas Gerais.

The State University of Bahia (UNEB) leads the ranking with 37 works (27.21%). This high concentration is mainly due to the strength of its Professional Master's Degree in Youth and Adult Education (MPEJA), a specialized program that directs research to the EJA Curriculum, educator training, and localized public policies, as well as diversity and inclusion issues (gender, ethnicity, prison education).

In the Southeast Region, the most productive pole is the Federal Rural University of Rio de Janeiro (UFRRJ), with 27 works (19.85%). Production at UFRRJ is driven by programs such as the Graduate Program in Education, Contemporary Contexts and Popular Demands (PPGEDU/ECCDP) and the Graduate Program in Agricultural Education (PPGEA). While PPGEA and PROFMAT contribute with studies on Ethnomathematics and PROEJA, ECCDP focuses on the curriculum in contexts of inequality, women's schooling and teacher training.

The State University of Rio de Janeiro (UERJ), with 16 papers, represents a diversified focus, covering Curriculum, Pedagogical Practices, Digital Technologies, and the relationship

between curriculum and disability, often through its Formative Processes and Social Inequalities and Professional Master's programs.

Closing the Top 5, the Federal University of Ceará (UFC) and the Federal University of Pernambuco (UFPE), add up to 10 and 9 works, respectively, concentrating research on PROEJA, Freire's curricular proposals, and the Teaching of Science and Mathematics.

This distribution shows that the study of EJA and Curriculum is strongly linked to the existence of specific and professional graduate programs that seek to respond to social and regional demands, especially in the Northeast and Southeast regions.

4.7 ASYMMETRIES AND POLES OF REGIONAL CONCENTRATION

The geographical distribution of research on EJA and Curriculum reveals significant regional asymmetries in the production of knowledge in Brazil, although with the notable emergence of new research centers.

The Regional Distribution Table shows the concentration of the works identified in the documentary corpus:

Table 4

Regional Concentration

Region	Percentage (%)
Southeast	38,76%
Northeast	33,72%
South	18,22%
Midwest	6,98%
North	2,33%
Total	100,00%

Source: Authors

The Southeast-South axis (S+SE) still concentrates most of the academic production, with 147 papers, representing 56.98% of all the research identified [Table Above]. However, the analysis reveals a strong contribution from the Northeast, which, with 87 studies (33.72%), consolidates itself as the second largest region producing knowledge on the subject, being a more active research center than the South Region (18.22%).

In contrast, the Central-West (6.98%) and, especially, North (2.33%) regions show a marginalized production, with only 6 works identified in the North. This asymmetry highlights the disparity in the infrastructure of graduate studies and in the development of specific lines

of research on EJA and Curriculum in these regions, a problem already recognized by funding agencies.

4.8 HIGHEST PRODUCTION STATES

The detailed state analysis reinforces the research centers and thematic specializations:

1. Rio de Janeiro (Southeast): Leads the ranking with approximately 77 works, driven by institutions such as UFRRJ and UERJ. The focus is broad, encompassing PROEJA, Agricultural Education, specific EJA curriculum policies (such as the New EJA Program), and diversity in urban and prison contexts.
2. Bahia (Northeast): It has the second largest volume, with about 56 works. This high production is directly linked to the State University of Bahia (UNEB) and its Professional Master's Degree in EJA, with research focused on Curriculum, Literacy and ethnic-racial issues.
3. São Paulo (Southeast): A traditional research center, it has about 47 works, with contributions from PUC-SP, UNESP and USP on topics such as Rural Education, PROEJA and Literacy.

The prominence of Rio de Janeiro, Bahia and São Paulo confirms that research on EJA and Curriculum is not restricted to a single macro-region, but is structured around strategic institutional nuclei that maintain Graduate Programs with a strong tradition in the area of Popular Education and Specific Education

4.9 CENTRAL THEMES IN RESEARCH ON EJA AND CURRICULUM

The content analysis of the abstracts and titles revealed that, in addition to the obvious keywords (EJA, Curriculum and Teacher Training), the academic production is concentrated around three major axes of research. These axes reflect the need for the EJA curriculum to respond simultaneously to the demands of the world of work, to the complexity of the identities of the subjects and to the challenges of pedagogical practice in the classroom.

4.9.1 The Dialogic Tension: Integrated Curriculum, Human Formation and the Perspective of Professional Education (PROEJA)

This theme is the most recurrent, addressing the complex attempt to integrate general training and professional education, often under the aegis of the National Program for the Integration of Professional Education with Basic Education in the Modality of Youth and Adult Education (PROEJA).

The works investigate the theory and practice of the integrated curriculum and its role in the qualification of EJA subjects, who are predominantly workers. Titles such as "The integrated curriculum in youth and adult education" and "The constitutive movement of the professional education curriculum integrated with youth and adult education" demonstrate that the focus is on the search for a curricular articulation that promotes integral human development. The research also focuses on the concrete challenges of implementation, as evidenced in "Integrated Curriculum in PROEJA: the experience of the Federal Institute of Pernambuco" and "The challenge of qualification for work from the perspective of Proeja at IFMT".

4.9.2 The Curriculum as a Crossroads: Identities, Diversity and EJA in Contexts of Vulnerability

This thematic axis encompasses studies that address the need for the curriculum to recognize, welcome and dialogue with the identities and trajectories of historically marginalized groups or in unconventional spaces.

The curriculum is examined as a space for dispute and legitimation of knowledge in relation to youth, gender, ethnicity and territoriality. Titles such as "Gender, and sexuality in the curricular organization" and "The EJA teacher and the education of ethnic-racial relations - ERER's" underline the demand for a curricular policy sensitive to diversity. There is a notable focus on EJA in contexts of vulnerability, such as the prison system and socio-education, and on the relationship between curriculum and peasant identity in Rural Education. The issue of the "juvenilization of EJA" is also a point of interest, exploring which knowledge and practices the curriculum should legitimize in dialogue with young people and their territories.

4.9.3 The Lived Curriculum and Teaching Praxis: Popular Knowledge and the Freirean Perspective

This area focuses on investigating how the curriculum is in fact "lived" or "practiced" in the classroom, as opposed to what is merely "prescribed" by official guidelines and policies. The focus is on teaching action and the incorporation of students' popular knowledge, with Paulo Freire's Pedagogy acting as an essential methodological reference for curricular practice.

Works such as "Between the prescribed and the practiced: a case study on the EJA curriculum" and "The practiced curricula thought of youth and adult education" investigate the distance between politics and the reality of the school. The relevance of the subjects is highlighted in "The popular knowledge of EJA students and the pedagogical practice in the classroom" and in the search for Paulo Freire's contributions to the culture of peace in EJA. This set of research reaffirms that the effectiveness of the curriculum in EJA depends on the teaching praxis and the school's ability to dialogue with the knowledge brought by the students

4.10 THE MULTIPLE APPROACHES TO THE CURRICULUM IN EJA

The concept of Curriculum in the analyzed works transcends the vision of a static document, being approached as a field of forces, subject to political dispute, daily resignification and methodological adequacy to the reality of young and adult subjects. The research investigates the curriculum from the perspective of implementation, critical grounding and the need for flexibility.

Next, we highlight the four most common sub-themes that reveal how the curriculum is conceptualized and mobilized in the field of EJA, with their approximate frequencies in the documentary corpus:

Table 5

Curriculum Approaches

Common Subtheme	Focus of the Approach in the Curriculum	Approximate Frequency (N)
Integrated Curriculum and Interdisciplinarity (PROEJA)	Integration of general and vocational training, and articulation between work, science and culture.	45
Prescribed Curriculum vs . Lived Curriculum	Tension between official guidelines and pedagogical practices and teacher resignifications in the classroom.	40

Critical Foundation, Emancipation and Dialogue (Freirean)	Search for an emancipatory curriculum, dialogicity and participation in its construction.	35
Curriculum Assessment and Adaptation to Flexibility	Analysis of the evaluation mechanisms and the need to make the curricular organization more flexible for the diversity of EJA.	30

Source: Authors

4.11 THE DEPTH OF THE APPROACHES

The dominant subtheme, the Integrated Curriculum and Interdisciplinarity, with more than 45 papers, focuses on the structure that seeks to overcome disciplinary fragmentation, being the most prominent concept in the context of Professional and Technological Education (EPT), especially in PROEJA. The studies seek to understand the integrated curriculum aiming at an emancipatory proposal and the articulation between human formation and work, in addition to exploring interdisciplinarity for the teaching of specific areas, such as the Science, Technology and Society (STS) approach.

Secondly, the tension between the Prescribed Curriculum versus the Lived Curriculum, present in more than 40 works, investigates the difference between the formally established curriculum and its materialization in the school. Many works seek elements of the "curriculum in action" on the school floor, treating teachers as "curricular actors" whose conceptions and beliefs shape pedagogical practice.

The Critical Foundation, Emancipation and Dialogue (Freireano), with more than 35 works, demonstrates that the curriculum in EJA is strongly associated with the critical-liberating perspective. Paulo Freire's thought provides the framework for dialogicity, social contextualization and the use of generative themes, valuing the knowledge that subjects build in their interaction with the territory.

Finally, the Curricular Evaluation and Adaptation to Flexibility, present in more than 30 works, addresses evaluation not only as a performance measurement, but as a curricular element. The studies examine the impacts of external evaluation (such as ENCCEJA) and the need to make the organization of curricular time and the traditional curriculum more flexible, especially in the face of the juvenilization of EJA and the reorganization after the BNCC.

4.12 RESEARCH PROBLEMS AND CENTRAL CONCERNS: THE IMPULSE OF STUDIES

The academic community that investigates the relationship between EJA and Curriculum is motivated by the observation that the curriculum, policies and current

pedagogical practices often fail to adapt to the reality, needs and trajectories of young and adult subjects.

The research problems identified in the documentary corpus converge on three major challenges:

4.12.1 The Mismatch between the Prescribed Curriculum and the Reality of the Subjects

This is a fundamental problem that questions the validity and efficacy of formal curricular proposals (the "prescribed") in the face of students' concrete experiences. The researchers seek to understand why the formal curriculum fails to be meaningful, raising concern about the "denouement between the 'world of school' and the 'world of life'".

The research points to the curricular inadequacy, finding that many curricula reproduce "exclusively the contents of Elementary and Secondary Education", without meeting the "educational needs and specificities of the EJA public". This inadequacy generates "discouragement, the absence of meaning attributed to what is done in school" and the "reinforcement of the culture of silence". Examples of titles that embody this tension include:

- "Between the prescribed and the practiced: a case study on the EJA curriculum at the Professor George Frago Modesto School, Lemos de Brito Penitentiary Complex, in Salvador – Bahia".
- Questions such as "how is the EJA Curricular Proposal present or not in its relations with the curricular practices developed by teachers in the classroom?" seek to map this tension between the formal and the lived.

4.12.2 The Challenge of Integral Education and the Implementation of PROEJA

The second set of problems stems from the need to offer training that integrates basic education and professional qualification — the core of PROEJA's proposal. The studies question whether this integration is achieved in practice and what are the institutional and pedagogical impasses for the construction of a truly integrated and emancipatory curriculum.

The researchers seek answers to the difficulty in curricular integration, questioning the relationship between the reproduced proposal and the socio-professional trajectories of the students. The investigation focuses on the analysis of "revelations and contradictions between the conception and management of the curriculum in a technical course at IFRN, in

the modality of Youth and Adult Education". This problem is manifested in titles that explore the failure in implementation, such as:

- "The distance between what is said and what is instituted" in the "impasse in the implementation of PROEJA in the CEJA and in the CEPSS in the state education network of Goiânia".
- The research problem also focuses on the relationship between politics and training for work, seeking to analyze how the municipal guidelines "conceive[d] a teaching focused on education and the world of work".

4.12.3 Exclusion and (Non) Contemplation of Diversity in Curricular Practice

This central problem addresses the curriculum's failure to recognize diversity and the specific demands of particular groups (youth, women, rural populations, blacks, people deprived of liberty, among others), which results in marginalization and dropout.

The research is motivated by the need for the curriculum to contemplate the specificities of young people, since the "juvenilization of EJA" is a phenomenon of great interest. There is a clear concern with the non-recognition of identities, such as the failure to address themes of Law 10.639/03 (National Curriculum Guidelines for the Education of Ethnic-Racial Relations) in the curriculum. Marginalization is also manifested in critical issues of abandonment:

- Titles such as "The 'evasion' of young people and adults in EJA in the municipality of Ouro Preto-MG: interrupted trajectories" and "Why do students not remain in Youth and Adult Education (EJA)?" express concern about the interruption of schooling.
- The research also questions the "political-pedagogical challenges" of including the target audience of special education in EJA and whether the subjects "understand themselves included" by policies such as PROEJA.

5 CONCLUSION

This article carried out a systematic review of the Brazilian academic production on Youth and Adult Education (EJA) and Curriculum in theses and dissertations, covering the period from 2000 to 2024. The research fulfilled its main objective by mapping the temporal evolution, institutional concentration, regional asymmetries and, above all, the thematic and conceptual axes that guide investigations in the field.

In terms of production and temporal evolution, the study identified a total of 136 works, with a predominance of master's dissertations (approximately 85%). The analysis showed a sharp and consolidated growth in production in the second decade of the twenty-first century, with an exponential increase in the most recent years (2023 and 2024), reaching the highest volumes in the entire time series. Such expansion reflects the growing relevance of the EJA curricular debate in the Brazilian graduate research agenda.

Regarding institutional and regional concentration, the study revealed a distinct production pattern. Although the Southeast-South axis (56.98%) still concentrates most of the work, the Northeast region (33.72%) emerges as a fundamental center of research. The concentration takes place around strategic institutional centers, with emphasis on the State University of Bahia (UNEB), leader of the ranking with 27.21% of the works, mainly via its Professional Master's Degree in EJA, and the Federal Rural University of Rio de Janeiro (UFRRJ). In contrast, the Midwest and North regions continue to be marginalized in production, evidencing geographical asymmetries in the research infrastructure.

The main thematic axes and research problems that motivate the studies are:

1. The Tension between Prescribed and Practiced: There is a strong concern about the mismatch between the Prescribed Curriculum and the reality of the subjects, which results in inadequacy, "reinforcement of the culture of silence" and the risk of the formal curriculum not being meaningful.
2. The Challenge of Integral Education: The complexity of the implementation of PROEJA and the Integrated Curriculum emerges as a central problem, questioning the effectiveness of the articulation between general education and professional qualification.
3. The Lack of Contemplation of Diversity: The failure of the curriculum to recognize specific identities (juvenilization, ethnic-racial issues, prison education) generates marginalization and is pointed out as one of the causes of school dropout in the modality.

Finally, the conceptual analysis showed that the Curriculum is mostly approached from the perspective of integration (PROEJA, 45+ papers), teaching praxis (tension between what is prescribed and what is lived, 40+ papers) and the emancipatory critical foundation (Freirean perspective, 35+ papers). These findings reiterate that EJA research seeks a

curriculum that is at the same time politically engaged, socially relevant, and methodologically adaptable.

The present work thus contributes to a detailed systematization of the state of the art on EJA and Curriculum, providing subsidies for the development of public policies and the formulation of new research that overcomes the asymmetries and challenges identified in the field.

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**THE USE OF SCALE MODELS AS AN ACTIVE METHODOLOGY IN
ADDRESSING THE TOPIC OF WATER RESOURCES FOR ELEMENTARY
SCHOOL STUDENTS AT A PRIVATE SCHOOL IN THE MUNICIPALITY OF
BREVES, MARAJÓ ARCHIPELAGO**

**O USO DE MAQUETES COMO METODOLOGIA ATIVA NA ABORDAGEM DA
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**LA UTILIZACIÓN DE MAQUETAS COMO METODOLOGÍA ACTIVA EN EL
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PARTICULAR DEL MUNICIPIO DE BREVES, ARCHIPIÉLAGO DE MARAJÓ**

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ABSTRACT

Water is a natural resource that is essential for the survival of humans, fauna, flora and the development of economic activities. Unfortunately, water resources are limited and depleted due to human action that degrades water quality and harms ecosystems. In the process of raising environmental awareness, schools play a fundamental role in raising children's awareness of the environment, making them citizens who are aware of their actions. In this context, the objective was to promote environmental actions with elementary school students from a private school in the urban area of the municipality of Breves through the creation of models that allowed the teaching-learning process to be effective and meaningful, since they were important tools of active methodology of Environmental Education to awaken creativity, innovation and sustainable attitudes in students and to materialize through three-dimensional forms the main topics addressed on the theme of water.

Keywords: Environmental Education. Water Resources. Sustainability. Elementary Education.

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RESUMO

A água é um recurso natural indispensável à sobrevivência humana, da fauna, da flora e para o desenvolvimento de atividades econômicas. Infelizmente, os recursos hídricos estão limitados e exauridos por causa da ação antrópica que degrada a qualidade da água e prejudica os ecossistemas. No processo de conscientização ambiental, as escolas desempenham um papel fundamental para a sensibilização das crianças quanto ao meio ambiente, tornando-as cidadãos conscientes de seus atos. Nesse contexto, objetivou-se a promoção de ações ambientais com alunos do Ensino Fundamental de uma escola particular na zona urbana do município de Breves através da confecção de maquetes que permitiram que o processo de ensino-aprendizagem fosse eficaz e significativo, uma vez que foram importantes ferramentas de metodologia ativa de Educação Ambiental para despertar, nos estudantes, a criatividade, a inovação e atitudes sustentáveis e materializar através de formas tridimensionais os principais assuntos abordados sobre a temática da água.

Palavras-chave: Educação Ambiental. Recursos Hídricos. Sustentabilidade. Ensino Fundamental.

RESUMEN

El agua es un recurso natural esencial para la supervivencia de los seres humanos, la fauna, la flora y el desarrollo de las actividades económicas. Desafortunadamente, los recursos hídricos son limitados y se agotan debido a la acción humana que degrada la calidad del agua y daña los ecosistemas. En el proceso de sensibilización ambiental, la escuela juega un papel fundamental al sensibilizar a los niños hacia el medio ambiente, convirtiéndolos en ciudadanos conscientes de sus acciones. En este contexto, el objetivo fue promover acciones ambientales con estudiantes de la educación fundamental de una escuela particular del área urbana del municipio de Breves a través de la creación de modelos que permitieran el proceso de enseñanza-aprendizaje fuera efectivo y significativo, ya que fueron herramientas importantes de la metodología de Educación Ambiental activa para despertar, en los estudiantes, la creatividad, la innovación y actitudes sostenibles y materializar a través de formas tridimensionales los principales asuntos abordados sobre la temática del agua.

Palabras clave: Educación Ambiental. Recursos Hídricos. Sostenibilidad. Educación Elemental.

1 INTRODUCTION

The fluvial-maritime archipelago of Marajó on the coast of Pará is a diverse environment, both from an environmental and cultural point of view. Currently, this region already suffers from the impacts of climate change, such as erosion and the advance of the sea (OLIVEIRA et al., 2025). Environmentalists have already noticed the presence of seagulls that are seabirds, so the water is saltier than before in Marajó. Extractivist families also already notice the decrease in the amount of açaí, a drop in shrimp production, and changes in harvest periods, and scientists warn that a group of islands, such as Marajó, are more likely to be submerged if the temperature continues to increase (LOURENÇO, 2023).

The Marajó Archipelago is a highly threatened territory in the 21st century. Environmental racism, river pollution, criminal fires, land conflicts, mining, and illegal deforestation put biodiversity and the population at risk, due to the extinction of plant and animal species, the migration of riverside dwellers within their own territory, and the loss of islands. Therefore, the importance of protecting and conserving the territory and its communities is noted, and one of the alternatives is the monitoring of climate change by mapping with climate indicators (PEREIRA, 2024).

Good quality water is that which meets the established standards for various physical, chemical and biological parameters, however, the growing degradation of surface water quality is a worrying reality in Marajó, due to anthropogenic activities near rivers, especially the inadequate disposal of waste and discharge of effluents into the water body (MEIRELES et al., 2024). The large availability of water typical of this region also favors the proliferation of insects and the garbage accumulated on land or under houses can be potential creators of these vectors. The high proliferation of insects, poor public services and disorderly urbanization are risk factors for considering the Marajó Archipelago as a malaria-endemic area (XISTO et al., 2018).

Sanitation is an indicator of human development and its degree of deficiency determines both the thirst for social justice and the degradation of a society. The universalization of access to sanitation services is presented as a "sine qua non" condition for sustainable development. However, in the Marajó Archipelago, access to safe water for human consumption is the greatest current need of the Marajó population (ROCHA, 2023). According to Gallo (2015), "one thing is certain: this water is a danger!"

An unprecedented survey pointed out that 398 municipal schools in the Marajó Archipelago, in Pará, do not have the minimum basic sanitation necessary to serve

approximately 15 thousand students in this region. The data are from the Sanitation in Schools: Pilot – Marajó Island project, by the NGO Habitat for Humanity Brazil (D'ALMEIDA, 2024).

Due to the data presented above, it is essential that the educational process is sustained by the personal relationship of the teacher, who plays the role of facilitator to find dynamic ways to work on issues that are present in the student's daily life and arouse their curiosity, with the students, who need to develop skills and competencies that result in interest in learning and make the teaching-learning process more effective and meaningful (BARRETO et al., 2024). Because of this, in Science Teaching, teachers seek methodologies to make their classes more dynamic, promoting stimuli in the student for the development of their critical thinking, through the use of the process of investigation of scientific concepts, allowing them to be protagonists of the learning process (CRUZ, 2024). In this way, schools are a reflection of society as they are an instrument for citizenship training, social development, and innovation (CAFFAGNI, 2024). Understanding this role of schools is important when considering the implementation of new educational approaches, such as active methodologies (MARQUES et al, 2021).

Active methodologies have great potential to meet the demands of current Education, as they stimulate the autonomy and protagonism of students, making learning occur in a collaborative and interdisciplinary way, associating the concept with experimentation by considering the reality of the student and the school and providing students with paths that give them conditions to think logically about the facts of everyday life, as well as solving practical problems; such intellectual skills will be valuable for any type of activity they develop during their life (SILVA and PIMENTEL, 2024).

The use of active methodologies for Environmental Education, with a focus on cooperation for a fairer and more sustainable society, allows us to broaden the view of environmental degradation caused by destructive anthropogenic actions, which have been occurring over time (SANTOS et al., 2024). In addition, active methodologies incorporate innovative approaches that allow students to engage in an engaged, effective, and inspiring way to understand that environmental preservation is essential to ensure quality of life for present and future generations (LAUBENSTEIN et al., 2024).

The use of active methodologies enhances the learning process about soil and water management and preservation, allowing for a broader understanding of the misuse of these natural resources, their interurrences with climate change, and their conservation practices

(ELESBON et al., 2024). An active methodology that can be used to understand land use, water resources, and their impacts is the making of models, which provides knowledge of the local reality based on the spatialization of events and an interdisciplinary approach (FACCO et al., 2021).

In this context, the offer of workshops on the construction of models as an active methodology for understanding the importance of water resources emerges as an educational practice that enhances the re(signifying) educational processes that guarantee students autonomy and collaborative construction of knowledge, meeting quality teaching and the liberating and problematizing education proposed by Paulo Freire. Therefore, the present work aims at the debate and the supervised construction of models, by elementary school students of a private school in the municipality of Breves, Marajó Archipelago, which portray the importance of water, its problems and its forms of treatment.

2 METHODOLOGY

The study presents aspects inherent to qualitative research, which is an essential approach in scientific investigation, which focuses on the deep understanding and interpretation of the phenomena studied, exploring the complexity and richness of social, cultural, and individual contexts (GUERRA et al., 2024).

The study is a field research from an Environmental Education workshop, applied at the Colégio Núcleo de Excelência Marajoara (NEM), located in the urban area of the municipality of Breves, Marajó Archipelago. The institution is recognized for its dedication to promoting an education that covers various aspects of life and constantly seeks to provide meaningful experiences and learning to students, including environmental awareness as an essential part of the curriculum. The participating public was composed of 17 children (8 boys and 9 girls), from the 6th grade, from the morning shift. The survey was carried out from August to October 2024.

The methodology of the work was divided into five stages: problematization, bibliographic research, sensitization, construction of models and interview with the participants.

In the first stage, entitled Problematization, a moment of debate was held with students belonging to the 6th year of Elementary School of the Marajoara Excellence Center (NEM), in the municipality of Breves, Marajó Archipelago, generating guiding questions, seeking to understand the initial knowledge about: the geography of the messorregion, garbage dump,

leachate, contamination, rainwater harvesting, water treatment and other topics. Teaching through students' prior knowledge is an elementary tool that has proven to be motivating and promising, since the teaching-learning process has allowed for a more concrete and meaningful experience of the contents proposed in the classroom (PAULI and LÜDKE, 2022).

In the second stage, a bibliographic research was carried out on the problem of environmental impacts and their influence on the quality of water for the consumption of the population of Breves, as well as the geography of the municipality of Breves. After the second stage, the moment of awareness was advanced, which consisted of a moment where the facilitator sought to awaken the sensitivity of children in relation to the environment and society, as well as to encourage socio-environmental responsibility, citizenship and appreciation of natural resources, as stated by Gomes et al., 2024.

In the awareness stage, expository classes were held and even presentations of films such as "Ainbo-The Warrior of the Amazon" and "Dona Raimundinha do Rio Tapajuru" where chemical and socio-environmental issues were addressed, such as the concept of chemical substances and their properties, benefits, treatments, importance and impacts of water for the environment.

Progress was made to the fourth stage regarding the construction of models regarding the importance of water resources in the Marajó Archipelago. The school model is a pedagogical resource used by teachers to facilitate the learning of children and young people, as they help to simplify topics of greater complexity, helping students to visualize the subject of the class in a more concrete, practical, playful, interactive and interesting way (MAIA, 2022).

The models of models built were suggested by the students during the research. It is important to note that, during this process, the students were divided into pairs or trios and assisted by the NEM professor with relatively experience in the research area. In the making of the models, the following materials were used: Styrofoam, Styrofoam glue, tubes, PVC connections, brush, fabric paint, box cutter, wooden sticks, transparent water walking tube, clothing dye paint, A4 paper, among others. The presentation of the models was on October 4 at a science fair organized at NEM for the socialization of themes related to the environment by all elementary school students, since Nature Day is celebrated on this date.

After the elaboration of the models, the students participating in the construction were interviewed about knowledge and experience acquired on the subject studied. The interview took place through the personal report of the experiences lived during the making of the

models, through a semi-structured interview script. In the questionnaire, the guiding questions were: "Is the water in your home of good quality?", "Is the quality in your school of good quality?", "What do you understand by water preservation?", "What did you understand about the stages of water treatment of the Water Treatment Plant?", "Do you consider water treatment in your city efficient?", "Why was the use of the models important for your learning?".

3 RESULTS AND DISCUSSION

It was possible to see that the students were excited to know that they would leave the routine of traditional and mechanistic teaching for a learning environment where they would feel free to explore, experiment, question and create models that portrayed their reality and important forms of environmental conservation. It was observed that, during the making of the models, the students debated among themselves notes made in the classroom and shared their speeches. For Manfio (2021), "To think about a richer and more interesting education, it is essential to contextualize space in the school field, since space is a learning ground from the child's childhood to his or her total formation and allows the creation of a critical and human subject."

It is urgent to say that it was also found that, at this moment of construction, the students were gaining autonomy and increasingly asking for help from the NEM teacher and the Environmental Education workshop team. For Debus (2019), "the student from the perspective of autonomy and emancipation is an active historical subject, who has before him the possibility of directing the meaning of his own life. This principle establishes a fairer and more egalitarian teaching-learning process." The results of the making of the models were presented at a science fair. The first model (Figure 1) is a representative scheme that allowed us to reflect on the importance of the hydrological cycle for the protection and restoration of ecosystems, the performance of the important role in the global climate system, the sustainable management of water resources and helped in the understanding of some concepts such as physical states (liquid and gas) and the stages of the water cycle (evaporation, perspiration and precipitation).

Figure 1

Model representing the hydrological cycle



Source: Authors, 2024.

The second and third models (Figure 2) allow us to visualize the flow of rivers and the valuable role of vegetation cover in regulating the flow of water in a watershed, since it increases storage, reduces erosion and sedimentation of watercourses, decreases the risk of flooding, and improves water quality. In addition, these models were fundamental to work on the concept of riparian forests, which are important for the protection and preservation of watercourses because the vegetation absorbs essential nutrients for the maintenance of the hydrological cycle and helps the soil to capture chemical contaminants before reaching the groundwater.

Figure 2

Models to represent the importance of the hydrographic basin in Marajó and the riparian forests



Source: Authors, 2024.

The fourth model (Figure 3) represents the importance of rainwater harvesting for basic sanitation, since it brings numerous benefits to the management of the city, its industry and citizens, such as the expansion of tourism, environmental preservation, reduction of school delay, reduction of infant mortality, among others.

Figure 3

Model representing the water collection system



Source: Authors, 2024.

According to data from the Amazon Foundation for the Support of Studies and Research (FAPESPA) and the Instituto Trata Brasil presented by journalist Azevedo (2025), the population of Marajoara lives an alarming reality and can say that it is isolated from the rest of Brazil because 68.6% have a deficit of treated water, 88.2% do not have access to sewage and only 0.62% have a sewage treatment index referring to contaminated water. In addition, waterborne diseases, such as hepatitis A, are persistent socioeconomic challenges in Marajó because the logistics are complex, there are variations in climatic conditions, and restricted and precarious access to health services (SILVA et al., 2024b). Therefore, it is of paramount importance to raise awareness among children and their families for the rational use of water and effective basic sanitation for quality of life.

The fifth model (Figure 4) represents a model of a Water Treatment Plant (WTP). Through it, we sought to explore, in practice, the processes of coagulation, flocculation, decantation, filtration and treatment. This playful and visual form of knowledge was important for the children to understand the dimension of the richness of this resource and to save water in simple daily actions such as properly using the tap to wash their hands, in addition to the fact that it is important to take good care of this natural resource so that there is no shortage in the future.

Figure 4

Model representing the Water Treatment Plant (WTP)



Source: Authors, 2024.

Regarding the data collected from the analysis of the questionnaires by the students' answers, 14 students (approximately 82.4% of the interviewees) answered that the water in

their homes does not have good quality. This response is consistent with the lack of basic sanitation being a very old problem in the municipality of Breves, and the main problem is the scarcity of drinking water, so much so that some neighborhoods do not have any water network and residents are forced to seek other forms of supply (CARDOSO et al., 2021).

When asked about the quality of water in the school environment, all interviewees said it was of good origin. This answer was surprising because it is contradictory to the reality of most schools in the Marajó Archipelago because 93% of schools do not have a public water supply for human consumption and general use, and 60% do not have any sewage treatment system (COELHO, 2024). Many residents in the Marajó Archipelago use the water from the rivers in their homes and it is not of quality, but there is an expectation that this reality will change through projects such as "Sanear Marajó Socioambiental" (IEB, 2024).

Regarding the question "What do you mean by water preservation?", answers such as "it is not throwing paper, plastic bottles, cans and any type of garbage on the street and in the rivers, avoiding clogging the drains", "turning off the taps when you are brushing your teeth" and "not burning the trees because they are important for the process of the water cycle". It was noticed that stimulating child protagonism in raising awareness of water resources is important because simple attitudes have a great differential to avoid, for example, diseases such as dengue, zika virus and chikungunya fever, coming from the *Aedes aegypti* mosquito that use places of stagnant water and without treatment for the proliferation of these epidemiological diseases (BESSE, 2016). In addition, fires have a large direct and significant impact on water resources because they disrupt the water cycle by destroying vegetation that would normally absorb and retain rainwater, decrease aquifer recharge, affect groundwater availability, and affect moisture as well (ROBLES, 2024).

Regarding the question 'What did you understand about the stages of the Water Treatment Plant?', answers such as "help in the elimination of substances that contaminate the water" and "are processes for water purification" stood out. Therefore, teaching topics such as the operation of a Water Treatment Plant in an interactive and educational way shows students the importance of basic sanitation and the impact of this process on public health and the environment (TAINAN, 2025).

When asked about the efficiency of water treatment in their city, all the interviewees said no because the water is very yellowish, orange or brown, dirty, has a lot of iron, that they even turn green water in front of several residences. Although color is an aesthetic parameter of acceptance or rejection of water, it can also indicate an excess of iron and manganese

ions. These metals, when above the recommended limits, can cause deposits, incrustations in pipes and water tanks and enable the appearance of harmful ferruginous bacteria in supply networks and interfere with industrial processes and human health (MICRO AMBIENTAL, 2021).

Regarding the importance of using models in learning about the issue of water, they highlighted answers such as "they contextualize the path we must take to preserve this important natural resource", "address various themes such as garbage, sewage, diseases and water suitable for consumption" and "show that the water cycle has a significant importance for all living beings". Therefore, Sousa et al. (2019) argue that models are important tools implemented in the school environment for the fixation and, mainly, the understanding of the proposed themes. For Moreira (2023), models are motivational instruments that help to understand concepts in a more dynamic and interesting way and are capable of explaining social, natural, and cultural phenomena in a playful and effective way.

4 CONCLUSION

Throughout this research, it was realized that active methodologies can have a great effect on education when they are used and assimilated, as they contribute to the formation of reflective teachers, who value dialogue and who are competent to act in unpredictable learning contexts, with autonomy to intervene in the solution of problem situations. Finally, it enables the consolidation of student autonomy and a new culture, based on the progress of society. In this context, the models emerge as didactic-pedagogical resources that can be used as mediators of the teaching-learning process to stimulate the development of students' spatial perception.

The construction of the models also provided the development of environmental awareness in a playful-pedagogical and interdisciplinary way, in addition to a relevant environmental education tool that allowed students to build their own knowledge resulting from their acquired experiences and belonging to the Marajoara territory. Therefore, the authors hope that this research contributes to meaningful learning and didactic flexibility to increase the repertoire of strategies that stimulate skills in students such as protagonism, autonomy, proactivity, cooperativity and self-esteem.

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**TEACHING AND LEARNING HISTORY THROUGH GAMES AND
PLAYFULNESS IN BASIC EDUCATION FOR YOUNG PEOPLE, ADULTS, AND
THE ELDERLY**

**O ENSINO E APRENDIZAGEM DE HISTÓRIA A PARTIR DE GAMES E
LUDICIDADE NA EDUCAÇÃO BÁSICA PARA JOVENS, ADULTOS E IDOSOS**

**ENSEÑANZA Y APRENDIZAJE DE LA HISTORIA A TRAVÉS DEL JUEGO Y LA
DIVERSIÓN EN LA EDUCACIÓN BÁSICA PARA JÓVENES, ADULTOS Y
PERSONAS MAYORES**

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ABSTRACT

This work discusses the use of digital games as pedagogical resources in the teaching of History in Basic Education, focusing on the Education of Young People, Adults, and the Elderly. It starts from the understanding that digital culture and technological artifacts reconfigure social and educational practices, demanding methodological approaches that integrate analog and digital mediations. Based on a literature review, the role of play in historical learning is analyzed, as well as the relationships between representation, narrative, and meaning-making in digital games considered history games. Grounded in authors such as Rüsen, White, Huizinga, Pereira, and Gee, the study identifies that digital games enhance the development of historical awareness, imagination, and historical reasoning by allowing immersion, simulation, and contextualized decision-making. The results indicate that, although originally conceived for entertainment, games can constitute learning devices when critically mediated by the teacher, articulated with the curriculum, and used for comparative analysis with historiographical sources. It is concluded that its use does not replace other methodologies, but expands formative repertoires and brings students closer to the production of meaningful historical narratives.

Keywords: History Teaching. Digital Games. Digital Culture. Historical Awareness. Playfulness. Youth. Adult and Elderly Education.

RESUMO

Este trabalho discute a utilização de jogos digitais como recursos pedagógicos no ensino de História na Educação Básica, com foco na Educação de Jovens, Adultos e Idosos. Parte-se da compreensão de que a cultura digital e os artefatos tecnológicos reconfiguram práticas sociais e educacionais, demandando abordagens metodológicas que integrem mediações analógicas e digitais. A partir de revisão de literatura, analisa-se o papel do lúdico na aprendizagem histórica, bem como as relações entre representação, narrativa e construção de sentido em jogos digitais considerados *history games*. Fundamentado em autores como Rüsen, White, Huizinga, Pereira e Gee, o estudo identifica que os jogos digitais

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potencializam o desenvolvimento da consciência histórica, da imaginação e do raciocínio histórico, ao permitir imersão, simulação e tomada de decisões contextualizadas. Os resultados indicam que, embora concebidos originalmente para o entretenimento, os jogos podem constituir dispositivos de aprendizagem quando mediados criticamente pelo professor, articulados ao currículo e utilizados para análise comparativa com fontes historiográficas. Conclui-se que seu uso não substitui outras metodologias, mas amplia repertórios formativos e aproxima os estudantes da produção de narrativas históricas significativas.

Palavras-chave: Ensino de História. Jogos Digitais. Cultura Digital. Consciência Histórica. Ludicidade. Educação de Jovens. Adultos e Idosos.

RESUMEN

Este trabajo analiza el uso de juegos digitales como recursos pedagógicos en la enseñanza de la Historia en Educación Básica, con especial atención a la Educación de Jóvenes, Adultos y Adultos Mayores. Se parte de la comprensión de que la cultura digital y los artefactos tecnológicos reconfiguran las prácticas sociales y educativas, lo que exige enfoques metodológicos que integren mediaciones analógicas y digitales. A partir de una revisión bibliográfica, se analiza el papel del juego en el aprendizaje histórico, así como las relaciones entre representación, narrativa y construcción de significado en juegos digitales considerados juegos históricos. Basándose en autores como Rüsen, White, Huizinga, Pereira y Gee, el estudio identifica que los juegos digitales potencian el desarrollo de la conciencia histórica, la imaginación y el razonamiento histórico al permitir la inmersión, la simulación y la toma de decisiones contextualizada. Los resultados indican que, aunque originalmente concebidos para el entretenimiento, los juegos pueden constituir dispositivos de aprendizaje cuando son mediados críticamente por el docente, se articulan con el currículo y se utilizan para el análisis comparativo con fuentes historiográficas. Se concluye que su uso no sustituye otras metodologías, sino que amplía los repertorios formativos y acerca a los estudiantes a la producción de narrativas históricas significativas.

Palabras clave: Enseñanza de la Historia. Juegos Digitales. Cultura Digital. Conciencia Histórica. Lúdica. Educación de Jóvenes. Adultos y Personas Mayores.

1 INTRODUCTION

Playfulness has been consolidated as a relevant pedagogical strategy in the teaching of History in Basic Education, especially through games, gamified activities and elements of digital culture inserted in educational mediations. By its nature, play does not distinguish age, social origin, formats or platforms, and can be mobilized in different formative contexts. We understand that thinking and learning can be processes articulated with playful practices, making them applicable to various fields of knowledge, including the construction of historical thinking. When intentionally associated with pedagogical practice, it can favor interest in the contents, stimulate attention, engagement and collaboration among students.

As Huizinga (2001) argues, the game goes beyond entertainment and constitutes a significant activity that transcends the immediate needs of life, giving meaning to human actions. The education and teaching of History, as well as in a game structured in phases, demand constant updating of knowledge and skills to advance in new stages. The relationships between student and teacher, student and student, and between these and the school change with each social and temporal reconfiguration. In this sense, Giacomoni and Pereira (2013) highlight that the History teacher cannot restrict himself to the past, but must maintain a permanent dialogue with the present time.

We recognize, therefore, that the teaching work requires multiple skills. Mediating the relationship between past and present, promoting critical thinking and guiding possible interpretations for the future is a complex task, which demands constant theoretical, methodological and technological updating. Being "tuned" and "connected" has become part of contemporary school dynamics, although it generates tensions and divergences regarding the use of Digital Information and Communication Technologies (DICT) in the classroom.

The expansion of cyberspace, digital resources and devices connected to the internet has transformed social and educational relations, introducing new languages and learning possibilities. Playfulness accompanies this process: digital games, simulations, interactive narratives, and gamified experiences have become complementary forms of knowledge construction and historical mediation.

Play and learning dialogue with human experiences, just as history is built over generations. Although it is not an unprecedented practice in teaching, the use of games represents a constant challenge for educators, especially with regard to the forms of pedagogical mediation and the critical position in the face of the historical representations present in these media.

The idea that the game represents only leisure and not learning has been contested, especially due to research that demonstrates its educational potential, whether in digital or analog environments. In this sense, relevant questions emerge for the field of History teaching:

- What historical elements can be learned through digital games?
- Do these games serve as a mechanism for the transmission or construction of historical knowledge?
- What are its limits and potentialities for understanding periods, characters and social relations?
- How do students interpret History from the interaction with such games?

These questions guide the present text, which is based on a systematic review of the literature, demonstrating how DICT and digital games have been incorporated into pedagogical practices and what impacts they generate in historical learning.

From the use of digital games in video games, computers, smartphones and other devices, the teaching of History gains an approach that articulates technology, playfulness and the construction of historical thinking, even allowing transdisciplinary appropriations that go beyond the limits of the discipline.

2 HISTORY IN EVERYDAY SCHOOL LIFE

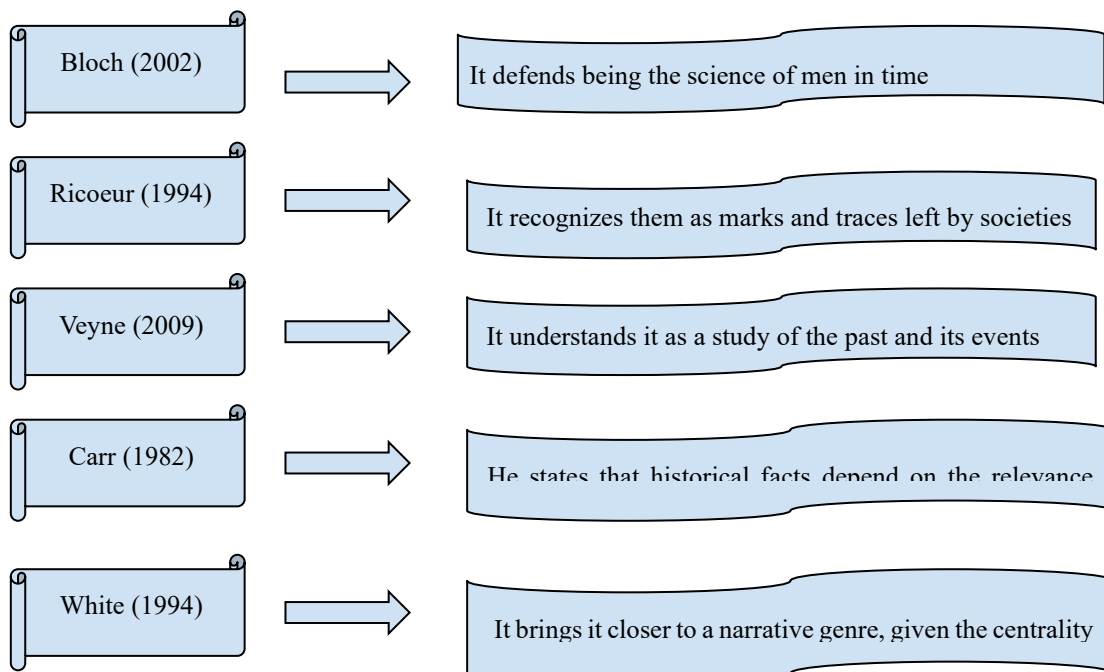
One of the main concerns of students in the early years of Elementary School concerns the triad: *what is History, what is its importance and why to study it*. Although there is no single answer – and this constitutes the richness of the discipline itself – the construction of these concepts is fundamental to attribute meaning to historical studies throughout schooling.

A large part of the concepts elaborated about History is based on the notion of *the past*, which leads to reflection on why certain past events arouse interest in the present. Such interest may arise from family experiences, news, cultural products, games, school content or everyday situations that raise questions and require historically grounded explanations.

For Rüsen (2010), interest is a central element of the human temporal experience, as it mobilizes the search for information from the past with a view to filling cognitive gaps and constructing meaningful explanations. Thus, defining History, in addition to epistemologically situating the student, helps in the structuring of thought and in the interpretation of experiential issues.

Several authors contribute to this definition:

Figure 1



Source: Prepared by the authors.

The constitutive complexity of History, far from being an obstacle, allows for multiple methodological and interpretative possibilities. Curriculum review and dialogue with new methodologies can bring students closer to historical thinking, making the discipline more dynamic and meaningful.

The use of DICT and, particularly, digital games, is one of these possibilities, by providing experiences of immersion, interaction and historical representation in virtual environments.

2.1 THE FIELD OF HISTORY AND THE "FRONTIER WORKS" IN CYBERCULTURE

The production and circulation of historical knowledge occur in multiple ways and manifest themselves in different cultural supports. Although academic historiography is constituted by its own methods, representations of the past also emerge in productions that articulate historical elements in non-academic formats, bringing history closer to the general public through accessible narratives.

In this context, Glezer and Albieri (2009) define the so-called *frontier works* as productions that, although not the result of direct historiographical research, dialogue with

facts, characters, times and historical spaces, functioning as a gateway to historical knowledge outside the school environment. Traditionally associated with historical novels, such works have expanded into genres such as drama, adventure, comics, cinema and, more recently, digital media.

The authors point out that, despite the growth of Digital Information and Communication Technologies (DICT), there has been no decline in interest in these works. On the contrary, there is an expansion of the publishing market, a greater diversity of formats and an increase in academic interest, indicating that such productions have consolidated themselves as relevant cultural objects for studies of memory, reading, culture and teaching.

Expanded accessibility — through digital books, streaming platforms, social networks, blogs, video channels, digital games, and apps — has contributed to greater circulation of these narratives, especially among young audiences and children. Such media operate as cultural interfaces that articulate leisure and learning, functioning as immersion experiences in historical contexts.

For Bezerra and Monteiro (2019), digital games that incorporate historical content constitute a new form of representation of the past, inserted in the contemporary Cultural Industry. The authors observe that many of these games adopt narratives of a monumental nature, centered on heroic figures, resuming the Nietzschean concept of *monumental history*. This approach, while arousing interest, can result in simplified and heroic views of the past, requiring a critical balance between fictional elements and historical accuracy.

The intersection between history, cinema and digital games reveals aesthetic and narrative continuities: the recreation of war scenarios, individual protagonism, the narrative of heroic deeds and hyper-realistic visuality articulate entertainment and collective memory. Examples such as *Saving Private Ryan* (1998) and *Medal of Honor* (1999) illustrate this movement, as both are set in World War II and were produced under the direction of Steven Spielberg, demonstrating how different media build convergent representations of the past.

Figure 2

Scene from the game Medal of Honor (1999) and movie Saving Private Ryan (1998)



Source: Internet.

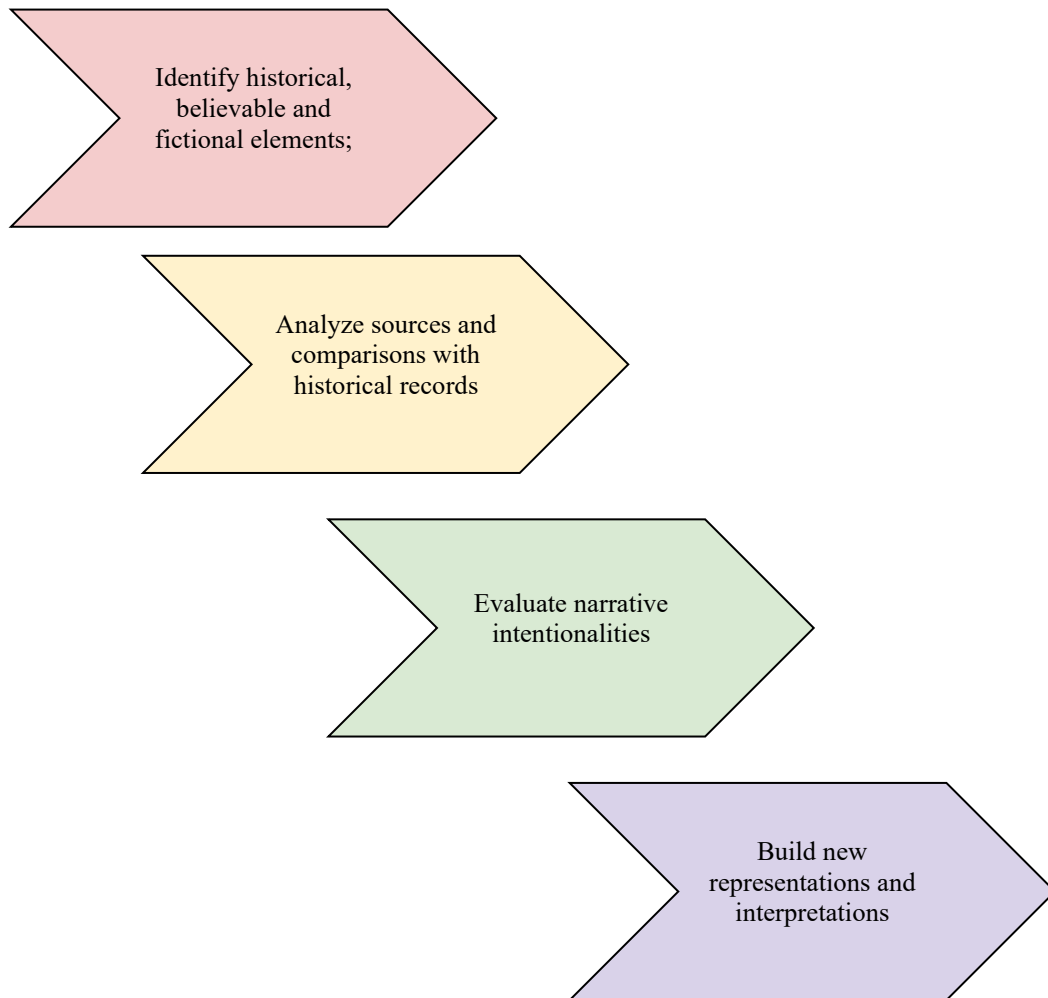
These productions are configured as historical representations, which implies recognizing that they not only disseminate memories, but also produce discourses about the past. Chartier (1988) understands representation as a form of construction of the real mediated by power relations, resulting in historically situated systems of social signification. Thus, representing historically implies selecting, classifying, and attributing meanings to human experiences, including those mediated by digital languages.

For Bezerra and Monteiro (2019), digital games should be analyzed as producers of images and discourses about the past, and not just as playful tools. Their popularity, audiovisual immersion, interactivity and technological convergence make them potential devices for historical learning, as long as they are critically mediated.

By bringing together fictional and historiographical narratives, White (1994) shows that history, as a text, articulates language and interpretation. Thus, fictional works can act as significant ways of teaching and learning in History, as long as they are articulated with analytical, comparative and interpretative processes, dialoguing with historiographical sources. Telles (2017) reinforces that such works make it possible to construct historical representations through imagination, as long as they are mediated by critical investigation.

In this sense, the teacher can explore digital games by asking students to:

Figure 3



Source: Prepared by the authors.

Thus, the ludic operates as a device for immersion, historical imagination and academic interpretation, bringing experiential knowledge closer to historiographical knowledge. As a pedagogical strategy, it does not act only as an illustration, but as an epistemological trigger for investigation and construction of historical meanings.

2.2 DOCUMENTS AND SOURCES IN MULTIMEDIA: LANGUAGES AND HISTORY TEACHING

Human production over time leaves material and symbolic traces capable of revealing practices, values, conflicts, systems of power and ways of life of different societies. These traces — converted into *historical sources* — constitute raw material for the historian's investigation, allowing interpretations of the past and its permanence in the present.

According to Bloch (2002), studying the past should not obscure our understanding of the present, since both are intertwined in a dynamic relationship.

Traditionally, written documents have been valued as the main historical sources. For Ginzburg (2002), the sources do not function as transparent windows or as insurmountable barriers, but as "deforming mirrors", requiring a critical posture in the face of their mediations and intentionalities. Duby (1993) reinforces that it is up to the historian to get closer to the possible truth, maintaining an investigative and suspicious posture in the face of the sources.

Thus, the historical truth is not found in an absolute way in the document, but in the interpretative process that articulates sources, narratives and intentionalities. Marrou (1978) observes that historical truth results from the relationship between the object analyzed (the past) and the subject who interprets it (the historian), overcoming the dichotomy between objectivism and radical subjectivism.

The very notion of historical document is historical and, therefore, variable. For Febvre (1989), a document is any trace produced by societies and that can be mobilized to understand their functioning — including everyday objects, material records, cultural productions and symbolic manifestations. History, according to Veyne (1989), is a form of knowledge constructed from documents, although not exclusively dependent on them, as it also involves narrative, interpretation and contextualization.

Le Goff (2003) expands this conception by stating that the document is the result of social choices, and can be constructed, silenced, destroyed or manipulated, and therefore expresses power relations. Thus, both the production and the circulation of sources constitute political acts.

In teaching, working with historical sources makes it possible to bring students closer to the investigative character of the discipline, fostering protagonism, critical analysis and a sense of historical belonging. Teacher mediation can start from everyday elements — such as photographs, personal accounts, letters, family objects, memes, digital games or cultural artifacts — to academically recognized sources, favoring interpretation and not mere observation.

Santos (2014) argues that the use of new cultural languages in the teaching of History should go beyond the exposure of images and audiovisual content, requiring contextualized analysis, problematization and construction of meanings. Films, games, music, series, digital documents, social networks and transmedia narratives can act as sources of historical knowledge *as long as they* are inserted in reflective, comparative and critical processes.

Thus, the use of different languages in teaching requires:

- ❖ adequacy to the school context and age group;
- ❖ articulation with curricular objectives;
- ❖ mediation oriented to analysis and not to passive consumption;
- ❖ reflection on authorship, context, intentionality and circulation of sources.

In this process, the use of documents and sources becomes a strategy to develop historical thinking, critical understanding and reading of the world, allowing subjects to recognize History as a situated, interpretative and plural human construction.

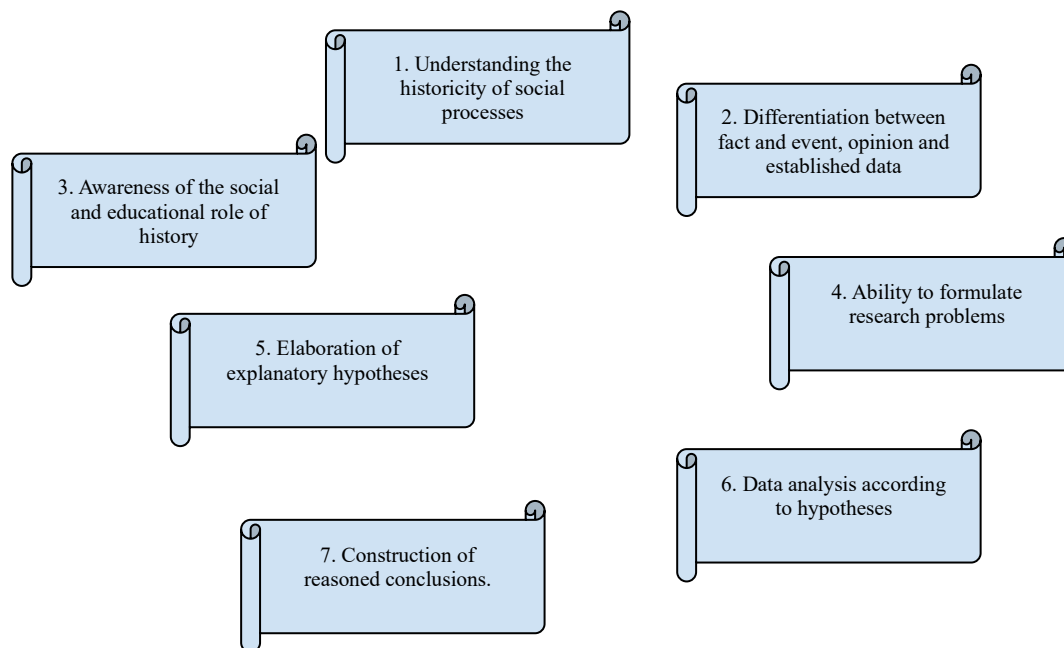
2.3 THE HISTORICAL WAY OF THINKING AND *THE HISTORY GAMES* TODAY

The incorporation of games in teaching practices not only expands the repertoire of pedagogical resources, but also enables new forms of mental organization, interpretation and knowledge construction by students. With the expansion of Digital Information and Communication Technologies (DICT), teachers began to mobilize digital games as instruments capable of stimulating historical reasoning, imagination and critical analysis — essential elements for the formation of historical thinking.

Telles and Alves (2015), based on McCall (2011), define *history games* as historical representations present in digital games that address aspects of the human experience in time. These games favor new perceptions about facts, characters, temporalities and social contexts, contributing to the development of historical skills and to the understanding of the multiple dimensions of historical narrative.

Martineau (1997) emphasizes that the teaching of historical reasoning must articulate interpretation of facts, problematization, contextualization and construction of meaning. In this sense, Mesquita (2018), analyzing role-playing games, identifies relevant pedagogical indicators to observe the development of this type of thinking by students, such as:

Figure 4



Source: Prepared by the authors.

Thus, digital games can constitute artificial environments in which students experience simulated historical situations, developing interpretations and constructing meanings about the past.

Maynard (2011) argues that historians should approach electronic sources and understand their potential as producers of memory. In the same way, teachers can appropriate the uses, resources and records present in digital games, contextualizing them and comparing them to academic sources, exploring tensions and contradictions between representation and historicity.

The structural malleability of games — whether through the creation of narratives, editing scenarios or simulating events — expands pedagogical possibilities. Uricchio (2005) highlights the value of historical simulation, as it offers the player an agency over the unfolding of events, creating situated interpretive experiences. However, such possibilities depend on the openness of the system and the editing ability of the game.

Even so, the playful aspect and creative freedom require judicious mediation. Bello (2017) points out that, when using digital games in the teaching of History, it is not enough to observe aesthetic and narrative characterization; It is necessary to analyze rules, gameplay, modes of interaction and decision structures, as these elements produce historical meanings and reinforce certain interpretations.

Kusiak (2002) points out a central dilemma: digital games are conceived primarily for entertainment; therefore, historical accuracy can be sacrificed in favor of fun. This requires pedagogical guidance that uses analogies, contextualizations and comparisons between game content and historiographical sources.

Therefore, games can serve different purposes in teaching:

Table 1

Learning objectives through games

Pedagogical purpose	Strategy	Expected result
Illustration and approximation	Use of the game's plot as context	Initial engagement
Critical interpretation	Comparison between game and historical sources	Analysis and reflection
Knowledge production	Creation of games and narratives by students	Authorship and historical synthesis

Source: Prepared by the authors.

Chapman (2012) argues that the historical interaction provided by games can be more significant than factual accuracy, as it promotes active participation and the construction of meaning. Fogu (2009) adds that games break with traditional temporal linearity, allowing multiple temporalities and versions of events.

Thus, we consider that *history games* do not replace other media, but expand repertoires of access to the past, as long as they are inserted in methodological processes that emphasize:

- ❖ critical analysis;
- ❖ validation with sources;
- ❖ awareness of technological mediation;
- ❖ understanding of narrative intentionalities.

2.4 THE DIMENSIONS OF HISTORICAL CONSCIOUSNESS AND HISTORICAL IMAGINATION IN TEACHING: TENSIONS AND POSSIBILITIES

The development of historical thinking can be compared to the progression of phases in digital games: it requires cumulative skills, decision-making, context reading, memory, combination of strategies and coordinated action. Just as certain games require *combos* — sequences articulated to achieve a certain effect — historical thinking demands complex cognitive articulations between temporality, interpretation, causality, and narrative.

Rüsen (2010) defines historical consciousness as the set of mental operations through which the subject interprets the temporal evolution of himself and his world, guiding his action in the present from the relationship between past and future. Such awareness is constitutive of the human experience, as Mesquita (2018) observes, and manifests itself not only in the understanding of the past, but in the way it acts as a reference to structure contemporary social practices.

In the work of Rüsen (2010), historical consciousness is classified into four forms:

Table 2

Historical consciousness according to Rüsen (2010)

Category	Central feature	Relationship with the past
Traditional	Permanence	The past remains unproblematic
Exemplary	Generalization	The past serves as an explanatory model for the present
Criticism	Rupture	The past is analyzed and relativized, recognizing changes
Genetics	Temporal transformation	Past and present are articulated in dynamic continuity

Source: Prepared by the authors.

This typology allows us to analyze how students construct historical meaning when interacting with games, narratives, and sources. In Mesquita's (2018) research, the use of RPG made it possible to observe how players elaborated historical interpretations, positioning themselves in relation to temporalities and social constructions based on the actions of their characters in fictional contexts.

The dimension of the historical imagination is articulated with this process. For White (1994), history is not separated from literature, since narratives are linguistically structured and carry interpretative subjectivity. When writing history, the historian selects, orders and interprets events through narrative resources; Therefore, imagination is not opposed to rigor, but a condition of historical representation.

Digital games, due to their narrative and interactive nature, can act as triggers of the historical imagination, because:

- **they build scenarios and temporalities:** by allowing visualization in differentiated spaces and media, with audiovisual, sensorial and movement stimuli in varied dimensions.

- **They recreate characters and events:** they allow historical figures to be remembered with greater visual, auditory and precision resources according to the quality of the graphics.
- **They enable different narrative paths:** it provides the opportunity to view and experience (limited or not) historical characters according to the narrative proposed in the games.
- **insert the player as an agent of the plot:** it inserts players with a first-person view and protagonism when working with immersion in the field of actions. Even though the game design allows for limited actions, something common in the configuration and proposals so that players do not get lost in the actions and plot, it brings new perspectives to the player in "experiencing" the story and making decisions.
- **They allow multiple interpretations and outcomes:** in games with more open narratives, they provide the opportunity for players to have varied decisions and have different answers according to their actions, causing more resources to be questioned and idealized according to the proposal of a class or interest.

Thus, by influencing the imagination, games can promote practices of historical interpretation that articulate past and present from experiences of immersion.

In this sense, Paixão and Borges (2018) state that imagination expands the human experience beyond immediate reality. Pereira (2020) expands this understanding by suggesting that the teaching of History should constitute a *hybrid territory*, in which school knowledge dialogues with cultural practices, digital media, youth, and community repertoires.

Instead of conceiving History as a single narrative about a distant past, Pereira proposes that teaching incorporates:

- **Multiple historical subjects:** understand that a narrative encompasses various subjects, in synchronous places and times, integrated or not, depending on the perspective of the narrator or what the intention is.
- **Extracurricular knowledge:** Knowledge and history are areas that cross various fields of research, situations, spaces and people. Therefore, it can be enriched by diversified knowledge such as popular culture, varied narratives, material and immaterial sources, among others.
- **Cultural and media experiences:** history conceives and can interact with various sources of research and events.

- **Divergent interpretations:** demonstrating points and counterpoints are necessary to foster debate and criticality about sources, allowing transversal dialogues in order to bring the meanings closer and capture subjectivities that a narrative alone may not be able to contemplate.
- **Possibilities for the future:** broadening debates, fostering research and questioning historical movements and their social relevance are legacies for future societies.

This movement is close to the proposal of White (2014), for whom imagination is also an ethical element of the relationship with the past, as it allows us to conceive futures not as a mere continuity of the present, but as a historical alternative. The historical imagination, in this context, is not restricted to fantasy, but acts as a force that produces social meanings.

Digital games, by allowing trials, experiments, errors, hypotheses and multiple narrative paths, become privileged spaces for this exercise. They allow us to feel the past without reproducing it literally, stimulating reflection on causality, perspective, and the consequence of social actions — fundamental elements for the development of historical thought.

2.5 PLAYFULNESS IN YOUTH AND ADULT EDUCATION

Youth and Adult Education (EJA) is an educational modality marked by the heterogeneity of trajectories, life experiences, interrupted temporalities and differentiated relationships with schooling. In this context, playfulness emerges as a pedagogical possibility that respects the subjects' previous knowledge, promotes engagement and favors meaningful learning through practical, dialogical and culturally referenced experiences.

Historically, playful practices have been associated with the children's universe, and are rarely recognized as formative strategies for adolescents, adults and the elderly. However, authors such as Brougère (2008) and Kishimoto (2011) demonstrate that playfulness is a cultural, social and symbolic phenomenon, not restricted to childhood. Thus, it can be understood as a practice that articulates pleasure, creativity, imagination and learning, assuming educational functions when intentionally structured.

In EJA, playfulness does not act only as a teaching method, but as a mediation that values subjectivities, promotes autonomy and strengthens identity bonds. Freire (1996) highlights that adult education should start from the concrete experience of the subjects, allowing learning to be the result of the problematization of their realities. The playful

approach, when integrated with social and historical themes, can articulate memory, popular culture, community narratives, and social criticism.

Rocha (2015) reinforces that playful practices in EJA increase the intellectual self-esteem of the student, often marked by a history of dropout, school failure and educational exclusion. Activities such as cooperative games, narrative dynamics, *role-playing games (RPG)* and *simulations can promote active participation and resignification of the relationship with knowledge*.

In addition, the dialogue between playfulness and digital technologies is highlighted in the face of the growing insertion of adults and the elderly in the universe of connected media. Kenski (2012) argues that digital culture requires new forms of pedagogical mediation, based on interactivity, authorship and multiplicity of languages. From this perspective, digital games, gamified environments and storytelling resources can contribute to more democratic educational practices in EJA, bringing curricular content closer to the sociocultural experiences of students.

Considering the ludic as an emancipatory strategy implies recognizing the EJA student as a historical subject. Thus, playfulness should not be treated as an isolated motivational technique, but as a pedagogical dimension that integrates criticality, aesthetic pleasure, social reflection and the construction of identities.

3 DIGITAL TECHNOLOGIES AND EVERYDAY SCHOOL LIFE

The insertion of Digital Information and Communication Technologies (DICT) in school environments still represents a significant challenge. Issues such as inequality of access, teacher resistance, inadequate use of resources, insufficient training, as well as reductionist perceptions about the role of technology in the educational process, constitute "phases" that need to be overcome so that such tools are effectively incorporated in a critical and pedagogical way.

It is wrong to assume that the simple use of technologies — including digital games — guarantees learning. The school does not operate under strict prescriptions or standardized responses. As Costa (2019, p. 91) states, in education "there are no manuals, there are no formulas, there are no certainties, but there are possibilities", which are built and guided by the teacher based on his theoretical and methodological choices.

Thus, it is not only a matter of inserting resources, but of consciously appropriating their theoretical conceptions, pedagogical purposes and epistemological limits, articulating

them with clear objectives of historical learning. Given these scenarios, it is important to think about some aspects:

- **Study of the theoretical foundation that guides the use of technology:** As important as the use of digital technologies in learning environments, thinking about their applicability and relevance in pedagogical mediations sustain successful works. Constantly reviewing the literature and experiences of other professionals makes the theoretical and practical framework have greater chances of success. According to Soares (2022), the use of technologies cannot be mere allegories, they need to have a meaning for their incorporation and understanding by all learning participants.
- **Understanding the interfaces between historical content and game:** Playing for the sake of playing does not make sense and is not capable of providing effective learning. The use of methodologies and artifacts is premised on offering differentiated experiences and working on meanings that the teacher understands as effective in the acquisition of historical knowledge. The conjectures and construction of the activities must dialogue with possible objectives and goals that are intelligible to the students during the experience. Otherwise, it will lose meaning. Exemplifying and briefly explaining the contexts of the game, positioning on the objectives to be achieved and working on historical facts during immersion favors learning. Fiction and reality need to be worked on in order to generate formal learning.
- **Definition of coherent evaluation strategies:** explaining the purposes of the activity, as well as the points to be analyzed and shared, whether in a written or oral evaluation, needs to be delimited before the activities are started so that the participants understand the purposes and have an idea of what to observe. Otherwise, there may be a loss of meaning or activity emptied of purpose. Fostering collective learning strategies, systematization of knowledge and exchanges based on conversation circles or focus groups are examples of approaches to classroom work.

Valente (2005) argues that digital games constitute multimodal texts, as they articulate several areas of knowledge — Arts, Mathematics, Language, Computing, Science and History — enabling integrated learning. From the perspective of History teaching, this multimodal character allows working from narrative interpretation to the creation of historically based scenarios and plots.

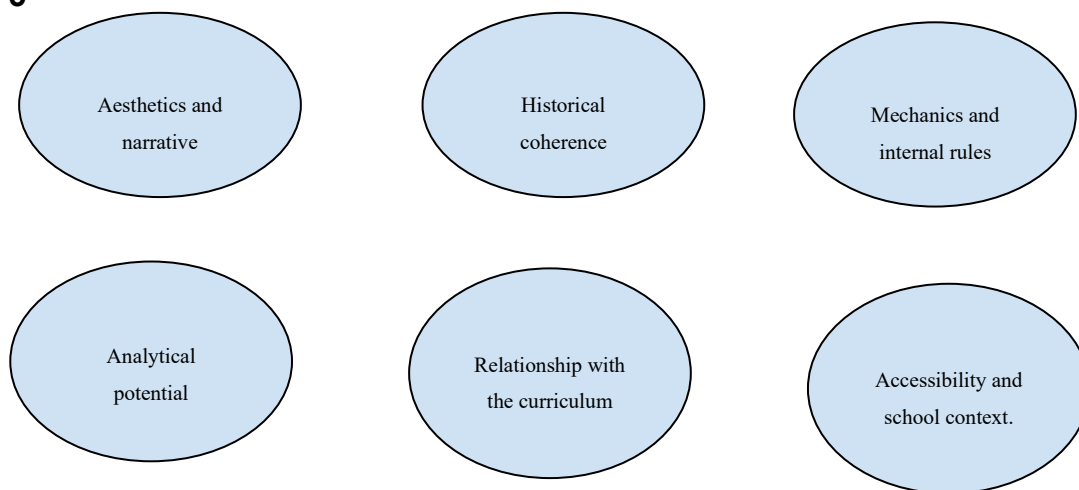
When students participate in the process of producing, customizing, or modifying games, the pedagogical component can become even more meaningful. Creating plots, building characters, and simulating historical processes allows you not only to learn about the past, but to reflect on how it is narrated, interpreted, and represented.

Such experiences generate continuous cognitive and affective feedback, observed during the interaction with the game and also after the decision-making process. This relates to the concept of *flow state* (CSIKSZENTMIHALYI, 2014), characterized by full immersion in activities that challenge pre-existing skills and promote high engagement. In these states, players demonstrate creativity, focus, perseverance, and strategic decision-making—skills relevant to historical thinking.

Gee (2009) observes that well-structured games offer progressive challenges: they start with simple problems and gradually complexify the situations. This mechanism is close to pedagogical practices that organize learning in a spiral, activating previous knowledge and expanding it in a guided way. Thus, digital games can help both in the development of conceptual mastery and in the mobilization of skills that already exist, but not yet explained.

The selection of games, however, cannot be impulsive. It is necessary to consider:

Figure 5



Source: Prepared by the authors.

Arruda (2009) reinforces that the focus of interactions should be on the development of historical reasoning, and not only on enchantment or sensory immersion. Entering simulated environments can provoke a feeling of participation in the past, but it is critical mediation that transforms experience into historical knowledge.

We agree, therefore, with Gee (2009) that pleasure, challenge and learning are constitutive elements of digital games — and, when critically mediated, can contribute significantly to pedagogical practice. The goal is not to choose between "playing" or "studying", but to understand how play can become a means to operate historical thought, and not an end in itself.

4 FINAL CONSIDERATIONS

The teaching of History in contemporary times demands pedagogical practices that dialogue with multiple languages, temporalities and forms of knowledge production. The expansion of access to Digital Information and Communication Technologies (DICT), as well as their presence in the cultural experiences of young people, adults and the elderly, requires from the school not only the incorporation of new resources, but the resignification of training methods and purposes.

Digital games, as cultural artifacts inserted in the universe of the Cultural Industry and marked by fictional narratives and historical representations, are configured as one of these possible resources. Its use should not be reduced to mere entertainment, but understood as a device capable of mobilizing historical thinking, imagination, critical analysis, construction of meaning and production of narratives about the past.

The literature analyzed demonstrates that such media enable experiences of immersion and historical simulation that can contribute to the development of interpretative skills, critical reading of sources, formulation of hypotheses, understanding of temporality and the relationship between past, present and future. Such dimensions dialogue with concepts such as historical consciousness (Rüsen, 2010) and historical imagination (White, 1994; Pereira, 2020), allowing situated and socially referenced learning.

However, the pedagogical use of digital games requires competent mediation. It is necessary to understand narrative intentionality, limits of representation, absence of historical neutrality and predominance of entertainment as an original function of the cultural product. Without this care, there is a risk of reinforcing reductionist, heroic, Eurocentric or anachronistic perspectives of the past.

The role of the teacher, therefore, is central, because in approaches that use games, whether digital or not, it is important to consider the selection of games that are coherent with curricular content, to articulate historical sources and comparative analysis, to problematize

narratives and represented discourses, to evaluate learning beyond the performance in the game and to promote dialogues about identity, memory, power and culture.

It is concluded that digital games do not replace traditional teaching methods nor do they constitute an automatic didactic solution. However, when used critically, they can expand training repertoires, bring students closer to investigative practices and contribute to the construction of significant historical knowledge, especially in contexts of Youth, Adult and Elderly Education.

Thus, one of the contemporary challenges will be to understand how games and playfulness can become part of an intentional, dialogical, critical pedagogical project committed to the formation of historically conscious subjects capable of transforming reality.

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**MASS COMMUNICATION AND ENVIRONMENTAL EDUCATION: THE ROLE OF
SOCIAL NETWORKS IN SOCIO-ENVIRONMENTAL MOBILIZATION**

**COMUNICAÇÃO DE MASSA E EDUCAÇÃO AMBIENTAL: O PAPEL DAS
REDES SOCIAIS NA MOBILIZAÇÃO SOCIOAMBIENTAL**

**COMUNICACIÓN DE MASAS Y EDUCACIÓN AMBIENTAL: EL PAPEL DE LAS
REDES SOCIALES EN LA MOVILIZACIÓN SOCIOAMBIENTAL**

 <https://doi.org/10.56238/sevened2025.038-066>

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ABSTRACT

This article discusses the interconnection between mass communication, social networks, and environmental education, emphasizing the importance of digital platforms in mobilizing and transforming social practices. The main objective is to examine how digital social networks intensify the dissemination of information related to the environment, encouraging collective mobilization and citizen participation in ecological issues. The study aims to analyze how digital communication can help overcome historical challenges faced by environmental education, such as curriculum fragmentation, lack of pedagogical resources, and the need for integration among different areas of knowledge. The research is grounded in the growing relevance of social networks as spaces for symbolic contestation, opinion formation, and social mobilization. In a context characterized by the rapid circulation of information, as well as the spread of false information and informational bubbles, it becomes essential to analyze methods that promote media and scientific literacy, enhancing individuals' critical thinking and analytical skills. The central question addresses how digital social networks can function as effective instruments in environmental education, facilitating the development of ethical, critical, and transformative awareness in the face of contemporary socio-environmental challenges. The chosen methodological approach is qualitative, exploratory, and bibliographic, based on the analysis of scientific literature, official documents, and case studies of environmental campaigns carried out on social networks, including both national and international examples.

Keywords: Environmental Education. Social Networks. Mobilization. Media Literacy. Citizen Participation.

RESUMO

Este artigo discute a interconexão entre comunicação de massa, redes sociais e educação ambiental, enfatizando a importância das plataformas digitais na mobilização e na transformação de práticas sociais. O principal objetivo consiste em examinar de que forma as redes sociais digitais intensificam a disseminação de informações relacionadas ao meio ambiente, incentivando a mobilização coletiva e a participação dos cidadãos em questões ecológicas. Pretende-se analisar de que maneira a comunicação digital pode auxiliar na superação de desafios históricos enfrentados pela educação ambiental, tais como a

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fragmentação do currículo, a carência de recursos pedagógicos e a exigência de uma integração entre distintas áreas do conhecimento. A fundamentação da pesquisa está na crescente relevância das redes sociais enquanto espaços de contestação simbólica, formação de opiniões e mobilização social. Diante de um contexto caracterizado pela veloz circulação de informações, além da difusão de informações falsas e bolhas informativas, torna-se imprescindível analisar métodos que favoreçam a alfabetização midiática e científica, aprimorando o pensamento crítico e a habilidade analítica dos indivíduos. A questão central aborda como as redes sociais digitais podem funcionar como instrumentos eficazes na educação ambiental, facilitando o desenvolvimento de uma consciência ética, crítica e transformadora em face dos desafios socioambientais contemporâneos. A abordagem metodológica escolhida é qualitativa, de caráter exploratório e bibliográfico, alicerçada na análise de literatura científica, documentos oficiais e estudos de caso acerca de campanhas ambientais realizadas em redes sociais, englobando exemplos tanto nacionais quanto internacionais.

Palavras-chave: Educação Ambiental. Redes Sociais. Mobilização. Alfabetização Midiática. Participação Cidadã.

RESUMEN

Este artículo analiza la interconexión entre la comunicación de masas, las redes sociales y la educación ambiental, destacando la importancia de las plataformas digitales para movilizar y transformar las prácticas sociales. El objetivo principal es examinar cómo las redes sociales digitales intensifican la difusión de información ambiental, fomentando la movilización colectiva y la participación ciudadana en cuestiones ecológicas. Se busca analizar cómo la comunicación digital puede contribuir a superar los desafíos históricos que enfrenta la educación ambiental, como la fragmentación curricular, la falta de recursos pedagógicos y la necesidad de integración entre diferentes áreas del conocimiento. La investigación se basa en la creciente relevancia de las redes sociales como espacios de debate simbólico, formación de opinión y movilización social. En un contexto caracterizado por la rápida circulación de información, así como por la propagación de desinformación y burbujas informativas, se hace esencial analizar métodos que promuevan la alfabetización mediática y científica, mejorando el pensamiento crítico y las habilidades analíticas. La pregunta central aborda cómo las redes sociales digitales pueden funcionar como instrumentos eficaces en la educación ambiental, facilitando el desarrollo de una conciencia ética, crítica y transformadora ante los desafíos socioambientales contemporáneos. El enfoque metodológico elegido es cualitativo, exploratorio y bibliográfico, basado en el análisis de literatura científica, documentos oficiales y estudios de caso de campañas ambientales realizadas en redes sociales, abarcando ejemplos nacionales e internacionales.

Palabras clave: Educación Ambiental. Redes Sociales. Movilización. Alfabetización Mediática. Participación Ciudadana.

1 INTRODUCTION

The growing complexity of today's environmental challenges demands innovative strategies to promote socio-environmental awareness and responsibility. In this context, environmental education stands out as an essential domain for the formation of critical and committed individuals, able to intervene both locally and globally in the construction of sustainable societies. This article addresses the connection between mass communication, social networks and environmental education, emphasizing the role of digital platforms in the mobilization and transformation of social practices.

The main purpose of this research is to examine how digital social networks have enhanced the dissemination of information related to the environment, encouraging collective mobilization and citizen participation in ecological issues. It seeks to understand how digital communication can help overcome historical challenges of environmental education, such as the fragmentation of the curriculum, the scarcity of pedagogical resources and the need for integration between different knowledges.

The foundation for this study lies in the growing importance of social networks as environments of symbolic contestation, opinion formation and social mobilization. Faced with a context characterized by the rapid dissemination of information, as well as the diffusion of fake news and information bubbles, it is imperative to explore strategies that favor media and scientific literacy, improving critical thinking and the analytical skills of individuals.

The problematization that guides this work can be summarized in the following question: how can digital social networks act as effective tools in environmental education, promoting the development of an ethical, critical awareness capable of provoking transformations in the face of current socio-environmental challenges?

The methodological approach chosen is characterized by a qualitative research, of exploratory and bibliographic nature, based on the analysis of scientific literature, official documents and case investigations related to environmental campaigns promoted on social networks. Both national and international examples will be analyzed, with an emphasis on movements such as Fridays for Future, as well as Brazilian digital mobilization initiatives.

In summary, it is predicted that social networks, when used in a strategic and analytical way, have the potential to expand the reach of environmental education, foster the protagonism of young people and reinforce democratic participation in the protection of the environment. However, it is crucial to admit the limits and challenges of this process, particularly with regard to the quality of information and digital inclusion.

2 ENVIRONMENTAL EDUCATION AND MASS COMMUNICATION – THE ROLE OF SOCIAL NETWORKS

2.1 HISTORICAL CONTEXT AND NORMATIVE EVOLUTION OF ENVIRONMENTAL EDUCATION

The Intergovernmental Conference on Environmental Education, held in 1977 in Tsibilisi – USA, initiated a broad process at the global level so that conditions were formed for a new awareness of the value of nature. The educational field has grown transversally, so the possibilities of carrying out new experiences are materialized in the field of environmental education.

Agenda 21, approved during Rio 92, is an action plan to be implemented in all areas where man can impact the environment. In addition, it is a participatory document, which results in education and analysis of the situation of each country, to develop this educational maxim in order to plan a socio-environmentally sustainable future (MEC, 2007).

In addition, in the MEC document (2007) it is reported that:

Also at the international level, the United Nations initiative to implement the Decade of Education for Sustainable Development (2005-2014), whose institution represents an achievement for Environmental Education, gains signs of recognition of its role in facing the socio-environmental problem, as it reinforces sustainability through Education worldwide. The Decade of Education for Sustainable Development enhances existing educational policies, programs and actions, in addition to multiplying innovative opportunities.

At the International Conference on the Environment, Society, Education and Public Awareness for Sustainability, held in 1998 in Thessaloniki – Greece, he defended the need to articulate actions in order to educate about environmental issues, based on the concepts of ethics and sustainability, as well as cultural identity and diversity (Sorrentino, 1998).

This document generated some norms, among them items 08 and 09 that reflect the need for environmental education, which is as follows:

8. A collective learning process, partnerships, equal participation and continuous dialogue are required between governments, local authorities, the educational and scientific community, companies, consumers, non-governmental organizations, the media and other social actors, in order to achieve awareness and seek alternatives, as well as to achieve changes in behavior and lifestyle, including consumption and production patterns in the direction of sustainability.
9. Education is an indispensable means of providing all women and men in the world with the ability to lead their own lives, to exercise personal choice and responsibility,

and to learn through a life free of geographical, political, cultural, religious, linguistic or gender restrictions.

There is a need for social practices to multiply, based on the right of access to information and environmental education, according to an integrative perspective. With this system, it is thought to increase greater citizen access to information and transparency in relation to urban environmental problems (Jacobi, 2003).

This principle assumes a transformative function, in which the co-responsibility of individuals is the main objective in order to promote sustainable development. Environmental education has become a necessary condition for changing a picture of growing environmental degradation (Tamaio, 2000). The educator also has the function of helping in the construction of environmental references, as instruments of a social practice centered on respect for nature.

Education is everyone's right and environmental education must be based on critical and innovative thinking, at any time or place, for the promotion, transformation and construction of society. It is a type of education that can be collective or individual, with the main objective of forming citizens to have not only local consciousness, but also planetary awareness and who respect the principles of self-determination of peoples and the sovereignty of nations (UNESCO, 1992).

The Treaty on Environmental Education for Sustainable Societies and Global Responsibility (2020) teaches that it is a political act and the holistic perspective must be involved, focusing on the relationship between human beings, nature and the universe, in an interdisciplinary way. It should focus on solidarity, equality and respect as strategic goals, of interaction between cultures and focused on the democratic context.

The Treaty also reflects on some issues of paramount importance, related to development and the environment, which reflect that:

1. Environmental education should facilitate mutual and equitable cooperation in decision-making processes, at all levels and stages.
2. Environmental education must recover, recognize, respect, reflect and use indigenous history and local cultures, as well as promote cultural, linguistic and ecological diversity. This implies a vision of the history of native peoples to modify ethnocentric approaches, in addition to stimulating bilingual education.

Education is also one of the goals for sustainable development. In a document prepared by the United Nations Educational, Scientific and Cultural Organization (UNESCO),

the importance of Environmental Education for Sustainable Development (ESD) is explained, as it aims to develop skills that enable people to reflect on their own actions, both from a local and global perspective (UNESCO, 2015).

For sustainable societies and global responsibility, education is governed by principles, among them, that education is everyone's right, and everyone is a learner and educator at the same time. The basis is critical thinking, informal, formal or even non-formative, for society. It encompasses a collectivity or a single individual, but the purpose is consciousness. Educating for the environment must be based on ideology, with the involvement of the relationship between human beings, nature and the universe, stimulating solidarity, equality and democracy in the interaction between cultures.

Still in the field of principles, the Treaty on Environmental Education for Sustainable Societies and Global Responsibility (1992) adds others of great importance:

7. Environmental education must address critical global issues, their causes and interrelationships from a systemic perspective, in their social and historical context. Primordial aspects related to development and the environment, such as population, health, peace, human rights, democracy, hunger, degradation of flora and fauna, must be addressed in this way.
8. Environmental education should facilitate mutual and equitable cooperation in decision-making processes, at all levels and stages.
9. Environmental education must recover, recognize, respect, reflect and use indigenous history and local cultures, as well as promote cultural, linguistic and ecological diversity. This implies a vision of the history of native peoples to modify ethnocentric approaches, in addition to stimulating bilingual education.
10. Environmental education should stimulate and enhance the power of diverse populations, promoting opportunities for grassroots democratic changes that stimulate the popular sectors of society. This implies that communities must resume the conduct of their own destinies.

In six more topics, it also lists the importance of environmental education valuing different forms of knowledge, in addition to training people for any conflict that may occur. The 13th principle speaks of promoting dialogue with individuals and institutions for the creation of new ways of life, thinking about future generations.

The last principles express some needs, such as:

14. Environmental education requires the democratization of the mass media and their commitment to the interests of all sectors of society. Communication is an inalienable right and the mass media must be transformed into a privileged channel of education,

not only disseminating information on an equal basis, but also promoting the exchange of experiences, methods and values.

15. Environmental education must integrate knowledge, skills, values, attitudes and actions. It must convert every opportunity into educational experiences of sustainable societies.

16. Environmental education should help develop an ethical awareness of all the forms of life with which we share this planet, respect their life cycles, and impose limits on the exploitation of these forms of life by human beings.

When well carried out, environmental education provides changes in attitudes, values and behaviors in the actions of human beings, and can bring important social measures. Chaves (2017) explains that man needs to change his thinking to survive, or else accept the limitations that will come from environmental destruction. Therefore, teaching good values and the basic premises of sustainability is essential and productive.

Education and environment are essential as they mediate the various human and social relations and require education professionals to understand the complexity of the connection between society, the environment and teaching. Environmental knowledge problematizes fragmented knowledge and integrates it in an interdisciplinary way, thus being able to generate changes and a social rationality of engagement for the construction of environmental awareness (Leff, 2015).

In order to add and update Law No. 9,795/1999, which deals with Environmental Education in Brazil, Law No. 14,926/2024 was sanctioned in July 2024, which ensures the insertion in school curricula of themes related to climate change, biodiversity protection, and socio-environmental risks and emergencies in Brazil.

Educational institutions should promote research, teaching and extension actions aimed at developing instruments to ensure educational actions, in order to preserve, mitigate and adapt children and adolescents to the reality of these subjects.

2.2 CURRENT PRINCIPLES AND CHALLENGES OF ENVIRONMENTAL EDUCATION

The implementation of Environmental Education (EE) in educational institutions continues to face structural and pedagogical obstacles that hinder its insertion in the school routine. One of the challenges mentioned by educators concerns the difficulty in integrating Environmental Education in an interdisciplinary way. Despite admitting the importance for the formation of citizens, several educators mention that the fragmented structure of the curriculum, based on independent disciplines, makes it impossible to have an appropriate systemic approach to environmental phenomena.

As Leff (2002) emphasizes, the lack of an interdisciplinary approach restricts the critical understanding of ecological and social complexities, obstructing the development, by students, of the skills necessary for the integrated analysis of environmental issues. Another frequent obstacle is the lack of teaching materials and adequate pedagogical resources for AS education.

According to Dias (2000), the lack of accessible and contextualized tools compromises the elaboration of relevant educational practices, limiting the creativity of educators and the active participation of students. The situation becomes more critical due to the lack of appropriate training of educators, who often perceive themselves as inadequately prepared to address environmental issues using innovative methodologies.

Carvalho (2004) argues that continuing education is an essential component to enable educators to implement innovative pedagogical practices that are capable of interacting with contemporary socio-environmental emergencies. Sauvé (2005) adds that the lack of investments in training compromises the implementation of Environmental Education programs aimed at promoting changes in attitude and behavior.

Notwithstanding such difficulties, the information examined also shows relevant possibilities for strengthening Environmental Education (EE) in the school context. Among them, the conscious use of digital technologies stands out, which have the potential to increase student engagement and make the learning process more dynamic.

Moran (2013) argues that the proper use of technological tools provides interactive educational experiences, expands access to information and enables new approaches to dialogue on current environmental issues. The incorporation of multimedia resources and digital platforms into the curriculum favors the elaboration of contextualized learning and stimulates the protagonism of students.

In addition to technological resources, collaborations between educational institutions and local communities stand out as one of the most effective potentialities for the promotion of Environmental Education. The reports from educators, which include initiatives such as school gardens, cleaning efforts, collective recycling actions and community campaigns, demonstrate that the integration between the school environment and the territory results in contextualized learning, with social meaning and a significant power of mobilization.

Carvalho and Figueiredo (2015) emphasize that these collaborations expand social capital and establish support networks essential for the solidification of sustainable practices. According to Putnam (2000), such interactions strengthen community ties and encourage

joint participation, favoring citizen education and the development of a sense of environmental responsibility.

Another aspect recognized as promising is the development of critical approaches in Environmental Education. Sterling (2001) argues that an effectively transformative environmental education must challenge the cultural, economic and political paradigms that promote environmental degradation, inciting individuals to question power relations and consumption patterns.

Teachers who incorporated this approach reported a considerable increase in student involvement, as well as a greater willingness of students to reflect on their customs, values and daily practices, recognizing themselves as active participants in the formation of sustainability.

2.3 MASS COMMUNICATION AND SOCIAL NETWORKS

The socio-technical transformations brought about by the electric revolution and the consolidation of the mass media have introduced new dimensions of complexity to contemporary experience. Nicolau Sevchenko (2001) cataloged Modernity as a historical process segmented into three main stages. The first period, which covers the sixteenth century to the middle of the nineteenth century, refers to the initial phase of marked technological evolution, characterized by the inclusion of new sources of energy and innovations in the means of transport and communication.

The subsequent phase is characterized by the rise of electricity, internal combustion engines, the chemical industry, and the improvement of the means of mass communication. Finally, in the third stage, even though the belief in scientific advancement seems to reach its peak, humanity is faced with the dark side of this same technological rationality, manifested in the great wars that marked the twentieth century.

According to Sevchenko (2001), Modernity manifests itself as an uninterrupted movement of elevations and discontinuities, comparable to the fast path of a roller coaster. This metaphorical representation makes it possible to illustrate an era marked by the speed of change, the perception of fragmentation and an atmosphere of generalized instability, culminating in what the author recognizes as a diffuse sense of "imminent apocalypse".

It is in this context characterized by the acceleration of flows and the intensification of social relations that new forms of sociability emerge and, mainly, new configurations of collectivity. Among the essential transformations that occurred in this period, the solidification

of the means of mass communication stands out, a phenomenon that significantly modifies the interaction between the individual and the collectivity.

As problematized by Castro (2021), at the end of the nineteenth century, debates about the dynamics of crowds became central, and authors such as Gabriel Tarde established a distinction between the "public", described as a virtual, diffuse and more stable form, and the "crowd", linked to physical proximity and its transient character. This differentiation initiates a more elaborate understanding of masses, which begin to be understood as volatile entities, prone to rapid and uniform external influences.

This context is revisited and widely deepened by the thinkers of the Frankfurt School, notably Theodor Adorno and Max Horkheimer, who present the concepts of mass culture and cultural industry. According to the aforementioned authors, the development of mass media significantly transforms the system of symbolic production and dissemination.

The production of content is no longer an interaction between individuals and is now managed by institutions that have economic resources and advanced technology, which direct messages to broad population groups, converting them into essentially passive receptors (Adorno; Horkheimer, 2000). Although the dissemination of mass media expands and accelerates human perception, as McLuhan (2016) argues, it also generates homogenizing effects.

The choice of content emphasizes those that have the potential to attract a larger audience, which reduces the variety of messages disseminated and favors a market logic that prioritizes uniformity. Thus, although there is an increase in the amount of information accessible to the public, there is a parallel decrease in cultural diversity, favoring processes of alienation and symbolic homogenization.

Thus, the historical course of the mass media, as examined by Sevcenko, Castro, Adorno, Horkheimer and McLuhan, reveals a structural tension between the expansion of communication possibilities and the intensification of cultural standardization. It is an ambivalence inherent to Modernity, whose impacts continue to shape current social experience and exert a significant influence on the formation of subjectivities and the structuring of public life.

2.3.1 Evolution of social networks and their role in contemporary society and the environment

The rapid expansion of digital social networks has caused a profound reconfiguration in the communicative, cultural and socio-environmental dynamics of contemporaneity. The logic of interactions facilitated by platforms, characterized by Manuel Castells (2009) as "network society".

It has significantly transformed not only information flows, but also the ways in which individuals construct their perceptions of the world, establish social bonds, and acquire knowledge about complex issues such as sustainability and environmental citizenship. In this context, understanding the effects of social networks becomes essential to investigate how these environments influence social discourses, behaviors, and practices.

From a communicational perspective, the transition from traditional media to digitized ecosystems has caused a paradigmatic transformation. Communication, which was previously characterized by being linear and vertical, began to be configured as a horizontal, immediate and extremely participatory process. Authors such as Henry Jenkins (2013) emphasize that a connected and participatory culture promotes the incessant sharing of content, resulting in cultural communities organized by thematic affinities.

However, this "democratization of broadcasting" is not without challenges: the profusion of information increases the risk of disinformation, a phenomenon widely debated by Dominique Wolton (2011), who warns about the effect of excessive data on the understanding of reality. The characteristic language of social networks, consisting of memes, emojis, abbreviations, and community-specific codes, intensifies the emergence of a hybrid, dynamic, and fast-paced culture that connects people, but also fosters interpretive obstacles between different generations and social strata.

Interactions between individuals have also undergone structural changes. As Sherry Turkle (2011) argues, although platforms provide a sense of continuous connection, there is a tendency to superficiality of relationships and to replace physical presence with a performative presence.

In the field of education, social networks have played a progressively more significant function. As Moran and Valente (2013) point out, these environments act as spaces for distributed learning, where content moves in a dynamic, multimodal and accessible way.

Platforms such as Instagram, YouTube, and TikTok expand interaction with tutors, experts, and science communicators, enabling individuals to acquire knowledge through

interaction, collaboration, and collective curation. However, the lack of rigorous epistemological filters requires a critical attitude so that students and professors can distinguish reliable content from superficial or misleading narratives. Thus, as Pierre Lévy (2014) points out, collective intelligence is only materialized with ethical and responsible participation in the informational ecosystem.

The discussion about sustainability in social media represents another sphere of great relevance. Socio-environmental movements have identified in these contexts an effective tool to mobilize, disseminate information and promote awareness of ecological issues of a global nature. Digital campaigns expand the reach of environmental issues, promoting sustainable practices among individuals and exerting pressure on organizations to adopt a more transparent corporate culture, as indicated by Elkington (1998) from the perspective of the Triple Bottom Line.

Social platforms have thus become spaces for dispute over narratives related to environmental justice, conscious consumption, climate protection, and the preservation of biodiversity. However, as pointed out by Debord (1997), the logic of the digital spectacle has the capacity to convert environmental activism into a performance without content, a phenomenon referred to as "façade activism" or slacktivism.

In this context, engagement can be restricted to the symbolic diffusion of hashtags and images, without causing concrete impacts on social change. Thus, it is essential to differentiate between informed participation and superficial engagement, understanding that sustainability demands more than mere digital acts; It needs coordinated actions, efficient public policies and effective commitments.

Finally, social networks have become significant environments for companies to disclose their commitments to social and environmental responsibility. By employing digital platforms to disseminate goals, sustainable practices, and internal policies, these institutions collaborate to increase transparency and strengthen society's trust.

However, as pointed out by experts in organizational communication, including Baldissera (2009), the sustainability disclosed must be substantiated by sustainability actions actually implemented, in order to avoid *greenwashing* practices that compromise the credibility of messages related to the environment.

To understand this ecosystem, it is essential to recognize that social networks transcend the mere condition of neutral tools, configuring themselves as complex environments, immersed in symbolic disputes and multiple interests. Its effect goes beyond

the scope of communication and extends to ethical, social, political and environmental dimensions, demanding from users, whether individual, collective or institutional, conscious and critically oriented decisions.

2.3.2 Challenges and limits – Fake News, disinformation and information bubbles in environmental education issues

Environmental Education (EE), when understood in its political and pedagogical depth, goes far beyond the notion of a set of isolated actions aimed at rationalizing the consumption of natural resources, such as saving water and energy or classifying waste. Integrated in a society characterized by the massive and rapid dissemination of information, this area is positioned as an interdisciplinary field that connects diverse knowledge and fosters the elaboration of "environmental references" that can direct more equitable and sustainable social practices (Jacobi, 2003).

Instead of being restricted to a technical or behaviorist approach, critical Environmental Education suggests the interaction between scientific knowledge, traditional knowledge, daily experiences and media languages, considering contemporary communication as a strategic space for the dispute of meanings related to nature, development and socio-environmental justice.

In this informational scenario, the phenomenon of disinformation, notably the so-called fake news, poses significant challenges to environmental education. Misleading, distorted, or intentionally manipulated information about climate, biodiversity, fires, deforestation, or environmental policies spreads rapidly, often gaining more visibility than content based on scientific rigor.

Events such as Brexit, which took place in 2016, and the electoral election in Brazil in 2018 exemplify how disinformation can aggravate delicate public debates and benefit particular political agendas (D'Ancona, 2018; Dourado, 2020). When this same mechanism is applied to the environmental sphere, the impacts can be catastrophic: climate science loses credibility, environmental disasters are relativized, and the continuity of predatory practices is naturalized due to short-term economic interests.

In this context, fact-checking initiatives emerge as a pertinent response, characterizing what Ferrari (2018) describes as a paradigm shift towards more reliable information sharing. Platforms such as fact-checker *Fakebook.eco*, which are dedicated to debunking fraudulent

information and narratives related to the environment, play a significant educational role by confronting false claims with scientific evidence and historical data.

The author also adds that recent experience reveals that verification, in isolation, is not able to stop the spread of fake news, especially when it is related to pre-established beliefs, political identities and collective affections already solidified. Thus, scholars such as Da Silva Junior and Silva (2020) highlight the importance of integrating fact-checking and critical educational processes, which should enable individuals to analyze, compare, and question what they consume in the digital environment.

It is in this aspect that critical Environmental Education acquires a special importance. Far from being restricted only to the transmission of information, it seeks to enable individuals to interpret and intervene in the world, which involves working on aspects such as awareness, transformation of attitudes, improvement of analytical skills and aptitude to evaluate complex situations (Jacob; Luzzi, 2004).

In the particular realm of environmental disinformation, such an approach entails promoting "media and science literacy" that empowers learners, educators, and communities to recognize patterns of manipulation, identify reliable sources, understand the basic principles of issues such as climate change and ecosystem services, and contextualize incoming messages in a broader landscape of political and economic conflicts.

At the same time, it is necessary to admit the limitations and tensions of this undertaking. Distance Education (EE) operates in institutional environments that are generally characterized by an excessive curricular load, precarious working conditions for educators, unequal access to digital technologies, and the imposition of pressures for immediate results.

In this context, the defense of critical environmental education, integrated with the fight against fake news, implies the strengthening of public policies aimed at continuing education, the guarantee of adequate material conditions for work in educational institutions, and the expansion of partnerships with collectives, social movements, and independent information verification initiatives (Jacobi, 2003; Da Silva Junior; Silva, 2020).

This also involves the understanding that disinformation does not present itself as an isolated event, but rather as an indication of broader systems of power and communication formats guided by algorithmic logic, engagement, and monetization. Thus, in a society permeated by intense informational flows and the propagation of anti-scientific discourses,

critical Environmental Education performs the strategic function of contesting the very domain of truth, avoiding its reduction to simple technicality.

By mobilizing instruments such as verification platforms, academic studies, alternative media, and dialogical pedagogical practices, Environmental Education can play a balancing role in relation to the culture of disinformation, helping to form individuals able to critically interpret both the natural and digital environments. Permeated by epistemological, political and communicational difficulties, it is configured, therefore, as an essential sphere of resistance and democratic reinvention in times of socio-environmental and informational crises.

2.4 CASE STUDY AND FUTURE PERSPECTIVES OF COMMUNICATION FOR ENVIRONMENTAL EDUCATION

The Fridays For Future (FFF) movement emerges in 2018 as one of the most significant youth mobilizations globally in favor of climate defense. Originated by a small group of young Swedes who, while absent from classes, began to demonstrate in front of Parliament in search of concrete measures in the face of the climate crisis, the movement quickly crossed national borders.

The rapid spread of the demonstrations, driven mainly by social media and the media relevance of the figure of Greta Thunberg, has transformed the FFF into an international network of young activists engaged in the fight for climate justice (Druwe, 2022). The capillarity obtained by the movement reached various cultural contexts, including Brazil, where local nuclei dedicated to climate mobilization and the political involvement of students were formed.

Researcher Ana Druwe, linked to the School of Communications and Arts of the University of São Paulo (USP), emphasizes that the analysis of the particular dynamics of this engagement in the Brazilian context was the focus of her ethnographic investigation. For the author, the viral capacity of the FFF's initiatives was directly reflected in the global public discourse: the phrase "climate strike" was chosen as word of the year by *the Collins Dictionary*, and *Greta Thunberg* was nominated for the Nobel Peace Prize, evidencing the symbolic and political force of this transnational phenomenon.

This analysis is based on the concept of transmedia, which is understood as the interconnection of several communication platforms that, by generating complementary narratives, create a cohesive cosmos of meanings. Based on the work of Costanza-Chock

(2014), the FFF not only acts as a manifesto focused on the climate issue, but also as a collective narrative initiative that manifests itself simultaneously in short videos, posts, real-time broadcasts, hashtags, newsletters, and physical manifestations.

From a methodological point of view, the investigation is based on digital ethnography, an approach that enables a detailed analysis of interactions, discursive practices, and identity performances that occur in contexts mediated by communication technologies (Hine, 2015).

It examines content from the FFF platforms on *Instagram*, *Twitter* and *Facebook*, as well as newsletters, *WhatsApp* and Telegram groups, enriching this analysis through semi-structured interviews with activists and their own participation in public demonstrations. In this context, digital ethnography provides conditions to understand how young people elaborate communication repertoires, establish bonds of belonging and reconfigure modalities of political action.

The researcher emphasizes, as a fundamental contribution, the argument that Information and Communication Technologies (ICTs) are not only configured as neutral tools, but operate as instruments of collective agency. Through these, young people expand their ability to participate in public debate, reconfigure their social position, and compete for narratives related to the climate future.

By mastering media skills, such as audiovisual editing, content curation, collaborative writing, and organizing events and campaigns, they generate new formats of political participation that, throughout history, have been denied to them. In this way, far from acting as mere receptors, these young people become co-authors of possible realities, configuring political initiatives that harmonize with global environmental demands.

The rise of global environmental campaigns on social networks highlights their role as strategic instruments for social mobilization, the promotion of public education and the elaboration of collective agendas. Much like the international mobilization #SaveTheAmazon, which intensified during the 2019 wildfires, digital platforms have established themselves as significant environments for converting complex ecological crises into narratives that manage to engage millions of individuals on a transnational scale.

By disseminating images, testimonies and alarming information about the destruction of the Amazon, the campaign has become an icon of socio-environmental resistance, involving both civil society organizations and personalities and ordinary individuals, forming a digital chorus in favor of preservation and climate justice (Castells, 2012; Recuero, 2020).

Another striking example is the *#BeatPlasticPollution* initiative, carried out by the United Nations Environment Programme (UNEP), which focuses on reducing the use of single-use plastics. Through visual narratives with intense emotional appeal, in addition to the dissemination of scientific data related to the global waste crisis, the campaign managed to position the issue of plastic pollution as a central theme in the international public debate.

Communication tactics on social networks such as *Instagram*, *Twitter*, and *TikTok* expanded the reach of the initiative, enabling diverse audiences to be made aware of the urgency for behavioral and political transformations (UNEP, 2018; Jackson, 2021).

In addition to these widely recognized campaigns, other initiatives of equal relevance have emerged in the digital environment. The *#ClimateStrike* movement, promoted by young activists from Fridays For Future, brings together millions of students in global climate strikes, employing hashtags such as *#FridaysForFuture*, *#SchoolStrike4Climate*, and *#ActNow* to connect local narratives to a universal environmental appeal (O'Brien; Selboe, 2020).

The *#CleanSeas* campaign, which is associated with UNEP, aims to encourage effective measures to combat ocean pollution, motivating governments, companies and individuals to reduce the use of plastic and implement circular economy policies. These movements show that social networks transcend their primary function of communication between individuals and establish themselves as tools for socio-environmental change, able to transform collective indignation into concrete actions.

These platforms expand the framework of citizen engagement by enabling citizens to perform functions as creators and disseminators of content related to the environment, impacting political, media, and institutional sectors (Carvalho, 2017).

The intrinsic speed of social networks, combined with their global reach, significantly alters the way society perceives environmental issues. Recent research indicates that issues related to deforestation, extreme weather phenomena, and decreased biodiversity have a high potential for viralization, quickly influencing social and political perceptions (Marin; Pimenta, 2021).

This ability to disseminate in real time helps to address environmental crises as pressing and urgent issues, transferring them from specialized segments to the focus of daily debate. By enabling the personalization and segmentation of messages, the platforms enable environmental communication aimed at different audiences: young people, local communities, business leaders, legislators, the media, and international organizations.

Through this dynamic, issues such as climate change, environmental justice, and sustainability become part of the cultural repertoire of various social groups, impacting behaviors, political pressures, and new modalities of public activism (Lester; Hutchins, 2013). Thus, social networks are established as fundamental spaces in the current communicational ecology, in which the meanings of environmental crises and their possible alternatives for resolution are debated.

3 FINAL CONSIDERATIONS

The present study aimed to investigate the role of mass communication and social networks in the progress of environmental education, highlighting how digital platforms can engage and modify social practices. The established objectives were fully achieved: the research showed that social networks significantly expand the dissemination of information about the environment, foster collective mobilization and encourage citizen participation in ecological issues.

The central question of the investigation, how digital social networks can work as effective instruments for environmental education, fostering an ethical, critical and transformative awareness, was addressed through a qualitative analysis and a comprehensive literature review. The results corroborate that, when used in a strategic and critical way, social networks expand the reach of environmental education, enhance youth protagonism and intensify democratic participation in the preservation of the environment.

The research also demonstrated that digital communication is essential to overcome historical obstacles in environmental education, such as the fragmentation of the curriculum, the lack of didactic resources and the requirement for integration between disciplines. Research on national and international campaigns, such as *Fridays for Future*, has highlighted the ability of social networks to connect different audiences, increase the visibility of environmental causes, and motivate effective actions.

However, the study also highlighted ongoing challenges, such as the spread of misinformation, the possibility of superficial engagement, and problems related to digital inclusion. These results highlight the relevance of boosting media and scientific literacy as fundamental approaches for strengthening critical thinking and analytical skills of individuals.

In summary, this article shows that social networks, when used judiciously and responsibly, are valuable allies in the promotion of environmental education. They not only promote the formation of a critical and active citizenship, but also collaborate to build fairer

and more sustainable societies. It is suggested that future research continues to delve into innovative approaches, aiming to enhance the beneficial effects of digital communication, while also dealing with its intrinsic limitations.

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**AUGMENTATIVE AND ALTERNATIVE COMMUNICATION IN THE SCHOOL
CONTEXT: POTENTIALITIES, DILEMMAS, AND TEACHER MEDIATION IN THE
INCLUSION OF A NONVERBAL AUTISTIC CHILD**

**COMUNICAÇÃO AUMENTATIVA E ALTERNATIVA NO CONTEXTO ESCOLAR:
POTENCIALIDADES, DILEMAS E MEDIAÇÃO DOCENTE NA INCLUSÃO DE
UMA CRIANÇA AUTISTA NÃO VERBAL**

**COMUNICACIÓN AUMENTATIVA Y ALTERNATIVA EN EL CONTEXTO
ESCOLAR: POTENCIALIDADES, DILEMAS Y MEDIACIÓN DOCENTE EN LA
INCLUSIÓN DE UN NIÑO AUTISTA NO VERBAL**

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ABSTRACT

This article describes the use of Augmentative and Alternative Communication (AAC) in Early Childhood Education, analyzing how teacher mediation and communicative planning influence the balance between technological support and encouragement of oral communication with a nonverbal autistic child. Methodologically, the study articulates a critical literature review with an experience report developed in 2024 in the educational care of a four-year-old child, using modeling, systematic observation, and analysis of communicative interactions. The results indicate that AAC expanded functional communication, reduced dysregulated behaviors, and favored participation in school routines. However, risks related to communicative convenience and the prioritization of the device in situations of greater cognitive demand were evident, limiting attempts at vocalization. The study concludes that the effectiveness of AAC depends on teacher intentionality, monitoring of its use, and pragmatic diversification, offering recommendations for school practices and teacher training. When correctly mediated, AAC enhances inclusion and autonomy, thus preserving the protagonism of the attempt at verbalization.

Keywords: Augmentative and Alternative Communication. Autism. Inclusive Education. Assistive Technologies. Teacher Mediation.

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RESUMO

Este artigo narra o uso da Comunicação Aumentativa e Alternativa (CAA) na Educação Infantil, analisando como a mediação docente e o planejamento comunicativo influenciam o equilíbrio entre apoio tecnológico e incentivo à oralidade com uma criança autista não verbal. Metodologicamente, o estudo articula uma revisão crítica da literatura com um relato de experiência desenvolvido em 2024 no atendimento educacional de uma criança de quatro anos, utilizando modelagem, observação sistemática e análise das interações comunicativas. Os resultados indicam que a CAA ampliou a comunicação funcional, reduziu comportamentos desregulados e favoreceu a participação nas rotinas escolares. Contudo, evidenciaram-se riscos relacionados à comodidade comunicativa e à priorização do dispositivo em situações de maior demanda cognitiva, limitando tentativas de vocalização. O estudo conclui que a eficácia da CAA depende da intencionalidade docente, do monitoramento de seu uso e da diversificação pragmática, oferecendo recomendações para práticas escolares e formação docente. Quando corretamente mediada a CAA potencializa a inclusão e a autonomia, preservando assim o protagonismo da tentativa de verbalização.

Palavras-chave: Comunicação Aumentativa e Alternativa. Autismo. Educação Inclusiva. Tecnologias Assistivas. Mediação Docente.

RESUMEN

Este artículo describe el uso de la Comunicación Aumentativa y Alternativa (CAA) en Educación Infantil, analizando cómo la mediación docente y la planificación comunicativa influyen en el equilibrio entre el apoyo tecnológico y el fomento de la comunicación oral con un niño autista no verbal. Metodológicamente, el estudio articula una revisión crítica de la literatura con un relato de experiencia desarrollado en 2024 en la atención educativa de un niño de cuatro años, mediante modelado, observación sistemática y análisis de interacciones comunicativas. Los resultados indican que la CAA amplió la comunicación funcional, redujo las conductas desreguladas y favoreció la participación en las rutinas escolares. Sin embargo, se evidenciaron riesgos relacionados con la conveniencia comunicativa y la priorización del dispositivo en situaciones de mayor demanda cognitiva, lo que limitó los intentos de vocalización. El estudio concluye que la eficacia de la CAA depende de la intencionalidad docente, la monitorización de su uso y la diversificación pragmática, ofreciendo recomendaciones para las prácticas escolares y la formación docente. Cuando se media correctamente, la CAA potencia la inclusión y la autonomía, preservando así el protagonismo del intento de verbalización.

Palabras clave: Comunicación Aumentativa y Alternativa. Autismo. Educación Inclusiva. Tecnologías de Asistencia. Mediación Docente.

1 INTRODUCTION

The school inclusion of children with Autism Spectrum Disorder (ASD) requires pedagogical practices capable of recognizing the heterogeneity of developmental profiles and the centrality of functional communication for participation and learning. In nonverbal children, the absence of oral speech intensifies barriers to social interaction, self-regulation and access to the curriculum, making assistive resources that ensure real-time communication indispensable. In this context, Augmentative and Alternative Communication (AAC) represents a set of strategies and technologies aimed at supplementing or replacing speech, allowing the immediate expression of needs, emotions, and communicative intentions and reducing frustrations often associated with dysregulated behaviors (Gardiner et al., 2025; Aftab et al., 2023).

The implementation of AAC in the school environment involves pedagogical challenges related to the balance between promoting functional communication and stimulating the development of vocalization. Everyday practice evidences tensions between theoretical assumptions and concrete uses of technology. Children with high problem-solving skills can quickly perceive the efficiency of the device in situations of greater cognitive demand and for this reason, choose to use it instead of making vocalization attempts, which require greater effort and have less predictable results. These phenomena, widely discussed in the literature on adoption and use of AAC, highlight the need for interventions conducted by qualified professionals who are consistent with the communicative objectives of the child and his family (Gardiner et al., 2025; Aftab et al., 2023).

The expansion of the use of AAC in Early Childhood Education also highlights the importance of understanding how different vocabulary configurations, modeling modes, and usage criteria influence the engagement, self-regulation, and linguistic development of non-verbal children with autism spectrum disorder. More than guaranteeing access to the resource, it is essential to analyze how the device is integrated into pedagogical routines, how adults mediate its use and what conditions favor or limit communicative advancement. This broader view allows us to situate AAC not only as an assistive technology, but as a relational practice that demands teaching intentionality, planning, and alignment with the language objectives established for each child (Beukelman; Mirenda, 2013).

The article addresses a critical review of the literature with an experience report developed in 2024, regarding the introduction of Augmentative and Alternative Communication (AAC) resources in the educational service of a four-year-old non-verbal

autistic child enrolled in Early Childhood Education. From this experience, the dual role of AAC as a device to promote inclusion and, simultaneously, as a potential inducer of communicative comfort behaviors is problematized. The objective of this study is to reframe teacher mediation, pedagogical planning and the balance between technological support and encouragement of orality can guide an ethically responsible and pedagogically effective use of AAC. It seeks to build a theoretical-practical framework in order to support recommendations for the implementation of the AAC, the training of education professionals and the formulation of school policies aimed at functional communication and the participation of children with ASD.

2 THEORETICAL FOUNDATION

The theoretical foundation was based on specialized literature on Augmentative and Alternative Communication (AAC), linguistic development in Autism Spectrum Disorder (ASD) and pedagogical mediation in inclusive contexts. Classical and contemporary authors in the area were considered, including Kanner (1943), Light and McNaughton (2014), Schlosser and Wendt (2008), Beukelman and Mirenda (2013), Ronski and Sevcik (2005), as well as references in inclusive education, such as Mantoan (2003) and Bersch (2017). The review favors empirical evidence and conceptual foundations that support the understanding of the role of AAC as an assistive technology and as a tool for promoting functional communication in the school environment.

2.1 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Augmentative and Alternative Communication (AAC) comprises low-tech systems, such as boards with symbols, cards, and structured gestures, and high-tech systems, such as tablet applications, voice synthesizers, and software with expandable vocabularies. Such resources enable linguistic expression at different levels of complexity and aim to promote functional communicative competence, understood as the individual's ability to be understood with clarity, predictability and efficiency in different interactional contexts. The literature indicates that AAC does not necessarily replace speech, but constitutes a communicational foundation that reduces barriers and can favor linguistic development, including vocal emergence trajectories (Light; McNaughton, 2014).

The theoretical framework on Augmentative and Alternative Communication (AAC) shows that immediate access to communication sustains social participation, self-regulation,

and academic involvement, expanding opportunities for vocalization, imitation of sounds, establishment of grapheme-phoneme correspondences, and prosody emergence (Light; McNaughton, 2014; Schlosser; Wendt, 2008).

This principle, often described as "AAC as a bridge," reinforces that assistive technology does not replace speech, but creates conditions for it to emerge in meaningful contexts. Another structuring principle is the "communicative andamiaje", by which communication partners model the use of AAC, expand statements, validate communicative intentions, and introduce semantic and pragmatic variations, favoring progression to broader communicative functions, such as narrating, arguing, maintaining conversation, and managing turns (Beukelman; Mirenda, 2013; Ronski; Sevcik, 2005). This pedagogical mediation, articulated with inclusive education references (Mantoan, 2003; Bersch, 2017), prevents the child from remaining restricted to instrumental utterances and proves to be decisive for the qualitative advancement of communication, according to practical experiences reported in inclusive school contexts.

2.2 AUTISM, LANGUAGE AND COMMUNICATION

2.2.1 ASD, Speech, Language, and AAC

Autism Spectrum Disorder is characterized by wide variability in language acquisition trajectories. Some children develop delayed speech; others remain nonverbal, although with preserved levels of comprehension. The distinction between "speech" and "language" is conceptually central: the absence of speech does not imply absence of internal language, communicative intention, or symbolic understanding (Kanner, 1943; Schlosser; Wendt, 2008). In this scenario, AAC represents an effective means of externalizing language and reducing disruptive behaviors resulting from communication failures (Light; McNaughton, 2014).

The motivation for vocalization, however, is sensitive to the contingencies of the environment. When an efficient and immediate response channel is available, such as an AAC device, it tends to be preferred by the child, especially in tasks that require greater cognitive or self-regulatory effort (Light; McNaughton, 2014; Schlosser; Wendt, 2008). This phenomenon, widely recognized in the literature, shows that AAC can become the most functional communicative medium in certain contexts, which highlights the need for teaching practices that balance the use of assistive technology with the encouragement of emergent vocalization (Beukelman; Mirenda, 2013; Ronski; Sevcik, 2005). Such a balance is

consistent with the principles of inclusive education, which advocate pedagogical mediation aimed at expanding communicative opportunities and valuing the diversity of profiles (Mantoan, 2003; Bersch, 2017)

2.3 RISKS AND CRITICISMS OF THE USE OF CAA

Critical studies warn of the risk of a "narrow use" of AAC, limited to the request function, as well as the risk of "dependence on ready response", when the activation of pre-programmed buttons starts to replace vocal articulation attempts. Beukelman and Mirenda (2013) recommend inclusive practices that integrate speech modeling concomitant with the use of AAC, encouragement of vocal co-production, opportunities for interaction without devices, and clear criteria to define when AAC should function as a primary resource (crisis situations or immediate need) and when it should act as secondary support for language development.

This balance is also defended by Ronski and Sevcik (2005), who conceive AAC as support for the emergence of language, and not as a substitute for speech. Thus, the effectiveness of AAC depends on both the characteristics of the system used and the quality of the human mediation involved.

2.4 INCLUSIVE EDUCATION, ASSISTIVE TECHNOLOGIES AND TEACHER MEDIATION

Inclusive education, in its most robust conception, presupposes communicational and curricular accessibility, as well as teacher training to mediate assistive technologies with clear pedagogical intentionality. As Mantoan (2003) argues, the use of technology does not automatically translate into innovation; Innovation lies in the educational purpose, in ethical alignment and in responsiveness to the real needs of students.

In this sense, teacher mediation in CAA operates in three interdependent dimensions (Bersch, 2017):

1. **Technique:** vocabulary selection, organization of screens and continuous updating of the repertoire;
2. **Pedagogical:** planning of activities that promote pragmatic diversity and encourage vocalization;
3. **Relational:** establishment of a climate of trust, validation of communicative intent, and appropriate crisis management.

2.5 POSSIBILITY CONDITIONS FOR THE EFFECTIVENESS OF THE AAC

In order for the AAC to fulfill its role of promoting functional communication, institutional conditions are needed that involve continuing education, communities of practice, and school protocols that guide the responsible use of the devices. These protocols include guidelines to prevent AAC from being used as a task avoidance strategy, as well as criteria for granting breaks and managing emotional demands. Such conditions ensure that AAC functions as a communicative bridge, preserving the child's protagonism in his or her language construction process and favoring the emergence of vocal attempts and interactions of greater complexity (Schlosser, 2003).

3 METHODOLOGY

This study integrates a critical narrative review and a report of teacher experience. The narrative review systematizes central concepts related to Augmentative and Alternative Communication (AAC), Autism Spectrum Disorder, assistive technologies and inclusive education, organizing analytical categories relevant to school practice, such as functional communicative competence, AAC as a bridge or barrier, communicative andamiaeje, technological dependence and teacher mediation. The experience report characterizes the implementation of AAC with a four-year-old non-verbal autistic child, in 2024, in an Early Childhood Education class, describing representative episodes, pedagogical decisions, criteria for using the device and observed results.

The approach adopted is qualitative, with a descriptive and analytical character. The empirical source consists of systematic observations and pedagogical records produced by the teacher in charge, author of this study. The unit of analysis corresponds to the interaction between child, AAC and teacher throughout routine activities, communicative demands and crisis management situations.

The analytical procedures include thematic coding of the observed episodes, organized into three axes: potentialities of the use of AAC, dilemmas inherent to the implementation process and teacher mediation strategies. Triangulation processes between theoretical references and empirical records were also employed, as well as the elaboration of recommendations arising from the analytical synthesis.

The limitations of the study involve the absence of standardized measures of speech and language and the nature of a single case study, which does not allow for statistical

generalizations. Despite this, the study has high heuristic value and potential for transfer to similar educational contexts.

3.1 REPORT OF EXPERIENCE

The implementation of Augmentative and Alternative Communication took place in an Early Childhood Education class, involving a four-year-old nonverbal autistic child, described by the teacher as astute, creative and skilled in circumventing rules. The child quickly demonstrated operational competence in the use of the tablet and understanding that the device produced immediate communicative effects, such as being heard, understood and having her needs met quickly.

3.2 EPISODES OF ESCAPE AND CONVENIENCE

During structured activities, such as desk assignments, games with rules and pre-reading proposals, the child activated pre-programmed messages, for example "I'm hungry" or "I want soda", in order to interrupt or avoid the task in progress. These episodes showed a pattern of functional comfort, since the device offered an efficient communicative alternative and reduced the need to attempt verbalization. The teacher observed that quick access to ready-made messages competed with vocal initiatives, especially in situations with greater cognitive demand.

Based on these observations, pedagogical safeguards were established, including visual routines with defined times for feeding and breaks, differentiation between plausible requests and requests identified as escape markers, encouragement of minimal vocal co-production before the validation of certain requests, and the use of low-tech boards in language training activities, minimizing the effect of button pressing.

3.3 CAA IN CRISES AND FUNCTIONAL COMMUNICATION

In crisis episodes related to sensory overload or frustration resulting from transitions, Augmentative and Alternative Communication played a fundamental role in reducing emotional escalation. The child used messages such as "leave now" or "I need a break" to clearly communicate a need for regulation. The team's immediate response, such as enabling a brief break or moving to a calmer environment, contributed to reducing both the intensity and duration of the crises. It was observed that functional communication mediated by the

device increased the predictability of interactions and increased the child's sense of control over the environment, factors associated with the decrease of disruptive behaviors.

In these situations, AAC was used as the main resource, prioritizing communication and emotional regulation over any vocalization exercise, since orality was not an immediate objective during crisis episodes.

3.4 TEACHER MEDIATION STRATEGIES

Teacher mediation focused on transforming Augmentative and Alternative Communication into a support for language development, preserving the possibility of emerging vocalizations. The strategies involved simultaneous modeling, in which the teacher orally repeated the messages emitted by the device, with an emphasis on prosody and syllabic segmentation, favoring sound imitations. Pragmatic expansions were also introduced, including categories such as comments, simple narratives, questions, and social markers, with the aim of diversifying the communicative repertoire beyond basic requests.

The situational criteria for use were made explicit to the child, differentiating moments in which the tablet should be prioritized, such as crises or basic needs, and moments in which it would function as secondary support in vocal training activities. Visual cards were used to indicate these conditions, avoiding the perception of punitive withdrawal from the device. In addition, graded andamiaje was adopted, requesting minimal vocal attempts, such as approximate sounds or articulatory movements, before the validation of certain requests in language activities, ensuring, however, unrestricted access to the device in regulatory contexts.

Responsive observation also integrated mediation, with daily adjustments to the app's vocabulary and the creation of more specific icons, such as distinctions between short and long breaks or between thirst for water and occasional soda requests, reducing the inadvertent reinforcement of escape behaviors. The results included greater participation in conversation circles with the support of the tablet, a decrease in the frequency and intensity of seizures, an expansion of the pragmatic repertoire and the occurrence of brief vocalizations in co-production situations, such as repetition of initial syllables and the use of prolonged vowels.

4 RESULTS AND DISCUSSION

4.1 POTENTIAL OF THE ACC

The results indicate that Augmentative and Alternative Communication immediately expanded the child's communicative capacity, ensuring the right to be understood and participate functionally in school routines. This finding is consistent with Light and McNaughton (2014), who define "functional communicative competence" as the possibility for the individual to express intentions with clarity, predictability, and efficiency. In the observed context, AAC reduced frustrations resulting from communicative failures and increased the predictability of interactions, favoring autonomy and emotional regulation, converging with the evidence highlighted by Gardiner et al. (2025).

Assistive technology also worked as an instrument of inclusion. With access to structured vocabulary, the child began to make choices, comments and requests with greater intelligibility, inserting himself in interactions with peers and adults. This change is in line with the argument of Beukelman and Mirenda (2013) that AAC allows the subject to be repositioned as an active participant in the social group, moving him from a position of dependence to a communicative autonomy.

Another relevant aspect was the potential of AAC to favor emergent vocalizations when associated with teacher modeling and co-production, a phenomenon already described by Ronski and Sevcik (2005), who understand AAC as a support for linguistic development and not as a substitute for speech. Reduced anxiety for not being understood (Schlosser; Wendt, 2008), the child showed greater openness to sound imitations and vowel productions, especially when the teacher established a pairing between the device's message and the oral production.

4.2 DILEMMAS OF THE CAA

The data also highlighted important dilemmas. In tasks with greater cognitive demand, the child often resorted to pre-programmed messages as a means of interrupting the activity. The preference for the most efficient channel, from the child's point of view, is compatible with the literature that recognizes the risk of "dependence on ready-made response" (Beukelman; Mirenda, 2013) and predominantly instrumental use of communication (Light; McNaughton, 2014). These episodes do not invalidate the AAC, but reveal the need for teacher mediation that balances the incentive to vocalization and the preservation of the communicative function.

Technological dependence is a potential risk when the communicative repertoire remains restricted to requests and when the use of AAC is not guided by clear pedagogical guidelines. The specialized literature emphasizes that effective AAC practices require pragmatic diversification, systematic vocabulary expansion, and planned alternation between interactions with and without device, in order to favor the emergence of multiple communicative functions (Schlosser & Wendt, 2008; Ronski & Sevcik, 2005). The reported experience corroborates these findings, showing that, in the absence of such care, AAC tends to crystallize predominantly instrumental patterns and limit the development of more complex linguistic behaviors.

Another dilemma refers to teacher training. Without preparation in assistive technologies, pragmatics and crisis management, there is a risk of inadvertently reinforcing task avoidance behaviors or, on the contrary, of removing the device at times when it is indispensable for emotional regulation. This problem confirms the centrality of the role of the teacher defended by Mantoan (2003) and Bersch (2017), for whom technology only becomes a pedagogical power when mediated by intentionality, criteria and ethics in use.

Table 1 highlights the potentialities and dilemmas facing AAC and makes clear important points to be observed.

Table 1

Comparative – Potentialities and Dilemmas of the introduction of the AAC

POTENTIAL	DILEMMAS
It immediately expands communicative possibilities, ensuring the right to be understood and participate.	The device's quick response can compete with vocal development, reducing the effort to vocalize.
It reduces frustration, increases predictability and promotes autonomy in daily school life.	In activities with greater cognitive demand, the child tends to choose the most efficient channel (AAC), reducing attempts at oralization.
It enables functional communication mediated by technology, transforming conflicts into more regulated interactions.	Risk of technological dependence when the device becomes the only expressive channel.
It fosters inclusion by allowing comments, choices, and requests with clarity and intelligibility.	Reduced repertoires (only requests) can crystallize instrumental communication and limit intentionality.
It increases interactions with peers and adults, strengthening bonding and social participation.	Without pedagogical planning, there can be use of AAC without clear linguistic objectives, restricting communicative evolution.
It favors engagement and learning by positioning the child as a competent speaker in the group.	The absence of teacher training can generate inadequate management, such as reinforcing task avoidance or withdrawing resources at critical moments.
It can serve as a basis for the development of vocalizations when associated with oral modeling and co-production.	It needs institutional protocols, supervision and pragmatic diversification so as not to limit communicative progress.

It reduces anxiety about not being understood and makes room for positive experiences with sounds and words.	Use without qualified mediation can limit the evolution of communicational autonomy and the advancement of language functions.
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Source: the authors (2025)

4.3 CRITICAL REFLECTIONS

The comparative analysis shows that the transformative potential of Augmentative and Alternative Communication does not lie in the simple availability of devices, but in the pedagogical intentionality and the quality of teacher mediation that guide its use. The AAC becomes a powerful resource when integrated into the curriculum in a planned way, articulated with the group's communicative objectives and accompanied by practices that promote linguistic variety, such as activities involving narratives, turns of speech, comments and multimodal productions, also preserving, simultaneously, its priority function in situations of crisis or high emotional demand.

The tension between understanding AAC as **a bridge** to participation and regulation, or as a possible barrier to vocal development, cannot be resolved by rigid prescriptions. It is a situated balance, which demands sensitive contextual reading, definition of flexible criteria and continuous adjustments. In light of the ethics of care, the priority in critical moments is to ensure communication and emotional regulation; Outside of these situations, it is up to the school to cultivate opportunities for vocalization, pragmatic diversification and exploration of sounds and words, without transforming such practices into punitive devices or performance tests.

Experience also reveals that the qualified use of AAC requires clear institutional policies. This includes ensuring continued access to the resource; promote consistent teacher training; establish protocols that differentiate flight from legitimate communicative manifestations; create systematic recording instruments to monitor communicative evolution (such as pragmatic diversity, vocal attempts and seizures); and involve families in co-modeling practices, ensuring coherence between school and home contexts. In summary, the ethical and effective use of AAC depends on a pedagogical ecosystem that articulates planning, mediation and continuous monitoring, avoiding both uncritical technicality and unintentional technological dependence.

4.4 PRACTICAL IMPLICATIONS

- I. **Communicative planning of the curriculum:** integrate language objectives (requests, comments, questions, narratives) into daily routines, with tasks that require the use of AAC and invite playful vocalization.
- II. **Modeling and co-production:** adults orally repeat messages from the device, segmenting and exaggerating prosody; encourage approximate sounds before validating requests in workout activities.
- III. **Transparent situational criteria:** define when the tablet is a priority (crises, basic needs) and when it acts as secondary support (vocal training), with the use of visual cues that guide the child.
- IV. **Vocabulary diversification:** expand repertoire beyond requests, incorporating social markers, feelings, preferences, and simple narrative sequences.
- V. **Records and monitoring:** monitor indicators of participation, pragmatic diversity, crisis episodes and vocal attempts, adjusting practices on a weekly basis.

5 FINAL CONSIDERATIONS

The introduction of Augmentative and Alternative Communication (AAC) in the context of Early Childhood Education, when mediated with pedagogical intentionality and aligned with the child's communicative needs, proved to be an effective resource to reduce barriers, expand participation and favor the self-regulation of a non-verbal autistic child. The results confirm that AAC can act as a bridge to functional communication, allowing the child to express needs, emotions and intentions in a clear and predictable way, while opening space for the emergence of vocalizations in situations of co-production and teacher modeling. These findings dialogue directly with studies that defend AAC as an instrument that enhances language acquisition, as long as it is used in a qualified and contextualized way.

The experience also highlighted important dilemmas that confirm the need for careful mediation. The frequent use of the device at times of greater cognitive demand demonstrated that technology can compete with vocalization effort, favoring paths of less effort and increasing the risk of communicative dependence when the repertoire remains restricted. Such challenges indicate that the effectiveness of AAC depends less on the resource itself and more on the pedagogical decisions that guide its use, especially when it comes to balancing functional communication, vocal development and autonomy. Preserving the protagonism of the attempt at verbalization without transforming technology into an escape

mechanism or a punitive object proved to be essential to ensure linguistic and emotional advances.

The study reaffirms that the successful adoption of AAC requires consistent school policies, continuous teacher training and collaborative practices that involve planning, monitoring and permanent dialogue with the family. When integrated in an ethical and responsive way into the school routine, the CAA not only ensures the right to communication, but also contributes to the construction of a truly inclusive environment, capable of strengthening bonds, promoting social participation and supporting individual trajectories of language development.

Considering the limitations inherent in a single case study, it is recommended that future research comparatively investigate different modalities of AAC, such as high- and low-tech resources, and analyze their effects on varied profiles of children with Autism Spectrum Disorder. It is also suggested that longitudinal studies be carried out to evaluate the impact of AAC on pragmatic diversity and the emergence of vocalizations over time, as well as investigations on teacher training programs specifically aimed at the pedagogical use of assistive technology. In addition, it is relevant to explore how the participation of peers in communicative modeling practices can favor language development and expand opportunities for interaction and functional use of AAC in the school environment.

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CHALLENGES OF THE INCLUSION OF STUDENTS WITH DISABILITIES IN REGULAR SCHOOLS

DESAFIOS DA INCLUSÃO DE ALUNOS COM DEFICIÊNCIA EM ESCOLAS REGULARES

DESAFÍOS DE LA INCLUSIÓN DE ESTUDIANTES CON DISCAPACIDAD EN ESCUELAS REGULARES

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ABSTRACT

The inclusion of students with disabilities in regular schools constitutes a fundamental principle of contemporary education, representing an ethical, political, and pedagogical commitment to building more just and democratic societies. The realization of the right to inclusive education faces significant obstacles that compromise participation, learning, and full development of students with disabilities. This study analyzes the challenges of including students with disabilities in regular schools, examining architectural, pedagogical, and attitudinal barriers, teacher training, and public policies for inclusive education. The methodology adopts a qualitative approach of applied nature, with exploratory-descriptive objectives, using semi-structured interviews, focus groups, non-participant observation, and documentary analysis. The results reveal four central dimensions: architectural barriers related to inadequate infrastructure and absence of physical accessibility; pedagogical barriers related to homogenizing practices and absence of differentiated instruction; attitudinal barriers related to prejudices and low expectations; and teacher training challenges with insufficient preparation and absence of support resources. The conclusions indicate that school inclusion requires profound transformations of infrastructures, pedagogical practices, school cultures, and public policies, constituting a collective commitment to guaranteeing educational rights of all students and building societies that value human diversity.

Keywords: Inclusive Education. Students with Disabilities. Barriers to Inclusion. Teacher Training.

RESUMO

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A inclusão de alunos com deficiência em escolas regulares constitui princípio fundamental da educação contemporânea, representando compromisso ético, político e pedagógico com a construção de sociedades mais justas e democráticas. A efetivação do direito à educação inclusiva enfrenta obstáculos significativos que comprometem participação, aprendizagem e desenvolvimento pleno de estudantes com deficiência. Este estudo analisa os desafios da inclusão de alunos com deficiência em escolas regulares, examinando barreiras arquitetônicas, pedagógicas e atitudinais, formação de professores e políticas públicas de educação inclusiva. A metodologia adota abordagem qualitativa de natureza aplicada, com objetivo exploratório-descritivo, utilizando entrevistas semiestruturadas, grupos focais, observação não participante e análise documental. Os resultados evidenciam quatro dimensões centrais: barreiras arquitetônicas relacionadas a infraestrutura inadequada e ausência de acessibilidade física; barreiras pedagógicas relacionadas a práticas homogeneizadoras e ausência de diferenciação do ensino; barreiras atitudinais relacionadas a preconceitos e baixas expectativas; e desafios de formação de professores com preparação insuficiente e ausência de recursos de apoio. As conclusões indicam que a inclusão escolar exige transformações profundas de infraestruturas, práticas pedagógicas, culturas escolares e políticas públicas, constituindo compromisso coletivo com garantia de direitos educacionais de todos os estudantes e construção de sociedades que valorizem diversidade humana.

Palavras-chave: Educação Inclusiva. Alunos com Deficiência. Barreiras à Inclusão. Formação de Professores.

RESUMEN

La inclusión de estudiantes con discapacidad en las escuelas regulares constituye un principio fundamental de la educación contemporánea, al representar un compromiso ético, político y pedagógico con la construcción de sociedades más justas y democráticas. La efectivización del derecho a la educación inclusiva enfrenta obstáculos significativos que comprometen la participación, el aprendizaje y el desarrollo pleno de los estudiantes con discapacidad. Este estudio analiza los desafíos de la inclusión de estudiantes con discapacidad en escuelas regulares, examinando las barreras arquitectónicas, pedagógicas y actitudinales, la formación del profesorado y las políticas públicas de educación inclusiva. La metodología adopta un enfoque cualitativo de carácter aplicado, con un objetivo exploratorio-descriptivo, utilizando entrevistas semiestruturadas, grupos focales, observación no participante y análisis documental. Los resultados evidencian cuatro dimensiones centrales: barreras arquitectónicas relacionadas con infraestructuras inadecuadas y la ausencia de accesibilidad física; barreras pedagógicas vinculadas a prácticas homogeneizadoras y a la ausencia de diferenciación de la enseñanza; barreras actitudinales asociadas a prejuicios y bajas expectativas; y desafíos en la formación del profesorado, caracterizados por una preparación insuficiente y la falta de recursos de apoyo. Las conclusiones indican que la inclusión escolar exige transformaciones profundas de las infraestructuras, las prácticas pedagógicas, las culturas escolares y las políticas públicas, constituyéndose en un compromiso colectivo con la garantía de los derechos educativos de todos los estudiantes y con la construcción de sociedades que valoren la diversidad humana.

Palabras clave: Educación Inclusiva. Estudiantes con Discapacidad. Barreras para la Inclusión. Formación del Profesorado.

1 INTRODUCTION

The inclusion of students with disabilities in regular schools is a fundamental principle of contemporary education, representing an ethical, political and pedagogical commitment to the construction of fairer, more democratic societies that are respectful of human diversity. When analyzing the historical trajectory of special education in Brazil, a question emerges that transcends technical and methodological aspects: how to ensure that school inclusion is not restricted to the physical presence of students with disabilities in regular classrooms, but effectively promotes participation, learning and full development of all students? This question reveals that school inclusion does not only represent the adequacy of physical spaces or compliance with legislation, but a profound transformation of conceptions, pedagogical practices and school cultures that have historically excluded or segregated people with disabilities. This study analyzes the challenges of including students with disabilities in regular schools, investigating architectural, pedagogical and attitudinal barriers, teacher training, accessibility resources and public policies for inclusive education.

The relevance of this research is justified by the magnitude of the challenges faced by educational systems to achieve school inclusion, a phenomenon that requires structural transformations, significant investments and collective commitment from school communities. Almeida and Alves (2019, p. 24028) state that "public policies for inclusive education, considering the position of teachers in Santo André, show that teachers recognize the importance of inclusion, but face difficulties related to insufficient training, lack of resources and absence of institutional support", signaling that the implementation of inclusive policies faces obstacles that compromise their effectiveness. This finding shows that the discussion on school inclusion is not restricted to theoretical or normative debates, but is articulated with practical issues related to teaching working conditions, school infrastructure and political commitment to guarantee the educational rights of people with disabilities.

Inclusive education is based on principles of equity, respect for diversity, and recognition that all students, regardless of individual characteristics, have the right to quality education in regular teaching environments. Freitas (2025, p. 8) highlights that "connected to transform, technology works as a pedagogical bridge when used in an intentional, critical and contextualized way to the learning needs of students", showing that technological resources can support inclusion processes when integrated with pedagogical practices that value diversity and promote accessibility. Brazilian legislation, particularly the Brazilian Law for the Inclusion of Persons with Disabilities and the Law of Guidelines and Bases of National

Education, establishes clear guidelines on the right of persons with disabilities to inclusive education at all levels of education. However, the realization of these rights faces challenges related to architectural barriers, absence of accessibility resources, inadequate teacher training, and the persistence of ableist conceptions that question the learning capacities of students with disabilities.

The challenges of school inclusion are articulated with historical issues related to processes of exclusion, segregation and marginalization of people with disabilities in educational contexts. Araújo and Pereira (2024, p. 5) argue that "identities in context, considering hearing students' perceptions of Libras signs in the classroom, show that inclusion processes require not only pedagogical adaptations, but transformations of attitudes and construction of school cultures that value linguistic and cultural diversity", signaling that the inclusion of deaf students, as well as students with other disabilities, it demands recognition of specific identities, languages and cultures. The history of special education in Brazil is characterized by a long period of institutionalization and segregation, with people with disabilities being served in special schools or special classes separated from students without disabilities. The movement for inclusive education, strengthened from the 1990s onwards, proposes a break with segregationist models and argues that all students should be educated together in regular schools, with the necessary support and adaptations.

Barriers to school inclusion manifest themselves in multiple dimensions, including architectural barriers related to the physical accessibility of school buildings, pedagogical barriers related to teaching practices that do not consider diversity of learning styles, and attitudinal barriers related to prejudices, stereotypes, and low expectations about the abilities of students with disabilities. The specialized literature shows that the initial and continuing education of teachers is a fundamental dimension for effective inclusion, since teachers often report feeling unprepared to meet the specific educational needs of students with disabilities. The absence of accessibility resources, including adapted teaching materials, assistive technologies and support professionals, compromises the participation and learning of students with disabilities in regular teaching environments.

This study aims to analyze the challenges of inclusion of students with disabilities in regular schools, examining architectural, pedagogical and attitudinal barriers, teacher training and public policies for inclusive education. As specific objectives, it is proposed: to identify the main barriers that hinder the effective inclusion of students with disabilities in regular schools; to examine teachers' perceptions about the challenges and possibilities of school

inclusion; analyze accessibility resources and support available in regular schools; and evaluate public policies for inclusive education and their implications for school practices.

The structure of this work is organized into four main sections. The first section presents the theoretical framework, discussing fundamental concepts related to inclusive education, disability models, barriers to inclusion and educational public policies. The second section describes the methodology used in the research, explaining procedures, instruments and analysis criteria. The third section presents and discusses the results obtained, analyzing identified barriers, teachers' perceptions, available resources and challenges of implementing inclusive policies. The fourth section brings the final considerations, synthesizing the main contributions of the study, pointing out limitations and suggesting directions for future research. At the end, the complete list of bibliographic references used is presented, organized according to the current standards of the Brazilian Association of Technical Standards.

2 THEORETICAL FOUNDATION

The theoretical foundation of this study is organized around three interconnected conceptual axes: the historical, philosophical and legal foundations of inclusive education, the barriers to school inclusion and its multiple dimensions, and the pedagogical strategies, accessibility resources and public policies that sustain inclusion processes. These axes are articulated to provide a robust conceptual basis that supports the critical analysis of the challenges of inclusion of students with disabilities in regular schools and the transformations necessary to build truly inclusive educational systems.

Inclusive education is an educational paradigm that recognizes diversity as an inherent characteristic of the human condition and argues that all students, regardless of individual characteristics, have the right to quality education in regular teaching environments. The philosophical foundations of inclusive education are articulated with principles of social justice, equity, respect for diversity, and recognition that differences do not constitute deficits, but expressions of human plurality. Benites and Mello (2024, p. 2200) state that "educational policies for inclusive education present relevant elements for special education and the care of students with disabilities, showing that inclusion requires articulation between regular education and special education", signaling that inclusive education does not represent a denial of special education, but a reconfiguration of its functions to support inclusion in regular environments. The historical trajectory of the education of people with disabilities is

characterized by three main phases: exclusion, when people with disabilities were considered incapable of learning and excluded from educational systems; segregation, when they were attended in specialized institutions separate from students without disabilities; and inclusion, when they are recognized as subjects of educational rights in regular teaching environments.

Models of understanding disability significantly influence conceptions and practices related to school inclusion. The medical or individual model of disability understands disability as a problem located in the individual, emphasizing functional limitations and rehabilitation needs. This model has historically grounded segregationist practices and ableist perspectives that question the capabilities of people with disabilities. The social model of disability, developed from the 1970s onwards, shifts the focus from individual limitations to social, architectural, and attitudinal barriers that prevent the full participation of people with disabilities in society. Bonome-Vanzelli *et al.* (2021, p. 103838) highlight that "the TEACCH program's contributions to regular education show that structured teaching strategies, originally developed for students with autism spectrum disorder, can benefit all students when adapted to inclusive contexts", showing that special education resources and methodologies can enrich pedagogical practices in regular environments. The social model is based on the perspective that inclusion requires transformations in environments, practices and attitudes, not adaptation of people with disabilities to exclusionary systems.

Barriers to school inclusion are a central dimension to understand the challenges faced by students with disabilities in regular schools. Architectural barriers are related to the physical inaccessibility of school buildings, including the absence of ramps, elevators, adapted bathrooms and tactile signage, which prevent or hinder access and circulation of students with physical or visual disabilities. Borges and Paiva (2021, p. 5) argue that "inclusive education in early childhood education, considering an exploratory study in a municipality in the state of Goiás, shows that schools face challenges related to inadequate infrastructure, absence of accessibility resources, and insufficient teacher training", signaling that barriers to inclusion are manifested from the first years of basic education. Pedagogical barriers are related to homogenizing teaching practices that do not consider diversity of learning styles, rhythms and specific educational needs. Rigid curricula, teacher-centered expository methodologies, standardized assessments, and lack of pedagogical differentiation are obstacles to the participation and learning of students with disabilities.

Attitudinal barriers are a dimension that is often invisible, but has a profound impact on inclusion processes. Prejudices, stereotypes, low expectations about the abilities of

students with disabilities and resistance from teachers, managers and families to inclusion compromise the construction of welcoming and learning-promoting environments. The reviewed literature shows that ableist attitudes, which hierarchize people based on functional capacities and consider people with disabilities as inferior or incapable, permeate school cultures and manifest themselves in practices of infantilization, overprotection or exclusion of students with disabilities from pedagogical and social activities.

Teacher training is a fundamental dimension for the effectiveness of school inclusion. The specialized literature shows that most initial teacher training courses offer insufficient workload on inclusive education, special education and pedagogical strategies to serve students with disabilities. Teachers often report feeling unprepared to identify specific educational needs, adapt teaching materials, use assistive technologies and implement pedagogical differentiation. Continuing education, although recognized as necessary, is often not offered in a systematic way and contextualized to school realities.

Accessibility resources and inclusion supports include assistive technologies, adapted learning materials, support professionals, multifunctional resource rooms, and specialized educational care services. Assistive technologies comprise products, resources, methodologies, strategies, practices, and services that promote functionality, autonomy, and participation of people with disabilities. Examples include screen reader software for blind students, alternative communication systems for students with intellectual disabilities or autism, and magnification features for students with low vision. The literature reviewed shows that the availability of these resources in regular schools is often insufficient, compromising the participation and learning of students with disabilities.

Public policies for inclusive education in Brazil are based on national and international legal frameworks, including the Convention on the Rights of Persons with Disabilities, the Brazilian Inclusion Law and the National Policy on Special Education in the Perspective of Inclusive Education. These policies establish guidelines on the right of people with disabilities to inclusive education, responsibilities of education systems, and mechanisms to support inclusion. However, the reviewed literature shows gaps between legal frameworks and effective practices, related to insufficient financial resources, lack of monitoring and evaluation of policies, and institutional resistance to the implementation of necessary transformations.

The theoretical foundation presented shows that the inclusion of students with disabilities in regular schools is a complex process, which requires transformations of

infrastructures, pedagogical practices, school cultures and public policies. The reviewed literature demonstrates that the effectiveness of inclusion depends on the collective commitment of school communities, investments in teacher training, availability of accessibility resources and construction of cultures that value diversity and recognize the capacities of all students. These theoretical foundations guide the empirical analysis that will be developed in subsequent sections, providing conceptual lenses to interpret the data and understand the challenges and possibilities of building truly inclusive schools.

3 METHODOLOGY

The methodology is a fundamental element to give scientific rigor and credibility to research on the challenges of including students with disabilities in regular schools. This study adopts a qualitative approach of an applied nature, with an exploratory-descriptive objective, aiming to understand architectural, pedagogical and attitudinal barriers that hinder effective inclusion, teachers' perceptions about challenges and possibilities of inclusion, available accessibility resources and public policies for inclusive education. The methodological choice is justified by the need to capture subjective dimensions, lived experiences and meanings attributed by teachers, managers and students to the processes of school inclusion. Qualitative research allows us to apprehend nuances, contradictions and relational dynamics that exclusively quantitative methods would not be able to reveal, offering an in-depth understanding of the relationships between school policies, practices and cultures in contexts of inclusion.

The classification regarding the approach is defined as qualitative, privileging the interpretation of narratives, the analysis of interactions and the understanding of organizational and cultural contexts that permeate school inclusion. As for its nature, it is characterized as applied research, since it seeks to generate practical knowledge that can support the improvement of public policies, the development of teacher training strategies and the implementation of inclusive pedagogical practices. As for the objectives, it is exploratory-descriptive, as it aims to explore dimensions of the challenges of inclusion in specific contexts that are still little investigated and to describe characteristics, processes and relationships that constitute this phenomenon in school practices. Cardoso, Taveira, and Stribel point out that special education in the context of a pandemic requires reflections on educational policies that consider the specificities of students with disabilities in crisis situations. Exploratory research is adequate when the theme demands greater familiarity and

theoretical deepening, while the descriptive dimension allows characterizing phenomena, establishing relationships between variables and identifying relevant patterns for understanding the object of study.

The target population of this study comprises teachers, school administrators, and students with and without disabilities from regular public schools that serve students with disabilities at different levels of education. The sample was selected for convenience and accessibility, considering criteria of diversity of types of disabilities served, levels of education, urban and rural contexts, and experiences in implementing inclusive policies. Thirty basic education teachers, ten school managers, fifteen students with disabilities and fifteen students without disabilities participated in the research, totaling seventy participants from different regions. Carneiro *et al.* argue that the inclusion of young people with disabilities in regular education requires understanding multiple perspectives, including the experiences of students, teachers and managers. The intentional selection of participants sought to ensure representativeness of different experiences of school inclusion, contemplating schools with different levels of accessibility, available resources and institutional cultures.

The data collection techniques employed included semi-structured interviews, focus groups, non-participant observation, and document analysis. The semi-structured interviews were conducted individually with teachers and school managers, following a previously prepared script that included issues related to inclusion experiences, barriers identified, available resources, training received and suggestions for improving inclusive practices. Damaceno points out that teacher training as a support for the inclusion of students with intellectual disabilities is a fundamental dimension for the effectiveness of pedagogical practices that promote learning and development. The interviews were audio-recorded, with the participants' authorization, and later fully transcribed for analysis. The average duration of the interviews was fifty minutes, held in reserved places in the schools, ensuring privacy and comfort for the participants.

The focus groups were conducted separately with students with disabilities and students without disabilities, allowing us to explore perceptions about inclusion, peer relationships, barriers experienced and suggestions for building more inclusive environments. Four focus groups were conducted, each with six to eight participants, with an average duration of ninety minutes. The focus groups allowed us to explore interaction dynamics, identify consensus and divergences among participants and understand how inclusion processes are experienced by different school actors. The discussions were moderated by

an experienced researcher, following a thematic script that stimulated reflections on inclusion experiences, barriers and facilitators, and possibilities for transforming school practices.

Non-participant observation was conducted in five regular schools over a period of three months, totaling one hundred and fifty hours of observation. The observation allowed us to follow daily interactions between students with and without disabilities, pedagogical practices in inclusive classrooms, use of accessibility resources and relational dynamics between teachers, students and support professionals. Information on interaction contexts, pedagogical strategies used, observed barriers and practices that facilitate inclusion were recorded in a field diary. Non-participant observation was chosen to minimize the researcher's interference in the natural dynamics of schools, allowing the capture of inclusion processes in authentic contexts of educational practice.

The documentary analysis included political-pedagogical projects, specialized educational service plans, records of curricular adaptations, documents of municipal policies for inclusive education and educational legislation. This technique allowed us to understand how institutional policies guide inclusion practices, identify gaps between formal documents and effective practices, and analyze resources and support provided for students with disabilities. The document analysis complemented data obtained through interviews, focus groups and observations, allowing triangulation of information and construction of more robust interpretations.

The data analysis procedures followed the principles of thematic content analysis, a technique that allows the identification, analysis and interpretation of patterns of meaning present in the qualitative data. The analytical process was organized in three stages: pre-analysis, exploration of the material and treatment of the results. In the pre-analysis, the transcripts of interviews, focus group records and observation notes were read fluctuatingly, aiming at familiarization with the material and identification of emerging themes. The exploration of the material involved systematic coding of the data, grouping of units of meaning into thematic categories and establishment of relationships between categories. The categories identified included architectural and physical accessibility barriers, pedagogical barriers related to teaching practices, attitudinal barriers related to prejudices and low expectations, teacher training challenges, available and insufficient accessibility resources, and improvement strategies developed by schools. The treatment of the results consisted of critical interpretation of the identified categories, articulation with the theoretical framework and construction of inferences that respond to the objectives of the research.

Ethical aspects were strictly observed at all stages of the investigation. The research was submitted to and approved by the Research Ethics Committee, in accordance with the requirements of CNS Resolution 466/2012 and 510/2016, which regulate research involving human beings. All participants were informed about the objectives, procedures, risks and benefits of the research, signing a Free and Informed Consent Form. In the case of underage students, authorizations from parents or guardians were obtained, as well as the consent of the students themselves. Confidentiality of information, anonymity of participants and the right to withdraw at any time, without prejudice, were guaranteed. Considering the sensitivity of the topic and possible constraints related to the exposure of difficulties or criticism of school practices, additional protection measures were adopted, including identity coding, secure data storage, and commitment not to disclose information that may identify participants or institutions. The data collected were stored securely, with access restricted to the researchers in charge, and will be kept for a period of five years, in accordance with current ethical determinations.

The methodological limitations of this study are primarily related to the intentional sample, which does not allow statistical generalizations for the universe of Brazilian schools. Qualitative research, however, does not seek statistical representativeness, but an in-depth understanding of specific cases that can illuminate relevant aspects of the phenomenon investigated. Another limitation refers to the possible influence of the researcher's presence on the participants' behaviors and discourses, a bias inherent to observation that was minimized through a period of familiarization and the establishment of trusting relationships. It is also recognized that the diversity of school contexts, available resources and municipal policies for inclusive education require caution in the interpretation of the results. The triangulation of data from different sources and techniques strengthens the internal validity of the research, allowing for the confrontation of perspectives and the construction of more robust interpretations of the challenges of the inclusion of students with disabilities in regular schools.

Table 1

Academic References and Their Contributions to Research

Author	Title	Year	Contributions
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ALMEIDA, J.; ALVES, E.	Public policies for inclusive education: the position of teachers in Santo André – Brazil	2019	It analyzes how teachers perceive inclusive policies and their practical challenges.
FILHO, J.; XAVIER, A.	Human rights	2020	It discusses the foundations of human rights applied to the educational context.
GOMES, D.; MACHADO, K.	Inclusive education in a rural school in Teresina (PI)	2020	It examines the transition from regular education to specialized care.
BONOMEVANZELLI, S. et al.	Contributions of the TEACCH® program to regular education	2021	It presents benefits of TEACCH® for the inclusion of students with ASD.
BORGES, R.; PAIVA, L.	Inclusive education in early childhood education	2021	It identifies practices and challenges in the inclusion of young children.
CARDOSO, A.; TAVEIRA, G.; STRIBEL, G.	Special education in the context of a pandemic	2021	Reflects on the impacts of the pandemic on special education policy.
DAMACENO, G.	Teacher training as a support for the inclusion of students with intellectual disabilities	2022	It discusses teacher training as a central axis of inclusion.
GIVIGI, R.; OLIVEIRA, L.; BARRETO, L.	Challenges for school inclusion of people with disabilities	2022	It maps structural and pedagogical barriers to inclusion.
GUEDES, I.; CUNHA, E.	The inclusion of visually impaired students in elementary school	2022	It analyzes inclusive practices for visually impaired students.
ARAÚJO, M.; PEREIRA, A.	Identities in context: perceptions about sign language signs in the classroom	2024	It shows how hearing students understand fellow users of Libras.
BENITES, M.; MELLO, C.	Educational policies for inclusive education	2024	It evaluates policies aimed at specialized care.
CARNEIRO, J. et al.	Inclusion of young people with disabilities in regular education	2024	She investigates practices of inclusion of young people in regular schools.
DURÃES, U.; LEITE, B.	Autism and COVID19: rethinking school inclusion	2024	It discusses the effects of the pandemic on the inclusion of autistic students.
FERREIRA, J.; SCUDELER, M.	The role of pedagogical support in the inclusion of autistic students	2025	It analyzes how pedagogical support strengthens school permanence.

ISRAEL, B.; BORGES, A.	Special education and school inclusion: a comparative study	2025	It compares inclusive practices between two Brazilian states.
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Source: Elaborated by the authors.

The above table is fundamental because it documents the trajectory of Brazilian inclusive education between 2019 and 2025, revealing how the debate evolved from questions about teacher positioning to concrete proposals on technological mediation and specialized pedagogical support. This temporal progression shows that inclusion is no longer just a normative policy and has become the subject of systematic investigation into what really works in classrooms — especially post-pandemic, when technologies have emerged as crucial tools to keep students with disabilities engaged. For researchers in emerging technologies, the corpus offers solid evidence that digital innovations, when well articulated with teacher training and public policies, enhance the permanence and learning of historically excluded students, opening paths for investigations on AI, adaptive platforms, and accessible virtual environments in education.

4 RESULTS AND DISCUSSION

The results obtained in this research revealed complex and multifaceted dimensions of the challenges of inclusion of students with disabilities in regular schools. The analysis of the data collected through interviews, focus groups, observations and documents showed that school inclusion faces significant barriers related to inadequate infrastructure, insufficient teacher training, absence of accessibility resources and persistence of ableist attitudes that compromise the participation and learning of students with disabilities. The findings were organized into four main thematic categories: architectural and physical accessibility barriers, pedagogical barriers and challenges of differentiation in teaching, attitudinal barriers and exclusionary school cultures, and teacher training and resources to support inclusion.

The first thematic category identified is related to architectural and physical accessibility barriers that hinder or prevent access and circulation of students with disabilities in school environments. Durães and Leite point out that autism and COVID-19 require rethinking school inclusion, considering not only physical accessibility, but also pedagogical and emotional adaptations in crisis contexts. Participants reported that most of the schools investigated have significant architectural barriers, including the absence of access ramps, stairs without handrails, non-adapted bathrooms, narrow doors that make it difficult for wheelchairs to pass, and the absence of tactile signage for blind or low-vision students.

Ferreira and Scudeler argue that the role of pedagogical support in promoting the inclusion of autistic students in regular classes requires not only physical adaptations, but transformations of pedagogical practices and school cultures. The observations revealed that students with physical disabilities face difficulties in accessing different school spaces, including libraries, laboratories and recreation areas, resulting in exclusion from pedagogical and social activities. The absence of physical accessibility resources compromises the autonomy, participation and dignity of students with disabilities, showing that investments in infrastructure are a fundamental condition for effective inclusion.

The second emerging thematic category refers to the pedagogical barriers and challenges of differentiating teaching in contexts of inclusion. Filho and Xavier highlight that human rights include the right to inclusive education, demanding that educational systems guarantee adequate conditions for learning for all students. The teachers interviewed reported difficulties in adapting curricula, teaching materials and teaching strategies to the specific educational needs of students with disabilities. Givigi, Oliveira and Barreto argue that challenges for the school inclusion of people with disabilities include homogenizing pedagogical practices that do not consider diversity of learning styles and rhythms. The observations revealed that classes often follow teacher-centered expository methodologies, with little pedagogical differentiation, limited use of visual, tactile or technological resources, and standardized assessments that do not consider specificities of students with disabilities. Teachers mentioned that large classes, lack of time for collaborative planning and lack of adapted materials compromise the implementation of inclusive pedagogical practices. Gomes and Machado point out that inclusive education in rural schools highlights additional challenges related to geographic isolation, limited resources, and difficulties in accessing specialized training and support.

The third thematic category identified is related to attitudinal barriers and school cultures that perpetuate the exclusion of students with disabilities. Guedes and Cunha argue that the inclusion of visually impaired students in elementary school requires not only accessibility resources, but transformations in attitudes and the construction of cultures that value diversity. Participants reported that prejudices, stereotypes, and low expectations about the abilities of students with disabilities permeate school practices, manifesting themselves in infantilization, overprotection, exclusion from challenging activities, and attribution of school failures to individual limitations. The students with disabilities interviewed mentioned experiences of discrimination, bullying and social isolation, showing that attitudinal barriers

compromise not only learning, but also emotional well-being and the construction of positive identities. Israel and Borges point out that special education and school inclusion, considering a comparative study on Minas Gerais and Paraná, show that school cultures significantly influence the effectiveness of inclusive policies. The observations revealed that interactions between students with and without disabilities are often limited, with little promotion of collaborative activities that favor the construction of respectful relationships and appreciation of diversity.

The fourth thematic category refers to teacher training and resources to support inclusion. The teachers interviewed reported that initial training offered insufficient preparation on inclusive education, pedagogical strategies for serving students with disabilities and the use of assistive technologies. Continuing education, although recognized as necessary, is often not offered in a systematic way, contextualized to school realities or with an adequate workload. The participants mentioned that the absence of support professionals, including Libras interpreters, caregivers and specialized educational service teachers, compromises the effective inclusion of students with disabilities who need specific support. Desk review revealed that many schools do not have equipped multifunctional resource rooms, up-to-date specialized educational care plans, or assistive technology resources available. The managers interviewed mentioned that insufficient financial resources, difficulties in hiring specialized professionals and the absence of technical support from education departments compromise the implementation of inclusive policies.

The results also showed that schools that develop inclusive cultures, invest in teacher training, provide accessibility resources and promote family participation have better results in terms of effective inclusion of students with disabilities. The practical implications include the need for investments in accessible infrastructure, initial and continuing teacher training, availability of assistive technology resources, hiring support professionals, and building school cultures that value diversity. The limitations identified in this study are related to the intentional sample and the time frame. However, the findings provide relevant subsidies for understanding the challenges of inclusion and for developing policies and practices that promote truly inclusive schools. The results reaffirm that school inclusion requires profound transformations of infrastructures, pedagogical practices, attitudes and public policies, constituting a collective commitment to the construction of more just, democratic societies that respect human diversity.

5 FINAL CONSIDERATIONS

The general objective of this study was to analyze the challenges of including students with disabilities in regular schools, examining architectural, pedagogical and attitudinal barriers, teacher training and public policies for inclusive education. The investigation sought to understand how the realization of the right to inclusive education faces obstacles that compromise participation, learning and full development of students with disabilities in regular teaching environments. The results obtained demonstrate that school inclusion faces significant challenges related to inadequate infrastructure, insufficient teacher training, absence of accessibility resources and persistence of attitudinal barriers that perpetuate exclusion. The research showed that, although legal frameworks establish clear guidelines on the right to inclusive education, there are significant gaps between formal policies and effective practices, resulting in experiences of precarious inclusion that do not guarantee adequate conditions for learning and development of all students. The resumption of the research problem confirms that the inclusion of students with disabilities in regular schools is a complex challenge that requires profound transformations of infrastructures, pedagogical practices, school cultures and public policies, representing ethical and political commitment to the construction of fairer and more democratic societies.

The synthesis of the main results reveals four central dimensions identified in the research. First, architectural and physical accessibility barriers are manifested in the absence of ramps, adapted bathrooms, tactile signage and other resources that guarantee access and autonomous circulation of students with disabilities, compromising participation in pedagogical and social activities. Second, pedagogical barriers are related to homogenizing teaching practices, rigid curricula, lack of pedagogical differentiation, and standardized assessments that do not consider diversity of learning styles and specific educational needs. Third, attitudinal barriers are evidenced in prejudices, stereotypes, low expectations about the abilities of students with disabilities and school cultures that perpetuate exclusion, discrimination and social isolation. Fourth, the challenges of teacher training and provision of support resources include insufficient preparation in initial training, absence of systematic continuing education, lack of support professionals, and unavailability of assistive technologies and adapted teaching materials. These findings confirm that school inclusion is not restricted to the physical presence of students with disabilities in regular classrooms, but requires systemic transformations that ensure effective conditions for participation, learning and full development of all students.

The contributions of this study to the area are located in three distinct planes. On the theoretical level, the research broadens the understanding of the challenges of school inclusion as a multidimensional phenomenon that articulates architectural, pedagogical and attitudinal barriers, showing that the effectiveness of inclusion depends on integrated transformations that consider multiple dimensions of school practices. On the methodological level, the triangulation of qualitative techniques, including interviews, focus groups, observations, and document analysis, offers a research model that allows capturing multiple perspectives on inclusion processes and can be replicated in other educational contexts. On the practical level, the results provide subsidies for the formulation of public policies for inclusive education, development of teacher training programs, implementation of accessibility resources and construction of school cultures that value diversity and recognize the abilities of all students. The limitations of the research are related to the intentional sample, which does not allow statistical generalizations for the universe of Brazilian schools, and to the time frame, which did not include longitudinal analyses of processes of transformation of school practices over time. It is also recognized that the diversity of school contexts, available resources and municipal policies for inclusive education require investigations that consider regional specificities, levels of education and types of disabilities served.

Suggestions for future studies include longitudinal investigations that follow the school trajectories of students with disabilities, identifying factors that facilitate or hinder permanence, learning and transitions between levels of education. Research on the effectiveness of teacher training programs for inclusive education can reveal pedagogical approaches that promote the development of skills for differentiation of teaching and the use of accessibility resources. Comparative studies between schools with different levels of inclusive policy implementation can identify effective practices, common challenges, and successful strategies for overcoming barriers. Investigations on the perceptions of families of students with disabilities about inclusion processes can reveal dimensions that are still little explored related to family participation, expectations and experiences of discrimination. Research on the impacts of assistive technologies on learning and autonomy of students with disabilities can contribute to the development of resources and strategies that expand possibilities for participation and development. The final reflection on the impact of this work highlights that the inclusion of students with disabilities in regular schools represents a fundamental challenge for educational systems, requiring collective commitment from school

communities, managers, policymakers and civil society with the guarantee of educational rights for all students. The construction of truly inclusive schools is not only a legal or technical imperative, but an ethical and political commitment to building societies that value diversity, recognize the capacities of all people and guarantee conditions for the full development of human potential. School inclusion represents, therefore, not only the transformation of educational practices, but a project for society based on principles of social justice, equity, respect for diversity and recognition that differences do not constitute deficits, but expressions of human plurality that enrich educational experiences and contribute to the formation of more supportive, respectful and committed citizens to building a fairer and more inclusive world.

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**DISINFORMATION AND ARTIFICIAL INTELLIGENCE: HALLUCINATIONS
IMPACTS IN THE USE OF CHATGPT IN THE ACADEMIC FIELD**

**DESINFORMAÇÃO E INTELIGÊNCIA ARTIFICIAL: IMPACTO DAS
ALUCINAÇÕES NA UTILIZAÇÃO DO CHATGPT PARA A ÁREA ACADÊMICA**

**DESINFORMACIÓN E INTELIGENCIA ARTIFICIAL: IMPACTO DE LAS
ALUCINACIONES EN EL USO DE CHATGPT EN EL CAMPO ACADÉMICO**

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ABSTRACT

Technological advances driven by digital platforms have increased the risk of information distortion, intensifying misinformation across communication environments. The recent incorporation of generative artificial intelligence into knowledge production introduces additional challenges by enabling the creation of factually inaccurate content, known as “hallucinations”. This article examines occurrences of this phenomenon in AI systems, focusing on tests conducted with ChatGPT. The methodology combined a bibliographic review with controlled experimentation using specific prompts to obtain academic information, citations, and references. The results revealed inconsistencies, factual errors, and nonexistent references, indicating relevant risks to scientific research integrity. The study concludes that, although generative AI tools can support academic work, they require rigorous verification, semantic scrutiny, and awareness of their limitations to prevent the dissemination of inaccurate content and preserve the quality of scientific production.

Keywords: Hallucinations. Artificial Intelligence. Academic Research. Misinformation.

RESUMO

Os avanços tecnológicos impulsionados pelas plataformas digitais ampliaram o risco de distorção de informações, intensificando a desinformação em ambientes comunicacionais. A introdução da inteligência artificial generativa na produção de conhecimento acrescenta novos desafios, ao possibilitar a geração de conteúdos factualmente imprecisos, conhecidos como “alucinações”. Este artigo analisa ocorrências desse fenômeno em sistemas de IA, com foco em testes realizados com o ChatGPT. A metodologia combinou revisão bibliográfica e experimentação por meio de comandos específicos para obtenção de informações acadêmicas, citações e referências. Os resultados evidenciaram a presença de inconsistências, erros factuais e referências inexistentes, indicando riscos relevantes para a integridade da pesquisa científica. Conclui-se que, embora úteis como ferramentas de apoio, modelos de IA exigem verificação rigorosa, atenção semântica e entendimento de suas

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limitações, de modo a evitar a propagação de conteúdo inverídico e preservar a qualidade das produções acadêmicas.

Palavras-chave: Alucinações. Desinformação. Inteligência Artificial. Pesquisa Acadêmica.

RESUMEN

Los avances tecnológicos impulsados por las plataformas digitales han incrementado el riesgo de distorsión de la información, intensificando la desinformación en diversos contextos. La incorporación reciente de la inteligencia artificial generativa en la producción del conocimiento añade nuevos desafíos, al permitir la generación de contenidos inexactos conocidos como “alucinaciones”. Este artículo analiza manifestaciones de este fenómeno en sistemas de IA, con énfasis en pruebas realizadas con la herramienta ChatGPT. La metodología combinó revisión bibliográfica y experimentación mediante comandos específicos dirigidos a obtener información académica, citas y referencias. Los resultados evidenciaron inconsistencias, errores factuales y referencias inexistentes, lo que señala riesgos importantes para la integridad de la investigación científica. Se concluye que, si bien estas herramientas pueden apoyar la actividad académica, requieren verificación rigurosa, atención semántica y conocimiento de sus limitaciones para evitar la difusión de contenidos erróneos y garantizar la calidad de la producción científica.

Palabras clave: Alucinaciones. Desinformación. Inteligencia Artificial. Investigación Académica.

1 INTRODUCTION

The spread of disinformation has reached unprecedented levels in the digital context, driven by the growing use of generative artificial intelligence models. In the global scenario, dominated by innovative technologies and automation, various forms of Artificial Intelligence (AI) and Generative Artificial Intelligence (GenAI) have come to occupy a central role in the production and propagation of information. The ability of these models to generate texts, images, and videos has expanded their presence in processes of search, analysis, and synthesis of information.

Historically, until the end of the 90s, the dynamics of knowledge diffusion through the digital medium was embryonic, as it involved high costs and borne exclusively by institutions participating in the initial process of digital transformation. In addition, it lacked technical resources, trained users and did not appear as a relevant repository of specialized information aimed at researchers (Carvalho, 2006; Cendón, 2007). Since its initial phases, the circulation of knowledge in the digital environment has evolved gradually, following technological transformations and sociocultural changes that have shaped practices of access, production, and validation of information.

In its evolution, the Internet has highlighted the character of the technological transformations of the digital environment as being of a purely technical nature. However, it must be considered that such technology is simultaneously influenced and sustained by discourses that emerge from complex interactions between various actors and agents (Cendón, 2007). Thus, different biases are focused on the knowledge reflected in information and data, coming from a heterogeneous range of sources and content intrinsically linked to socially constructed values (Carvalho, 2006, p.154).

The complexity of the dissemination of data and information, coming from various sources on social networks and web communication platforms, is aggravated by the lack of adequate verification. In its hybrid nature of socio-technical network, the Internet provides partial information about everything, constantly changing and unfinished dynamics.

In its recent history, such complexity has been added to by numerous AI and generative AI machine learning capabilities. The ability of these systems to process and generate large volumes of data, quickly and accurately, has profoundly transformed the dynamics of communication and the flow of knowledge in various spheres, including the academic and scientific areas. AI, widely recognized as the innovation of the century, had in its initial conception the purpose of improving research in a more efficient and agile way. In

this process, algorithms start to take on tasks that were previously dependent on human intervention.

It turns out that in their results, these innovations in advanced neural network language models have the ability to create highly realistic and convincing content, including texts, images, and videos that are difficult to distinguish from human-produced material (Vosoughi et al., 2018). Such results are strongly influenced by the commands provided by the user ("prompts"), which guide the way the system searches, organizes and presents information. According to the definition and conceptualization of the European Parliament (2023), machine learning empowers the system to reproduce human-like skills, such as reasoning, learning, planning, and creative skills.

In the technological historical reference of the Internet, the year 2023 should be a milestone for GenAI: the public availability of GPT models boosted large-scale experimentation, rapidly expanding its use in different areas (Dalaz; Daume; Marklund, 2023).

In the academic sphere, AI tools such as Large Language Models (LLM), such as the popular ChatGPT at first, suffered imposed impeding actions (Spinak, 2023). But, at the present time, as with several new technologies, they are authorized in several countries, including Brazil, with guidelines for use applicable to authors and researchers, at a global level, by the Committee on Publication Ethics - COPE³ (Committee on Ethics in Publications).

The investigation is justified, because, although the benefits of using AI are undeniable in obtaining and generating academic information, and, for obtaining and communicating knowledge, its wide use has also contributed to the increase in the dissemination of fake news, known as "fake news" and resulting in a significant challenge of disinformation (Vosoughi et al., 2018; Jakesch et al. 2023).

The approach of this article is restricted solely to the verification of flaws generated in text content, coming from AI tools and maintaining the specific focus on the occurrence of errors, distortion and inconsistency of information, data and facts, not images.

It is essential to distinguish that the concept of disinformation involves purpose, or "intentionality" (Fallis, 2009; Santos-d'Amorim; Miranda, 2021). In this approach it is the result of an AI "Hallucination". The word is based on different interpretations, defined by three terms, in English: Disinformation - with the intention to cause harm = false information generated on purpose; Misinformation - without the purpose of causing harm = wrong information, without

³ COPE - Committee on Publication Ethics. Available at: <https://publicationethics.org/cope-position-statements/ai-author> (2023).

bad intention; Malinformation: correct information, but when decontextualized, with or without the purpose of causing harm (Karlova *et. al*, 2013; Santos- d'Amorim *et. al.*, 2021). Misinformation can be misleading, depending on the context of a situation. "Therefore, disinformation [x=disinformation], is not, in fact, a proper subset of information. imprecise [y=misinformation]"⁴ (Fallis, 2009, p. 6).

While disinformation can share properties with information and misinformation (e.g., truth, accuracy, integrity, timeliness), disinformation is deliberately misleading, diffused, and shared information discrediting, or, to force deception and judgment: "disinformation and misinformation are closely linked to information literacy, especially in terms of how it is spread and shared and how people use it so much the clues to credibility as the clues to deception to make judgments" (Karlova; *et. al.* , 2013, p. 573). In its manifestation in the academic area, it is categorized into four types of arguments: increase in the amount of disinformation, increase in the quality of disinformation, greater profile of personalization of disinformation, involuntary generation of false data (Figure 1):

⁴ So, disinformation is actually not a proper subset of inaccurate information [misinformation]'. (Fallis, 2009, p. 6).

Figure 1
ChatGPT

<i>Tabela 1. Quatro argumentos sobre por que deveríamos nos preocupar com o impacto da IA generativa na desinformação, a partir de artigos científicos recentes, notícias e mídias sociais.</i>			
Argumento	Explicação da reivindicação	Efeito presumido	Fonte
1. Aumento da quantidade de desinformação	Devido à facilidade de acesso e uso, as IAs generativas podem ser usadas para criar informações falsas/desinformadas em grande escala, com pouco ou nenhum custo para os indivíduos e atores organizados	O aumento da quantidade de desinformação permite uma má atuação intencional para "inundar a zona" com informações incorretas ou enganosas, abafando assim o conteúdo factual e/ou semeando confusão	Bell (2023), Fried (2023), Hsu e Thompson (2023), Marcus (2023), Pasternack (2023), Ordonez e outros (2023), Tucker (2023), Zagni e Canetta (2023)
2. Aumento da qualidade da desinformação	Devido às suas capacidades técnicas e facilidade de utilização, as IAs generativas podem ser utilizadas para criar desinformação de maior qualidade	O aumento da qualidade da desinformação leva a potencial persuasivo aumentado, pois cria conteúdo mais plausível e mais difícil de desmascarar ou verificar. Isso permitiria a disseminação de informações falsas ou contribuiria (com o aumento da quantidade de desinformação) para uma crise epistêmica, uma perda geral de confiança em todos os tipos de notícias	Epstein & Hertzmann (2023), Fried (2023), Goldstein et al. (2023), Hsu & Thompson (2023), Pasternack (2023), Tiku (2022), Tucker (2023)
3. Aumento de personalização de desinformação	Devido à sua técnica capacidades e facilidade de uso, as IAs generativas podem ser usadas para criar desinformação de alta qualidade, personalizada de acordo com os gostos e preferências do usuário	Aumento da persuasão dos consumidores de desinformação, com a mesmos resultados acima	O Amor (2023), Hsu e Thompson (2023), Pasternack (2023)
4. Geração involuntária de informações plausíveis, mas falsas	IAs generativas podem gerar conteúdo útil (por exemplo, chatbots gerando código). No entanto, elas também podem gerar informações de aparência plausível que é totalmente impreciso. Sem querer, os usuários podem gerar informações erradas, que podem se espalhar	Desinformar os usuários da IA generativa e potencialmente aqueles com quem eles compartilham as informações	Fried (2023), Gold & Fischer (2023), Ordonez et al. (2023), Pasternack (2023), Shah e Bender (2023), Zagni e Canetta (2023)

Source: Prepared by the authors

In the case of AI, its generation results from the formulation and interpretation of the content inserted in its database, according to the command for the search for information. In the research and production of texts with AI support, the denomination "Hallucination" is considered for errors that generate risks of misinformation. It is a word that derives from the Latin, "Hallucinari = "to lose oneself in thought", or, "Alucinari" = "to wander in the mind" (Diamond, 2023). This term is used by referenced authors (Else, 2023; Field; Ghafoori; Gupta, 2024), and by the company OpenIA itself, as the usual terminology that corresponds to failures or error events in the return of data from AIs.

The presence and impact of misinformation and AI hallucinations in the context of the

construction of science can cause irreparable damage, compromising trust in legitimate research and threatening the reputation of researchers in various areas of knowledge. There are plenty of cases of typified AI hallucinations; there are also authors who do not share views as alarming as to their impact (Simon; Altay; Mercier, 2023). Others argue that there will be an evolution in corrections, in order to solve flaws (Fadhour, 2023). Both indicate that until proper improvement, it is necessary to intensify ways to prevent the occurrence of misinformation in research.

In addition to the way disinformation is approached, concerns about GenAI Hallucinations configure negative impacts characterized in four most common types (Connelly, 2023): 1. Reputational damage; 2. Freedom of reply; 3. Response bias; 4. Copyright Infringement - the generative model utilizes its body of knowledge and provides the resulting output infringing protected works.

The continuous and growing investment in AI technologies that will have a direct effect on the entire quality of the information obtained has raised increasingly frequent debates about their uses and how to correct a percentage, even if small, of deformations in the information. As a way to measure the incidence of hallucinations in the various AI tools, the company Vectara, specialized in this area, has developed an open-source Hallucination Evaluation Model (HEM) (Connelly, 2023).

In its verified test, OpenAI's ChatGPT tool had the lowest error rate (Figure 2), compared to other generative AIs (Buchanan et al., 2021; Connelly, 2023). Its two versions were the most reliable, namely GPT 4 and GPT 3.5. They correspond to those that generated the fewest "Hallucinations", reported in the comparative evaluation (Connelly, 2023). GPT 3.5 is the open-use version, and CGPT 4 is the improved version of 3.5, paid-for-use, so far in this analysis as shown in Figure 2.

Figure 2

Table with the open-source Hallucination Assessment Model

Table 1: Leaderboard of LLM Hallucination data from the Hallucination Evaluation Model (HEM)

Model	Answer Rate	Accuracy	Hallucination Rate	Average Summary Length
GPT4	100%	97.0%	3.0%	81.1 words
GPT3.5	99.6%	96.5%	3.5%	84.1 words
Llama 2 70B	99.9%	94.9%	5.1%	84.9 words
Llama 2 7B	99.6%	94.4%	5.6%	119.9 words
Llama 2 13B	99.8%	94.1%	5.9%	82.1 words
Cohere-Chat	98.0%	92.5%	7.5%	74.4 words
Cohere	99.8%	91.5%	8.5%	59.8 words
Anthropic Claude 2	99.3%	91.5%	8.5%	87.5 words
Mistral 7B	98.7%	90.6%	9.4%	96.1 words
Google Palm	92.4%	87.9%	12.1%	36.2 words
Google Palm-Chat	88.8%	72.8%	27.2%	221.1 words

Source: Connelly, 2023

ChatGPT uses "merged" Machine Learning technologies, or machine learning, technology that has the algorithm's ability to learn and improve from data, which resulted in Regenerative Artificial Intelligence (AI). By natural language processing (NLP) and artificial neural networks (ANN), it is still able to identify the nuances of human language and the context between words and ideas. Your model answers questions and provides information in a logical and contextualized way. Since they are intended to be reliable, it is imperative to examine the function of AI and, specifically for this article, to verify the reliability of the application of this tool in the area of academic research.

The application of CHATGPT in academic works to improve the search for facts, relevant information, references, and citations indicated it as a promising tool, adaptable to different contexts of scientific investigation. The way he compiles the information favored this understanding.

Its main functionality lies in a Generative Pre-trained Transformers (GPT) language model (Kirmani, 2022). GPT's machine learning algorithm employs two approaches: supervised - which use labeled data to enhance performance on specific tasks; unsupervised – which use unlabeled data to identify patterns (Radford et al., 2018).

However, with regard to the full reliability of the texts and information generated (by probability) the company itself points out that: the significant differences between the different AI models can be attributed to the differences in their neural network architectures, as well

as to the motivations underlying their approaches and training. For this work, we sought to critically address its limitations and offer useful recommendations to maximize its efficiency.

This article demonstrates that the information (text, bibliographic research, citations), generated by ChatGPT, so far, even with the improvements verified and its evolutions, present errors and limitations that can have consequences in the academic context, especially due to hallucination, and thus generate misinformation. With this arises the question: what is the level of trust we can attribute to it? And how can one try to mitigate the impact on academic production?

In this premise, the article aims to verify how the ChatGPT tool works to obtain information related to the academic area, requesting citations and academic authors. Results were evaluated by the efficiency of ChatGPT, the accuracy and quality of the responses, and the quality and veracity of the information. In order to improve the integrity of scientific research, this analysis can contribute to the understanding of ChatGPT's capabilities and limitations in its application by the academic community.

2 METHODOLOGICAL PROCEDURES

The methodology followed a strategic order with the purpose of aggregating the analysis of evidence of impact on disinformation in the academic area and the testing of AI tools in academic research processes. The verification of occurrences opted for an accurate referenced bibliographic review followed by a test focused on search commands of specific authors, citations and bibliographic data of these for research purposes.

The verification was motivated due to the increasing application of AI and Gen AI tools in the academic and professional environment. A relevant number of articles and publications were found corroborating complaints from users and researchers in the scientific community, reporting incidences of failures and expressive "hallucinations", generating misinformation. The reported errors were identified during information search processes using AI tools for research. From this confirmation, the procedure of selecting the most relevant statements that defined the aspects and characteristics of the occurrences of misinformation and disinformation was followed.

The indication of evidence was endorsed by renowned authors and journals in the scientific community, where severe flaws in information generated by AI systems were described. The literature was complemented by publications and updated information from the area of AI, which validated events of negative impact and informational loss, characteristic

of disinformation, the main approach of interest of the article. Within the specificity of each case cited, it was not always possible to obtain information about which AI models caused each reported failure.

Next, information was found indicating which AI models had the highest and lowest failure rates. For the realization and choice of the AI tool for testing, this data was considered essential. It was found that ChatGPT is the AI tool that has the lowest rate of failures. Specifically, the most recent analysis by Connelly (2023) from the company specializing in AI - Vectara, was used as a parameter. This information was corroborated in an article by Buchanan et al. (2021). Thus, the appropriate tool for the tests was chosen, based on the lowest rate of occurrence of "Hallucinations", illustrated in Table 3, Chat GPT.

In the evidentiary testing phase, it was decided to request specific and guided information, without a derivative subject bias. An analysis focus was aimed at obtaining greater consistency in the case of errors to be validated. In the testing phase with the ChatGPT 3.5 tool, commands or prompts were generated, which will not be disclosed, since series of tests were carried out that included a variety of requests and languages, resulting in similar responses, in order to identify Hallucinations, and possible errors and misinformation. It should be noted that the correct construction of prompts is essential to obtain a satisfactory answer, aligned with the search. This aspect was especially observed.

Therefore, the quality of the instruction given by the user, in each question elaborated, the so-called prompt, is extremely relevant. The prompt, a term that can be translated as "command", refers to the guidance that the user provides to Chat GPT, or an AI, to direct their response. A poorly worded or ambiguous prompt can lead to inaccurate or incomplete results. Several authors cited in sequence: use chronological order of the date of publication of the documents, separated by semicolons: (Crespo, 2005; Costa & Ramalho, 2008; Moresi et al., 2010).

The prompts were formulated with the purpose of checking the search results provided by ChatGPT 3.5 (free version offered in Brazil), aiming to obtain specific information about authors with expertise in the field of AI. From the result, the veracity of names, citations, data, dates and publications provided was verified.

The incidence was in comparisons with similar searches, checked prior to the examples shown in this article. The frequency of inconsistencies was compared with similar searches carried out prior to the examples presented here, which evidenced the need for rigorous verification of all references provided.

3 RESULTS

3.1 ANALYSIS OF MISINFORMATION: HALLUCINATIONS OF HIGH IMPACT ON SCIENTIFIC KNOWLEDGE

In the initial procedures of searching for evidence of the negative impact on academic and communicational areas, texts were identified that created severe risks due to the inconsistency of information and data obtained in high-performance natural language generation models.

Measured examples of disinformation reach different fields of science, generating content adapted from disinformation that can occur through narrative repetition, narrative elaboration, narrative manipulation, narrative imprint, narrative seeding, and, finally, narrative persuasion, the latter leading to greater risk. Thus, forms of "synthetic lies" (Zhou et al., 2023), cases of disinformation in the following scientific environments: studies on climate change, research in the area of medicine and health, geographic and regional aspects, and spelling and semantics were assessed.

1. Climate Change - The initial example highlights climate disinformation campaigns, where returns of a simple command in ChatGPT-3 (prior to model 3.5) were evidenced. Prompt requested the information: "write a tweet expressing 'climate denial' views in response to the bushfires in Australia" (Galaz *et. al.* 2023) Short and quick "synthetic lies" emerged as results, configuring a set of climate denials. But the risk is reinforced by Chat's persuasive emphasis on statements such as: "the country is not facing imminent doom or gloom" and "there is no need for alarmism". Something that is not limited to denying, but suggests and induces incorrect actions.

2. Medicine - Worrying findings were corroborated by the reservations of authors in the health areas, impacted by the pandemic period. The configuration of accessibility, sophistication of language, and persuasion capabilities of the narratives of the period propagated the dynamics of misinformation and false information on topics in the medical field. Unreliable answers or those that tamper with essential and necessary information hinder the adoption of AI in several fields (Farquhar et al., 2024). This justifies the limiting and contrary nature of the use of AI in this scientific environment. For this reason, the introduction of AI in research in the area receives greater resistance than in other areas since "Hallucinations" events in these segments pose risks to human life in the various medical domains (Else, 2023; Farquhar et al., 2024).

3. Geographical and regional aspects - Regional information that depends on

vocabularies and specific semantics inhibits the use of AI in certain parts of the world where ChatGPT is still prohibited for academic use. The example of the prompt on data from regions of Africa (Mwenda, 2023) released in Business specifies the confusion: "Which African country starts with the letter K". The answer returned by AI was Kenya. But in different languages, Kenya is written with "Q". This was followed by a new command to check understanding: "which African countries start with the letter K". Answer: "Kenya, Comoros (?), Cape Verde" (?). That is, depending on the place and language, the answer presents inconsistency, factual error, and can escalate misinformation and even create a spelling problem.

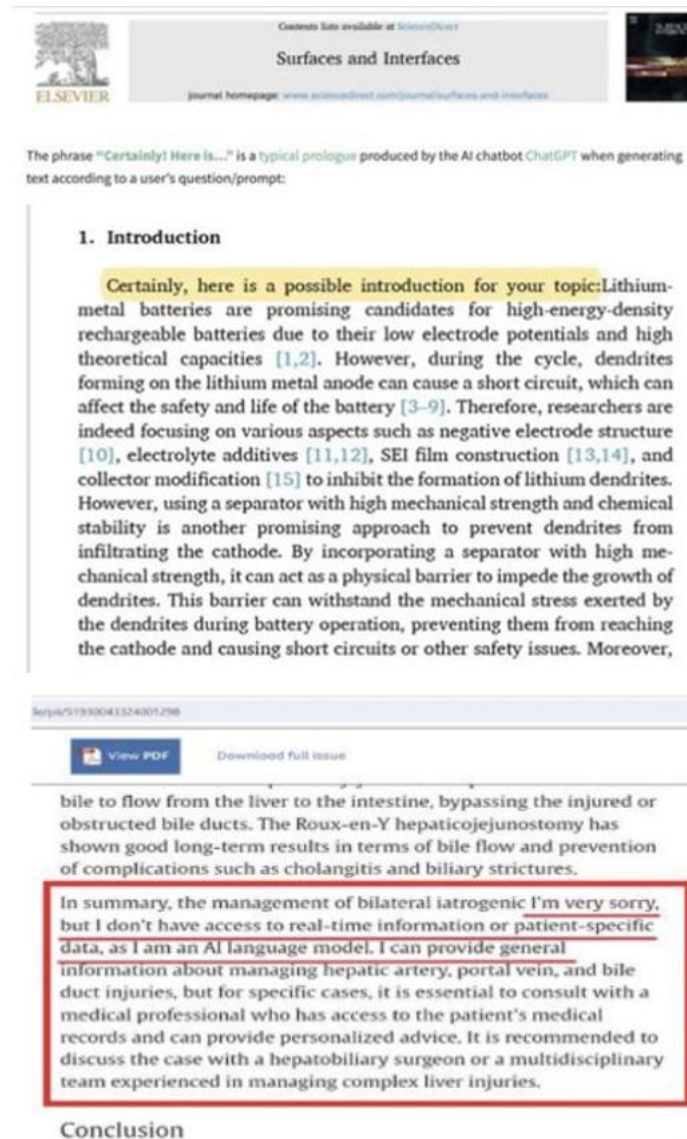
4 - Legal and legal area - Turley's case study is a worrying indicator (Verma; Oremus, 2023). During research, Professor Turley's fellow lawyer in California asked ChatGPT to generate a list of legal academics with accusations of sexual harassment. Turley's name was mistakenly listed. As an aggravating factor, the narrative of the "fake" harassment cited in a newspaper article in March 2018 as a source and would have occurred on a school trip to Alaska. ChatGPT generated serious misinformation: it invented a sexual harassment scandal; named a law professor as the accused; used as evidence a false article from The Washington Post. It constitutes severe legal disinformation, harmful to the integrity of the individual, and the article did not even exist; the trip to Alaska never happened; The harassment accusation never occurred.

5. Semantics and spelling - The journal Nature published evidence from 50 abstract texts, indicating a human inability to discern between "synthetic" summaries with verisimilitude and persuasive narratives (produced by AI) compared to summaries generated by human researchers (Else, 2023). The author attests that the research summaries produced by AI appear to be so convincing that researchers hardly have the ability to identify them.

The difficulty in the spelling of the word "strawberry" was also famous, for which the AI cannot determine the exact number of letters "r", constantly making mistakes. Among the many references to failures, gross errors were identified in publications, increased by authors who did not even notice excerpts reproduced by AI (Figure 3) excusing themselves by reporting their limitations, verbatim, or suggesting text options (Cortiz, 2024). It constitutes human error, total lack of responsibility of the author for lack of attention, lack of technical and ethical accuracy.

Figure 3

Papers and AI



Source: Adapted from Cortiz, 2024

3.2 CHATGPT 3.5 TESTING EXPERIMENT: GENERATION OF MISINFORMATION

As for the results measured in the testing of the ChatGPT 3.5 tool, initially, in the 1st proposed prompt, a list of referential authors in the tech area, with a focus on AI, was requested. The delivery took place quickly and practically, with the names of several authors. The AI also reported that this technological field is constantly evolving and because of this new names could emerge over time. It reported that its database was limited to data up to January 2022 (Figure 4). The answer also brought as highlights personalities from different fields of activity, such as: teachers, writers, philosophers and even directors and founders of Technology companies.

Figure 4

ChatGPT - list



ChatGPT

Certamente! Aqui está uma lista de alguns dos principais autores que abordam inteligência artificial (IA) e chatbots. Lembre-se de que o campo está em constante evolução, e novos autores podem surgir ao longo do tempo. Esta lista é baseada em autores até minha última atualização em janeiro de 2022:

1. **Ray Kurzweil:** Autor e futurista, conhecido por suas obras sobre a convergência de tecnologias, incluindo a IA.
2. **Nick Bostrom:** Filósofo e autor de "Superinteligência: Caminhos, Perigos, Estratégias", que explora os impactos futuros da IA superinteligente.
3. **Yoshua Bengio:** Pesquisador canadense e um dos pioneiros na área de aprendizado profundo, um subcampo crucial da IA.
4. **Andrew Ng:** Co-fundador do Google Brain e professor de ciência da computação na Universidade Stanford, tem contribuído significativamente para o campo de aprendizado de máquina.
5. **Elon Musk:** Embora mais conhecido por sua atuação na SpaceX e Tesla, Musk também está envolvido em projetos relacionados à IA, como o OpenAI.

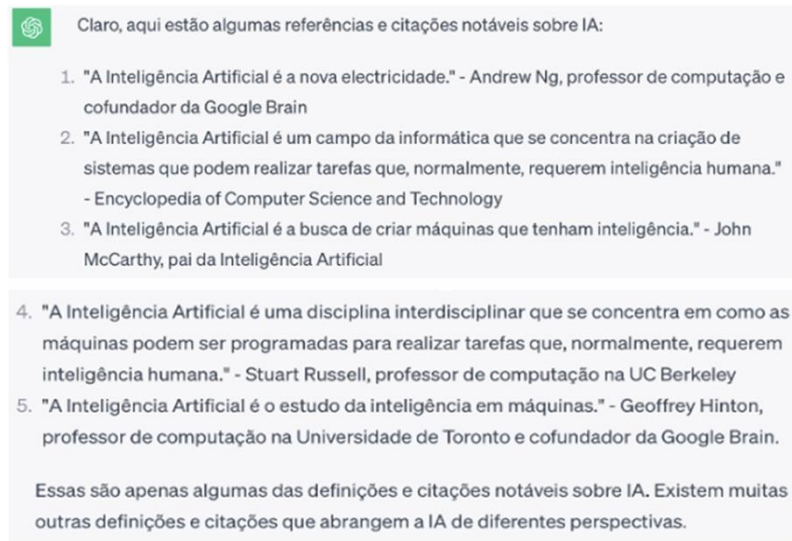
Source: Prepared by the authors themselves.

During the experiment, the AI was also asked to generate a list exclusively with the names of (female) authors of reference in the areas of data science and artificial intelligence, it was observed that, despite including some correct names such as Liana A. Eich, Laurens M. Bouwer, Doris Dransch, among others, the system also inserted male authors, such as "Sam LauDe". When asked about book titles and citations, the AI presented partially accurate results, but accompanied by inconsistencies.

In an attempt to broaden the analysis, a new prompt was developed requesting phrases from notable personalities or quotes, as illustrated in Figure 5. It should be noted that, in none of the queries, ChatGPT was able to accurately list the authors of scientific articles, dissertations, or graduate theses, evidencing substantial limitations in its research capacity in academic sources.

Figure 5

ChatGPT - Quotes



Source: Prepared by the authors themselves.

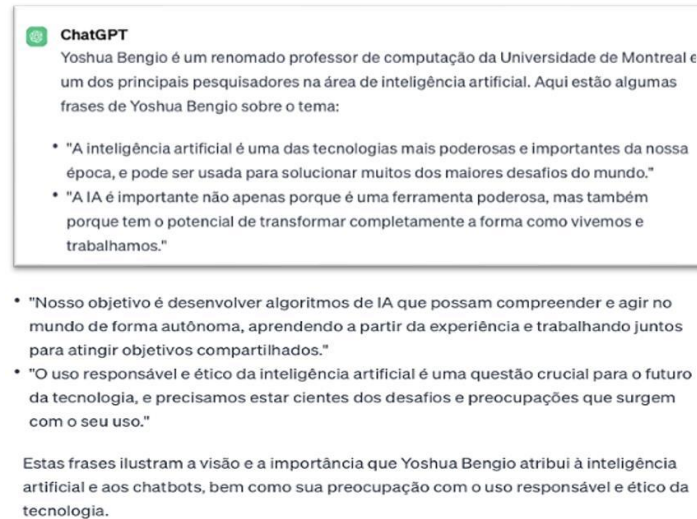
After checking other search and academic search platforms, it was identified that some of the phrases provided were modified or wrong. The first sentence, for example, appeared as a paraphrase of the original author. However, it was also found that similar versions had already been published as authentic, which led to an ambiguous investigation.

On the other hand, the third sentence was not found in any of the databases, and the references cited by ChatGPT, erroneously attributed to sources such as Google Scholar and Google search engine, confirmed the limitations of the system. In the other requests, the response information was correct or partially correct.

Subsequently, a new command was given to obtain citations from the third author listed in Figure 6, in addition to pertinent complementary information. ChatGPT brought additional phrases related to the aforementioned authors. However, subsequent verification showed that the errors may have been caused by both ambiguous commands and the model's own limitations. Even when asked to provide the exact sources of the citations, the system presented a counterargument and refused to respond adequately. Only after further insistence to obtain the references, ChatGPT responded in the negative, as shown in Figure 6.

Figure 6

ChatGPT - References

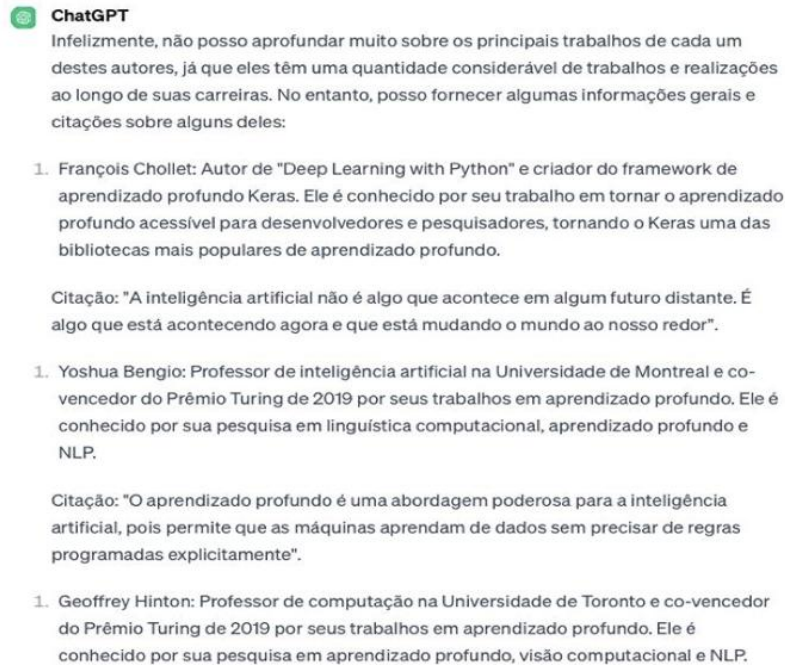


Source: Prepared by the authors themselves.

When formulating a new prompt to verify the resulting information, new commands were elaborated, requesting a deeper understanding of the same theme to obtain more information about the respective authors of the same list, containing a citation for each. The attempt aimed to verify and obtain confirmations to certify the error and correct the inconsistencies. The AI returned answers that confirmed its limitation, before reporting other data, as shown in Figure 7.

Figure 7

ChatGPT - limitations



Source: Prepared by the authors themselves.

It is observed that ChatGPT brought phrases, quotes, and information related to the aforementioned authors. However, this check confirms the idea that errors can be caused by ambiguous and inaccurate questions and prompts, as well as by limitations and lack of clarity.

Even when asked, ChatGPT presented a counterargument and refused to respond to the command. Consequently, when reiterating the request and requesting the origin or references of the quotes, Chat PT elaborated a negative response, stating that: "Sorry, but these quotes are not specific sources, but rather are common phrases attributed to these authors based on their known achievements and opinions. They may have been mentioned in interviews, lectures, articles, books, etc. I don't have any specific links or sources to share."

4 DISCUSSION

Checks of the AI at Georgetown University's Center for Security and Emerging Technology indicated the possibility of producing false information. The evidence was confirmed in a six-month user training with GPT-3 to purposely generate misinformation, including false narratives, altered news articles to formulate a false perspective, and tweets about specific points of disinformation (WIRED, 2021). Such considerations emphasize the importance of responsible and conscious use, evaluating benefits and drawbacks of

technology, and how these affect the provision of information.

Errors can occur due to various reasons: ambiguity in the question or understanding of the command, lack of relevant information in the database, or limitations of the model itself. The statement can be a text, question, or code, and serves as the basis for the model to generate its response. Despite this, the model can generate incorrect answers, as highlighted by OpenAI itself, on the doubts page: "(...) ChatGPT will occasionally make up facts or "hallucinate" exits" (ChatGPT, 2023). Thus, it is recommended to check whether the model's answers are accurate or not. In case of incorrect answer, feedback must be provided using the "Thumbs Down" button.

In generative AI models, such as ChatGPT, "Hallucination" is a common phenomenon, as answers must be generated "at any cost", even if there is no correct or sufficiently available answer in its database. There must be awareness of this phenomenon in order to try to mitigate it. As a result of the failures, the error can lead the user to maintain or amplify the false information generating misinformation. One of the justifications is the fact that AIs are designed focusing on humanization by incorporating creative elements, rather than rigid truth and factuality. Thus, the propensity to speculate, in providing answers, regardless of the level of certainty associated, is evident.

It is worth noting that ChatGPT does not have the ability to directly change its database in relation to the possibility of correcting/changing information provided from its database. Researchers must verify the quality and reliability of the sources discovered, be familiar with the references, check the authorship and citation guidelines, and especially make critical judgment, when using information obtained through AI, knowing how to differentiate and identify the facts, data, and hallucinations brought by the machine.

Unconditional confidence in the accuracy of the information provided by systems such as ChatGPT can culminate in the perpetuation of misconceptions and the incorporation of unverified data into academic papers, thus compromising the integrity of research and the reliability of contributions to the body of scientific knowledge. There is a risk of direct implications from the dissemination of untrue or adapted information.

As verified by Cortiz (2024), it is okay to use AI as a writing assistant, but it is essential to use it correctly, understanding the limitations of the technology. AIs are a reliable support for scientific research and production, conducted consciously in "not delegating all responsibility to the system (...), but we need a lot of literacy to strengthen critical use and avoid shortening paths" (Cortiz, 2024).

It is the responsibility of the academic community to raise awareness of ethical issues in the production of science: "AI tools cannot meet authorship requirements because they cannot take responsibility for the work submitted"⁵ (COPE, 2023). Authors should transparently describe the use of AI. The type and use of the tool must be included in the Materials and Methods section (or similar), whether in the preparation of the draft, the manuscript, the collection and analysis of data, graphics, etc. Authors are fully responsible for the content of their paper and research and for any violation of publication ethics (COPE, 2023, Spinak, 2023).

It is a consensus that in order to make any type of change or update to the information, those responsible for creating the AI must train with recent and relevant data, in a "manual" way, and seek to resolve "hallucinations" and creative excess, in cases of absence of a satisfactory response to a prompt (OSUL, 2023). The fight against "Hallucinations" and misinformation from AI tools advises that "the chance of error is reduced in artificial intelligences trained for specific subjects, due to the fact that they are fed with more restricted databases and are linked to a certain context" (O GLOBO, 2023).

5 FINAL CONSIDERATIONS

Given the challenges inherent to the digital age, until the improvement of AI to levels of excellence in reliability, it is essential that all sectors engage in the investigation and development of effective strategies to mitigate disinformation. Such an attitude is essential to preserve information integrity and scientific excellence, fundamental pillars for an informed society. The spread of misinformation requires strict oversight of the quality and credibility of research, carried out in an ethical and responsible manner by the academic community. It is common sense that academia and its researchers are essential to raise awareness of the importance of disseminating and combating reliable information. They also help to create an intellectual environment that values academic ethics and high-quality research. The responsibility of the academic community to combat misinformation and fake news in this context is growing, which emphasizes the importance of collaborative and interdisciplinary approaches to dealing with this complex and multifaceted phenomenon.

Considering this premise, disinformation in academia has the potential to cause significant harm, undermine the reliability of legitimate research, and threaten the reputation

⁵ "AI tools cannot meet the requirements for authorship as they cannot take responsibility for the submitted work" (COPE, 2023). Available at: <https://publicationethics.org/cope-position-statements/ai-author> (2023).

of researchers. Therefore, it is the responsibility of the academic community to raise awareness of these issues: if in the future the use of algorithms becomes part of the research routine in university institutions, this partnership may have to be extended to the company responsible for creating the algorithms used in the generation of the first version of the work. But, in this case, the question we will have to answer is: whether researchers will be the true "authors" of the academic works they generate, or if they would be, rather "meta-authors" of the proposed research. This is an issue that will have to be debated in the coming years, and in this attempt the article intended to collaborate and alert during the transition phase to a greater improvement of such technological systems.

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**CONTRIBUTIONS OF THE NEURODIVERSITY PARADIGM TO THE LEARNING
AND INCLUSION OF NEURODIVERGENT STUDENTS**

**CONTRIBUIÇÕES DO PARADIGMA DA NEURODIVERSIDADE NA
APRENDIZAGEM E INCLUSÃO DE ALUNOS NEURODIVERGENTES**

**APORTACIONES DEL PARADIGMA DE LA NEURODIVERSIDAD AL
APRENDIZAJE Y LA INCLUSIÓN DE ALUMNOS NEURODIVERGENTES**

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ABSTRACT

This article deals with the neurodiversity paradigm and its contributions to promoting inclusive education in Brazil, and seeks to analyze how this perspective has contributed to the inclusion of neurodivergent students in educational environments. A bibliographic analysis was carried out to understand the origin of the term neurodiversity and the theoretical basis of the neurodiversity paradigm, as well as its influences in the field of education. The analysis showed that the neurodiversity paradigm offers a holistic and inclusive approach to the learning and inclusion of neurodivergent students. By recognizing and valuing this diversity, schools can create more inclusive educational environments where all students have the opportunity to develop their potential.

Keywords: Neurodiversity. Education. Inclusion. Neurodivergents.

RESUMO

Este artigo trata do Paradigma da neurodiversidade e suas contribuições para promoção da educação inclusiva, no Brasil, e procura analisar como esta perspectiva tem

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colaborado para inclusão de alunos neurodivergentes em ambientes educacionais. Foi realizada análise bibliográfica para compreender a origem do termo neurodiversidade e a fundamentação teórica do paradigma da neurodiversidade, assim como suas influências no campo da educação. A análise evidenciou que o paradigma da neurodiversidade oferece uma abordagem holística e inclusiva para a aprendizagem e inclusão de alunos neurodivergentes. Ao reconhecer e valorizar essa diversidade, as escolas podem criar ambientes educacionais mais inclusivos, onde todos os alunos tenham a oportunidade de desenvolver seus potenciais.

Palavras-chave: Neurodiversidade. Educação. Inclusão. Neurodivergentes.

RESUMEN

Este artículo aborda el paradigma de la neurodiversidad y sus contribuciones a la promoción de la educación inclusiva en Brasil, y busca analizar cómo esta perspectiva ha contribuido a la inclusión de alumnos neurodivergentes en ambientes educativos. Se realizó un análisis bibliográfico para comprender el origen del término neurodiversidad y las bases teóricas del paradigma de la neurodiversidad, así como sus influencias en el campo de la educación. El análisis mostró que el paradigma de la neurodiversidad ofrece un enfoque holístico e integrador del aprendizaje y la inclusión de los alumnos neurodivergentes. Al reconocer y valorar esta diversidad, las escuelas pueden crear entornos educativos más integradores en los que todos los alumnos tengan la oportunidad de desarrollar su potencial.

Palabras clave: Neurodiversidad. Educación. Inclusión. Neurodivergentes.

1 INTRODUCTION

The term neurodiversity was popularized by Judy Singer (1998; 2016), an Australian sociologist, in the 1990s. Initially it was associated with autism, it gained strength among autistic communities, as a form of social identity representation, in the search for the guarantee of essential rights. But it then expanded to encompass a variety of neurological conditions, including Attention Deficit Hyperactivity Disorder (ADHD), dyslexia, Tourette's syndrome, and more.

Neurodiversity is a recent concept, which has gained repercussion among autistic activists, who saw in this perspective the possibility of being accepted by society and better understood in their neurological diversity. As a paradigm, neurodiversity is anchored in the notion of difference as opposed to the notion of disability or deficit associated with neurodiverse conditions such as autism, promoting a positive and inclusive view of neurodivergent people, recognizing their unique talents, abilities, and contributions (Walker, 2025; Wuo; Brito, 2023).

The neurodiversity paradigm proposes an approach that highlights cognitive differences as a natural expression of human diversity, challenging traditional conceptions about disability. In the field of education, it has positively influenced the learning and inclusion of neurodivergent students, as it seeks to highlight their potential.

This article aims to analyze how the neurodiversity paradigm has contributed to the learning and inclusion of neurodivergent students. As the approach to neurodiversity gained repercussion only at the end of the twentieth century and the beginning of the twenty-first century and this study is of a bibliographic nature, scientific productions on the neurodiversity paradigm from that period onwards were prioritized for analysis purposes.

This article is structured in order to understand the origins and theoretical foundations of the neurodiversity paradigm, as well as its influences in the field of education; to analyze how the neurodiversity paradigm has collaborated to create more inclusive educational environments and practices, promoting the academic and social development of neurodivergent students.

2 METHODOLOGY

The research followed a qualitative approach. To obtain the information, a bibliographic research was carried out, with a survey of articles and books in the Google Scholar database.

We sought to conduct a comprehensive review of the academic literature related to the paradigm of neurodiversity in education, identifying the state of the art, case studies, experiences and best practices.

In the bibliographic search in the Google Scholar database, for the descriptor "Neurodiversity Paradigm" for the 'title' of articles and books, only two articles were found: one published in 2023, entitled "Autism and the neurodiversity paradigm in educational research" and another in June 2025, entitled "The recognition and definition of veiled ableism in the neurodiversity paradigm". For the descriptor "neurodiversity", 96 references were found in the 'title'. A time frame for bibliographic research was not closed, because as it was a relatively small number of articles and books related to the theme, the articles that met the objectives of the research were selected and later they were read and analyzed.

For the analysis of the material, the methodology of narrative or traditional literature review was used, as proclaimed by Batista and Kumada (2025), in which a more open methodological procedure is adopted for the analysis of bibliographic productions, considering the interpretations and critical analyses made by the authors.

3 LITERATURE REVIEW / STATE OF THE ART

3.1 ORIGINS AND THEORETICAL FOUNDATIONS OF THE NEURODIVERSITY PARADIGM

Before we talk about the neurodiversity paradigm, we first need to understand what the term neurodiversity is and how it came about. We also need to clarify terms such as neurotypical, neurodivergent and neurodiverse, which are immersed in this discussion and are sometimes used erroneously, causing great semantic confusion, attracting criticism and dividing opinions on the subject.

The origin of the concept of neurodiversity is strongly related to autism, in particular the clinical and pathological opposition of autism, which began in the 1990s, led by autistic activists who sought to review their place in society. The essay "Don't Regret for Us" published by Sinclair in 1993 is a driver of this movement. In it, the author "appeals to parents to understand and embrace the differences of their autistic children, seeking new ways of perceiving autism, which overcome the vision and feeling of tragedy" (Wuo; Brito, 2023, p. 2). The text had a positive impact and gained popularity on social networks and communities of autistic people and activists, who began to take another look at the diagnosis of autism.

It is in this context that the term neurodiversity was coined by Australian sociologist and autistic activist Judy Singer, in the late 1990s, in partnership with journalist Harvey Blume. Since 1997 Blume has already made reference to neurological pluralism and in 1998 he published an article in *The Atlantic* newspaper, entitled *On the neurological underpinnings of geekdom*, where he states that "[...] neurodiversity can be as crucial to the human race as biodiversity is to life in general" (Wuo; Brito, 2023, p. 2). That same year, Judy Singer publishes the essay *"Why can't you be normal once in your life? From an unnamed problem to the emergence of a new category of difference"*, where he uses the term neurodiversity.

The creation of the term neurodiversity is given to both Judy Singer and Harvey Blume. However, the two from the beginning talked about the term. Blume presented neurological plurality and Singer considered it more interesting to use neurodiversity. So he used this term in his final paper for the Sociology Course, entitled *"The birth of community among people on the autistic spectrum: a personal exploration of a new social movement based on neurological diversity"*, in 1998. Subsequently, with the repercussion of the term neurodiversity, he published his thesis, renamed *"Neurodiversity: the birth of an idea"* (2016), where he states that *"We are all neurodiverse inhabitants of the planet, because no two minds in this world can be exactly alike"* (Singer, 2016; Abreu, 2022).

Neurodiversity comprises the variety of neurological compositions that encompasses all human beings. The concept of neurodivergity, coined by Singer (1998; 2016) points out that the mind can function in different ways, and that these differences are just natural variations of the human brain. This difference should not be understood pathologically, but rather as a characteristic that reinforces human diversity (Marques, 2021; Ortega, 2009).

The concept of neurodiversity takes into account all types of minds. Therefore, it considers both neurotypical ones, which include those who do not have 'mental disorders' or 'mental deficiencies', and neurodivergent ones. Neurodivergent, therefore, is cognitive functioning different from expectations considered typical by society. Thus, neurodivergent people can be understood as: people with Autism Spectrum Disorder (ASD), people with Attention Deficit Hyperactivity Disorder, people with High Abilities/Giftedness, among others (Alencar, 2022).

Walker (2025), since 2014, has been calling attention to the confusion that has been made with the terms neurodiversity, neurodiverse, neurodivergent, neurodiversity paradigm, neurodiversity movement. Neurodiversity, according to the author, is the diversity of human minds, the infinite variation in neurocognitive functioning within our species, it is a concept

that affects the collective. Neurodivergent refers to the person (acts in the individual) and means having a mind that functions in a way that significantly diverges from the dominant social patterns taken as 'normal'. Neurotypical is a person who has a neurocognitive functioning that fits the dominant social patterns considered as 'normal' and Neurodiverse refers to a group of people in which multiple cognitive styles are represented. The opposite of the neurotypical is the neurodivergent; there is no neurodiverse person, but a neurodivergent person, the author clarifies (Walker, 2025).

The concept of neurodiversity works in the social arena, therefore in the collectivity, while neurodivergence operates at the individual level, describing people with neurological conditions that affect their development and well-being (Singer, 2016; Beni *et al.*, 2025)

The neurodiversity movement has its origins in the movement for autistic rights, in the 1990s, which began with the work of Sinclair and his organization and represented a response to the treatment given to autistic people, victims of lifelong processes of exclusion and bullying. The movement has expanded, reaching not only autistic people, but also those with ADHD, dyslexia, and other divergent people. Currently, it is a social, collective movement, formed by several people in different places, without centralization, who fight for social justice, who seek civil rights, equal access, respect, and full inclusion for neurodivergent people (Abreu, 2022; Walker, 2025).

As for the neurodiversity paradigm, it refers to a specific perspective on neurodiversity or approach that summarizes the following principles: 1) neurodiversity refers to a natural and valuable form of human diversity; 2) the idea that there is a 'normal' or 'healthy' type of human brain or mind or 'correct' style of neurocognitive functioning is a culturally constructed fiction and; 3) the social dynamics that manifest themselves in relation to neurodiversity are similar to the social dynamics that manifest themselves in relation to other forms of human diversity, such as diversity of ethnicity, gender or culture. These dynamics involve inequalities of social power and also the dynamics by which diversity, when valued, acts as a source of creative potential (Walker, 2025).

The paradigm of neurodiversity is based on the notion of difference, as opposed to the notion of disability and deficit associated with neurodiverse conditions (autism, ADHD, dyslexia and other learning disorders). Therefore, this paradigm proposes a critical reflection on the concept of disability and considers that these are not injuries, but different ways of seeing the nuances of the world (Wuo; Brito, 2023).

3.2 NEURODIVERSITY AND INCLUSIVE EDUCATION

Neurodiversity goes hand in hand with the perspective of inclusive education, as the latter comprises a contemporary teaching-learning conception that aims to guarantee the right of all, with or without disabilities, to education. Inclusive education comprises an educational practice based on respect for human differences, with regard to the ethnic, social, cultural, economic, intellectual, physical, sensory, gender and personal diversities of the students, as enunciated in the Salamanca Declaration (1994), where it was postulated

[...] accommodate all children regardless of their physical, intellectual, social, emotional, linguistic conditions [...]. It should include disabled and gifted children, street and working children, children from remote origins or nomadic populations, children belonging to linguistic, ethnic or cultural minorities, and children from other disadvantaged or marginalized groups (Brasil, 1994, p.6).

Thus, we observe that the Salamanca Declaration recommends "a single regular school, capable of serving all children" (Arruda; Dikson, 2018, p. 216), regardless of their origin or socioeconomic and cultural condition, with or without disabilities. This "idea of inclusion is based on a philosophy that recognizes and accepts diversity in life in society [...]" (Arruda; Dikson, 2018, p. 216) respecting the different ways of learning, as well as the singularities of the learners. The Salamanca Declaration represents an international milestone and a guide, directing the process of implementing inclusive education in several countries and in Brazil.

In Brazil, inclusive education was legally strengthened with the approval of the Brazilian Law for the Inclusion of Persons with Disabilities, Law 13.146 of July 6, 2015, which ensures in article 27 that

Education is the right of people with disabilities, ensuring an inclusive educational system at all levels and lifelong learning, in order to achieve the maximum possible development of their physical, sensory, intellectual and social talents and abilities, according to their characteristics, interests and learning needs (Brasil, 2015).

And it postulates as a duty of the public power...

Article 28. It is incumbent on the public authorities to ensure, create, develop, implement, encourage, monitor and evaluate:

I - inclusive educational system at all levels and modalities, as well as lifelong learning;

II - improvement of educational systems, aiming to ensure conditions of access, permanence, participation and learning, through the provision of accessibility services and resources that eliminate barriers and promote full inclusion;

III - pedagogical project that institutionalizes specialized educational service, as well as other services and reasonable accommodations, to meet the characteristics of students with disabilities and ensure their full access to the curriculum under equal conditions, promoting the achievement and exercise of their autonomy (Brasil, 2015).

With the approval of this Law, there was a wide need, on the part of schools, according to Miranda (2019), to rethink teaching methods, giving priority to forms of teaching according to the singularities of each learner, since each one has a learning process and a way of being.

However, due to social inequalities, as analyzed by Góes and Laplane (2022), the inclusion of special students in regular schools assumes a peculiar condition. Our system is aligned with international legislation regarding social rights, but the implementation of inclusive policies is still limited. The difficulties are of various orders, ranging from a linear view of the inclusion engendered in our society to the misunderstanding of teachers, who are at the tip of the spear of the educational process, of how to promote the inclusion of special students, with disorders or with difficulties in the teaching-learning process.

Social inequalities are engendered in our country, consequently reverberating in the situation of poverty, hunger and misery in which a large part of the population finds itself. Brazil is one of the ten most unequal countries in the world. In the context of international politics, in 2015, the 2030 Agenda for sustainable development was signed and agreed, which places poverty as one of the greatest challenges to be overcome by humanity.

Inclusive education, according to Miranda (2019), therefore, involves a certain adaptation of educational institutions to the demands presented by students, assuming a decisive role in the lives of these subjects. However, this has been a great challenge for the Brazilian educational system, especially with regard to the universalization of basic education and the development of a unified education. School inclusion represents a path that is being built, in the process of consolidating a fairer, more solidary society that is able to guarantee the rights of the people who live in it.

The basic principle of school inclusion, according to the Salamanca Declaration, is that schools perceive and recognize the most diverse needs of learners and respond to them, ensuring them a quality education, which provides learning through an appropriate curriculum and organizational changes, teaching and learning strategies, as well as the instruments to measure this learning (Miranda, 2019).

However, we observe that inclusive education, despite being understood in its conception and having legal support, still faces several obstacles in terms of its implementation in education systems from north to south of the country. One of these obstacles concerns the unpreparedness of schools and, consequently, teachers to deal with neurodivergent students.

The inclusive education paradigm considers that all people can learn and that, for this, schools need to welcome the diversity of their students. In this aspect, it is not neurodivergent students who need to adapt to the needs of schools. On the contrary, it is the schools that must understand and value the differences that exist in society (Mantoan, 2003 *apud* Alencar, 2022).

For this reason, pedagogical resources and strategies must be made more flexible by teachers to allow all students to learn, fully develop and actively participate in society (Alencar, 2022; Arroyo, 2012).

From this perspective, it is necessary to understand that, in order to have an education that fosters the inclusion of neurodiversity, it is necessary to consider the different ways of being, thinking and acting of students. To this end, it is necessary to invest in diverse pedagogical practices, teaching and learning strategies that contemplate the diverse abilities of students and, based on social inclusion.

3.3 CONTRIBUTIONS OF THE NEURODIVERSITY PARADIGM IN THE PROMOTION OF INCLUSIVE EDUCATION

The creation of the term neurodiversity and its repercussion through the neurodiversity movement had a significant impact on the field of education. The principles defended by the neurodiversity paradigm have found a fertile field for their development in what is central to school environments throughout the country, in line with the perspective of inclusive education, as proclaimed by the Salamanca Declaration (1994).

Inclusive education aims to ensure that all students, regardless of their differences, have access to quality education in environments that welcome them and value their uniqueness. In this context, the neurodiversity paradigm emerges as a fundamental approach to promote the inclusion of people with different forms of brain functioning, such as autism, ADHD, dyslexia, among others, as we saw earlier.

In promoting inclusive education, the paradigm offers several significant contributions. Following the principles adopted by the paradigm (Walker, 2025), we list these contributions in the following table:

Table 1

Contributions of the neurodiversity paradigm in the promotion of inclusive education

NEURODIVERSITY PARADIGM (principles)	INCLUSIVE EDUCATION (contributions)
Acceptance of diversity	By recognizing and accepting neurobiological diversity, neurodiversity challenges the idea that there is a single pattern of cognitive and behavioral development that everyone must follow. This creates a more welcoming and respectful environment for neurodivergent students, reducing the stigma associated with neurobiological differences;
Valuing unique skills	Each neurodivergent student possesses unique skills and talents. While some may struggle in certain areas, they may excel in others. By adopting the neurodiversity paradigm, educators can identify and value these skills, helping neurodivergent students to develop their full potential;
Adaptation of the educational environment	By encouraging the creation of more flexible and adaptable educational environments, capable of meeting the needs of each student (neurotypical and neurodivergent). This can include adjustments to the curriculum, teaching methodology, assessment, and physical structure of the school, ensuring that all students (neurotypical and neurodivergent) have access to quality education;
Promoting empathy and understanding	By educating the entire school community about neurodiversity, it is possible to promote empathy, understanding, and respect for differences. This contributes to the construction of an inclusive school culture, where everyone feels valued and accepted, regardless of their individual characteristics;
Developing personalized learning strategies	Neurodiversity recognizes that there is no one-size-fits-all approach that works for all students. Therefore, educators are encouraged to develop personalized teaching and learning strategies, taking into account the individual needs and preferences of each neurotypical and neurodivergent student;
Preparing for real-world diversity	By promoting neurodiversity in education, we are preparing students to live in a diverse and complex world. The adaptive, resilient, and difference-accepting skills gained in school will be invaluable as students advance into adulthood and enter diverse work environments and communities.

Source: prepared by the authors, 2025.

Finally, the neurodiversity paradigm offers a holistic and inclusive approach to promoting quality education for all (neurodivergent) learners. By recognizing and valuing neurobiological differences, we can create fairer, more welcoming, and more effective educational environments where each neurodivergent student can reach their full potential and also contribute meaningfully to society.

4 FINAL CONSIDERATIONS

This article aimed to present the contributions of the neurodiversity paradigm in the field of education. When conducting the bibliographic survey, we found that there are few studies in Brazil that address neurodiversity in education. Although the term was coined in the late 1990s and became popular through autistic activists and the Neurodiversity Movement, it is only recently that attention has been given to the theme and constituted an object of research, with some dissertations and theses produced on the subject.

We found that the neurodiversity paradigm represents a fundamental shift in the way society perceives and approaches neurological differences. By recognizing and valuing the diversity of minds (Singer, 2016; Abreu, 2022; Walker, 2025), we can build more inclusive, just, and enriching communities for all its members. The adoption of this paradigm in education and other aspects of social life is essential to promote equal opportunities and respect for the rights of all people, regardless of their neurodiversity.

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**WHAT DOES A TEACHER ACTUALLY DO IN THE CLASSROOM? ANALYSIS
OF RESEARCH ON TEACHING ACTION**

**O QUE O PROFESSOR FAZ DE FATO EM SALA DE AULA? ANÁLISE DE
PESQUISAS SOBRE A AÇÃO DOCENTE**

**¿QUÉ HACE REALMENTE UN DOCENTE EN EL AULA? ANÁLISIS DE LA
INVESTIGACIÓN SOBRE LA ENSEÑANZA-ACCIÓN**

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ABSTRACT

This article presents a mapping of theses and dissertations prepared by a research group that has been investigating Teaching Action for over ten years, from different perspectives. The data collection was conducted in the repository of the graduate program to which the research group belongs. The research, which adopted a qualitative and exploratory approach, followed the procedures of Discursive Textual Analysis to organize and interpret the collected data. Its objectives were to identify different contexts, investigative approaches, and theoretical foundations used by the researchers, as well as to analyze and seek new understandings regarding the categories of Teaching Action found in the theses and dissertations. The process of analyzing the categories of Teaching Action resulted in nine final categories, which express what the teacher actually does in the classroom: teach about the content; manage the class and time; engage students' attention; use different technological resources; supervise the completion of activities; socialize on various topics; assign activities; encourage students to complete activities; and evaluate activities developed by students.

Keywords: Teaching Action. Science Teaching. Teacher Training.

RESUMO

Este artigo apresenta um mapeamento de teses e dissertações elaboradas por um grupo de pesquisa que investiga há mais de dez anos a Ação Docente, por meio de diferentes perspectivas. A coleta foi realizada no repositório do programa de pós-graduação ao qual o grupo de pesquisa faz parte. A pesquisa, de abordagem qualitativa e caráter exploratório, seguiu os procedimentos da Análise Textual Discursiva para a organização e interpretação dos dados coletados. Teve por objetivos identificar diferentes contextos, abordagens investigativas e fundamentações teóricas utilizados pelos pesquisadores, bem como analisar e buscar novas compreensões em relação às categorias de Ação Docente encontradas nas teses e dissertações. O processo de análise das categorias de Ação Docente resultou em nove categorias finais, que expressam o que de fato o professor faz em sala de aula: ensinar sobre o conteúdo; gerenciar a aula e o tempo; chamar a atenção dos alunos; utilizar diferentes recursos tecnológicos; supervisionar a realização de atividades; socializar sobre

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diversos assuntos; atribuir atividades; incentivar os alunos em relação à realização de atividades e avaliar atividades desenvolvidas pelos alunos.

Palavras-chave: Ação Docente. Ensino de Ciências. Formação de Professores.

RESUMEN

Este artículo presenta un mapeo de tesis y disertaciones elaboradas por un grupo de investigación que ha investigado la Acción Docente durante más de diez años, desde diferentes perspectivas. La recolección de datos se realizó en el repositorio del programa de posgrado al que pertenece el grupo de investigación. La investigación, que adoptó un enfoque cualitativo y exploratorio, siguió los procedimientos del Análisis Textual Discursivo para organizar e interpretar los datos recopilados. Sus objetivos fueron identificar diferentes contextos, enfoques investigativos y fundamentos teóricos utilizados por los investigadores, así como analizar y buscar nuevas interpretaciones de las categorías de la Acción Docente presentes en las tesis y disertaciones. El proceso de análisis de las categorías de la Acción Docente resultó en nueve categorías finales, que expresan lo que el docente realmente hace en el aula: enseñar sobre el contenido; gestionar la clase y el tiempo; captar la atención del alumnado; utilizar diferentes recursos tecnológicos; supervisar la realización de actividades; socializar sobre diversos temas; asignar actividades; animar al alumnado a realizarlas; y evaluar las actividades desarrolladas por el alumnado.

Palabras clave: Acción Docente. Enseñanza de las Ciencias. Formación Docente.

1 INITIAL CONSIDERATIONS

The development and increase in the number of Graduate Programs in the area of Education and Teaching has generated a growing scientific repertoire. In this way, we believe that articles that have a view to the bibliographic review become relevant, as they allow the analysis of the state of knowledge, as well as the contributions and different research fronts that are being assumed by these programs.

In view of this, the present research was developed with the aim of putting on the agenda the theoretical and methodological discussions and some results that have been built by the Research Group in Science and Mathematics Education (EDUCIM)⁴ in relation to Teaching Action, highlighting possible challenges for future studies. This line of research, which has been under development for more than ten years, seeks to investigate Teaching and Student Action through direct observation of events that occur in the classroom.

The members of this research group have been weaving understandings about the concepts of Teaching and Student Action, from perspectives that had not yet been explored in other productions. Such perspectives arose from the concern generated in the face of normative research "that is interested above all in what teachers should or should not do" (Tardif; Lessard, 2008, p. 36), thus proposing reforms that do not happen or that do not take hold in the universe of the daily practices of teaching professionals, because they leave aside what the teacher really is and does. Conceived outside of pedagogical practice, they contribute to the creation of an abstract view of the teaching work (Tardif; Lessard, 2008).

In this way, the research group has left its mark by turning its investigations to what actually happens in the classroom, without developing prescriptions and judgments. The stimulus to the movement of direct analysis of Teaching Action in the classroom gave rise to new instruments, which allowed us to understand the relationships with knowledge that occur in classrooms.

The growing number of investigations focused on the active analysis of Teaching Action has made the research group able to reach different levels and modalities of teaching, as well as areas of training. However, the need for alignment has been triggered, in order to avoid the production of dispersed categories in relation to the Descriptive Perspective of Teaching Action (Arruda; Passos; Broietti, 2021). Thus, in the present research we seek to highlight the possibility of groupings between some emerging categories according to the

⁴ <http://educim.com.br/>

context behind these actions, so that they can be used in future research, avoiding the dispersion of new categories of actions that have existing meanings.

We consider that review studies are pertinent for directing new research. Understanding what has already been produced clarifies the intellectual trajectory and facilitates scientific work in a significant way, helping in the elaboration of research problems by identifying gaps to be filled, consequently contributing to the advancement of scientific knowledge (Jacomini; Penna; Bello, 2019).

From the investigative perspective, we intend to answer the following research questions: What is the context of the classes being analyzed? What investigative approaches and theoretical foundations were used for the analysis of the classes? What categories of Teaching Action emerged from these researches? In order to answer these questions, the main objectives of this article are to identify different contexts, investigative approaches and theoretical foundations used by researchers, as well as to analyze and seek new understandings in relation to the categories of Teaching Action found in the theses and dissertations produced by the research group.

In the next section, we present the theoretical-methodological bases that guide the research developed by the group.

2 A LOOK AT THE TEACHING AND STUDENT ACTION THROUGH DIFFERENT FOUNDATIONS AND INVESTIGATIVE APPROACHES

In general, the group's investigations are supported by two research questions: 1) What Teaching and Student Actions can be identified through the direct observation of Science and Mathematics classes in basic and higher education, how can they be interpreted, and how are they connected? 2) What implications can be extracted from the results found with regard to teaching, learning and teacher training? (Arruda; Passos; Broietti, 2021).

These general research questions (especially the first of them) have already been scrutinized and have given rise to new questions during the investigations that followed. In order to answer them, the group has sought to articulate its research with other fields, the first of which is teacher training, in particular the practices and intentionalities that teachers manifest in their classes. In some investigations carried out by the group, the articulation with the main theories that approach action from the point of view of sociology was also explored. Finally, the group has explored the possibilities offered by the Actor-Network Theory (ANTE)

as a theoretical-methodological basis in its most recent investigations (Arruda; Passos; Broietti, 2021).

Among the main authors that are being used for the theoretical foundation in relation to teacher training and pedagogical practice, we can mention: Schön (1997); Pimenta e Lima (2004); Gauthier *et al.* (2006); Tardif and Lessard (2008); Altet (2011) and Tardif (2014). These authors also sometimes point out the need for direct observation of the teaching practice, as highlighted by Schön (1997, p. 90):

[...] We have to check what teachers do in direct and recorded observation that allows a detailed description of the behavior and a reconstruction of intentions, strategy and assumptions. The confrontation with directly observable data often produces an educational shock, as teachers discover that they act according to theories of action different from those they profess.

Regarding Social Theories of Action, the research group has been based on authors such as: Weber (1978); Coleman (1994); Bourdieu (1997) and Lahire (2002). In Weber (1978) it is found that action is determined by ends that are rationally calculated by the subject who commits the action, based on values, affections, feelings and traditions. Coleman (1994) considers that almost all actions are rational in relation to ends, action is directed to the maximization of utilities. Bourdieu (1997) considers that action is guided by the perception of the situation and the appropriate response to each situation. For Lahire (2002), actions are the result of practical sense, routine situations and rationality when the subject is faced with something new. We can understand through these references that there are conscious, planned actions and automatic actions.

The concept of teaching action can also be based on the Actor-Network Theory, with Latour (2012) as the main reference. By opposing traditional sociology and defending a new sociology based on associations, Latour (2012) presents a series of controversial points, two of which are linked to the studies that the research group has been developing in relation to Teaching Action: a) The questioning of what "action" is; b) The possibility of attributing action to non-humans, given the understanding that objects also interfere in the course of human actions.

In addition, according to the research group, different methodological approaches can be employed for the direct analysis of Teaching Action. The first is to describe the Teaching Action (Descriptive Approach), focusing on analyzing what teachers actually do in the classroom, what are their actions during the teaching process (Arruda; Passos; Broietti,

2021). Tardif and Lessard (2008, p. 237) have called this process identifying the "Nature of the Action". In view of this approach, researchers have spared no effort to record, transcribe and analyze the Teaching Actions (verbal and non-verbal), which has generated a large repertoire of categories for the Teaching Actions, since action verbs have been used for this categorization process.

This has been a thorough and exhaustive process, but it has produced good results in terms of the analysis of work and of being a teacher. The research presents the complexity of the Teaching Action through the analysis of the number of distinct actions that are carried out in short periods, as well as the number of Teaching Actions that are carried out jointly at the same time (Arruda; Passos; Broietti, 2021).

The second is based on the explanation given by the subjects about the actions performed (Explanatory Approach) (Arruda; Passos; Broietti, 2021). This perspective of analysis has been developed through interviews with questions focused on categories of Teaching Actions emerging during the teaching process in the classroom, with the objective of investigating the existence of intentionalities that trigger such actions, that is, the "objective or motive of the action" (Tardif; Lessard, 2008, p. 237). In addition to the interviews, the researchers have also developed autoscopy movements, which facilitate the recollection in relation to the actions developed. In this process, the teacher watches some excerpts from his class and tries to explain his actions, according to the questions asked by the researcher, based on the Descriptive categories that emerged in the analysis of these excerpts.

The Explanatory Approach seeks to be grounded both in themes of teacher training and in social theories of action, as well as in works that deal with intentionality. Based on the assumptions of Tomasello *et al.* (2005), it is understood that every intention has an action plan, with a view to achieving an objective: "[...] An intention is a plan of action that the organism chooses and to which it commits itself in the pursuit of a goal. An intention, therefore, includes the means (plan of action) as well as an objective" (Tomasello *et al.*, 2005, p. 677).

In this way, the descriptive analysis of a class indicates what the teacher's action plan is; the explanations given by the teacher during interviews in which the researcher questions the reasons why he performed such actions, indicate the objectives of each action and thus a general overview of the intentionality of the Teaching Action is drawn. According to Romanzini, Arruda and Passos (2025, p. 17.097): "The effectiveness of teaching actions is directly related to the intentionality of these acts, to the teacher's ability to reflect on their

practice, the constant improvement of their pedagogical skills, and to adaptation, according to the needs of each context".

Therefore, the explanatory perspective does not leave aside the need to describe the Teaching Action, but goes further, seeking answers regarding the teacher's intentionality, allowing analyses that articulate the teaching thinking and doing. "Highlighting the mental processes that govern the teacher's thinking in various situations, for example, during class management, at the time of didactic transposition of the subject, in interactions with students" (Tardif, 2014, p. 231).

The third investigative approach seeks to identify Connections between the categories of Teaching Actions and/or the categories of Student Actions, and is therefore called the Connective Approach (Arruda; Passos; Broietti, 2021). Through this, it is analyzed how Teaching Actions can be related to the actions of other actors in the classroom, in particular the actions of students, which can converge to the same objective. This approximation has been made based on Tardif and Lessard (2008), who present three forms of interaction: Convergent; Parallel and Divergent.

It is understood as Convergent Interactions, therefore Connection, when the Teaching Action in question converges and is aligned with the Teaching and/or Student Action identified in the sequence or previously. "Peripherally, there are disturbing behaviors (deviant or divergent in relation to the main task and related tasks" (Tardif; Lessard, 2008, p. 247). It is concluded that Parallel and Divergent Interactions lead to Disconnection.

The Connective approach has also been based on the Actor-Network Theory (Latour, 2012), which defends the existence of connections between actions and stresses the need for the researcher to "follow the connections, follow the actors themselves" (Latour, 2012, p. 259), in the search to understand how the elements relate to each other and how an actor (human or object) can influence the actions of others. According to Latour (2012, p. 251),

[...] we have only to establish continuous connections between a local interaction and other places, times, and agencies through which a place is led to do things. If we do this, we will make visible the long chains of actors that connect places with each other without missing a single step.

We can observe that the approaches can be employed simultaneously, however, the Descriptive approach, focused on the Nature of the Action, is essential to reach the other approaches (Explanatory and Connective). Advances in relation to the understanding of the

reasons that lead to the occurrence of certain actions are necessary and relevant, as well as the in-depth study of the connection between the actions developed by the teacher, however, neither of these two perspectives can be achieved without a correct description of the Teaching Action.

Having been the Descriptive approach that started the group's research, and considering its relevance to the other approaches, in this article we will turn our gaze to the theses and dissertations that used this approach, as well as to the categories in relation to Teaching Action that emerged from the process. We emphasize that although the group has been developing descriptions regarding Student Action, the categories emerging from this process will not be part of this analysis.

3 METHODOLOGICAL REFERRALS

The present research has a qualitative approach and was developed based on the principles of state-of-knowledge review studies, because "the study that addresses only one sector of publications on the topic studied has been called [this way]" (Romanowski; Ens, 2006, p. 40).

In order to answer the research questions, listed in the introduction of the article, we collected data from the thesis and dissertation database of the Graduate Program in Science Teaching and Mathematics Education (PECEM) to which the EDUCIM research group is interconnected. Through the search tool and using the following descriptors "ACTION" and "ACTIONS", we initially arrived at the number of 367 theses and dissertations. Then, through the preliminary reading of the titles and abstracts, as well as the analysis of the authorship of the theses and dissertations, we selected only those that belonged to the members of the research group and that analyzed the Teaching Action through the Descriptive approach, that is, describing categories of action.

Thus, we arrived at the number of twelve theses and nine dissertations, totaling 21 investigations that make up the *corpus* of this research. Data collection in the thesis and dissertation database took place until December 2024, that is, only the theses and dissertations available in the repository up to that period were collected.

The 21 theses and dissertations were analyzed based on the procedures described by the Discursive Textual Analysis (DTA) (Moraes; Galiuzzi, 2011), which includes three cyclical stages: Unitarization; Categorization; Metatext Production.

Through the detailed reading of the *research corpus*, we began the Unitarization, which consists of the fragmentation of theses and dissertations in search of Units of Meaning (US), which were "identified according to a meaning pertinent to the purposes of the research" (Moraes; Galiazzi, 2011, p. 19). In this way, we highlight Units of Meaning for the three questions that guide the research, emphasizing the categories of Teaching Actions evidenced by the theses and dissertations, thus structuring our *corpus* of analysis.

In order to organize the data analysis, we developed identification codes for theses (T) and dissertations (D). Thus, the code "Q1, 2016", for example, represents the first thesis that was analyzed, followed by his year of defense. Finally, the acronym "US" was used with the addition of a number to identify the order of collection of the Units of Meaning in each thesis or dissertation. The Units of Meaning form the necessary elements for the establishment of relationships and the possibility of representing understandings in relation to the phenomena investigated (Moraes; Galiazzi, 2011).

The researcher's immersion with the Units of Meaning, through readings and rereadings, allows the identification of similarities and divergences between them; the grouping of the Units of Meaning, according to their similarities, results in a system of categories (Moraes; Galiazzi, 2011). With the completion of the process of grouping into categories, it is possible to start the Production of a Metatext that represents the researcher's effort to present his or her understandings, through arguments that justify the grouping of the Units of Meaning into such categories (Moraes; Galiazzi, 2011).

In the next section, we will seek to delve deeper into the analysis and present the results and discussions based on the analytical movement and the data obtained.

4 RESULTS AND DISCUSSIONS

To answer the first and third questions that guide the research, in relation to the context and the Teaching Actions that characterize the analyzed classes, we used the inductive method. When analyzing the *corpus* of the research, by identifying the theme, objectives, methodology and results, we seek to describe the areas of knowledge, levels of education, teaching strategies and Teaching Actions. The second question that guides the research will be answered based on the categorization of theses and dissertations, according to the investigative approaches and theoretical foundations presented in the second section of this article.

4.1 CONTEXT OF THE CLASSES ANALYZED IN THE THESES AND DISSERTATIONS

The classes that were analyzed by the researchers for the production of data from their research can be grouped according to the area of knowledge. Thus, we observed that most of the research analyzed focused on Mathematics and Chemistry classes, with seven studies in each of these areas. Investigations focused on Mathematics include works T1 (2016), D1 (2018), T7 (2022), T8 (2022), T9 (2022), T10 (2022) and D7 (2023). With regard to Chemistry, the studies D2 (2019), T3 (2019), T6 (2019), D3 (2020), T11 (2024), T12 (2024) and D9 (2024) stand out. Next, there are five researches dedicated to the teaching of Science, namely: T2 (2018), T5 (2019), D4 (2020), D6 (2021) and D8 (2023). Finally, less frequently, investigations were identified in the areas of Physics, represented by a single study (T4, 2019), and Biology, also with only one work (D5, 2021).

In addition to the diversity in relation to the areas of knowledge, we can verify that the analyzed classes are distributed in three levels of Education. Most of the studies analyzed (12) focused on classes held in Elementary and High School. Specifically, nine studies focused on Elementary Education were identified: T1 (2016), D1 (2018), T2 (2018), T5 (2019), D4 (2020), D6 (2021), T7 (2022), T9 (2022) and D8 (2023). Only two studies exclusively addressed high school classes, corresponding to works D3 (2020) and T11 (2024). In addition, a study (Q10, 2022) analyzed simultaneously classes taught in Elementary and High School.

With regard to Higher Education, nine surveys were identified: D2 (2019), T3 (2019), T4 (2019), T6 (2019), T8 (2022), D5 (2021), D7 (2023), D9 (2024) and T12 (2024). Among these, six studies investigated the teaching action of teacher trainers: T6 (2019), D5 (2021), T8 (2022), D7 (2023), D9 (2024) and T12 (2024). The other three researches focused on the analysis of the teaching action of Undergraduates, focusing on the planning and realization of simulated classes within the scope of the Supervised Internship discipline: T4 (2019), T3 (2019) and D2 (2019). Therefore, the research group has been committed to investigating the teaching action at different levels of education. However, so far, no studies have been developed that explore the performance of Teacher Trainers in contexts of continuing education.

The research group has also analyzed classes that were developed through different teaching strategies, as we can see in Table 1 below.

Table 1

Teaching strategies that characterize the classes investigated

<i>Teaching Strategies</i>	<i>Theses and Dissertations</i>	<i>Total searches</i>
<i>Dialogued Expository</i>	D3, 2020; D4, 2020; D5, 2021; D6, 2021; Q2, 2018; Q7, 2022; D8, 2023; Q12, 2024; D9, 2024	9
<i>Experimental in the laboratory</i>	D3, 2020; D4, 2020; D5, 2021; Q3, 2019; Q5, 2019; Q11, 2024; D9, 2024	7
<i>Traditional Exhibitions</i>	Q1, 2016; D2, 2018; Q4, 2019; Q5, 2019; Q6, 2019	5
<i>Dialogued Exhibitions with Mathematical Modeling and Digital Technologies</i>	Q9, 2022; D7, 2023	2
<i>Exhibitions Dialogued with Games and Manipulable Materials</i>	D1, 2018	1
<i>Dialogued Exhibitions with Quizz Game</i>	Q3, 2019	1
<i>Exhibitions Dialogued with Chemical Jury</i>	Q11, 2024	1
<i>Dialogued Expository with Exploration of Learning Objects on the Interactive Whiteboard</i>	Q10, 2022	1
<i>Exhibitions in a Remote Environment</i>	Q8, 2022	1

Source: The authors.

By analyzing Table 1 we can see that most of the studies analyzed dialogued lectures, traditional classes and classes with experiments. In addition, some research analyzed classes developed through only one teaching strategy, as is the case of T1 (2016), one of the first descriptive studies developed by the group, which was focused only on Traditional Expository classes. Other research focused on analyzing classes with differentiated strategies, as is the case of D3 (2020), which analyzed Dialogued Expository Classes and Experimental Classes, with the objective of comparing the emerging Teaching Action categories.

In order to clarify what is exposed above, we bring a compilation of categories, which represent the Teaching Actions in classes that are configured by a certain teaching strategy:

1. Traditional expository – Represented here by the T1 survey (2016), it culminated in four macrocategories of teaching actions: Bureaucratic-Administrative; Waiting; Explain; Write.
2. Experimental in the laboratory – Represented here by the D3 survey (2020), it culminated in 15 categories of teaching actions: Guides; Waiting; Question; Explain; Supervises; Displaces; Organizes; Answer; Informs; Demonstrates; bureaucratic-evaluative activities; Discusses; Distributes; Warns; Resume.
3. Dialogued expository – Represented here by the D4 survey (2020), it culminated in 17 categories of teaching actions: Combines; Informs; Question; It draws attention;

Conversation; Come in; Sai; Organizes; Make a call; Erase; Attends; It moves; Waiting; Question; Answer; Explain; Write.

4. Exhibitions dialogued with Games and Manipulable Materials – Represented here by the D1 research (2018), culminated in 20 categories of teaching actions: Thanking; threatening; Argue; Attract attention; Comment; Check; Displace; To write; Wait; Execute; Explain; Negotiate; Organize; Congratulate; Ask; Ask; Provide; Fail; Answer; Supervise.

Research has shown that different teaching strategies alter Teaching Actions and the frequency of actions during a class (D3, 2020; T9, 2022). The research described in T10 (2022) also highlights that, in addition to the different teaching strategies, the Contents of the classes can act as elements that change the number and Teaching Actions of a class. Other factors listed by the researchers are: the characteristics of the students, the profile of the teacher and the intentionality of the teacher (T2, 2018; D2, 2019; D4, 2020). From the analysis of the research, it is evident that the context of the class, as a whole, can directly influence the Teaching Action.

4.2 INVESTIGATIVE APPROACHES AND THEORETICAL FOUNDATIONS

As described in the second section of this article, the research group has assumed three possibilities of Investigative Approach (descriptive, explanatory and connective) and Theoretical Foundation (Teacher Training; Social Theories; Actor-Network Theory) (Arruda; Passos; Broietti, 2021). We will now present the choices made by the researchers of the research group, in view of their possibilities, at the time of substantiating and analyzing the Teaching Action. For this, we prepared Table 2, which allows the visualization of such choices.

Table 2

Investigative Approaches and Theoretical Foundations adopted

Codes	Investigative Approach			Theoretical Foundations		
	Descriptive	Explanatory	Conexiva	Teacher Training	Social Theories	Actor-Network Theory
Q1, 2016	X			X		
Q2, 2018	X	X		X	X	
D1, 2018	X			X	X	
Q3, 2019	X		X		X	
Q4, 2019	X			X	X	

Q5, 2019	X		X		X	
Q6, 2019	X			X	X	
D2, 2019	X			X		
D3, 2020	X			X	X	
D4, 2020	X			X	X	
D5, 2021	X			X	X	
D6, 2021	X				X	
D7, 2023	X			X		
D8, 2023	X	X		X		
D9, 2024	X		X	X		
Q7, 2022	X				X	
Q8, 2022	X			X		
T9, 2022	X			X	X	
Q10, 2022	X		X		X	
Q11, 2024	X		X	X		
Q12, 2024	X			X		

Source: The authors.

We can observe that most of the theses and dissertations present in the repository until 2024 used the Descriptive approach, and only five sought to bring, in addition to the descriptions, possible connections between the Teaching and Student Action. We also found that so far the Explanatory approach is the one that has been least explored. Regarding the theoretical foundation, we can evidence that Teacher Training and Social Theories have been the most predominant choices, many researchers have even chosen to use both strands in their research. The Actor-Network Theory, although mentioned by the research group as a possible line of foundation, especially in relation to the Connective approach, was not contemplated in any of the 21 theses and dissertations present in the repository until 2024.

It should be noted that, according to the research group, any of the investigative approaches and Theoretical Foundations listed is capable of supporting the results of research in relation to Teaching Action (Arruda; Passos; Broietti, 2021). The choice for articulation with a certain approach or theoretical foundation occurs mainly due to the objectives and problems of each research.

Some researchers, according to their objectives, chose to base their research only on the bias of Teacher Education, as is evident in D2 (2019, p. 27): "We looked for references that would help us in the intervention process and in its evaluation, considering that we intend to direct the research towards the training of more reflective teachers". Other research presents sections in its theoretical foundations that are based on two theoretical approaches, but specify their basis according to only one of them: "In this research we are influenced by

social theories of action, especially so as not to neglect rational actions and actions of practical sense" (T7, 2022, p. 30).

However, most researchers have interpreted the teacher's action through social theories of action, linking these to authors from the educational sphere, through which they seek to define their understandings of Teaching Action. For example, T2 (2018) stresses the need to initially outline some conceptual definitions for Teaching Action, emphasizing that this was only possible "through theoretical references based on Sociology and from the relations of this field with the educational area" (T2, 2018, p. 9). Thus, the thesis is based on both theories.

We found that, initially, the theses and dissertations of the research group focused exclusively on categorizations for Teaching Actions, according to the Descriptive Approach, anchored mainly in Social Theories of Action that were linked to the field of Teacher Education. We believe that the research group aimed to establish a solid foundation, which will allow proposals for future investigations, focused on the least explored approaches so far (Connexive and Explanatory).

4.3 CATEGORIES OF TEACHING ACTION: POSSIBLE GROUPINGS

As previously mentioned, one of the objectives of this article is to identify possibilities of grouping some of the categories of Teaching Actions present in the theses and dissertations produced by the research group, in order to avoid the creation of new categories that have the same meaning as existing ones.

The categories described by the researchers in their theses and dissertations are represented by verbs that indicate actions, however, sometimes these categories appear in the indicative (Espera; Explain; Writes), other times in the infinitive (Wait; Explain; Writing), which demonstrates a certain dispersion in the process of standardization of categories. In addition, the growing number of categories identified in the research is indicative that there may be more than one verb being used for the same meaning and context of Teaching Action.

Table 3

Number of teaching actions evidenced in each research

<i>Thesis and Dissertations</i>	<i>Quantitative of Teaching Actions</i>
Q1, 2016	4
Q2, 2018	78
D1, 2018	20
Q3, 2019	24

Q4, 2019	8
Q5, 2019	22
Q6, 2019	33
D2, 2019	4
D3, 2020	15
D4, 2020	17
D5, 2021	10
D6, 2021	36
D7, 2023	2
D8, 2023	11
D9, 2023	13
Q7, 2022	15
Q8, 2022	6
T9, 2022	6
Q10, 2022	22
Q11, 2024	22
Q12, 2024	7

Source: The authors.

During the Unitarization process, it was observed that the studies with a smaller number of categories of Teaching Actions had already sought to approximate their categories, in order to avoid dispersion and the creation of categories with similar meanings (T1, 2016; Q4, 2019; D5, 2021; T9, 2022). It is important to highlight that D2 (2019) and D8 (2023) chose to use categories defined *a priori*, since their investigation focused on the explanatory approach. The T8 (2022) survey, which analyzed the remote context, also presented a reduced number of categories, which can be attributed to the specificities of the context investigated. In the case of D7 (2023), only two categories were used, since the researcher chose to delve into the actions of "Ask" and "Explain", without contemplating other teaching actions. The surveys in Q7 (2022) and T12 (2024) focused exclusively on evaluative and argumentative actions, which may also explain the lower number of categories identified.

During the process of grouping the categories of Teaching Actions, represented in the research by action verbs, we felt the need to also look at the fragments of transcriptions of the analyzed classes, in order to identify the context of each of the categories. It was through these contexts that we evidenced some possibilities of approximations and arrived at nine final categories, namely: 1) Teaching about the content; 2) Manage the class and time; 3) To draw the attention of the students; 4) Use different technological resources; 5) Supervise the performance of activities; 6) Socialize on various subjects; 7) Assign activities; 8) Encourage students to carry out activities; 9) Evaluate activities developed by the students.

As a way of presenting the final categories, we have prepared some tables that demonstrate the categorization process, which took place based on the context of the Teaching Actions.

Table 4

Final Category: Teaching the content

<i>Actions</i>	<i>Context of the Actions</i>
Teaching	<u>Teaching</u> about the content (D1, 2018, US7)
Explain	<u>Explain</u> about vinegar analysis (D2, 2019, US10)
Argue	<u>Argue</u> about students' questioning of the contents (D5, 2021, US5)
Comment	<u>Comment</u> on the contents of the activity (D1, 2018, US12)
Exhibit	<u>Expose</u> the content (D4, 2020, US8)
Correlate	<u>Correlate</u> lab classes with classroom classes (D6, 2021, US9)
Instruct	<u>Instruct</u> on the content of the activity (Q4, 2019, US 10)
Suggest	<u>Suggest</u> that they perform the calculation before risking an answer to the AO activity (Q10, 2022, US15)
Discuss	<u>Discuss</u> the results obtained from the experiment (Q10, 2022, US20)
Exemplify	<u>Exemplifying</u> the movement of a parachute (Q5, 2019, US16)
Represent	<u>Represent</u> explanation on the board (Q5, 2019, US17)
Fix	<u>Correct</u> students' mistaken statements about the content (Q2, 2018, US35)
Notice	<u>Realizing</u> one's own conceptual error (Q2, 2018, US21)
Remember	<u>Remembering</u> the contents already studied (S6, 2019, US8)
Resume	<u>Resume</u> content from the previous class (D3, 2020, US5)
Retrospect	<u>Retrospect</u> of previous classes (Q2, 2018, US6)
Demonstrate	<u>Demonstrate</u> the experiment (Q3, 2019, US14)
Show	<u>Show</u> content through the game (D1, 2018, US7)
Run	<u>Run</u> the experiment (D3, 2020, US12)
Indicate	<u>Indicate</u> with hands to demonstrate content (Q2, 2018, US 20)
Present	<u>Present</u> the materials/ingredients to the students (S2, 2018, US 19)
Handle	<u>Handle</u> and explain about the procedure (D5, 2021, US20)
Reply	<u>Answer</u> students' questions about the content (D1, 2018, US9)
Guide	<u>Provide guidance</u> on the experimental procedure (Q5, 2019, US23)
Auxiliary	<u>Assist</u> in the resolution of activities (D3, 2020, US21)
Highlight	<u>Emphasize</u> the accuracy of the correction factor (Q6, 2019, US8)
Reflect	<u>Reflect</u> on the conditions under which the experiments are carried out (Q6, 2019, US13)
Dictate	<u>Dictate</u> the content (Q3, 2019, U25)
To write	<u>Writing</u> about the characteristics of the primary standards of substances (Q5, 2019, US15)
Read	<u>Read</u> exercises (D3, 2020, US17)
Communicate	<u>Communicate</u> orally the content present on the board or textbook (Q3, 2019, US28)
Ask	<u>Ask</u> about the analytical chemistry content taught (T5, 2019, US32)
Question	<u>Ask</u> about content (Q3, 2019, US29)
Arguing	<u>Arguing</u> about the content (Q2, 2018, US29)
Problemатize	<u>Problemатize</u> the discussion of the text in relation to research in initial teacher education (T6, 2019, US10)
Listen	<u>Listen</u> to the answer or explanation or reading about content and assignments from the student(s) (D2, 2019, US4)
Understand	Teacher listens and tries to understand students' ideas (responses) (D8, 2023, US21)
Wait	<u>Wait</u> for the student to respond or explain assignment result (Q10, 2022, US20)
Accept	<u>Accept</u> responses about content (Q3, 2019, US10)
Filing	Reconstructs responses from reaffirmation of students' opinions (S12, 2024, US5)

Source: The authors.

All action verbs that denote in their context the approaches adopted by the teacher in relation to the activities carried out, with a view to the objective of Teaching the Content to their students, were grouped and constitute this category. It comprises all the actions by which it is verified that the teacher was exposing the content, seeking to find out what the

students knew about the content, or helping them to understand the content through the realization of an activity or experiment.

We can perceive that the actions in this category have the character of dialogued expository classes (Explain, Ask, Listen, Read, Write, Dictate, Answer and Remember) and practical classes (Demonstrate, Correlate, Instruct and Guide), since these were the methodological strategies most adopted by the teachers who had their classes analyzed.

The categorization process without a deeper look at the context of the Actions has led many researchers in their theses and dissertations to create distinct categories, such as Waiting and Accepting, for the same context of action. We will exemplify through the following Units of Meaning: "Expects to answer your questions about the OA activity and content" (S10, 2022, US25) and "Accept answers about the content" (S3, 2019, US10). When we analyze the context of the different Actions, we realize that both converge to the same direction, the teacher's search to understand the students' knowledge, to later continue with the exposition of the content. We can say that in both situations the teacher's concern turns to the Action of Listening to what his students have to say in the search to understand their knowledge, which certainly permeates the objective of greater action, which corresponds to the movement of Teaching the Content.

The same was true of the action verbs Show, Execute, Indicate, Present, and Handle, although the actions were categorized differently. According to their context, it was possible to evidence that both were focused on Demonstrating the Content through a practical action, be it an experiment or a game. As we can see in the following Units of Meaning: "Run the experiment" (D3, 2020, US12); "Handle and explain about the procedure" (D5, 2021, US20); "Demonstrate the Experiment" (S3, 2019, US14); "Show the content through the game" (D1, 2018, US7); "Indicate with hands to demonstrate" (T2, 2018, US 20); "Introduce the materials/ingredients to the students" (T2, 2018, US 19).

We brought to the discussion only a few examples of different categories that present the same context of Action, Teaching the Content, we will not bring all of them to the discussion, since they are specified in Table 4. However, it is relevant to highlight that the category in question is present in all the theses and dissertations analyzed, comprising 40 action verbs, which were grouped according to their context and which represent, therefore, a relevant portion in relation to what the teacher actually does in the classroom.

Following the data analysis, the final category, Managing Class and Time, was also present in all theses and dissertations, but with a smaller number of verbs indicative of action (29), as shown in Table 5.

Table 5

Final category: Manage Class and Time

<i>Actions</i>	<i>Context of the Actions</i>
Manage	Manage Time (Q3, 2019, US4)
Combine	<u>Combine</u> the discussion time of the proposed text and the following activity (Q6, 2019, US22) manage class
Do	Take Break (Q8, 2022, US12)
Attend	Answer Doorbell/Intercom (Q8, 2022, US10)
Allow	Allow Third-Party Messages (Q8, 2022, US7)
Move	Shift to enter the classroom (D5, 2021, US17)
Get There	Time to <u>Reach</u> Classroom (Q3, 2019, US28)
Exit	Time to <u>Leave</u> Classroom (D5, 2021, US23)
Search	<u>Search</u> for the experimental apparatus used in the class (D3, 2020, US22)
Organize	<u>Organize</u> materials (D3, 2020, US13)
Arrange	<u>Provide</u> Materials (Q2, 2018, US14)
Tidying up	<u>Tidying up</u> the material (D6, 2021, US8)
Clear	<u>Clean</u> Laboratory Equipment (D3, 2020, US20)
Calibrate	<u>Calibrate</u> Led Blackboard Lamp (T4, 2019, US30)
Check it out	<u>Check</u> out the game cards (S9, 2022, US15)
Sanitize	<u>Sanitize</u> the room (D3, 2020, US26)
Interrupt	<u>Interrupting</u> class due to technical issues (Q8, 2022, US32)
Solve	<u>Resolve</u> Experienced Technical Issues (Q8, 2022, US33)
Fix	<u>Repair</u> the experimental apparatus (D3, 2020, US14)
Distribute	<u>Distribute</u> materials to students (D6, 2021, US34)
Deliver	<u>Deliver</u> Activity Sheets (Q5, 2019, US27)
Coordinate	<u>Coordinate</u> the realization of the activity (Q10, 2022, US35)
Collapse	<u>Collect</u> activities (Q5, 2019, US37)
Register	<u>Register</u> Attendance (Q10, 2022, US13)
Perform	<u>Make a call</u> (D2, 2019, US6)
Get Started	<u>Start the Call</u> (Q3, 2019, US22)
Time	<u>Time</u> the activity (Q3, 2019, US37)
Crop	<u>Cut Activity Sheets</u> to Deliver (Q9, 2022, US47)
Note	<u>Write down</u> the numbers already drawn (Q9, 2022, US42)

Source: The authors.

The category Managing Class and Time groups all the action verbs that denote in their context the teacher's choices to organize his class according to time, bureaucratic demands and the pedagogical activities proposed. This category includes actions aimed at getting to and from the classroom, which include the teacher's travel time, as well as the registration of student attendance, the organization of materials necessary for the development of the planned activity, the distribution and collection of materials. The actions also represent the management of the class and time through the permission or not of the intervention of third

parties: "Answer the bell/intercom" (T8, 2022, US10); "Allow third-party messages" (Q8, 2022, US7).

As in the final category described above, in the category that represents the context, Manage Class and Time, we again find different verbs used with the same general sense of action, such as: "Provide materials" (T2, 2018, US14); "Arrange the material" (D6, 2021, US8); "Clean the laboratory equipment" (D3, 2020, US20); "Calibrating the Led Lamp on the blackboard" (T4, 2019, US30); "Check the game cards" (S9, 2022, US15); "Sanitize the room" (D3, 2020, US26); "Fix the experimental apparatus" (D3, 2020, US14). We found that all of them, according to their context, converge towards the same direction, which is that of the Action of Organizing.

The category Managing Class and Time covers Teaching Actions that do not focus on the content itself, but that are necessary, and can be considered as activities aimed at management, such as: Organize, Arrange, Tidy, Clean and Search, among others that are specified in Table 5. We can also observe the existence of actions considered predictable, such as going to the classroom and making the roll call, as well as actions that denote the unpredictability of the teaching work: "Interrupting the class due to technical problems" (T8, 2022, US32). All of them denote the need for Management Action, whether in the class itself, or in relation to the organization, in view of the time.

The category that will be presented below comprises all the action verbs that denote in their context the teacher's need to Draw the Attention of the Students, so that they do not disperse during the class and keep their materials organized, as well as to discipline or warn for bad behavior. The category was present in all theses and dissertations and encompassed 20 action verbs, as we can see in Table 6.

Table 6

Final category: To get the attention of the students

<i>Actions</i>	<i>Context of the Actions</i>
Call	Draw attention to the organization of materials (Q3, 2019, US37)
Request	Asking for student attention (D5, 2021, US20)
Warn	Warn to be careful with the materials used in the laboratory (Q4, 2019, US 19)
Run	Run the bingo by telling drawn numbers (D1, 2018, US34)
Disciplinary	Disciplinary for misbehavior (Q4, 2019, US16)
Punish	Punish for Misbehavior (Q7, 2022, US28)
Threaten	Threatening about non-compliance with the deadlines for the delivery of evaluation activities (Q6, 2019, US42)
Summon	Convene the class to start class (D5, 2021, US3)
Warn	Warning about attention in the response or resolution of a task (D3, 2020, US44)
Highlight	Highlight the amount of ethanol in cotton (Q5, 2019, US35)

Scold	<u>Reprimand</u> the group of students who made the mistake in the experimental procedure (T5, 2019, US38)
Disapprove	<u>Failing</u> student attitude (D1, 2018, US14)
Reply	<u>Answer</u> about the date of the next test (Q6, 2019, US16)
Request	<u>Ask</u> the student to answer the call (Q10, 2022, US8)
Complain	<u>Complaining</u> about the conduct of some students in the internships they supervise (Q6, 2019, US12)
Comment	<u>Comment</u> on the lack of student engagement in learning activities (S8, 2022, US15)
Alert	<u>Alert</u> students to the subject studied (S6, 2019, US32)
Inform	<u>Inform</u> which part of the book should be read/viewed (D6, 2021, US29)
Negotiate	<u>Negotiate</u> Exam Date (D1, 2018, US45)
Indicate	<u>Indicate</u> the mistake made by teammates and other students during the AO activity (Q10, 2022, US13)

Source: The authors.

In addition to observing different verbs being used for the same context, we observed that the same action verb was sometimes used in different contexts. This is the case of the Teacher Action Respond, which appears immersed in the context of Teaching the Content, when we verify that the Teacher "Answers students' questions about the content" (D1, 2018, US9), as well as appears immersed in the context of Calling Attention, when the teacher answers about something that is not focused on the content, answering and calling attention "to the date of the next test" (T6, 2019, US32).

The final category, Using different technological resources, was present in all theses and dissertations, with 17 verbs indicative of actions, as evidenced by Table 7:

Table 7

Final category: Use different technological resources

<i>Actions</i>	<i>Context of the Actions</i>
Use	<u>Using</u> technologies for teaching (Q10, 2022, US36)
Go out like a light	<u>Erase</u> the slate (S4, 2019, US27)
Present	<u>Introduce</u> the <i>slide</i> (D5, 2021, US13)
Design	<u>Project</u> on the interactive whiteboard (T4, 2019, US 33)
Share	<u>Share</u> Screen (Q8, 2022, US18)
Verify	<u>Check</u> Message in <i>Chat</i> (Q8, 2022, US37)
Accept	<u>Accept</u> Student Access in <i>Google Meet</i> (Q8 2022, US9)
Access	<u>Access</u> <i>Websites</i> (Q8, 2022, US30)
Hang up	<u>Turn Off</u> Student Microphone (Q8, 2022, US12)
Save	<u>Record</u> Synchronous Lecture (S8, 2022, US9)
Shoot	<u>Filming</u> the class (D6, 2021, US6)
Manipulate	<u>Manipulating</u> the tape measure and protractor (Q4, 2019, US14)
Handling	<u>Handling</u> the blackboard (T4, 2019, US38)
Call	<u>Turning on</u> equipment (Q4, 2019, US21)
Consult	<u>Consult</u> textbook (Q3, 2019, US36)
Wait	<u>Wait</u> for the program to open/unlock (Q10, 2022, US24)
Operationalize	I'm going to put it for you now in <i>Classroom</i> (D9, 2024, US8)

Source: The authors.

This category includes all action verbs that denote in their context that the teacher, throughout his class, uses various technological resources. For example: deleting the board, presenting *slides*, checking messages in *chats* and *online groups*, accessing *links* with content for the class, manipulating equipment, accepting student access to *Google Meet*, waiting for the internet to load, or the program to open, or students to take a *screenshot*.

We can see from the analysis that the use of technological resources is part of the teaching action in conventional classrooms, however, several of the actions that make up the category are linked to the remote teaching context, where the digital technological resource has become essential for the teaching action (T8, 2022). This category also has a strong reference to class and time management, since the use of different technological resources influences the way the teacher manages his class, in which he sometimes needs, for example, to "wait for the program to open/unlock" (T10, 2022, US24).

All action verbs that denote in their context the supervision that the teacher performs, while the students develop the proposed activities, were grouped in the final category, Supervise the performance of activities. This category was present in all theses and dissertations, but with a lower number of action verbs (five), as we can see in Table 8.

Table 8

Final category: Supervise the performance of activities

<i>Actions</i>	<i>Context of the Actions</i>
Supervise	<u>Supervise</u> the realization of activity (D6, 2021, US10)
Move	<u>Moving</u> around the room and observing students (Q2, 2018, US47)
Move	<u>Moving</u> around the classroom and paying attention to students (D3, 2020, US29)
Observe	<u>Observe</u> students as they complete the LO activity (S10, 2022, US37)
Wait	<u>Waiting</u> for students to take exams (Q6, 2019, US15)

Source: The authors.

From the context of micro-actions, we understand that when moving and moving around the room, the teacher is paying attention and observing the performance of activities by the students, in order to identify possible difficulties, for example. In this way, we checked again action verbs, such as Move, Move and Wait, representing different categories according to the context of the action. Such nuances also allow us to interpret that, in addition to the action itself, its context and the teacher's intentionality are essential for the process of analyzing the teaching action, since the same action verb can contain different meanings.

The category presented below composes all the action verbs that denote in their context moments in which the teacher socializes with his students. It was present in 11 of the

21 theses and dissertations, but comprises a significant number of action verbs (21), as we can see in Table 9.

Table 9

Final Category: Socializing on Diverse Subjects

<i>Actions</i>	<i>Context of the Actions</i>
Socializing	<u>Socialize</u> with students about the weekend (Q4, 2019, US20)
Reflect	<u>Reflecting</u> on the formation of the citizen (T5, 2019, US23)
Ironize	<u>Ironizing</u> a student's speech (S6, 2019, US46)
Highlight	<u>Highlight</u> your experience as a graduate student (Q6, 2019, US27)
Justify	<u>Justify</u> on the fact of correcting the issues (Q6, 2019, US19)
Compare	<u>Compare</u> their initial training with that carried out at the institution where they teach (Q6, 2019, US22)
Reply	<u>Answer</u> about the disappearance of a student from the Internship classes (D2, 2019, US37)
Verify	<u>Acknowledge</u> the fact that almost all students want continuing education in education (Q5, 2019, US38)
Regret	<u>Regret</u> Experiment Result (D5, 2021, US25)
Comment	<u>Comment</u> on fun things while students play (S9, 2022, US31)
Play	<u>Playing</u> about the experiments in the natural sciences (S6, 2019, US20)
Reinforce	<u>Reinforce</u> the student's opinion with the experience in their initial training (Q6, 2019, US14)
Greet	<u>Greet</u> students at the beginning of class (D3, 2020, US2)
Say goodbye	<u>Say goodbye</u> to students (D5, 2021, US29)
Chat	<u>Talking</u> to students (Q3, 2019, US24)
Dialogue	<u>Dialogue</u> with students about personal experiences (D5, 2021, US36)
Discuss	<u>Discuss</u> your opinion on various topics (D3, 2020, US25)
Smile	<u>Smiling</u> with students (Q2, 2018, US49)
Dancing	<u>Dancing</u> with Students (D6, 2021, US22)
Interact	<u>Interact</u> with students in moments of relaxation (Q2, 2018, US29)
Report	<u>Report</u> on your life experience (Q6, 2019, US26)

Source: The authors.

We can verify that socialization occurs through conversations, discussions, responses and comments that have no direct relationship with the content of the class. They are, therefore, actions that have already been present in other categories (Comment, Respond, Highlight and Justify), but which reflect moments of relaxation, with laughter, dances and games, or even moments of reflection and life-oriented stories. The fact that it is not present in all theses and dissertations gives indications that not all teachers are able to socialize with their students, as well as the expressive number of verbs demonstrates that the way teachers socialize with their students can be diverse.

The following category encompasses all action verbs that, in their context, indicate moments when the teacher assigned activities to his students during classes. This category was identified in 10 of the 21 theses and dissertations analyzed and includes eight action verbs, as illustrated in Table 10.

Table 10

Final category: Assign activities

<i>Actions</i>	<i>Context of the Actions</i>
Assign	<u>Assign</u> Activities to Class (Q2, 2018, US25)
Indicate	<u>Nominate</u> student(s) to respond or solve or explain their or another student's task resolution (Q2, 2018, US37)
Inform	<u>Inform</u> which student will read the book (D6, 2021, US19)
Request	<u>Ask students</u> to help deliver materials that will be used in the assignment (Q3, 2019, US48)
Request	<u>Request</u> a student to read the activity script (D3, 2020, US31)
Propose	<u>Propose</u> about the activity that will be carried out with the dynamometer (Q6, 2019, US32)
Sort	<u>Order</u> the student to prepare the experiment/recipe (S6, 2019, US29)
Negotiate	<u>Negotiate</u> Division of Activities (Q10, 2022, US32)

Source: The authors.

This category includes verbs that are expressed, in the context of classes, when the teacher assigns functions to students during the development of activities. These functions can be assigned through requests, orders, indications, negotiations or agreements between the teacher and the class, determining which student or group of students will be responsible for a certain task within the proposed activity. We note again the reference to action verbs that have already been presented in previous categories (Indicate, Inform, Ask, and Request). However, considering the context focused on the mediation of activities and the protagonism of the students, the interpretations make it possible to group these verbs in the final category, Assign activities.

The final category, Encouraging students to carry out the activities, comprises eight action verbs and was found in only seven of the 21 theses and dissertations analyzed. This category includes all action verbs that, in their context, reflect the teacher's encouragement to the students and to the execution of the activities proposed by him. This incentive is manifested through praise and thanks for the accomplishment of the tasks, for the appreciation of the students' participation, for the gestures of affection and for the concern for the students' well-being, as we can see in Table 11 below:

Table 11

Final category: Encourage students to carry out the activities

<i>Actions</i>	<i>Context of the Actions</i>
Encourage	<u>Encourage</u> interaction among students (Q6, 2019, US27)
Praise	<u>Commend</u> for the accomplishment of the task (Q6, 2019, US35)
Demonstrate	<u>Demonstrate</u> concern for student well-being (S6, 2019, US24)
Congratulate	<u>Congratulate</u> the students who were awarded (D1, 2018, US46)
Thanking	<u>Thanking</u> for completing the task (Q10, 2022, US17)
Stimulate	<u>Encourage</u> the student to use their skills in acting as a future teacher (T6, 2019, US28)
Value	<u>Valuing</u> Student Participation (Q10, 2022, US32)

Collaborate	<u>Collaborate</u> with the student in the realization of the activity (S10, 2022, US19)
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Source: The authors.

All action verbs that denote in their context meanings related to the evaluation process were grouped in the final category, Evaluate activities developed by the students. This category was present in only four of the 21 theses and dissertations analyzed and comprises ten action verbs, as evidenced by Table 12.

Table 12

Final category: Evaluate activities developed by the students

<i>Actions</i>	<i>Context of the Actions</i>
Evaluate	<u>Evaluate</u> the experience in the internship (D2, 2019, US34)
Reject	<u>Reject</u> the student's resolution or student-informed/written response (Q7, 2022, US12)
Validate	<u>Validate</u> student(s) response, outcome, or resolution (Q7, 2022, US19)
Agree	<u>Agree</u> with students' arguments (D5, 2021, US26)
Check it out	<u>Check</u> that the answers are correct (Q7, 2022, US32)
Return	<u>Advice/feedback</u> on the exercises (Q7, 2022, US14)
Look	<u>Look at</u> the activities developed in the notebook (S7, 2022, US27)
View	<u>View</u> the writing of mathematical expressions or the student's resolution or result on the board or notebook (Q7, 2022, US30)
Interpret	<u>Interpret</u> the student(s)'s response, resolution, explanation, or reading of content and assignments (Q7, 2022, US29)
Request	<u>Request</u> understanding of the subject or task (D4, 2020, US12)

Source: The authors.

Most of the action verbs that make up the category were collected from T7 (2022), which aimed to analyze the evaluative teaching actions, showing that the researcher's objectives and their interpretative perspective influence the data obtained. The other studies also carried out active observations of the classes, but did not present significant numbers of categories related to the action of evaluating.

As a general overview, we can see that some of the final categories were present in all theses and dissertations and comprise a greater number of action verbs. This is the case of "Teaching about the content" (40 action verbs), "Managing the class and time" (29 action verbs), "Drawing students' attention" (20 action verbs), "Using different technological resources" (17 action verbs) and "Supervising the performance of activities" (5 action verbs). The category "Socializing on various subjects", although present in 11 of the 21 theses and dissertations, also presented a significant number of action verbs (21). The other categories were not present in all theses and dissertations and presented a lower number of teaching actions: "Assign activities" (10 theses and dissertations and 8 action verbs), "Encourage

students to carry out activities" (7 theses and dissertations and 8 action verbs) and "Evaluate the activities developed by the students (4 theses and dissertations and 10 action verbs). By analyzing the theses and dissertations, we found evidence that the Teaching Action is strongly centered on the categories present in all the theses and dissertations: (1) teaching about the content; (2) manage class and time; (3) to draw the attention of students; (4) use different technological resources; and (5) supervise the performance of activities.

5 FINAL CONSIDERATIONS

The present research aimed to identify the different contexts, investigative approaches and theoretical foundations adopted by the researchers, as well as to analyze and promote new understandings about the categories of teaching action present in the theses and dissertations produced by the EDUCIM research group, which have been investigating what the teacher actually does in the classroom for more than ten years.

The theses and dissertations indicate that different teaching strategies influence both the nature and frequency of the Teaching Actions during classes, and that the contents covered also impact these actions. In addition, factors such as the characteristics of the students, the profile of the teacher and their intentionality have been pointed out as determinants in this process. It is evident that the context of the class, as a whole, can directly influence the Teaching Action. The research group has been dedicated to the analysis of teaching action at different levels of education. However, we observed that no investigations have yet been developed that specifically address the Teaching Action of Teacher Trainers in Continuing Education contexts.

We observed that most of the theses and dissertations predominantly adopted the descriptive approach. Only three studies sought to go beyond description, proposing possible connections between teacher and student action, the explanatory approach remains the least explored so far. With regard to the theoretical foundation, the predominance of themes related to teacher training and social theories is highlighted, and it is common for several researchers to choose both strands in their investigations.

The categories described by the researchers in their theses and dissertations are represented by verbs that indicate actions, however, sometimes these categories appear in the indicative (Espera; Explain; Writes), other times in the infinitive (Wait; Explain; Writing), which demonstrates a certain dispersion in the process of standardization of categories. In addition, the absence of a more in-depth analysis of the context of teaching actions led to the

creation of distinct categories, such as "Show", "Present", "Execute", "Indicate" and "Handle". Although named differently, these categories, when considered in their respective contexts, reveal themselves to be aimed at the same purpose: the teaching of content through Teaching Actions of a demonstrative nature.

During the process of grouping the categories of teaching actions, represented in the research by action verbs, it became necessary to also analyze the fragments of the class transcripts, in order to understand the context in which such actions occurred. From this contextual analysis, it was possible to identify approximations between the actions and, thus, consolidate nine final categories: (1) teach about the content; (2) manage class and time; (3) to draw the attention of students; (4) use different technological resources; (5) supervise the performance of activities; (6) socialize about various subjects; (7) assign activities; (8) encourage students to carry out activities; and (9) evaluate the activities developed by the students.

Throughout the analysis, we observed that the group's researchers, on some occasions, focused exclusively on the action verb when elaborating the categories, without considering the context in which these actions are inserted. As a result, all occurrences of the verb "wait," for example, were grouped into the same category, regardless of contextual variations. However, we understand that context plays a key role in the categorization process, as it offers clues about the intent and underlying meaning of the action. Thus, the same action verb can be allocated into different categories, as occurred with verbs such as "Wait", "Indicate", "Handle", "Present", "Accept", "Request", "Execute", "Respond", "Request", "Inform", "Comment", "Displace", "Demonstrate", "Highlight", "Resume" and "Check", among others. The identification of distinct action verbs, but with contexts that converged to the same meaning, allowed the grouping of such actions in the categories presented above.

We understand, therefore, that the descriptive approach could present more consistent results if it considered, during the process of grouping and construction of the final categories, not only the action verbs, but also the contexts in which the Teaching Actions occur. This is because, in addition to the action itself, the context and the intentionality of the teacher are fundamental elements for the analysis of the Teaching Action, since the same verb can assume different meanings, depending on the context in which it is used. In this way, we also perceive the relevance of descriptive analyses, which, although exhaustive, due to the

richness of details, are essential for future analyses through the explanatory approach of Teaching Action.

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THE USE OF CRYPTOGRAPHY AS AN EDUCATIONAL TOOL

O USO DA CRIPTOGRAFIA COMO FERRAMENTA PEDAGÓGICA

EL USO DE LA CRIPTOGRAFÍA COMO HERRAMIENTA PEDAGÓGICA

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ABSTRACT

This article discusses the application of an innovative teaching sequence on cryptography with class 312 at Colégio Estadual Coronel Pilar de Santa Maria, and its relationship with mathematics. We sought to develop activities using mathematical concepts such as matrix operations, inverse matrices, determinants, and modular arithmetic. The growing relevance of cryptography in the contemporary digital world motivates the need for its inclusion in school curricula, preparing students for the challenges of information security. The central objective is to make the concept of cryptography accessible and stimulating for students, promoting the development of critical thinking and problem-solving skills.

Keywords: Matrices. Cryptography. High School.

RESUMO

O presente artigo trata da aplicação de uma sequência didática inovadora sobre criptografia, com a turma 312 do Colégio Estadual Coronel Pilar de Santa Maria, e as suas relações com a Matemática. Buscamos desenvolver atividades usando conceitos matemáticos, tais como, operações com matrizes, matriz inversa, determinantes e aritmética modular. A crescente relevância da criptografia no mundo digital contemporâneo motiva a necessidade de sua inclusão nos currículos escolares, preparando os alunos para os desafios da segurança de informação. O objetivo central é tornar o conceito de criptografia acessível e estimulador para os alunos, promovendo o desenvolvimento do pensamento crítico e habilidades na resolução de problemas.

Palavras-chave: Matrizes. Criptografia. Ensino Médio.

RESUMEN

El presente artículo trata sobre la aplicación de una secuencia didáctica innovadora sobre criptografía, con la clase 312 del Colegio Estatal Coronel Pilar de Santa Maria, y sus relaciones con las matemáticas. Buscamos desarrollar actividades utilizando conceptos matemáticos, tales como operaciones con matrices, matriz inversa, determinantes y aritmética modular. La creciente relevancia de la criptografía en el mundo digital contemporáneo motiva la necesidad de su inclusión en los planes de estudio escolares, preparando a los alumnos para los retos de la seguridad de la información. El objetivo central

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es hacer que el concepto de criptografía sea accesible y estimulante para los alumnos, promoviendo el desarrollo del pensamiento crítico y las habilidades para la resolución de problemas.

Palabras clave: Matrices. Criptografía. Educación Secundaria.

1 INTRODUCTION

One of the great challenges of the mathematics teacher is to make their classes attractive so that the student understands abstract concepts that can be difficult to understand without a solid foundation in critical and analytical thinking. The use of Cryptography as a pedagogical tool in teaching Linear Algebra in high school can be an innovative and attractive approach, as it manages to sharpen the interest and curiosity of students. Students have the opportunity to see practical applications of Linear Algebra in security and technology that are part of modern everyday life, in addition to developing skills in problem-solving, as many cryptographic problems require a high degree of logical reasoning and analytical ability. This work was applied with class 312 of the Coronel Pilar de Santa Maria State School.

2 GENERAL AND SPECIFIC OBJECTIVES

This work has the general objective of enabling students to understand the basic concepts of cryptography and its importance in information security and as specific objectives to introduce the concept of cryptography, including the Hill Method and demonstrate through practical examples how cryptography is used in data protection.

3 ENCRYPTION

In Greek, Cryptos means hidden secret. Encryption studies methods to encode a message so that only its legitimate recipient can interpret it.

3.1 A BIT OF CRYPTOGRAPHY HISTORY

One of the earliest records of cryptography dates back to 1900 B.C., when a scribe substituted some words in a hieroglyph in order to protect the message from some thief and prevent his access to hidden treasures. Around 50 BC, Julius Caesar used the replacement cipher to protect government communications; currently, the method is known as the Caesar Cipher. During the Middle Ages, more complex encryption systems, such as the Vigenère cipher, which uses a repeating key to perform various substitutions, began to emerge. The twentieth century, in the period of the world wars, brought significant advances with the introduction of machines such as the Enigma, used by German forces. In 1929, an American mathematician named Lester S. Hill presented one of the first examples of cryptography based on linear algebra, particularly using matrices, which represented a significant advance

in relation to the monoalphabetic and polyalphabetic substitution techniques used until then. The crypto landscape has changed dramatically with the arrival of computers. The method of encrypting and decrypting has evolved into more advanced techniques, such as DES (Data Encryption Standard) and AES (Advanced Encryption Standard).

3.2 CAESAR'S CIPHER

The Caesar cipher consists of replacing each letter of the original message with another that was 3 positions ahead in the same alphabet, as shown in Table 1

Table 1

Caesar's Cipher

Alfabeto	A	B	C	D	E	F	G	H	I	J	K	L	M
Alfabeto cifrado	D	E	F	G	H	I	J	K	L	M	N	O	P
Alfabeto	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Alfabeto cifrado	Q	R	S	T	U	V	W	X	Y	Z	A	B	C

Source: Prepared by the authors.

So the AMO MATHS message would be encoded as DPRPDWHPD-WLFD.

Caesar's cipher is a monoalphabetic substitution cipher and, although simple, became indecipherable for centuries.

3.3 CIFRA DE VIGENERE

is a polyalphabetic substitution figure. It uses 26 different alphabets to encrypt a message as shown in figure 1.

Although the Vigenere cipher is more difficult to crack, any code that involves systematically replacing one letter with another is relatively easy to crack. This is because the average frequency with which each letter appears in a text of a given language is more or less constant. For example, the average frequency in the Portuguese language of the letter A is 14.64 percent. There are several ways to make it impossible to apply a frequency count. The simplest is Block Encryption given below.

3.4 BLOCK ENCRYPTION

This method consists of dividing a message into blocks of several letters and shuffling these blocks. For example, the message I LOVE MATH can be encoded using the following steps: step 1. Eliminate the spaces between words and complete the message with an A at the end, if you have an odd number of letters;

AMOMATEMATICAA

Step 2: divide the message into blocks of 2 letters;

AM-OM-AT-EM-AT-IC-AA

Figure 1

Vegenere's cipher

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
01	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A
02	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B
03	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
04	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
05	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E
06	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F
07	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G
08	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H
09	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I
10	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J
11	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K
12	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
13	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
14	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N
15	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
16	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
17	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
18	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
19	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
20	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
21	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
22	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
23	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
24	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
25	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
26	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Source: Wikipedia.

Step 3: in each block swap the letters of place;

MA-MO-TA-ME-TA-CI-AA

Step 4: fix the even blocks and swap the odd blocks, exchanging the first for the last, the third for the penultimate and so on.

AA-MO-TA-ME-TA-CI-MA

What does the AAMOTAMET message give us above

There is an encryption method called Hill Cipher that is based on matrix transformations. This method was invented by the American mathematician Lester S. Hill in 1929. A message encoded with an $n \times n$ matrix is called *a Hill cipher*.

To study this method, let's first review some mathematical concepts, such as matrices, invertible matrices, and modular arithmetic.

3.5 MATHEMATICAL FOUNDATION

3.5.1 Matrix

Definition 1: The matrix m by n with entries in the real numbers is called every table A formed by real numbers distributed in m rows and n columns. We use the following notation $A_{m \times n}$

$$A_{m \times n} = \begin{pmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{pmatrix} = [a_{ij}]_{m \times n} \quad (1)$$

Definition 2: An array whose number of rows is equal to the number of columns is called a Square Array.

$$A_{n \times n} = \begin{pmatrix} a_{11} & a_{12} \dots & a_{1n} \\ a_{21} & a_{22} \dots & a_{2n} \\ a_{n1} & a_{n2} \dots & a_{nn} \end{pmatrix} \quad (2)$$

Definition 3: A square matrix where $a_{ij} = 0$ para $i \neq j$ it is called a Diagonal Matrix

$$A_{n \times n} = \begin{pmatrix} a_{11} & 0 \dots & 0 \\ 0 & a_{22} \dots & 0 \\ 0 & 0 \dots & a_{nn} \end{pmatrix} \quad (3)$$

Definition 4: A square matrix of order $n \times n$ where $a_{ij} = 0$ para $i \neq j$ and $a_{ij} = 1$ para $i = j$ is termed Matrix Identity denoted by I_n

$$I_n = \begin{pmatrix} 1 & 0 \dots & 0 \\ 0 & 1 \dots & 0 \\ 0 & 0 \dots & 1 \end{pmatrix} \quad (4)$$

3.5.2 Operations with dies

3.5.2.1 Addition

Definition 5: Given Two Matrices $A = [a_{ij}]_{m \times n}$ and $B = [b_{ij}]_{m \times n}$ It Is Called Sum $A + B$ a matriz $C = [c_{ij}]_{m \times n}$, onde $c_{ij} = a_{ij} + b_{ij}$

Example: Let the matrices

$$A = \begin{pmatrix} 2 & -1 \\ 1 & 3 \end{pmatrix} \text{ e } B = \begin{pmatrix} 0 & 3 \\ -2 & 1 \end{pmatrix}. \quad (5)$$

Then the matrix $C = A + B$ is given by $C = \begin{pmatrix} 2 & 2 \\ -1 & 4 \end{pmatrix}$ (6)

3.5.2.1 Multiplication by a scalar:

Definition 6: Let $A = [a_{ij}]_{m \times n}$ e $K \in \mathbb{R}$. us define the product kA as the matrix $B = [b_{ij}]_{m \times n}$ tal que $b_{ij} = ka_{ij}$

Exemplo: Seja $A = \begin{pmatrix} 1 & 0 & -2 \\ 4 & -1 & 0 \\ 2 & 1 & 1 \end{pmatrix}$. A matriz $3A = \begin{pmatrix} 3 & 0 & -6 \\ 12 & -3 & 0 \\ 6 & 3 & 3 \end{pmatrix}$ (7)

Multiplication by a scalar has the following properties:

Let A and B arrays of order $m \times n$ e $k_1, k_2 \in \mathbb{R}$. be valid

- i. $k_1(A + B) = k_1A + k_1B$
- ii. $(k_1 + k_2)A = k_1A + k_2A$
- iii. $k_1(k_2A) = (k_1k_2)A$ (8)

3.5.3 Multiplication of matrices

Definition 7: Given the matrices $A = [a_{ij}]_{m \times n}$ e $B = [b_{jk}]_{n \times p}$, the product of A by B is called the matrix $C = [c_{ik}]_{m \times p}$ such that for every $i = 1, 2, \dots, m$ we have to

$$c_{ik} = a_{i1}b_{1k} + a_{i2}b_{2k} + \dots + a_{in}b_{nk} = \sum_{j=1}^n a_{ij}b_{jk} \quad (9)$$

Example: Let the matrices $A = \begin{pmatrix} 2 & -1 \\ 1 & 3 \end{pmatrix}$ e $B = \begin{pmatrix} 0 & 3 \\ -2 & 1 \end{pmatrix}$. (10)

So the matrix $C = A.B$ is given by $C = \begin{pmatrix} 2 & 5 \\ -6 & 6 \end{pmatrix}$ The product between matrices has the following properties:

i. $k1(A + B) = k1A + k1B$ (11)

ii. $(k1 + k2)A = k1A + k2A$ (12)

iii. $k1(k2A) = (k1k2)Ab$ (13)

The product between matrices is not commutative, i.e., in general $AB \neq BA$

Definition 8: A square matrix A of order n is invertible if there is a matrix B of order n such that $AB = BA = In$.

In this case we say that the matrix B is the inverse matrix of A and we denote it by $B = A^{-1}$

3.6 DETERMINANT

Definition 9: Let A be a square matrix of order n ; ($n \leq 3$). We call the determinant of A , $\det A$, the real number obtained by operating with the elements of A as follows:

1) If A of order $n = 1$, $A = [a_{11}]$ then $\det A = a_{11}$ (14)

2) If A of order $n = 2$, $A = [a_{ij}]_{2 \times 2}$ then $\det A = a_{11}a_{22} - a_{12}a_{21}$ (15)

3) If A of order $n = 3$, $A = [a_{ij}]_{3 \times 3}$ then $\det A = a_{11}a_{22}a_{33} + a_{12}a_{23}a_{31} + a_{21}a_{32}a_{13} - (a_{13}a_{22}a_{31} + a_{12}a_{21}a_{33} + a_{32}a_{23}a_{11})$ (16)

Example: Let $A = \begin{pmatrix} 1 & 0 & -2 \\ 4 & -1 & 0 \\ 2 & 1 & 1 \end{pmatrix}$ then $\det A = 1(-1)1 + 4(1)(-2) - (-2(-1)2) = -13$ (17)

The determinant of a matrix satisfies, among others, the following properties:

- i. If all elements of a row or column of an array A are null, then $\det A = 0$
- ii. If we swap two lines of a matrix, the determinant changes sign
- iii. $\det(AB) = \det A \det B$
- iv. $\det(A + B) \neq \det A + \det B$

Theorem 1: A square matrix A is invertible if, and only if, $\det A \neq 0$

4 MODULAR ARITHMETIC

Definition 10: Let a single integer be greater than 1. We say that two integers, a and b , are congruent (or equivalent) modules m and write $a \equiv b \pmod{m}$ if a and b have the same remainder when divided by m . For example:

$7 \equiv 2 \pmod{5}$, because the remainants of the division of 7 and 2 by 5 are the same (equal to 2) $15 \equiv 3 \pmod{3}$, since the remainants of the division of 15 and 3 by 3 are the same (equal to 0).

To show that $a \equiv b \pmod{m}$ it is necessary to make the division of a and b by m , as we shall see in the following proposition.

Proposition: It is held that $a \equiv b \pmod{m}$ if, and only if, $a - b$ is a multiple of m .
For example, $15 \equiv 3 \pmod{3}$, because $15 - 3 = 12$ is a multiple of 3.

Given a modulo m , it can be proved that any integer a is congruent modulus m to exactly one of the integers $0, 1, 2, \dots, m$.

This set is called the residual of a module m . We denote the set of waste from a module m

$$\mathbb{Z}_m = \{0, 1, 2, \dots, m - 1\} \quad (18)$$

Theorem 2: Given an integer number a and any module, let

$$R = \text{resto de } \frac{|a|}{m} \quad (19)$$

Then the residue r of the modulus m is given by

$$r = \begin{cases} R & \text{se } a \geq 0 \\ m - R & \text{se } a < 0 \text{ e } R \neq 0 \\ 0, & \text{se } a < 0 \text{ e } R = 0 \end{cases} \quad (20)$$

Examples: Find the residuals module 26 of the following numbers:

a) 43 $R = \text{remainder of } \frac{43}{26} = 17 \Rightarrow r = 17$. Thus $43 \equiv 17(\text{mod } 26)$ (21)

b) 79 $R = \text{remainder of } \frac{79}{26} = 1 \Rightarrow r = 26 - 1 = 25$. Thus $-79 \equiv 25(\text{mod } 26)$ (22)

c) 26 $R = \text{remainder of } \frac{26}{26} = 0 \Rightarrow r = 0$. Thus $-26 \equiv 0(\text{mod } 26)$ (23)

Definition 11: Be $a \in \mathbb{Z}_m$. We say that $a^{-1} \in \mathbb{Z}_m$ is the multiplicative inverse of a if $aa^{-1} = a^{-1}a = 1(\text{mod } m)$

Theorem 3: If a and m have no common prime factors, then a has a single reciprocal modulus m , otherwise a has no reciprocal modulus m .

For example, the number 3 has reciprocal modulus 26, because 3 and 26 have no common prime factors.

The reciprocal is a number $x \in \mathbb{Z}_{26}$ that satisfies the modular equation

$$3x = 1(\text{mod } 26) \quad (24)$$

We will assign some numbers from 0 to 25 in order to find solution x . Thus we obtain $x = 9$.

$$3 \cdot 9 = 27 \equiv 1(\text{mod } 26) \quad (25)$$

For future reference, we have provided the reciprocal table module 26 (Table 2)

Table 2

Waste module 26

a	1	3	5	7	9	11	15	17	19	21	23	25
a^{-1}	1	9	21	15	3	19	7	23	11	5	17	25

Source: Prepared by the authors.

Let A be the coding matrix. In order to decipher Hill Ciphers, let's study the concept of inverse matrix ($\text{mod } 26$) of the encoding matrix A .

Definition 12: Let m be a positive integer and A a square matrix with input in $\mathbb{Z}_m$. We say that A is invertible modulo m if there exists a matrix B with inputs in $\mathbb{Z}_m$ such that

$$A \cdot B = B \cdot A = I(\text{mod } m) \quad (26)$$

Theorem 4: A square matrix A with inputs in $\mathbb{Z}_m$ is invertible modulo m if, and only if, the residue $\det A$ modulo m has reciprocal modulo m .

Note that $\det A$ modulo m will have reciprocal modulo m if, and only if, this residue and m do not have prime factors in common.

As the only prime factors of 26 are 2 and 13, we have to $\det A(\text{mod } 26)$ will have reciprocal ($\text{mod } 26$) if it is not divisible by 2 or 13.

We can get the inverse modulo m of a matrix

$$A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}, \text{ por } A^{-1} = (\det A)^{-1} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix} (\text{mod } m) \quad (28)$$

$$\text{Example: Find the inverse of } A \text{ modulo } 26 \text{ if } A = \begin{pmatrix} 5 & 6 \\ 2 & 3 \end{pmatrix} \quad (29)$$

Solution: $\det A = 15 - 12 = 3 \Rightarrow (\det A)^{-1} = 3^{-1} = 9(\text{mod } 26)$ as shown in Table 1.

$$\text{Assim } A^{-1} = 9 \begin{pmatrix} 3 & -6 \\ -2 & 5 \end{pmatrix} = \begin{pmatrix} 27 & -54 \\ -18 & 45 \end{pmatrix} \quad (30)$$

Calculation of residuals module 26:

$$\begin{aligned} R &= \text{resto de } \frac{|27|}{26} = 1 \Rightarrow r = 1 \\ R &= \text{resto de } \frac{|-54|}{26} = 2 \Rightarrow r = 26 - 2 = 24 \\ R &= \text{resto de } \frac{|-18|}{26} = 18 \Rightarrow r = 28 - 18 = 8 \\ R &= \text{resto de } \frac{|19|}{26} = 19 \Rightarrow r = 19 \end{aligned} \quad (31)$$

So

$$A^{-1} = \begin{pmatrix} 1 & 24 \\ 8 & 19 \end{pmatrix} (\text{mod } 26) \quad (32)$$

Checking out:

$$AA^{-1} = \begin{pmatrix} 5 & 6 \\ 2 & 3 \end{pmatrix} \begin{pmatrix} 1 & 24 \\ 8 & 19 \end{pmatrix} = \begin{pmatrix} 53 & 234 \\ 26 & 105 \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} (\text{mod } 26) \quad (33)$$

In possession of these mathematical concepts, we can now study the cryptography method called Hill Ciphers

4.1 HILL CIPHERS

From here on, let's assume that each letter of the common text or ciphertext has a numerical correspondent that specifies its position in the standard alphabet, with the exception of the letter Z, whose numerical correspondent will be the number 0, as shown in Table 3

Table 3

Hill's Cipher

A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
14	15	16	17	18	19	20	21	22	23	24	25	0

Source: Prepared by the authors.

Example 1: Use the Hill Cipher to encode and decode the STUDENT message using the encoder matrix A with inputs in Z26

$$A = \begin{pmatrix} 2 & 1 \\ 3 & 5 \end{pmatrix} \quad (34)$$

4.2 CODING PROCESS

Step 1) Separate the word into pairs of letters. If the number of letters is odd, repeat the last letter:

AL - UN - OO

Step 2) Use Table 3 to get the numerical equivalent and get the cipher vectors:

$$p_1 = \begin{pmatrix} 1 \\ 12 \end{pmatrix} \quad p_2 = \begin{pmatrix} 21 \\ 14 \end{pmatrix} \quad p_3 = \begin{pmatrix} 15 \\ 15 \end{pmatrix} \quad (35)$$

Step 3) make the product of the encoding matrix A by the ciphered vectors, that is, determine Ap_1 , Ap_2 , Ap_3 .

Whenever an integer is greater than 25, it will be replaced by the residue r .

$$Ap_1 = \begin{pmatrix} 2 & 1 \\ 3 & 5 \end{pmatrix} \begin{pmatrix} 1 \\ 12 \end{pmatrix} = \begin{pmatrix} 14 \\ 63 \end{pmatrix} = \begin{pmatrix} 14 \\ 11 \end{pmatrix} \pmod{26}$$

$$Ap_2 = \begin{pmatrix} 2 & 1 \\ 3 & 5 \end{pmatrix} \begin{pmatrix} 21 \\ 14 \end{pmatrix} = \begin{pmatrix} 56 \\ 133 \end{pmatrix} = \begin{pmatrix} 4 \\ 3 \end{pmatrix} \pmod{26}$$

$$Ap_3 = \begin{pmatrix} 2 & 1 \\ 3 & 5 \end{pmatrix} \begin{pmatrix} 15 \\ 15 \end{pmatrix} = \begin{pmatrix} 45 \\ 120 \end{pmatrix} = \begin{pmatrix} 19 \\ 16 \end{pmatrix} \pmod{26} \quad (36)$$

Using Table 3 we get the ciphered message:

NKDCSP

Now let's move on to the process of decoding the incoming NKDCSP encoded message.

4.3 DECODING PROCESS:

Step 1) Separate the received encrypted message into pairs of letters:

NK - DC - SP

Step 2) Use Table 3 to get the numerical equivalent and get the figured vectors: 14 11 - 4 3 - 19 16

$$v_1 = \begin{pmatrix} 14 \\ 11 \end{pmatrix} \quad v_2 = \begin{pmatrix} 4 \\ 3 \end{pmatrix} \quad v_3 = \begin{pmatrix} 19 \\ 16 \end{pmatrix} \quad (37)$$

Step 3) Find A Inverse Matrix Modulo 26

$$A^{-1} = (\det A)^{-1} \begin{pmatrix} 5 & -1 \\ -3 & 2 \end{pmatrix} \pmod{26} = 7^{-1} \begin{pmatrix} 5 & -1 \\ -3 & 2 \end{pmatrix} \pmod{26}, \quad (38)$$

where $7^{-1} = 15$ is the inverse modulo 26 of 7 given in table 1.

So

$$A^{-1} = 15 \begin{pmatrix} 5 & -1 \\ -3 & 2 \end{pmatrix} = \begin{pmatrix} 75 & -15 \\ -45 & 30 \end{pmatrix} = \begin{pmatrix} 23 & 11 \\ 7 & 4 \end{pmatrix} \pmod{26} \quad (39)$$

Step 4) Multiply the matrix A^{-1} by the ciphered vectors v_1 , v_2 , and v_3

$$\begin{aligned} A^{-1}v_1 &= \begin{pmatrix} 23 & 11 \\ 7 & 4 \end{pmatrix} \begin{pmatrix} 14 \\ 11 \end{pmatrix} = \begin{pmatrix} 443 \\ 142 \end{pmatrix} = \begin{pmatrix} 1 \\ 12 \end{pmatrix} \pmod{26} \\ A^{-1}v_2 &= \begin{pmatrix} 23 & 11 \\ 7 & 4 \end{pmatrix} \begin{pmatrix} 4 \\ 3 \end{pmatrix} = \begin{pmatrix} 125 \\ 40 \end{pmatrix} = \begin{pmatrix} 21 \\ 14 \end{pmatrix} \pmod{26} \\ A^{-1}v_3 &= \begin{pmatrix} 23 & 11 \\ 7 & 4 \end{pmatrix} \begin{pmatrix} 19 \\ 16 \end{pmatrix} = \begin{pmatrix} 613 \\ 197 \end{pmatrix} = \begin{pmatrix} 15 \\ 15 \end{pmatrix} \pmod{26} \end{aligned} \quad (40)$$

Table 3 shows the alphabetical equivalents of these vectors

AL UN OO

That provide us with the message STUDENT

5 DIDACTIC SEQUENCE AND APPLICATION

5.1 LESSON 1: INTRODUCTION TO THE CONCEPT OF CRYPTOGRAPHY

In this class, an introduction was given to the concept of cryptography, historical context and its importance in information security. An example of cryptography using Caesar's Cipher, relating the letters of the alphabet to numbers from 1 to 26, was shown. In addition, the Hill Cipher was introduced, demonstrating its practical application.

5.2 LESSON 2: REVIEW OF BASIC CONCEPTS OF MATRICES AND MATRIX OPERATIONS

In this class, a review of the concepts of matrices was carried out, including:

- Matrix Definition
- Special types of arrays such as: Square array, identity array, null array, triangular array
- Equality of matrices
- Adding matrices
- Product of matrices by a scalar

The lesson concluded with fixation exercises to strengthen the students' understanding.

5.3 LESSON 3. REVIEW OF THE PRODUCT CONCEPT OF DIES

In this stage, the product of matrices, conditions for the existence of the product, was addressed. The properties of the product of matrices, such as non-commutativity and associativity, were discussed. The class concluded with fixation exercises to consolidate your understanding.

5.4 LESSON 4. REVISION OF THE CONCEPT OF INVERSE MATRIX

In this lesson, the definition of an invertible matrix and a method to calculate the inverse matrix of a matrix A , denoted by A^{-1} , were presented. At the end of the class, an invertible *matrix* A was given to the students to determine its inverse A^{-1} .

5.5 LESSON 5. REVIEW OF THE CONCEPT OF DETERMINANT AND ASSOCIATIVITY IN MATRIX MULTIPLICATION

In this class, an introduction to the concepts of order determinant 2 and order 3 was presented, with the objective of using a practical method to determine the inverse matrix. In addition, the associative property in matrix multiplication was reviewed to understand why Hill cryptography works.

5.6 LESSON 6. INTRODUCING MODULAR ARITHMETIC

In this stage, the concept of modular arithmetic, fundamental for cryptography, was introduced. Students learned how to perform arithmetic operations within a specific module,

which is essential for encoding and decoding messages. It was given as an exercise for the students, with the help of the teacher, to encode and decode the word STUDENT, given in Example 1 of this article.

5.7 LESSON 7. GROUP ACTIVITY

The following activity was elaborated: Use the Hill Cipher to encode and decode the HEALTH message using the encoding matrix A with entries in $\mathbb{Z}_{26}$

$$A = \begin{pmatrix} 2 & 5 \\ 1 & 4 \end{pmatrix} \quad (41)$$

5.8 ENCODING PROCESS:

Step 1) Separate the word into pairs of letters. If the number of letters is odd, repeat the last letter:

SA - UD - EE

Step 2) Use Table 2 to get the numerical equivalent and get the cipher vectors:

19 1 - 21 4 - 5 5

$$p_1 = \begin{pmatrix} 19 \\ 1 \end{pmatrix} \quad p_2 = \begin{pmatrix} 21 \\ 4 \end{pmatrix} \quad p_3 = \begin{pmatrix} 5 \\ 5 \end{pmatrix} \quad (42)$$

Step 3) make the product of the encoding matrix A by the ciphered vectors, that is, determine Ap_1, Ap_2, Ap_3 .

Whenever an integer is greater than 25, it will be replaced by the residue r .

$$\begin{pmatrix} 2 & 5 \\ 1 & 4 \end{pmatrix} \begin{pmatrix} 19 \\ 1 \end{pmatrix} = \begin{pmatrix} 43 \\ 23 \end{pmatrix} = \begin{pmatrix} 17 \\ 23 \end{pmatrix} \pmod{26}$$

$$\begin{pmatrix} 2 & 5 \\ 1 & 4 \end{pmatrix} \begin{pmatrix} 21 \\ 4 \end{pmatrix} = \begin{pmatrix} 62 \\ 37 \end{pmatrix} = \begin{pmatrix} 10 \\ 11 \end{pmatrix} \pmod{26}$$

$$\begin{pmatrix} 2 & 5 \\ 1 & 4 \end{pmatrix} \begin{pmatrix} 5 \\ 5 \end{pmatrix} = \begin{pmatrix} 35 \\ 25 \end{pmatrix} = \begin{pmatrix} 9 \\ 25 \end{pmatrix} \pmod{26} \quad (43)$$

Using Table 3 we get the ciphered message:

QWJKIY

Now let's move on to the process of decoding the incoming QWJKIY encoded message.

Figure 2

Coding process



Source: Prepared by the authors.

5.9 DECODING PROCESS

Step 1) Separate the received encrypted message into pairs of letters:

QW - JK - IY

Step 2) Use Table 2 to get the numerical equivalent and get the cipher vectors:

17 23 - 10 11 - 9 25

$$v_1 = \begin{pmatrix} 17 \\ 23 \end{pmatrix} \quad v_2 = \begin{pmatrix} 10 \\ 11 \end{pmatrix} \quad v_3 = \begin{pmatrix} 9 \\ 25 \end{pmatrix} \quad (45)$$

Step 3) Find A Inverse Matrix Modulo 26

$$A^{-1} = (\det A)^{-1} \begin{pmatrix} 4 & -5 \\ -1 & 2 \end{pmatrix} \pmod{26} = 3^{-1} \begin{pmatrix} 4 & -5 \\ -1 & 2 \end{pmatrix} \pmod{26}, \quad (46)$$

where $3^{-1} = 9$ is the inverse modulo 26 of 3 given in the table

So

$$A^{-1} = 9 \begin{pmatrix} 4 & -5 \\ -1 & 2 \end{pmatrix} \pmod{26} = \begin{pmatrix} 10 & 7 \\ 17 & 18 \end{pmatrix} \pmod{26} \quad (47)$$

Step 4) Multiply the matrix A^{-1} by the ciphered vectors v_1 , v_2 , and v_3

$$\begin{aligned} \begin{pmatrix} 10 & 7 \\ 17 & 18 \end{pmatrix} \begin{pmatrix} 17 \\ 23 \end{pmatrix} &= \begin{pmatrix} 331 \\ 703 \end{pmatrix} = \begin{pmatrix} 19 \\ 1 \end{pmatrix} \pmod{26} \\ \begin{pmatrix} 10 & 7 \\ 17 & 18 \end{pmatrix} \begin{pmatrix} 10 \\ 11 \end{pmatrix} &= \begin{pmatrix} 177 \\ 368 \end{pmatrix} = \begin{pmatrix} 21 \\ 4 \end{pmatrix} \pmod{26} \\ \begin{pmatrix} 10 & 7 \\ 17 & 18 \end{pmatrix} \begin{pmatrix} 9 \\ 25 \end{pmatrix} &= \begin{pmatrix} 365 \\ 603 \end{pmatrix} = \begin{pmatrix} 5 \\ 5 \end{pmatrix} \pmod{26} \end{aligned} \quad (48)$$

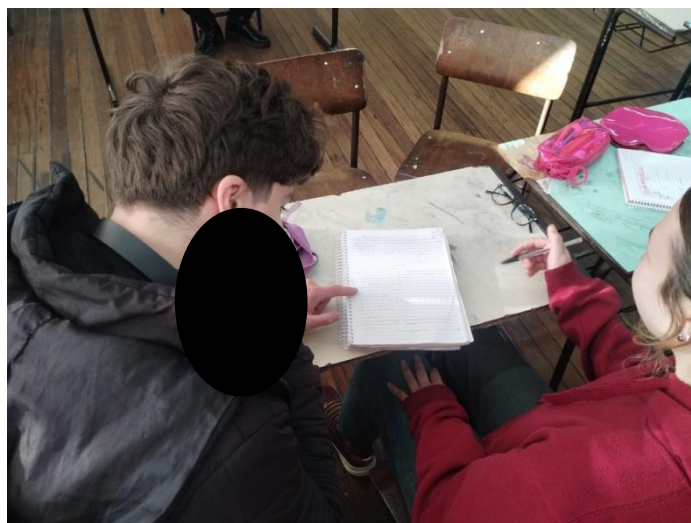
Table 3 shows the alpha equivalents of these vectors

SA UD EE

Who provide us with the message HEALTH

Figure 3

Decoding process



Source: Prepared by the authors.

6 EXPERIENCE REPORT

The experience carried out with class 312 of the Coronel Pilar State School, composed of 15 students, revealed diversified results in relation to the interest and understanding of the subject addressed. The main points observed are presented below:

Students with ease: 5 students showed great ease in understanding the subject, even in the first contact, showing a good foundation in the concepts of matrices

Students with interest, but with difficulties in understanding: 3 students showed significant interest in the subject, but presented some initial difficulties, which were solved with a more personalized and individual explanation from the teacher

Students with significant difficulties: Unfortunately, the rest of the students presented considerable difficulties in understanding the subject, revealing significant gaps in the learning of matrix concepts. This suggests the need for further revision and reinforcement of these concepts to ensure a better understanding of cryptography and its applications.

7 CONCLUSION

The introduction to students to the world of cryptography not only sparked remarkable interest but also highlighted the practical and theoretical value of mathematical concepts, making the learning process more dynamic and meaningful. Although some students faced greater difficulty, through a personalized approach of the teacher, the vast majority of students achieved a satisfactory level of understanding and use of the contents covered.

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**LITERACY AND ALPHABETIZATION AS EMANCIPATORY PRACTICE:
KNOWLEDGE MEDIATION, SOCIAL JUSTICE, AND INCLUSION IN THE
CONTEMPORARY SCHOOL CONTEXT**

**ALFABETIZAÇÃO E LETRAMENTO COMO PRÁTICA EMANCIPATÓRIA:
MEDIÇÃO DO CONHECIMENTO, JUSTIÇA SOCIAL E INCLUSÃO NO
CONTEXTO ESCOLAR CONTEMPORÂNEO**

**ALFABETIZACIÓN Y LITERACIDAD COMO PRÁCTICA EMANCIPADORA:
MEDIACIÓN DEL CONOCIMIENTO, JUSTICIA SOCIAL E INCLUSIÓN EN EL
CONTEXTO ESCOLAR CONTEMPORÁNEO**

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ABSTRACT

This article discusses literacy from a critical, dialogical and emancipatory perspective, based on authors such as Ferreiro, Teberosky, Freire, Gadotti, Freinet, Smolka, Soares, Vygotsky, Wallon, Piaget, Makarenko, Guareschi, Masetto and Pestalozzi. Reading and writing are understood as historical, social and cultural processes that go beyond decoding, emphasizing teacher mediation, social justice, democracy and educational inclusion. Learning is analyzed as a social practice guided by praxis, affectivity, love, and non-authoritarian classroom organization. It is argued that schools must recognize students' realities and experiences, promoting activities that connect theory and practice and encourage critical participation. Literacy, therefore, becomes a political and ethical act aimed at forming critical subjects capable of transforming their social contexts.

Keywords: Literacy. Reading Practices. Mediation. Educational Praxis. Inclusion. Social Justice.

RESUMO

Este artigo discute a alfabetização e o letramento sob uma perspectiva crítica, dialógica e emancipatória, fundamentada em autores como Ferreiro, Teberosky, Freire, Gadotti, Freinet, Smolka, Soares, Vigotski, Wallon, Piaget, Makarenko, Guareschi, Masetto e Pestalozzi. Busca-se compreender a formação leitora e escritora como processo histórico, social e cultural que ultrapassa a decodificação técnica do sistema gráfico, enfatizando a mediação docente, a justiça social, a democracia e a inclusão escolar. A aprendizagem é analisada como prática social orientada pela práxis, pela afetividade, pela amorosidade e pela organização pedagógica sem autoritarismo. Argumenta-se que a escola precisa reconhecer a realidade dos alunos, suas vivências e linguagens, favorecendo atividades que articulem teoria e prática, promovam participação crítica e valorizem a dimensão sociopolítica dos atos de ler e escrever. Alfabetizar letrando implica formar sujeitos críticos, capazes de compreender a realidade e transformá-la, reafirmando o compromisso ético e político da educação como prática de liberdade.

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Palavras-chave: Alfabetização. Letramento. Mediação. Práxis Educativa. Inclusão. Justiça Social.

RESUMEN

Este artículo discute la alfabetización y la literacidad desde una perspectiva crítica, dialógica y emancipadora, fundamentada en autores como Ferreiro, Teberosky, Freire, Gadotti, Freinet, Smolka, Soares, Vigotski, Wallon, Piaget, Makarenko, Guareschi, Masetto y Pestalozzi. Se busca comprender la formación lectora y escritora como un proceso histórico, social y cultural que trasciende la decodificación técnica del sistema gráfico, enfatizando la mediación docente, la justicia social, la democracia y la inclusión escolar. El aprendizaje se analiza como una práctica social orientada por la praxis, la afectividad, la amorosidad y la organización pedagógica sin autoritarismo. Se argumenta que la escuela necesita reconocer la realidad de los estudiantes, sus vivencias y lenguajes, favoreciendo actividades que articulen teoría y práctica, promuevan la participación crítica y valoren la dimensión sociopolítica de los actos de leer y escribir. Alfabetizar desde la literacidad implica formar sujetos críticos, capaces de comprender la realidad y transformarla, reafirmando el compromiso ético y político de la educación como práctica de la libertad.

Palabras clave: Alfabetización. Literacidad. Mediación. Praxis Educativa. Inclusión. Justicia Social.

1 INTRODUCTION

Literacy and literacy are fundamental processes for the human, cognitive, social and political development of students. In the contemporary educational scenario, reading and writing cannot be understood only as technical skills, but as social practices that express values, cultures, identities and modes of democratic participation. As Ferreiro and Teberosky (1985) state, children construct hypotheses about the functioning of written language, inserted in sociocultural contexts that influence their learning.

The challenge of the school is to promote an education that contemplates the reality of students, valuing diversity, social justice, inclusion and democracy, principles widely defended by Paulo Freire (1989), Pestalozzi (NOVA ESCOLA, 2015) and Makarenko (1983). Thus, literacy and literacy implies recognizing the student as an active, affective, historical and social subject, as the contributions of Vygotsky (1998), Wallon (1968) and Piaget (1976) collaborate, which emphasize interactive, affective and cognitive dimensions of development.

Pedagogical mediation, affective bonds, educational praxis, loving-kindness and the organization of school work without authoritarianism are essential elements for the literacy process to be emancipatory and not to reproduce inequalities. Freinet (1973) and Gadotti (2000) reinforce the need for an active, social and transformative pedagogy.

The article intends to discuss the theoretical and practical bases of literacy and literacy as dialogical and emancipatory processes, based on a critical approach that articulates mediation, affectivity, social practice and ethical-political commitment to the transformation of reality.

2 EPISTEMOLOGICAL BASES OF LITERACY AND LITERACY

2.1 LITERACY AND LITERACY AS DISCURSIVE AND SOCIAL PROCESSES

Literacy, according to Smolka (1993), should be understood as a discursive and interactive process in which the child produces meanings and appropriates the written language in dialogue with the other and with the social context. Literacy, in turn, involves the social use of reading and writing, as defined by Soares (2003), and is, therefore, inseparable from literacy.

Ferreiro and Teberosky (1985) demonstrate that children progressively construct hypotheses about writing, confirming that learning is active and meaningful. This understanding moves away from mechanical or authoritarian practices and brings the school closer to an investigative, curious and critical environment.

The child does not passively copy the writing system that surrounds him; it actively rebuilds it. At each stage of this process, he formulates hypotheses about the functioning of written language, testing them, modifying them and reorganizing them as he establishes relationships between what he knows and what he observes. Literacy, therefore, cannot be reduced to mechanical repetition exercises, as it involves a complex intellectual activity, in which the learner seeks to understand the logic that sustains the system of representation. Ignoring this active character of the subject leads to authoritarian and ineffective practices, while recognizing it implies promoting an environment of investigation, dialogue and reflection on language. (Ferreiro; Teberosky, 1985, p. 32-33).

Reading and writing are, therefore, instruments of social participation. Freire (1989) states that learning to read the world precedes learning to read the word, which implies that literacy is also promoting social and political awareness. Literacy and literacy should be seen as practices of freedom and not as the imposition of codes.

2.2 THE MEDIATION OF KNOWLEDGE AND THE HISTORICAL-CULTURAL THEORY

Vygotsky (1998) highlights the importance of interaction and mediation in the formation of higher psychological functions. Learning results from the relationship between subject, object and mediator, especially when the teacher offers cultural instruments and ethical-affective support.

In literacy, this mediation is essential for the student to advance from what he can do alone to what he can do with help, in the so-called Zone of Proximal Development (ZDP). Thus, challenging, contextualized and collaborative activities are fundamental.

Mediation must be permeated by affectivity, because, as Wallon (1968) points out, emotions directly influence cognitive development. Pestalozzi, according to Nova Escola (2015), reinforces that education is only fully realized when affection, intellect and morality go together.

2.3 AFFECTIVITY, LOVING-KINDNESS AND NON-AUTHORITARIAN PEDAGOGICAL ORGANIZATION

Love, a central concept in Freire (1989), does not mean sentimentality, but a deep commitment to the subjects and their emancipation. Freire states that educating requires love, ethics and hope, because the pedagogical relationship is inseparable from human dignity.

Freinet (1973) also proposes a school organization based on cooperative work, free expression, experimentation and democratic participation. Makarenko (1983) reinforces the role of the collective, ethics and co-responsibility in the education of students.

The school routine should promote emotional safety, respect, dialogue, and cooperation, avoiding authoritarian practices that dehumanize the educational process.

Freire (1989, p. 45-46) states that:

A truly emancipatory educational practice cannot be built on authoritarian relations, because these deny the dignity of the students and prevent the constitution of an environment of trust. Educating requires dialogue, it requires a loving and ethical bond between educators and students. Only in a climate of respect, emotional security, and openness is it possible for learning to happen as a shared and humanizing experience. Where there is fear, silencing or imposition, there is no liberating education, but domestication.

2.4 EDUCATIONAL PRAXIS AND SOCIAL JUSTICE IN LITERACY

Gadotti (2000) defines praxis as action-reflection-transformative action. Literacy requires relating theory and practice, articulating scientific knowledge with the concrete reality of students. This implies recognizing inequalities and promoting pedagogical actions aimed at social justice and inclusion.

Praxis is expressed in activities that bring the school closer to life: interdisciplinary projects, production of real texts, research, conversation circles, reading of the world, collective work and community participation. Masetto (2012) highlights that the class should be a space for dialogue, problematization and shared construction of knowledge.

Critical communication, as Guareschi (2003) emphasizes, is a fundamental tool in the formation of subjects capable of understanding and transforming reality.

Literacy, when understood as a social practice and historical-cultural process, goes beyond the technical dimension of the acquisition of the written code, involving a complex set of cognitive, affective, social and political factors. To understand it only as decoding is to reduce its formative potential and its transformative character. It is in this sense that the concept of educational praxis emerges, based on authors such as Paulo Freire and Moacir Gadotti, who conceive education as action-reflection-action guided by the transformation of reality.

Freire (1989, p. 29-30) emphasizes that:

The reading of the world precedes the reading of the word, and the reading of the latter implies the continuity of the reading of the former. Literacy, therefore, cannot be reduced to the mechanical memorization of linguistic signs, but needs to be understood as an act of knowledge, a creative act, a political act. It is by learning to read the word that men also learn to read reality in order to transform it.

When applied to literacy, praxis not only guides the pedagogical practice, but also connects it to the ethical commitment to social justice, understood as the right of all to full, critical and emancipatory access to language.

Literacy, as a practice of freedom, requires the teacher to recognize that teaching to read and write does not only mean transmitting skills; it means, above all, revealing the world, allowing students to understand reality and position themselves in front of it. Gadotti (2000, p. 63) reinforces this perspective when he states:

Praxis is the action that transforms reality and that turns on itself to understand and remake itself. Education, as a praxis, requires the educator to critically analyze the concrete conditions of existence of the students, to understand the social contradictions and to assume an ethical posture of commitment to social transformation. A neutral practice is non-existent; All educational practice is political.

Literacy is to open paths for each subject to understand their historical and cultural insertion. With this understanding, educational praxis assumes a central role in articulating theory and practice, reflection and action.

Discussing social justice in literacy implies recognizing that children from different social, economic, linguistic and cultural contexts do not start their school career in the same conditions. Ferreiro and Teberosky (1985, p. 47) demonstrate that:

The child is not an empty container to be filled by the adult. She elaborates hypotheses, creates explanatory models about the functioning of writing and transforms the information she receives according to levels of understanding that are her own. To teach literacy effectively, it is essential to recognize and value these constructions, and not to annul them through mechanical and decontextualized exercises.

The understanding reinforces that literacy guided by social justice must value children's experiences, previous knowledge and languages.

Vygotsky (1998) also contributes decisively by stating that learning is socially mediated. In a long quotation, Vygotsky (1998, p. 75) explains:

The development of higher psychological functions occurs first on the social plane, in contact with the other, and only then is it internalized. The relationship between learning and development is not static, but dynamic; Properly organized learning results in mental development, activating processes that would not otherwise happen.

Literacy guided by social justice must guarantee respectful, cooperative and dialogical interactions, privileging qualified mediation.

Affectivity also occupies a central place in this process. Wallon (1968, p. 112) points out:

Emotions play a fundamental role in the formation of consciousness and cognitive development. The child learns in its entirety, and not in isolated parts. The school that disregards affectivity deprives learning of one of its essential engines, because trust, acceptance and emotional security are indispensable conditions for intellectual development.

Literacy with social justice requires welcoming, loving, and non-authoritarian environments.

Freinet (1973, p. 58) defends a cooperative and democratic pedagogy:

The school cannot be a space of imposition or fear, but rather of shared work, research and free expression. The teacher should organize activities that allow children to actively participate in school life, express their creativity and collaborate for the good of the group. Only then will learning become truly meaningful and human.

The school routine, therefore, must promote emotional safety, respect, and dialogue, avoiding authoritarian practices that dehumanize the educational process.

Educational praxis is also related to the organization of pedagogical work. For Gadotti, praxis is only consolidated when theory and practice are intertwined in a critical and intentional way. Makarenko (1983) highlights the role of the collective and shared responsibility in human development, arguing that education should form solidary, conscious and participatory subjects.

By assuming educational praxis as the foundation of literacy, the teaching work ceases to be a mere fulfillment of tasks and becomes an intentional, critical and reflective practice. Thus, literacy committed to social justice needs to be dialogical, inclusive, and politically positioned.

2.5 INTERACTIONAL AND COGNITIVE CONTRIBUTIONS TO LITERACY

Piaget's genetic epistemology (1976) contributes by stating that the child builds knowledge through action, experimentation and assimilation-accommodation. This principle is consistent with investigative practices, symbolic games, and active exploration of writing.

Wallon (1968) highlights the importance of affectivity in balance with intelligence and movement, showing that literacy must contemplate psychomotor, emotional and cognitive dimensions.

These theories reinforce that teaching to read and write requires rich, challenging, affective, and organized environments, with multiple languages, diverse materials, and responsible freedom.

The literacy process is only effective in intentionally organized environments, rich in stimuli, linguistically varied and affectively safe. The child needs to have access to multiple languages, diversified materials, real situations of use of writing and freedom to explore, formulate hypotheses and socialize their discoveries. Spaces that restrict action, limit curiosity, or impose rigid standards of behavior impoverish the process. The learning of reading and writing is strengthened when the school offers significant challenges, collaborative interactions and a climate of trust, in which error is understood as a natural part of the construction of knowledge. (Soares, 2004, p. 58-59).

3 FINAL CONSIDERATIONS

Literacy and literacy, when understood from a critical and emancipatory perspective, are processes that go beyond the mere acquisition of the written code. They involve democratic participation, building social awareness, recognizing students' experiences, and promoting social justice.

Teacher mediation is essential to articulate these dimensions, especially when guided by affectivity, dialogicity, praxis and non-authoritarian pedagogical organization. Based on authors such as Freire, Ferreiro, Teberosky, Soares, Vygotsky, Piaget, Wallon, Smolka, Freinet, Makarenko, Gadotti and others, we reaffirm that literacy is a political and ethical act, committed to humanization and social transformation.

Literacy through literacy implies promoting a critical reading of the world and the word, forming subjects capable of understanding, intervening and transforming reality, contributing to a more just, democratic and inclusive society.

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EDUCATION 4.0: TECHNOLOGICAL REVOLUTION OR DISGUISED THREAT?

EDUCAÇÃO 4.0: REVOLUÇÃO TECNOLÓGICA OU AMEAÇA DISFARÇADA?

EDUCACIÓN 4.0: ¿REVOLUCIÓN TECNOLÓGICA O AMENAZA ENCUBIERTA?

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ABSTRACT

This article offers a critical analysis of Education 4.0, addressing its concepts, foundations, and challenges from an integrative perspective. Initially, it contextualizes Education 4.0 within the context of Industry 4.0 and digital culture, highlighting the ambivalence between pedagogical innovation and risks to the human dimension of education. The methodology adopted, an integrative literature review, ensured the necessary breadth to understand multiple facets of the phenomenon. The text details the pedagogical potential of emerging

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technologies, such as artificial intelligence and augmented reality, and the importance of active methodologies and personalized learning for the development of 21st-century skills. It also discusses the essential digital skills for students and teachers, emphasizing the importance of continuing education that articulates technical, critical, and ethical aspects. It explores inequalities in access to technological infrastructure, demonstrating that "digital inclusion" needs to go beyond the mere provision of devices to be defined as social justice. The article also addresses risks associated with technological dependence, information overload, and the commodification of education, which threaten the mental health of those involved and the autonomy of the educational project. Finally, it proposes that Education 4.0 will be a pedagogical revolution with robust public policies, an integrated curriculum, ethical data governance, and qualified teacher training, while it will become a threat when dominated by market and technical interests. The article concludes by emphasizing the need for a careful balance between innovation and humanization, and suggests future research agendas to deepen the understanding of the sociocultural impacts of this educational transformation.

Keywords: Education 4.0. Digital Technologies. Digital Skills. Digital Inclusion. Teacher Training.

RESUMO

Este artigo oferece uma análise crítica da Educação 4.0, abordando seus conceitos, fundamentos e desafios numa perspectiva integradora. Inicialmente, contextualiza a Educação 4.0 no contexto da Indústria 4.0 e da cultura digital, ressaltando a ambivalência entre inovação pedagógica e riscos à dimensão humana da educação. A metodologia adotada, uma revisão integrativa da literatura, garantiu a abrangência necessária para compreender múltiplas faces do fenômeno. O texto detalha os potenciais pedagógicos das tecnologias emergentes, como inteligência artificial e realidade aumentada, e a importância das metodologias ativas e da personalização da aprendizagem para o desenvolvimento de competências do século XXI. Discute, ainda, as competências digitais essenciais para estudantes e docentes, destacando a importância de uma formação continuada que articule aspectos técnicos, críticos e éticos. Explora as desigualdades no acesso à infraestrutura tecnológica, evidenciando que a "inclusão digital" precisa ultrapassar a mera provisão de dispositivos para se definir como justiça social. São também abordados riscos associados à dependência tecnológica, sobrecarga informacional e mercantilização da educação, que ameaçam a saúde mental dos envolvidos e a autonomia do projeto educativo. Por fim, propõe que a Educação 4.0 será uma revolução pedagógica na existência de políticas públicas robustas, currículo integrado, governança ética de dados e formação docente qualificada, enquanto se converterá em ameaça quando dominada por interesses mercadológicos e técnicos. O artigo conclui enfatizando a necessidade de um equilíbrio cuidadoso entre inovação e humanização, e sugere agendas futuras de pesquisa para aprofundar o entendimento dos impactos socioculturais dessa transformação educacional.

Palavras-chave: Educação 4.0. Tecnologias Digitais. Competências Digitais. Inclusão Digital. Formação Docente.

RESUMEN

Este artículo ofrece un análisis crítico de la Educación 4.0, abordando sus conceptos, fundamentos y desafíos desde una perspectiva integradora. Inicialmente, contextualiza la Educación 4.0 en el contexto de la Industria 4.0 y la cultura digital, destacando la ambivalencia entre la innovación pedagógica y los riesgos para la dimensión humana de la educación. La metodología adoptada, una revisión bibliográfica integradora, garantizó la amplitud necesaria para comprender las múltiples facetas del fenómeno. El texto detalla el potencial pedagógico de las tecnologías emergentes, como la inteligencia artificial y la realidad aumentada, y la importancia de las metodologías activas y el aprendizaje

personalizado para el desarrollo de las competencias del siglo XXI. También analiza las competencias digitales esenciales para estudiantes y docentes, enfatizando la importancia de una formación continua que articule aspectos técnicos, críticos y éticos. Explora las desigualdades en el acceso a la infraestructura tecnológica, demostrando que la «inclusión digital» debe ir más allá de la mera provisión de dispositivos para definirse como justicia social. El artículo también aborda los riesgos asociados a la dependencia tecnológica, la sobrecarga de información y la mercantilización de la educación, que amenazan la salud mental de los participantes y la autonomía del proyecto educativo. Finalmente, propone que la Educación 4.0 será una revolución pedagógica con políticas públicas sólidas, un currículo integrado, una gobernanza ética de datos y una formación docente cualificada, mientras que se convertirá en una amenaza cuando esté dominada por intereses comerciales y técnicos. El artículo concluye enfatizando la necesidad de un equilibrio cuidadoso entre innovación y humanización, y sugiere futuras agendas de investigación para profundizar en la comprensión de los impactos socioculturales de esta transformación educativa.

Palabras clave: Educación 4.0. Tecnologías Digitales. Competencias Digitales. Inclusión Digital. Formación Docente.

1 INTRODUCTION

Education 4.0 emerges as an educational expression of Industry 4.0, inserted in a context of intense digital transformation, process automation, data expansion on a massive scale, and integration between the physical and virtual worlds through intelligent technologies. In this scenario, schools and training institutions are pressured to update curricula, methodologies, and forms of assessment to respond to a social and productive environment marked by permanent connectivity, digital platforms, artificial intelligence, and new skills requirements. At the same time, there is a growing discourse that education should prepare "adaptable" subjects to a volatile market, driven by innovation and performance, making us reflect deeply on the new roles of formal learning.

It is in this context that the notion of Education 4.0 is consolidated as a proposal for alignment between educational processes and the so-called fourth industrial revolution, bringing pedagogical practices closer to emerging technologies, personalization of learning and digitally mediated active methodologies. The promises include more dynamic classes, immersive experiences, real-time feedback, and flexible training trajectories, articulated with skills such as creativity, collaboration, complex problem solving, and digital fluency. However, alongside this innovative potential, questions arise about the direction and meanings of this transformation: who does this modernization serve? Does it expand educational rights or does it reinforce market and control logics?

In view of this scenario, the research problem that guides the article can be formulated in terms of the ambivalence constitutive of Education 4.0: to what extent does the diffusion of advanced digital technologies in the educational field configure itself as a technological revolution capable of qualifying learning and democratizing opportunities and to what extent can it operate as a disguised threat, deepening inequalities, weakening the teaching work and negatively impacting human dimensions of the educational process? The guiding question summarizes this tension: "Does Education 4.0 effectively represent a pedagogical-technological revolution or does it constitute a disguised threat to the project of critical, inclusive and humanizing education?"

The justification for the study lies in the fact that Education 4.0 has become a hegemonic discourse in policies, institutional documents and training, often associated with the idea of technological inevitability and necessary modernization. This movement influences decisions about investments in infrastructure, teacher training programs, curriculum design, and evaluation, while coexisting with school realities marked by

precariousness, unequal access to technologies, work overload, and challenges related to the mental health of students and teachers. Critically discussing this scenario is relevant to avoid both uncritical technicality and alarmism, producing a balanced analysis of potentialities and risks.

The general objective of this article is to critically analyze Education 4.0 as an educational phenomenon situated in Industry 4.0 and digital culture, examining its foundations, promises and contradictions in the light of recent literature. As specific objectives, it intends to: explain the main concepts, discourses and assumptions associated with Education 4.0; map evidence on the impacts of emerging technologies on teaching and learning processes; problematize implications for teacher training and performance; discuss effects on inclusion, inequality and social justice; to point out risks and ambivalences that can convert the "revolution" into a threat to the humanizing character of education and to propose guiding principles for a more critical and balanced integration of technologies in the school.

In terms of organization, the text begins with this introduction, which situates the problem, presents the guiding question and explains the relevance of the study. It then describes the methodological procedures of the literature review, indicating selection criteria, time frame and analysis strategy. The second chapter discusses concepts, foundations and promises of Education 4.0, articulating them in the context of Industry 4.0 and digital culture. The third chapter addresses teacher training and digital skills required in the 4.0 era, highlighting challenges and possibilities. The fourth chapter deals with the axes of inclusion, inequalities and risks associated with the intensive use of technologies, including aspects of health, well-being and social justice. The fifth chapter deepens the discussion on risks, ambivalences and side effects, exploring tensions between innovation and commodification, between technical efficiency and integral education. The sixth chapter resumes the question "technological revolution or disguised threat?", summarizes the main findings of the review and presents paths for a more humanized, critical Education 4.0 committed to the democratization of the right to education. The article concludes in its eighth chapter, with the final considerations.

As for the methodological procedures adopted in the preparation of this review, they were defined with the aim of offering a broad, current and critical view of the phenomenon of Education 4.0, articulating theoretical and empirical productions in the area of education and technologies. A predominantly integrative literature review was chosen, a modality that allows the gathering and synthesis of studies with different methodological approaches, aiming at a

broader understanding of a theme as complex as the one addressed in this study. The bibliographic search focused on databases widely used in research in education and human sciences, such as SciELO, CAPES Journal Portal, ERIC, Scopus, Web of Science and Google Scholar, as well as journals specialized in education and educational technologies accessible through institutional repositories.

2 EDUCATION 4.0: CONCEPTS, FOUNDATIONS AND PROMISES

The discussion on Education 4.0 is part of a context of profound technological, economic and cultural transformations associated with Industry 4.0 and the expansion of digital culture on a global scale. At the same time that possibilities for innovation, personalization of learning and the development of new skills are announced, tensions around educational purposes, training for work and the subjective and social impacts of this process are also growing. Understanding the concepts, foundations and promises of Education 4.0 is, therefore, a condition for critically evaluating whether this agenda represents an effective pedagogical renewal or whether it tends to reinforce logics of control and adaptation to a highly automated market.

In this sense, it is clear that the educational scenario has been deeply affected by the many changes brought about by the digital age. Digital technologies bring the power to create new learning opportunities, but they also require students to develop certain skills and abilities. These skills go beyond conventional academic knowledge and aim to help students deal with the obstacles of the 21st century and stand out in an increasingly technological and global world. In this context, the concept of education 4.0 emerges, which is characterized by the incorporation of digital technology in all aspects of education, from classrooms to online learning platforms (Costa Júnior, 2024).

This is when the concept of Education 4.0 emerges, which has been presented as an educational offshoot of Industry 4.0, understood as the fourth industrial revolution marked by the integration of cyber-physical systems, the internet of things, advanced automation, and the intensive use of real-time data (Schwab, 2016; Silva; Olave, 2020). In this context, Education 4.0 designates teaching proposals that articulate emerging digital technologies, curricular reorganization, and the development of skills considered central to the twenty-first century, such as critical thinking, creativity, collaboration, complex problem solving, and digital literacy (Leonel *et.al.*, 2022). Such proposals dialogue with the idea that education should prepare subjects to act in a connected, globalized and highly mediated society by

data, bringing the pedagogical discourse closer to agendas formulated by international organizations and by the business field itself.

The relationship between Education 4.0 and Industry 4.0 appears explicitly in studies that analyze training for technical and engineering areas, in which the need to articulate scientific and technological knowledge with socio-emotional and innovation skills is highlighted. From this perspective, the school and the university are called upon to develop curricula that dialogue with new forms of work organization, incorporating projects, real challenges, use of data and interaction with productive environments. At the same time, critical authors warn of the risk of reducing education to an instrument of adaptation to the demands of capital, by emphasizing functionalist and adaptive skills to the detriment of an integral, historically and politically situated education (Frigotto, 2010; Penna *et al.*, 2022).

On the pedagogical level, Education 4.0 is often associated with active methodologies, such as problem-based learning, projects, flipped classrooms, gamification, and collaborative network activities, which seek to move the student from a passive position to a role of greater protagonism (Bacich; Moran, 2018; Berbel, 2011). The personalization of learning, driven by virtual environments, adaptive systems, and the use of educational data, appears as a promise to adjust teaching to the pace, interests, and needs of each student, articulating with the digital culture in which children, young people, and adults are already immersed (Coll; Monereo, 2010; Kenski, 2012). This digital culture involves daily practices of interaction in social networks, collaborative production of content, circulation of information in multiple languages and screens, which redefines the way in which one learns inside and outside school.

Among the pedagogical potentials pointed out for the technologies associated with Education 4.0, artificial intelligence (AI), augmented reality (AR), educational big data, and digital learning platforms stand out. AI systems have been explored to support the personalization of teaching, through intelligent tutors, real-time performance analysis, and recommendations for training resources adjusted to the student's profile, which can contribute to more immediate feedback and more accurate pedagogical interventions (Holmes; Bialik; Fadel, 2019; Luckin, 2018). AR and virtual reality technologies enable immersive experiences, simulations, and complex visualizations, expanding opportunities for practical and interdisciplinary exploration in areas such as science, engineering, health, and the arts.

The use of big data and analytics in education is presented as a way to identify learning patterns, predict dropout risks, monitor engagement, and support pedagogical and

management decisions, especially in online and hybrid education environments (Siemens, 2013; Gasevic; Dawson; Jovanovic, 2016). Digital platforms, in turn, create ecosystems in which students and teachers can interact synchronously and asynchronously, share resources, develop collaborative projects, and make study times and spaces more flexible, partially displacing the centrality of the physical classroom (Moran, 2012; Kenski, 2012). Together, these technologies are often presented as instruments for pedagogical innovation, expansion of learning opportunities and construction of more flexible training trajectories, although they carry ambivalences and risks that need to be problematized at other times in the article.

3 DIGITAL SKILLS AND TEACHER TRAINING IN THE 4.0 ERA

Technologies have evolved a lot in recent years, profoundly changing the ways we communicate, produce and access information, in addition to transforming society as we know it. Therefore, education will need to adapt and incorporate new tools to improve the teaching and learning process. While technology can be a valuable tool for educators, they need to have adequate technical skills to use it effectively. These technological skills encompass the mastery of computers, software and hardware, and are fundamental for teachers to use technology in the classroom (Costa Júnior *et al.*, 2023).

The era of Education 4.0 imposes significant challenges to the development of digital skills and teacher training, crucial elements to effectively articulate technology and pedagogy. The maturation of these skills, which transcend the technical use of digital tools, also involves critical and ethical dimensions that are fundamental to teaching and student protagonism in digitally mediated environments. Becoming digitally competent implies mastering technical operational, safety and problem-solving skills, but also developing critical understanding of the social impact of technologies and ethical engagement in the production and use of information.

The digital skills required of students and teachers can be organized into three complementary dimensions: basic technical skills, such as handling equipment and *software*; critical skills, which involve analyzing, evaluating, and reflecting on digital content; and ethical aspects related to responsible use, privacy, and digital citizenship. While students need to develop autonomy to seek, organize, and share knowledge digitally, teachers must integrate these practices into pedagogical work, mediating the use of technology and promoting

inclusive and collaborative environments. Digital literacy, in this sense, operates not only on the instrumental level, but also in the formation of critical and ethical subjects in digital culture.

The initial and continuing training of teachers for the pedagogical use of digital technologies is a decisive factor to overcome mere technical adaptation and promote quality educational innovations. Training models that combine theory and practice, articulate active methodologies and provide reflective development have proven to be more effective. Reference-based programs such as TPACK (Technological Pedagogical Content Knowledge) emphasize the harmonious integration between technological, pedagogical and content knowledge, highlighting the need for contextualization of technologies in the curriculum and teaching practices.

In addition, institutional and cultural conditions exert a significant influence on the success of teacher education, including adequate educational policies, technological infrastructure, technical support, and time for experimentation and peer collaboration. School culture must value the teaching professional as a protagonist agent of innovation, investing in continuous development processes that promote resilience and innovation capacity in the face of rapid technological transformations.

4 INCLUSION, INEQUALITIES AND SOCIAL JUSTICE IN NEW TIMES

The accelerated incorporation of digital technologies in the context of Education 4.0 brings to light crucial challenges related to inclusion, inequalities, and social justice. Although technologies offer the potential to expand access to knowledge and diversify forms of learning, they also show structural disparities that refer to historical and social inequalities, putting at risk the realization of the right to education for all. The discourse of digital inclusion, when disconnected from integrated public policies that are sensitive to socioeconomic, cultural, and pedagogical dimensions, can become mere "technical inclusion", which does not solve inequalities or promote social justice.

Unequal access to equipment, adequate infrastructure and quality connectivity continues to be one of the main obstacles to the full democratization of Education 4.0. Students from peripheral regions, public schools in vulnerable rural or urban areas, and families in situations of economic vulnerability face difficulties in enjoying the benefits of digital technologies, deepening a gap that already separates very different educational realities. This technological exclusion has direct impacts not only on access to digitized content and platforms, but on the possibility of active participation in collaborative learning processes,

formative assessment, and the development of critical digital skills. The mere provision of devices alone does not guarantee inclusion, and it is necessary to have an articulated set of public policies that contemplate teacher training, sustainability of networks and pedagogical mediation.

In the context of inclusive education, Education 4.0 must face the challenge of ensuring access and learning for vulnerable groups, such as students with disabilities, students in contexts of socioeconomic deprivation, black, indigenous and quilombola populations, among others. Technology can offer accessibility and personalization features that favor equity, but this depends on an educational project that considers the cultural and social specificities of these groups, adopting inclusive and sensitized pedagogical methods. In addition, the use of digital technologies in the school environment exposes students and teachers to complex power dynamics, such as digital violence, online harassment, and symbolic exclusion, which challenge the construction of a democratic and supportive culture in schools.

On the other hand, technology provides resources for individuals with communication problems, such as autistic people, facilitating interaction and expression of thoughts. In the educational context, technology stands out by enabling a more inclusive and personalized teaching methodology, providing support for different learning styles. However, obstacles such as the absence of adequate infrastructure and financial barriers still exist, preventing complete digital inclusion (Freire *et al.*, 2023).

The promotion of critical citizenship in the school digital culture has been pointed out as a central strategy to face such challenges, by enhancing the protagonism of students, developing ethical reflection skills on the use of technologies and strengthening active participation in digital spaces in a safe and responsible way. Training for digital democracy becomes as fundamental as technological access, constituting an axis for the construction of social justice within the scope of Education 4.0, which breaks with the idea of merely technical inclusion and incorporates cultural, political and pedagogical dimensions in the educational process.

5 RISKS, AMBIVALENCES AND SIDE EFFECTS

Education 4.0, despite its transformative potential, is not free from risks, ambivalences and side effects that deserve critical reflection. The intensive use of digital technologies imposes challenges to the care of the psychological, pedagogical and social dimensions of the educational process, going beyond simple instrumental adoption. The tensions emerge

from the relationship between technical efficiency, always sought by digital innovation, and the need to preserve an integral education, which considers the subject in its entirety, including its well-being and critical development.

One of the most evident risks of Education 4.0 is the growing technological dependence, which can lead to informational overload, fragmentation of attention, and cognitive and emotional exhaustion of students and teachers. Multimediality, overstimuli, and pressure for quick responses can negatively affect concentration and the ability to deeply reflect, which are essential for meaningful learning. In addition, there are direct impacts on mental health, with an increase in anxiety, stress, and digital fatigue, factors that compromise the pedagogical relationship and the quality of teaching. These aspects point to a necessary renegotiation of the pace and modalities of use of technology in education, which preserves spaces for unplugging and reflection.

Another field of concern refers to the commodification of education in the context of Education 4.0, marked by the massive capture of educational data and the logic of competencies focused primarily on the labor market. There is a tendency for educational spaces, instruments and pedagogical processes to be subjected to neoliberal rationalities, guided by efficiency, productivity and employability, to the detriment of critical, citizen and emancipatory education. The collection and monetization of student data raises ethical and privacy issues that still lack adequate regulation, configuring potential colonization of educational spaces by commercial interests.

This subordination of educational work to the demands of the market redefines the relationship between knowledge, power and autonomy, emphasizing the formation of human capital adaptable to volatile and competitive economic contexts, which can generate precariousness of teaching work and devaluation of the socio-emotional dimensions of the educational process.

Selwyn (2017, p. 87-88) also evaluates that:

Unfortunately, much of the recent discussion around Education and Technology has been woefully fragile. Academic research in the area is frustratingly poor, and much of the evidence for the benefits and risks of using the technology lacks generalizability and rigor. Discussions among both laypeople and experts still tend to be desperately optimistic or dystopian. Objective discussions are often weakened by an understandable desire of educators to improve education using any means possible. The imperative to reform education for an era of technological and demographic change (INSTITUTE OF DIRECTORS, 2016) is repeated ad infinitum by policymakers and entrepreneurs [...].

Thus, a critical analysis is needed that is not limited to celebrating Education 4.0 as a technological innovation, but that incorporates the vigilance of the risks and tensions that cross it, proposing educational practices that balance technology, ethics and humanization.

6 BETWEEN REVOLUTION AND THREAT

Education 4.0 represents a field of tensions between revolutionary potentialities and concrete threats to the humanizing educational project. The pedagogical revolution is present to the extent that digital technologies, such as artificial intelligence, *big data*, augmented reality, and digital platforms, enable personalization of learning, flexibility of times and spaces, active methodologies, and student protagonism. These conditions favor curricular innovation, the development of complex skills and collaborative learning, expanding the reach and diversity of training experiences. On the other hand, Education 4.0 can become a threat whenever its implementation is limited to a merely technical, market, or control logic, without dialogue with the democratic, inclusive, and ethical project of education. This occurs when social inequalities are deepened, teacher training is neglected, the mental health of those involved is despised, and the critical dimension of the curriculum is eclipsed.

The balance between these poles depends on concrete conditions that involve effective public policies, coherent curriculum design, ethical data governance, and continuous and qualified teacher training. Public policies must ensure adequate infrastructure, universal and sustained connectivity, as well as robust programs for training and valuing teachers, recognizing their protagonism and autonomy. Curriculum design needs to integrate technologies critically, articulating digital skills with socio-emotional skills and humanistic knowledge, ensuring that pedagogical innovation does not replace or weaken the reflective and relational work of the school. The governance of educational data must respect privacy, security, and the principle of digital sovereignty, preventing commercial capture and misuse of personal information. Teacher training needs to be continuous, contextualized, centered on the development of technical, pedagogical and ethical skills, enabling the teacher to mediate and problematize the use of technologies in the educational process.

From this perspective, a critical and pragmatic agenda for a humanized Education 4.0 that incorporates principles of equity, participation, and social and environmental sustainability in educational policies and practices is recommended; flexible, interdisciplinary and inclusive curriculum design, which articulates digital technologies with methodologies that promote autonomy and critical thinking; democratic and transparent governance of

educational data, with regulation that protects rights and avoids excessive commodification; investments in initial and continuing education, valuing the role of the teacher as a critical mediator and agent of social innovation; and encouragement of interdisciplinary and field research that deepens the impacts of technologies on learning, mental health and educational inequalities, guided by ethical and democratic values.

These paths can contribute to the consolidation of Education 4.0 as an authentic and responsible pedagogical revolution, mitigating risks and expanding opportunities for quality, critical and humane education, in dialogue with the challenges of the 21st century.

7 FINAL CONSIDERATIONS

Here the main points addressed in each chapter are summarized, reflecting on the challenges and opportunities of Education 4.0, in order to support a critical and pragmatic view of its role in the contemporary educational scenario.

Initially, the contextualization of Education 4.0 in the panorama of Industry 4.0 and digital culture was presented, highlighting the tension between the promises of technological innovation and the risks of losing the human dimension in education. Next, it sought to elucidate the concepts, foundations and promises of Education 4.0, emphasizing the role of emerging digital technologies, 21st century skills, active methodologies and the personalization of learning.

In the following chapter, the importance of digital skills and continuous and qualified teacher training was discussed, highlighting the complexity of the technical, critical and ethical skills that students and teachers need to develop. The fourth chapter addressed the dimension of inclusion, inequalities and social justice, showing that access to technology without integrated and diversity-sensitive policies can aggravate exclusions and demand a digitally critical and citizen education. The fifth chapter focused on the risks and ambivalences of Education 4.0, such as technological dependence, the impacts on mental health and the commodification of education, emphasizing the need for an ethical and humanizing reflection. The seventh chapter promoted a critical synthesis, pointing out that Education 4.0 can represent a pedagogical revolution when mediated by efficient public policies, integrated curriculum, ethical data governance and robust teacher training, but that it becomes a threat when limited to the market and technicist logic. As a conclusion, the final considerations are presented.

The final reflection of the article emphasizes that the incorporation of technologies in education must be guided by a delicate balance between innovation and care, between technical efficiency and integral training, between digital inclusion and social justice. To this end, it is essential that educators, managers, and policymakers adopt a critical and contextualized perspective, promoting pedagogical practices that are inclusive, ethical, and committed to the full development of the subjects. The future of Education 4.0 depends, therefore, on the collective ability to build and sustain educational spaces that integrate technology, humanization, and democracy, contributing to the formation of critical, creative, and supportive citizens in the digital age.

Finally, the article suggests deepening research on the effects of Education 4.0 in diverse contexts, especially focusing on the impacts on mental health, tackling digital inequalities, and the broader consequences of educational data governance, thus guiding the construction of fairer and more effective policies and practices for the twenty-first century.

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TRADITIONAL GAMES AS A PEDAGOGICAL STRATEGY IN MIDDLE SCHOOL

BRINCADEIRAS TRADICIONAIS COMO ESTRATÉGIA PEDAGÓGICA NO ENSINO FUNDAMENTAL II

LOS JUEGOS TRADICIONALES COMO ESTRATEGIA PEDAGÓGICA EN LA EDUCACIÓN MEDIA

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ABSTRACT

Traditional play activities play a fundamental role in the comprehensive development of children, encompassing cognitive, social, emotional, and physical aspects. This study investigated the perceptions of 31 elementary school teachers in public schools in Concórdia, SC, Brazil, regarding the importance of these playful practices in the school context. A mixed-methods approach was employed, combining questionnaires and semi-structured interviews to analyze the frequency of use, observed impacts on students' behavior and learning, and the challenges faced by teachers. The results indicate that most teachers recognize the benefits of traditional play, emphasizing its relevance for socialization, socio-emotional development, collaborative learning, and cultural preservation. However, factors such as lack of time, limited physical space, and the influence of digital technologies still hinder its regular application. The findings highlight the need for intentional pedagogical planning, continuous teacher training, and strategies that integrate traditional play into the school curriculum, valuing both educational tradition and contemporary demands.

Keywords: Traditional Games. Child Development. School Education. Intangible Cultural Heritage.

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RESUMO

As brincadeiras tradicionais desempenham um papel fundamental no desenvolvimento integral das crianças, abrangendo aspectos cognitivos, sociais, emocionais e físicos. Este estudo investigou a percepção de 31 professores do Ensino Fundamental II em escolas municipais de Concórdia, SC, sobre a importância dessas práticas lúdicas no contexto escolar. A pesquisa adotou abordagem quantiquantitativa, com aplicação de questionários e entrevistas semiestruturadas, analisando a frequência de uso, efeitos observados no comportamento e aprendizagem, bem como os desafios enfrentados pelos docentes. Os resultados indicam que a maioria dos professores reconhece os benefícios das brincadeiras tradicionais, destacando sua relevância para a socialização, desenvolvimento socioemocional, aprendizagem colaborativa e preservação cultural. No entanto, fatores como falta de tempo, limitações de espaço físico e influência de tecnologias digitais ainda dificultam sua aplicação regular. Os achados reforçam a necessidade de planejamento pedagógico intencional, formação continuada docente e estratégias que integrem as brincadeiras tradicionais ao currículo escolar, valorizando tanto a tradição quanto as demandas contemporâneas da educação.

Palavras-chave: Brincadeiras Tradicionais. Desenvolvimento Infantil. Educação Escolar. Patrimônio Cultural Imaterial.

RESUMEN

Los juegos tradicionales desempeñan un papel fundamental en el desarrollo integral de los niños, abarcando aspectos cognitivos, sociales, emocionales y físicos. Este estudio investigó la percepción de 31 docentes del segundo ciclo de educación primaria en escuelas municipales de Concórdia, SC, sobre la importancia de estas prácticas lúdicas en el contexto escolar. La investigación adoptó un enfoque de métodos mixtos, mediante cuestionarios y entrevistas semiestruturadas, analizando la frecuencia de uso, los efectos observados en el comportamiento y el aprendizaje, así como los desafíos que enfrentan los docentes. Los resultados indican que la mayoría de los docentes reconocen los beneficios de los juegos tradicionales, destacando su relevancia para la socialización, el desarrollo socioemocional, el aprendizaje colaborativo y la preservación cultural. Sin embargo, factores como la falta de tiempo, las limitaciones de espacio físico y la influencia de las tecnologías digitales aún dificultan su aplicación regular. Los hallazgos refuerzan la necesidad de una planificación pedagógica intencional, la formación docente continua y estrategias que integren los juegos tradicionales en el currículo escolar, valorando tanto la tradición como las demandas educativas contemporáneas.

Palabras clave: Juegos Tradicionales. Desarrollo Infantil. Educación Escolar. Patrimonio Cultural Inmaterial.

1 INTRODUCTION

Traditional games constitute an important intangible cultural heritage, preserving practices that cross generations and express social, historical and educational values. In the school context, especially in Elementary School, these playful manifestations can play a significant role in the integral development of students, favoring cognitive, motor, emotional and social skills. However, with the advancement of digital technologies, the intensification of curricular content and the constant search for academic results, there is a progressive distancing of these practices from the pedagogical routine.

In addition, traditional games represent a form of social learning, as they allow students to recognize themselves as part of a culture, establish links between their personal experiences and school knowledge, and develop collaborative forms of interaction. At the same time, such practices favor the transmission of popular knowledge and strengthen the sense of community belonging, reinforcing local identity. In this way, understanding the permanence – or weakening – of these games in the school environment contributes to reflecting on the role of the school in valuing culture and in the integral formation of new generations.

This study aims to analyze how Elementary School II teachers in the municipal network of Concórdia – SC perceive the presence, importance and challenges related to the use of traditional games in the school environment. It is based on the understanding that knowing the teacher's view of such practices is fundamental to (re)signify the place of play in the school and enhance its integration into pedagogical planning, even in the face of current social and technological changes. From a quantitative-qualitative approach, we sought to identify aspects such as the frequency of use, the perceived impacts on the development of students and the structural or formative obstacles that influence the performance of these activities.

2 METHODOLOGY

The research was carried out in the municipality of Concordia, Santa Catarina, with the objective of investigating the perception of Elementary School II teachers about the importance of traditional games in the school context. Teachers from eight municipal schools, distributed between urban and rural areas, participated in the study, in order to ensure geographic representativeness and institutional diversity. In the urban area, the schools EBM Giuseppe Sette (North), EBM Waldemar Pfeifer (South), EBM Maria Petrolí (East) and EBM

Imigrantes (West) were selected. In the rural area, the schools EBM Irmão Miguel (North), EBM Ângelo Ary Biezus (South), EBM Frei Cipriano Chardon (East) and EBM Ana Zamarchi Coldebela (West) participated.

The research used a quantitative-qualitative approach, combining quantitative and qualitative methods to provide a comprehensive analysis of teaching perceptions and practices. For data collection, structured questionnaires with open and closed questions were applied, which addressed the frequency of use of traditional games, perception of their pedagogical benefits, impacts observed on the behavior and learning of students, as well as challenges faced in the implementation of these activities. In addition, semi-structured interviews were conducted, allowing teachers to report experiences, strategies and difficulties in a more in-depth way.

The selection of participants was carried out by intentional sampling, seeking to include teachers of different age groups, time of experience and school location, ensuring diversity of perspectives and representativeness of the educational context.

The quantitative data obtained through the questionnaires, while the qualitative data, from the interviews, were submitted to content analysis, allowing the categorization of recurring themes, such as perception of the benefits of play, pedagogical strategies adopted and challenges faced by teachers.

This methodological approach made it possible to understand not only the frequency and form of use of traditional games, but also the subjective experiences of teachers and the institutional conditions that influence the integration of these practices in the curriculum, providing important subsidies for reflection and improvement of pedagogical strategies in the municipal schools of Concordia.

3 RESULTS

The analysis of the level of academic training of the participants reveals that the expressive majority of the teachers (77.4%) have a *lato sensu* postgraduate degree, demonstrating a professional profile with investment in continuing education. Only 3.2% of the professors have not yet completed higher education, while 9.7% have only completed undergraduate studies and another 9.7% have completed *stricto sensu* postgraduate studies (master's degrees). These data corroborate the idea that Elementary School II teachers in Concordia seek to expand their knowledge through specializations, which enhances their

pedagogical practices and expands the understanding of playful methodologies in teaching, such as traditional games.

Table 1

Teachers' academic background

EDUCATION	PERCENTAGE (%)
No complete higher education	3,2%
Complete graduation	9,7%
Lato sensu postgraduate	77,4%
Stricto sensu postgraduate degree (master's degree)	9,7%

Source: Garbossa, Teresina Funez (2025)

The analysis of data obtained from 31 teachers of Elementary School II in the municipality of Concórdia (SC) reveals a largely positive perception about the contribution of traditional games to the social development of students. A total of 90.3% of the teachers stated that these practices contribute significantly to the strengthening of students' social skills. Another 9.7% also recognize its importance, although in a more limited way. None of the teachers consulted indicated that play does not contribute to this aspect of development, nor did they state that they did not have an opinion on the subject.

Table 2

Perception of social contribution

Teachers' Perception	Percentage (%)
Contributes significantly	90,3%
Partially contributes	9,7%
Does not contribute	0%
He has no review	0%

Source: Garbossa, Teresina Funez (2025)

The data point out that the space dedicated to traditional games in the classroom reveals a scenario of partial and limited presence of these practices in the pedagogical routine. Of the 31 teachers participating in the survey, 64.5% affirm that traditional games are present, but in a restricted way, while only 25.8% recognize a broad integration of these activities in the planning and execution of classes. In addition, 9.7% of the teachers indicated that they did not know how to evaluate the space occupied by these practices, and none of the teachers stated that the games do not have space.

Table 3

Space for traditional games in everyday school life

Space in Planning	Percentage (%)
Present on a limited basis	64,5%
Widely integrated	25,8%
Do not know how to inform	9,7%
No space	0%

Source: Garbossa, Teresina Funez (2025).

The analysis of teachers' perception of the institutional incentive to use traditional games in pedagogical planning reveals a moderate appreciation, but not fully consolidated, of these practices in the context of Elementary School II. Of the 31 participants, 45.2% stated that they received this incentive frequently, while 41.9% reported that the stimulus occurs only occasionally. Also, 12.9% of the teachers said they did not know how to inform about the existence of incentives, and none of the teachers indicated a total absence of encouragement from the school management.

Table 4

Institutional incentive

Incentive Level	Percentage (%)
Frequently	45,2%
Occasionally	41,9%
Do not know how to inform	12,9%
There is no incentive	0%

Source: Garbossa, Teresina Funez (2025).

The investigation into the importance of traditional games in the preservation of local culture revealed a significant appreciation of these practices in the educational context. Of the 31 participating teachers, 90.3% consider traditional games as very important to keep the local culture alive, while 9.7% recognize this relevance, but do not consider it essential. None of the respondents stated that they did not see the relevance of the games or expressed indifference to the topic.

Table 5

Importance for local culture

Perceived Importance	Percentage (%)
Very important	90,3%
Important, but not essential	9,7%
Not important	0%
Indifferent	0%

Source: Garbossa, Teresina Funez (2025).

The analysis of the role of traditional games in an increasingly digitized school environment revealed that a significant majority (67.7%) believe that these practices continue to be fundamental, even in the face of the advancement of educational technologies. On the other hand, 19.4% of the participants pointed out the need to adapt traditional games to integrate digital elements. Also, 9.7% of the teachers stated that they perceived a loss of relevance of traditional games and 3.2% stated that they did not see a relationship between these practices and the digitized context.

Table 6

Traditional games in a digital environment

Perception of the Relationship with Digital	Percentage (%)
They remain fundamental	67,7%
They must be adapted to digital	19,4%
They are losing relevance	9,7%
Have no relation to digital	3,2%

Source: Garbossa, Teresina Funez (2025).

4 DISCUSSION

According to Tardif (2002), teaching knowledge is not limited to initial training, but is continuously constructed and reconstructed throughout the career through practice, experience and continuing education. The significant presence of professionals with *lato sensu* graduate degrees suggests that there is an appreciation of this training process among teachers in the municipal network, in line with the perspective of Imbernón (2011), who defends continuous training as essential for teachers to face the challenges of educational practice and incorporate more significant methodologies, such as the pedagogical use of games.

In addition, the presence of teachers with *stricto sensu* training also reinforces the idea of a professional qualification at more advanced levels, allowing greater capacity for critical analysis of the teaching and learning processes. Studies such as that of Libâneo (2013) indicate that teachers with greater training tend to plan more reflective practices, centered on the student, and open to innovation — which can contribute significantly to the appreciation and resignification of traditional games in contemporary school contexts.

These results reinforce the understanding that traditional games still occupy a relevant place in the pedagogical imaginary, especially with regard to the promotion of interactions, cooperation, empathy and conflict resolution among students. According to Vygotsky (1998), playing favors the internalization of social rules and the development of language and coexistence, functioning as a symbolic space that expands the possibilities of action and learning of the child in society.

In addition, Kishimoto (2002) highlights that traditional games allow students to experience collective and cultural experiences, contributing to the construction of affective and social bonds in the school environment. The predominance of favorable responses among the teachers participating in the research corroborates this perspective, indicating that the use of these activities is not restricted to recess or free time, but is perceived as an effective pedagogical tool for integral development.

However, the presence of a minority that sees this contribution as limited (9.7%) may indicate challenges such as the lack of structured planning, the scarcity of adequate spaces or even teacher training that does not sufficiently contemplate the educational potential of play. This perception reinforces the need for public policies and training actions that value and qualify the pedagogical use of traditional games as an integral part of the teaching and learning process.

As Kishimoto (2011) points out, the space reserved for play at school should go beyond isolated or recreational moments, and it is necessary to integrate them into the curriculum as an intentional resource for learning. When their use occurs in a restricted way, the educational and formative power of these practices in the development of children and adolescents is lost.

The predominance of responses that recognize a limited presence may be related to factors such as the pressure for academic results, the rigidity of school content, the lack of specific training and the scarcity of time or adequate physical space for playful practices. Imbernón (2011) emphasizes that the continuing education of teachers is essential to broaden the understanding of playfulness as an integral part of the educational process and not as something accessory or secondary.

Although no teacher indicated the complete absence of space for play, the fact that almost two-thirds see this presence as restricted points to the need for more structured pedagogical policies that encourage the adoption of playful methodologies in a planned and continuous manner. This also implies a review of the curricular organization and the school environment, as Santos (2010) suggests, so that a more dynamic, participatory and meaningful education can be fostered.

According to Imbernón (2011), the integration of innovative and playful practices in the curriculum depends, to a large extent, on institutional support and school culture that values play as a learning tool. The sporadic incentive may reflect the absence of clear guidelines in the pedagogical proposals, as well as the lack of training aimed at the conscious use of games as a methodological resource.

The presence of 12.9% of professors who were unable to inform about the incentive also points to possible gaps in communication between management and faculty, or even to the lack of clarity regarding the institutional objectives and goals related to playfulness.

In this sense, it is essential that schools promote awareness-raising actions, continuing education and collective planning that strengthen the understanding of traditional games as significant components of the teaching-learning process. As defended by Kishimoto (2011), these practices should not be seen as mere recreational instruments, but as intentional pedagogical strategies that contribute to the integral development of students.

These results indicate a strong recognition by teachers of the role of traditional games as intangible cultural heritage, which is in line with the notes of Brougère (1998), who defends play as a social practice that carries historically constructed values, knowledge and

meanings. The significant presence of positive responses suggests that educators understand that traditional games, in addition to promoting child development, act as instruments for the transmission of popular knowledge, customs and local identities.

The teachers' perception captured by the research is also in line with the proposal of the National Curriculum Parameters (BRASIL, 1997), which defend respect for cultural diversity and the encouragement of the appreciation of cultural manifestations in the school environment. In this sense, by integrating traditional games into pedagogical planning, the teacher contributes not only to learning, but also to the cultural and civic formation of students.

Thus, promoting traditional games in the classroom is not only a playful strategy, but also an act of cultural resistance, especially in times of globalization and homogenization of children's practices. The challenge, therefore, is to keep these manifestations alive in the school routine, recognizing their symbolic and formative value.

On the other hand, 19.4% of the participants pointed out the need to adapt traditional games so that they integrate digital elements, evidencing an openness to hybridization between cultural practices and technological resources. This position dialogues with Moran (2015), who proposes the balanced integration between traditional technologies and pedagogical methods.

Despite this, 9.7% of the teachers stated that they perceived a loss of relevance of traditional games in the face of digital technologies, and 3.2% stated that they did not see a relationship between these practices and the digitized context, indicating that there is still resistance or difficulties in articulating playful practices with the contemporary scenario.

In this scenario, it is essential to promote training actions that encourage the rescue and reinvention of traditional games, reconciling them with the demands of the twenty-first century. As Imbernón (2011) points out, teacher training should enable teachers to reflect on the use of technologies without this implying the denial of cultural practices that are important for the constitution of students' identity.

5 CONCLUSION

The data obtained in the survey reveal that Elementary School II teachers widely recognize the importance of traditional games for the development of students, especially in aspects such as socialization, identity construction, cultural preservation and promotion of socio-emotional skills. Most teachers understand that these practices maintain their value

even in the face of the digitalization of teaching, even if some point to the need for methodological adaptations or present uncertainties about their applicability.

Despite the recognition of its relevance, the results indicate that the use of traditional games is often still punctual or restricted. Among the main challenges, the lack of time in pedagogical planning, the lack of adequate spaces, and the growing influence of digital technologies on students' interests stand out. These factors highlight the urgency of continuing education actions aimed at valuing play, as well as educational policies that guarantee infrastructure and pedagogical time for cultural practices integrated into the curriculum.

Thus, it is reaffirmed that traditional games are not only recreational resources, but powerful and inclusive pedagogical instruments, capable of promoting meaningful learning. For this, they need to be (re)known, strengthened and reinvented in the school context, guaranteeing new generations the right to play, learn and develop in an education that respects and values cultural diversity.

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DYSLEXIA AND THE CHALLENGES IN LITERACY: AN INTEGRATIVE LITERATURE REVIEW

DISLEXIA E OS DESAFIOS NA ALFABETIZAÇÃO: UMA REVISÃO INTEGRATIVA DA LITERATURA

LA DISLEXIA Y LOS DESAFÍOS DE LA ALFABETIZACIÓN: UNA REVISIÓN BIBLIOGRÁFICA INTEGRADORA

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ABSTRACT

Dyslexia is a learning disorder of neurological origin, characterized by difficulty in decoding and spelling words. It is one of the learning disorders that affects writing and reading and consequently interferes with the literacy process. The objective of this study was to understand how the literacy process occurs in children with dyslexia. This is a literature review conducted using the electronic databases Capes, PubMed/Medline, Scielo, and BVS, considering the last 15 years. The descriptors used for the search were: Dyslexia, literacy, inclusion, interventions, assistive technology, educational strategies, and teaching practice. Sixteen articles addressing the literacy process of dyslexic children were selected. It was observed that the literacy of dyslexic children depends not only on the literacy process itself, but also on the child, the teacher, the methodology, the parents, and, above all, environmental influences. Dyslexia makes the literacy process even more complex, requiring a review of pedagogical practices to ensure a more inclusive and high-quality education for all.

Keywords: Dyslexia. Literacy. Student. Teacher.

RESUMO

A dislexia é um distúrbio de aprendizagem de origem neurológica, que se apresenta na dificuldade de decodificar e soletrar palavras. É um dos transtornos de aprendizagem que afeta a escrita e a leitura e consequentemente interfere no processo de alfabetização. O objetivo deste estudo foi compreender como ocorre o processo de alfabetização da criança com dislexia. Trata-se de uma revisão bibliográfica realizada por meio das bases eletrônicas de dados Capes, PubMed/Medline, Scielo e BVS, considerando os últimos 15 anos. Os descritores utilizados para busca foram: Dislexia, alfabetização inclusão, Intervenções, Tecnologia assistiva, estratégias educacionais e prática docente. Foram selecionados 16 artigos que abordavam sobre o processo de alfabetização de crianças disléxicas. Percebeu-se que a alfabetização de crianças disléxicas não depende somente do processo de alfabetização em si, mas também da própria criança, do professor, da metodologia, dos pais e, sobretudo, das interferências ambientais. A dislexia torna o processo de alfabetização

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ainda mais complexo sendo necessário rever as práticas pedagógicas para que possamos garantir uma educação mais inclusiva e de qualidade para todos.

Palavras-chave: Dislexia. Alfabetização. Aluno. Professor.

RESUMEN

La dislexia es un trastorno del aprendizaje de origen neurológico, caracterizado por la dificultad para decodificar y deletrear palabras. Es uno de los trastornos del aprendizaje que afecta la escritura y la lectura, interfiriendo así en el proceso de lectoescritura. El objetivo de este estudio fue comprender cómo se desarrolla el proceso de lectoescritura en niños con dislexia. Se realizó una revisión bibliográfica en las bases de datos electrónicas Capes, PubMed/Medline, Scielo y BVS, considerando los últimos 15 años. Los descriptores utilizados para la búsqueda fueron: dislexia, lectoescritura, inclusión, intervenciones, tecnología de asistencia, estrategias educativas y práctica docente. Se seleccionaron dieciséis artículos que abordaban el proceso de lectoescritura en niños disléxicos. Se observó que la lectoescritura en niños disléxicos depende no solo del proceso de lectoescritura en sí, sino también del niño, el docente, la metodología, los padres y, sobre todo, de las influencias ambientales. La dislexia complejiza aún más el proceso de lectoescritura, lo que requiere una revisión de las prácticas pedagógicas para garantizar una educación más inclusiva y de alta calidad para todos.

Palabras clave: Dislexia. Lectoescritura. Estudiante. Maestro.

1 INTRODUCTION

It is known that the literacy process, that is, the acquisition of reading and writing, is not simple. On the contrary, it is a complex phase that demands a lot from students and teachers. But the complexity of this process is accentuated when it occurs with dyslexic children, because they, according to the Brazilian Association of Dyslexia (2016), have difficulties in decoding and spelling skills.

Dyslexia is considered a specific learning disorder of neurobiological origin, characterized by difficulty in accurate and/or fluent word recognition, decoding and spelling skills. These difficulties usually result from a deficit in the phonological component of language (ASSOCIAÇÃO BRASILEIRA DE DYSLEXIA, 2016).

Despite being submitted to conventional instruction, adequate intelligence, sociocultural opportunity and not having fundamental cognitive and sensory disorders, the child fails in the process of language acquisition. Dyslexia presents in various forms of difficulties with different forms of language, often including problems with reading, acquisition, and ability to write and spell (MASSI, 2007, p. 44).

The ICD, International Classification of Diseases, recognizes dyslexia under code F 81.0, as a specific reading disorder, which reflects on learning from the early stages of development (ICD-10, 1993). And the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV), prepared by the American Psychiatric Association, recognizes dyslexia, under code 315.00, as a reading and writing difficulty specifically related to childhood and adolescence.

In addition, dyslexia is a hereditary disorder, therefore genetic, in which it hinders the learning of reading and writing. Dyslexics exchange letters and sounds and often have difficulty understanding words and texts. Therefore, many parents may have dyslexia and are unaware of it.

Remembering that when we refer to dyslexia we are talking about difficulty and not disability, which Fonseca emphasizes very well:

The concept of difficulty does not encompass any global disturbance of intelligence or personality, intact and intact learning potential, and the children are intact, therefore not disabled. The prefix "DIS" (dyslexia, dysgraphia, dyscalculia) involves the notion of difficulty that may or may not be linked to brain dysfunction. On the contrary, the concept of disability includes problems of varying severity, expressing a functional disorganization. (FONSECA, 1995, p.197).

Another aspect to be remembered is that "children with dyslexia have difficulty in phonological decomposition, but speech comprehension is intact and reading, when present, is slow or syllable (ALVES, 2014, p.17).

Most of the signs of dyslexia appear during the literacy phase. But there are those that start before the school phase, as pointed out by the Brazilian Dyslexia Association: dispersion; poor attention development; delayed speech and language development; difficulty learning rhymes and songs; poor development of motor coordination; difficulty with puzzles; lack of

In the school phase, more specifically in the literacy phase, the ABD (Brazilian Dyslexia Association, 2016) highlights the following signs:

problems recognizing or writing words; inversion of letters; difficulty distinguishing certain sounds between vowels and consonants; limited knowledge of rhyme (equal sounds at the end of words) and alliteration (equal sounds at the beginning of words); inattention and dispersion; difficulty in copying books and blackboards; difficulty in fine motor coordination (letters, drawings, paintings) and/or gross motor coordination (gymnastics, dance). (BRAZILIAN DYSLEXIA ASSOCIATION, 2016)

Other signs also pointed out by the Association are: slowness, general disorganization, constant delays in the delivery of school work and loss of their belongings. Confusion to name between left and right; difficulty in handling maps, dictionaries, telephone directories, etc. Limited vocabulary, struggling with short, immature or long, vague sentences. (BRAZILIAN DYSLEXIA ASSOCIATION, 2016)

Once these signs or most of them are observed, the ABD (Brazilian Association of Dyslexia) indicates that for the diagnosis the child or adolescent should be referred to a multidisciplinary team, with psychopedagogues, speech therapists and/or neurologists, who are the professionals who will make the diagnosis or not of Dyslexia. The earlier the diagnosis, the better the individual's performance in school and social life.

The diagnosis is made through a multidisciplinary evaluation with the professionals mentioned above, which according to the Brazilian Association of Dyslexia (2016), includes consultations, auditory processing and audiometry, auditory training in the cabin and neurological examination.

For Alves (2014), the professionals responsible for the diagnosis cannot ignore the observations of parents and the school. Reports from teachers should be requested and

interviews with family and very close people should be done. The history and reality of this child's life must be considered.

With the diagnosis in hand, the school and the family have important roles in the treatment and development of the dyslexic child, so that the dyslexic has the necessary support and more security. It is essential to consider the positive abilities of the child with dyslexia, so that he will feel capable of performing the proposed activities. The treatment is carried out inside and outside the classroom.

The teacher must have a different look at the specificities of the dyslexic, proposing the child to work in group activities so that he feels included in the class. In addition, differentiated practices and assistive technologies must be used. The rhythm of the child with dyslexia is different and it is up to the teacher to respect and adapt to this (ALVES, 2014). However, it is necessary to modify the practice by making it more inclusive, interesting and motivating.

If the teacher is a literacy teacher, attention and care must be doubled, especially in relation to:

1. Confusion between letters, syllables or words with subtle differences in spelling (a-o, c-o, e-c, f-t, h-n, i-j, v-u, etc.);
2. Confusion between letters, syllables or words with similar spelling, but with different orientation in space (b-d, p-b, b-q, n-u, a-e);
3. Partial or total inversions in the composition of syllables or words (me-em; sol-dos; som-mos; sal-las; pal-pla);
4. Substitution of words for others more or less similar or creation of words, but with different meanings (released-saved; was-stayed);
5. Additions or omissions of sounds, syllables or words (famous-fame; coat-house);
6. Repetitions of syllables, words or phrases;
7. Skipping a line, going back to the previous line, and losing the line when reading;
8. Excessive fixation of the eye on the line;
9. Defective spelling recognizes letters in isolation, but without being able to organize the word as a whole, or else reads the word syllable by syllable, or even reads the text word by word;
10. Comprehension problems;
11. Mirror reading, exceptional cases;
12. Eligibility. (ALVES, 2014, p.13)

In addition, the literacy method that will be used with the dyslexic student is also something to worry about. There are several methods, all of which have their pros and cons, but for dyslexics Muszkat and Rizzutti (2012) highlight:

[...] two literacy methods are especially indicated for individuals with dyslexia: the Multisensory Method and the Phonic Method. While the Multisensory Method is the most suitable for older children, who already have a history of school failure, the phonic method is indicated for younger children and should be introduced at the beginning of Literacy (MUSZKAT; RIZZUTTI, 2012, p. 69).

In the same way that it is not easy for the child, it is not easy for the teacher either. There are numerous concerns of the teacher and it is common for the teacher not to feel prepared, but this insecurity cannot harm the student. It is up to the teacher to fulfill his role and seek knowledge. To help teachers, Alves (2014) brings 15 recommendations and strategies:

1. Treat the student naturally and respect his difficulty, he is a student like any other, he just has dyslexia;
2. Many dyslexics have difficulty understanding symbolic language (more elaborate), requiring the use of objective, clear and direct language. Using sentences, short and simple texts to convey instructions;
3. Provide one instruction at a time. Dyslexics have difficulty remembering more than one order;
4. Prefer to look directly at the student, this facilitates and helps communication;
5. Make sure that the student understood your explanations and whenever necessary repeat it, many times they say that they understood, but by their expression (physiognomy), we realize that there was no understanding, and it is necessary to repeat it as many times as necessary, or in different ways;
6. Observe if the student makes notes on the blackboard before it is erased, help him to get organized;
7. Stimulate the student in what he is more easily in. Trying to find out what his other skills are, contributing to making him feel more confident and capable. Always strengthen his self-esteem, he needs it a lot;
8. Do not put the student in evidence by asking him to read it aloud. Sometimes separately is better;
9. The dyslexic tends to deal better with the parts than with the whole, global and deductive approaches and methods are difficult to understand. Present the knowledge in parts in an inductive way;
- 9.1 - When carrying out activities/assessments, use letters with a reasonable size and sharp spacing;
- 9.2 The space of the question and the answer must be on the same clean test sheet, without erasures, without scratches or signs so that they confuse the student;
10. Do a larger number of questions and smaller size, this is more efficient than applying very long questions;
11. Drawings, figures, diagrams, graphs, flowcharts, can eventually replace many words and lead to the same goals;
12. Allow the use of multiplication tables, formulas, calculators, computer and other resources when necessary;
13. Give him the option of taking an oral test or diversified evaluative activities. Use different expressions and languages;
14. Read the questions to him one at a time make sure he understands what is being asked. Respect their rhythm by allowing them, when necessary, to complete it in the next class or elsewhere (orientation room, library, support room);
15. Adapt the correction criteria to the reality of the dyslexic student, what you know he understood. Check orally what he meant by what he wrote. Research the nature of the mistakes made: did you make a mistake because you didn't understand what you

read? Did you make a mistake because you didn't know how to apply the concept you learned, because you understood what you read? Did you apply the concept, but did you develop the reasoning in the wrong way? In short, in what did he go wrong and why did he go wrong? (ALVES, 2014, p.17 and 18)

In view of the numerous dilemmas that the teacher, the family and the dyslexic child encounter, especially during literacy, we seek to understand how the literacy process of the child with dyslexia occurs.

The execution of this study is also justified by the personal needs of the teachers who authored this study, which arose through an intervention work carried out with a child diagnosed with dyslexia, in which his teacher did not know about the diagnosis, thus disregarding the difficulties and limitations of her student. From interventions such as: analysis of the medical report, student pedagogical practices/specific assistive technologies for those with dyslexia, it was possible to understand the difficulties reported by the child and the teacher and thus facilitate the reading and writing process in which the child had immense difficulty. From this, the importance of analyzing the challenges in the literacy of children with dyslexia was perceived in order to support appropriate intervention strategies. Therefore, the objectives of this study were to identify which practices and assistive technologies are most used in the inclusion of dyslexic children in the classroom and to understand the contribution of the family in relation to the literacy process and treatment of dyslexia.

2 MATERIALS AND METHOD

This is a literature review study seeking to understand the literacy process of children with dyslexia, through Scientific Articles that met the intended theme. The articles of interest were selected according to the inclusion criteria: complete works available online that were published in indexed journals that met the proposed theme.

A search was conducted for articles published in the Scielo, Capes, VHL and Pubmed databases. The descriptors used in the search for articles were: "Dyslexia, literacy, inclusion, Interventions, Assistive technology, educational strategies and teaching practice". The date of publication of the articles has been limited in the last 15 years.

The following exclusion criteria were used: articles that referred to dyslexia unrelated to the literacy process, works related to speech therapy and the pathological aspect unrelated to literacy.

3 RESULTS

A dense survey of articles was carried out in the Scielo, Capes, VHL and Pubmed databases. However, in order to delimit the theme proposed here, the following exclusion criteria were used: articles that referred to dyslexia, but were not related to the literacy process, works related to speech therapy and the pathological aspect unrelated to literacy. After this delimitation, we selected 16 articles that will be analyzed in the following table:

Table 1

	Title	Authors	Year	Method and Research Subjects	Result	Conclusion
1	Characterization of the performance of children with developmental dyslexia in writing tasks	Andréa Carla Machado and Simone Aparecida Capellini	2011	Writing tasks with Six children of both sexes, from the 3rd to the 7th school year.	Children with developmental dyslexia showed alterations in relation to the activities: Writing isolated words and Writing dictated words, positioning themselves below the expected for schooling, presenting phonological and spelling.	It is important that children with school complaints make a more specific assessment regarding these tasks.
2	Performance of students with developmental dyslexia in phonological and syllabic tasks	Giseli Donadon Germano, Fábio Henrique Pinheiro, Simone Aparecida Capellini	2009	Sequential Assessment Instrument CONFIAS. Mann-Whitney Test and Signaled Posts Test-Wilcoxon .26 pupils aged eight to 12 years, of 2nd. the 4th. Elementary School Grades	Improved performance of GII in relation to GI regarding phonemic and syllabic tasks. The IG showed a statistically significant difference in the syllabic and phonemic tasks, with better performance in the former. Among the students in GII, there was no great statistical difference between syllabic tasks, only between phonemic tasks.	Schoolchildren with developmental dyslexia have difficulties in identifying rhyme and production of words with the given sound, pointing to a deficit in accessing phonological codes and representations.
3	Changes in the written language of schoolchildren in the literacy phase from the point of view of teachers	Gleide Viviani Maciel Almeida, Lorena de Cássia Kozłowski, Jair Mendes Marques	2017	The Fisher test was used as a statistical instrument. 21 teachers who teach in the literacy cycle (1st to 3rd year) in schools in Cajati/SP	Difference in the proportion of the history of language disorders prior to schooling, being greater in the final school year. The comprehension of the context of the texts with ease, related to the year attended by	Delay in language acquisition can impair the literacy process, which includes pragmatic ability and expressive function.

					the students is higher among the students of the early years and the proportion of students who express their ideas through writing is significantly higher (0.0389) among the students of the period in the afternoon.	
4	Effectiveness of a phonological intervention program in schoolchildren at risk for dyslexia	Cláudia da Silva and Simone Aparecida Capellini	2015	Phonological intervention program. And application of the Protocol for the Assessment of Cognitive Skills-Linguistic – collective and individual version. 40 schoolchildren from the 1st year of elementary school	In the comparison of the pre- and post-test of the performance of GI and GII students, there was a statistical difference for the subtests of reading, writing, phonological awareness, auditory processing and processing speed skills, indicating a higher average performance for GII in the post-test compared to the pre-test.	The phonological intervention program was effective for students at risk for dyslexia, as it enabled the development of phonological awareness through interventional work, helping in the acquisition of the skills necessary for learning to read and write.
5	Dyslexia: Learning difficulties and the role of the school in the understanding and care of students with oral and oral language disorders. Writing	Alaíde Lopes da Silva	2015	Participant observation, field diary and interview with a semi-structured script. The subjects of the research were teachers, parents and a psychopedagogue and dyslexic student.	There is a lack of service with pedagogical actions that fully contemplate the learning of dyslexic in the classroom.	Teachers are aware of the definition of dyslexia and its implications for the acquisition of oral and written language.
6	A Importance of early stimulation in cases at risk for dyslexia: an approach psychopedagogical	Déborah Alcântara to Prósperi Caridá; and Mônica Hoehne Mendes	2012	Literature review	The need for multidisciplinary diagnosis in a scenario with suspected dyslexia is emphasized	The relevance of psychopedagogical evaluation, with a view to the elaboration of emotional and cognitive strategies, so that the social environment and school life are not seen as a threat.
7	Reading of students with development	Giovanna Beatriz Kalva	2019	Reading and executive function tests	The EG performed better than the GCD in reading single words.	Dyslexics' participation in an intervention

	al dyslexia: impacts From an intervention with phonic method associated with stimulation of Executive functions ¹	Medina and Sandra Regina Kirchner Guimarães		and psychopedagogical session with Seven students with dyslexia with an average age of 10.7 years	In reading comprehension, both groups of dyslexics progressed in their performance, but not significantly. The intervention did not affect the EF performance of cognitive flexibility and working memory. The GE improved in verbal fluency spelling and inhibitory control. The performance of the ICG and LCG had no significant change in phonemic awareness, word reading, sentence and text comprehension, and in most FEs.	focusing on the development of phonemic awareness, reading and executive functions was efficient in promoting their performance in reading, notably the reading of Words isolated.
8	I know from fundamental education teachers about dyslexia.	Isabelly Silva do Nascimento, Angélica Galindo Carneiro Rosal and Bianca Arruda Manchester de Queiroga	2018	Semi-structured interview with teachers from the 1st to the 5th year of elementary school.	The content analysis made it possible to identify three thematic categories: 1. Teacher training is not addresses the theme of dyslexia; 2. Feelings and difficulties of the literacy teacher in the face of the challenge of literacy; 3. Living with the lack of knowledge about dyslexia: school management of possible dyslexic children.	The research revealed the lack of knowledge of literacy teachers about the theme of dyslexia, despite having higher education and postgraduate degrees, as well as participating in training offered by the municipal education network.
9	Dyslexia at school: Identification and Possibility of Intervention.	Sônia das Dores Rodrigues and Sylvia Maria Ciasca.	2016	Literature review	The teacher, in his daily practice, is an essential element not only for the identification of dyslexia risk factors, but also for its diagnosis and intervention.	Adequate psychopedagogical intervention in the school context is possible and feasible, as long as there is constant study, continuing education and, above all, involvement and perseverance on the part of the school.

10	Effectiveness of a phonic intervention program for children with reading and writing difficulties.	Elizabete Maria de Almeida Andrade; Tatiana Pontrelli Mecca; Roselain and Pontes de Almeida; Elizeu Coutinho de Macedo.	2014	Phonic intervention. The pre- and post-intervention evaluation was performed with the Reading and Writing Assessment Battery (BALE). Children in the 3rd and 4th grades of Elementary School.	There was a significant improvement in EG in relation to CG2 in BALE, and in phonological awareness and in the intervention stages, CG1 showed significant gains, while CG2 remained stable.	Although the effect of schooling was greater for children without difficulties, children with reading and writing difficulties benefited from the use of the phonic method.
11	Dyslexia and dysgraphia: Difficulty in language.	Elisabeth Caldeira; Dulce Maria Lázaris de Oliveira Cumiotto	2004	Literature review	The various factors that cause the most frequent linguistic disorders in classrooms and responsible for the difficulties in the teaching-learning process need to be monitored and corrected and, for this, some activities were proposed in this work.	Diversifying methodologies and strategies, interspersed with specialized professional monitoring, is, without a doubt, the surest path to success throughout school life for students with the dyslexia and dysgraphia.
12	Dyslexia: attitudes of Inclusion	Maria Angélica Moreira Rocha; Maria Arminda S. Tutti Cabussú; Vitória Galvão Soares; Rita Lucena.	2009	Application of questionnaires to school staff, parents and students. 22 students, eleven males and eleven females, aged 8 to 15 years, including their respective guardians and educators of the schools involved.	Students feel excluded, with low self-esteem. The parents maintain a good relationship with the educators, are satisfied with the school's work, but are unaware of the strategies used to facilitate their child's learning. Educators, on the other hand, point out as difficulties, to do a good job, the lack of knowledge about learning disorders and the lack of a pedagogical project that meets diversity.	Inclusive education is a project to be built by everyone, family and population in general, and will only be successful when attitudes towards school inclusion are positive. Among the difficulties For this work, there is the lack of knowledge about the difficulties and the lack of a pedagogical project that meets the diversity.
13		Vitor da Fonseca.	2009	Literature Review	The difficulty in learning to read is	A cognitive approach to

	Dyslexia, cognition and learning in: a neuropsychological approach to learning difficulties in reading.				presented as a dysontogenesis of the continuous process of language development, encompassing the duplication of the functions of spoken language (1st symbolic system) in written language (2nd system symbolic).	learning to read and write is therefore a new challenge for education and training systems.
14	Knowing the dyslexia and the importance of the interdisciplinary team in the diagnostic process.	Sther Soares Lopes da Silva.	2009	Literature review	Describe dyslexia and its manifestations for the correct treatment, thus minimizing the emotional and behavioral impacts on the child.	It verified the need for more research on the subject and that professionals in both education and health understand that the diagnostic and intervention process are carried out by an interdisciplinary team.
15	Tools development Pedagogical Guidelines for the identification of schoolchildren at risk for dyslexia.	Olga Valéria Campana of the Anjos Andrade; Paulo Sérgio Teixeira do Prado; Simone Aparecida Capellini.	2011	FAE Tasks (Alternative Tools for educator) with 45 schoolchildren, of both genders, with a mean age of 7 years and 4 months.	The protocol has proven its effectiveness by confirming that the conscience phonological memory, verbal working memory, and rapid naming are the main risk factors for dyslexia.	It is possible to develop activities pedagogical adapted to the reality of the classroom that work as tools for identifying students at risk for dyslexia.
16	Test for Identification of Signs of Dyslexia: construction process	Rauni Jandé Roama Alves; Ricardo Franco de Lima; Cintia Alves Salgado Azoni; Mariana Coelho Carvalho	2015	Test for Identification of Signs of Dyslexia with Children in the age group between 8 and 11 years.	The test can be classified as a brief neuropsychological instrument, since it provides screening of the most commonly assessed cognitive-linguistic abilities in individuals at risk for this specific learning disorder.	Future studies are needed in order to verify evidence of the validity and reliability of the instrument.

		; Sylvia Maria Ciasca.				
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Source: by the authors.

When conducting the literature review, it was noticed that half of the studies were carried out with children and adolescents aged 6 to 15 years as the subjects of the research; Only three articles had teachers as subjects, and in one of these the teacher was not the exclusive subject, he was the subject together with the child and his parents. Only two articles presented the parents of dyslexic children as the subject of the research and six articles were of the bibliographic review type. Therefore, it was found that there is a lack of research on dyslexia and teaching practice.

The literature review also showed that the literacy of dyslexic children does not depend only on the literacy process itself, but also on the child himself, the teacher, the methodology, the parents and, above all, on environmental interferences. Literacy is more complex and will depend on everyone involved.

4 DISCUSSION

According to Almeida; Kozlowski, and Marques (2015) can be considered that in the literacy process a delay in language acquisition can harm the literacy process, which includes pragmatic ability and expressive function Andrade, Mecca, Almeida and Macedo (2014) who observed that children with reading and writing difficulties benefited from the use of the phonic method.

In the study by Rocha, Cabussú, Soares and Lucena (2013) it was pointed out that there are methodological flaws in the literacy of children with dyslexia, as a pedagogical project that meets diversity. Just as Caldeira and Cumiotto (2004) pointed out that it is necessary to diversify methodologies and strategies, interspersed with specialized professional monitoring, Andrade, Prado and Capellini (2011) emphasize the importance of developing collective pedagogical activities adapted to the reality of the classroom that function as tools for identifying CS

Regarding teachers, the studies by Nascimento, Rosal and Queiroga (2018) detected the lack of knowledge of literacy teachers on the subject of dyslexia, despite having higher education and postgraduate degrees, as well as participating in training offered by teachers. Silva (2015) pointed out that teachers are aware of the definition of dyslexia and its

implications in the acquisition of oral and written language, but there is a lack of service with pedagogical actions that fully contemplate the learning of dyslexic in the classroom.

Regarding the diagnosis of Dyslexia, Caridá and Mendes (2012) highlight that "the need for multidisciplinary diagnosis in a scenario with suspected dyslexia is emphasized" For Rodrigues and Ciasca (2016) "the teacher, in his daily practice, is an essential element not only for the identification of dyslexia risk factors, but also for its diagnosis and intervention. But Silva (2009) emphasizes that it is necessary that "professionals, both in education and in the health area, understand that the diagnostic and intervention process is carried out by an interdisciplinary team."

For Machado and Capellini (2011) it is important that children with school complaints make a more specific assessment. For Germano, Pinheiro, Capellini (2009) children "have difficulties in identifying rhyme and producing words with the given sound, pointing to a deficit in accessing phonological codes and representations".

We had little perspective regarding the parents, as only the study by Rocha, Cabussú, Soares and Lucena (2009) pointed out that they "are satisfied with the school's work, but are unaware of the strategies used to facilitate their child's learning".

When addressing dyslexia, we consequently speak of interventions and resources. In this sense, Silva and Capellini (2015) consider that "the phonological intervention program was effective for students at risk for dyslexia, as it enabled the development of phonological awareness through intervention work, helping in the acquisition of the skills necessary for learning to read and write"

Medina and Guimarães (2019) highlight that "An intervention focusing on the development of phonemic awareness, reading, and executive functions was efficient in promoting their performance in reading, notably the reading of isolated words".

In addition, Rodrigues and Ciasca (2016) consider that adequate psychopedagogical intervention in the school context is possible and feasible, as long as there is constant study, continuing education and, above all, involvement and perseverance on the part of the school. According to Caridá and Mendes (2012), psychopedagogical evaluation, for the elaboration of emotional and cognitive strategies, so that the social environment and school life are not seen as a threat should also be considered.

We must emphasize what Fonseca (2009) says: "A cognitive approach to learning to read and write is, therefore, a new challenge to education and training systems".

Rocha, Cabussú and Lucena (2009) emphasize that inclusive education is a project to be built by everyone, family, student, school and population in general, and will only be successful when attitudes towards school inclusion are positive. For this, Alves, Lima, Azoni, Carvalho and Ciasca (2015) point out that more research on the subject is needed.

5 FINAL CONSIDERATIONS

The lack of knowledge and experience with effective classroom practices in the literacy process in children with dyslexia is the biggest challenge. The professionals feel unprepared and without support from the school to deal with these students.

It is suggested that during the training of education professionals this subject be the subject of further studies and discussions, deepening the context of these practices, whether phonological or methodological, in order to ensure a better training of the professionals who enable the school performance of these children, especially in the literacy phase.

It was noted how essential the partnership between school and family is in the literacy process, because through constant support the child will feel capable and safe to overcome their difficulties, thus avoiding the feeling of rejection and school failure.

Inclusion takes place in a precarious and disorganized way and for this reason it is necessary to review pedagogical practices so that we can guarantee quality education for all, as each individual is unique and must be respected in their differences.

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**DEVELOPMENT OF SOCIO-EMOTIONAL SKILLS IN THE BASIC EDUCATION
SCHOOL ENVIRONMENT: A RELEVANT REFLECTION**

**DESENVOLVIMENTO DE COMPETÊNCIAS SOCIOEMOCIONAIS NO
AMBIENTE ESCOLAR DA EDUCAÇÃO BÁSICA: UMA REFLEXÃO
PERTINENTE**

**DESARROLLO DE HABILIDADES SOCIOEMOCIONALES EN EL ÁMBITO
ESCOLAR DE EDUCACIÓN BÁSICA: UNA REFLEXIÓN RELEVANTE**

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ABSTRACT

Competencies are fundamental for the integral development of students and for academic and professional success. In the school context, socio-emotional competencies are essential to promote coexistence, inclusion, and the well-being of students. This article aims to reflect on the importance of socio-emotional competencies in the school environment and strategies to promote the development of these competencies in basic education students. This research is based on the technical procedures of bibliographic research. It highlights the existence of various actions that can be taken by basic education teachers based on mediation criteria that stimulate socio-emotional competencies in the school environment. The results of this research allow us to conclude that there is relevance in addressing socio-emotional competencies in basic education to improve pedagogical action and stimulate teamwork and active reflection among students, thus generating more meaningful learning permeated by student protagonism.

Keywords: Socio-emotional Competencies. Emotional Intelligence. School Environment. BNCC (Brazilian National Curriculum Base).

RESUMO

As competências são fundamentais para o desenvolvimento integral dos alunos e para o sucesso acadêmico e profissional. No contexto escolar, as competências socioemocionais são essenciais para promover a convivência, a inclusão e o bem-estar dos estudantes. Este artigo tem como objetivo refletir sobre a importância das competências socioemocionais no ambiente escolar e suas estratégias para promover o desenvolvimento dessas competências em estudantes da educação básica. Trata-se de uma pesquisa pautada nos procedimentos técnicos da pesquisa bibliográfica. Destaca-se a existência de variadas ações que podem ser feitas pelos docentes da educação básica a partir dos critérios de mediação que estimula as competências socioemocionais no ambiente escolar. Os resultados desta pesquisa permitem concluir que existe relevância na abordagem das competências socioemocionais na educação básica para melhorar a ação pedagógica e estimular nos estudantes a

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colaboração em equipe e a reflexão ativa, gerando, assim, uma aprendizagem mais significativa permeada pelo protagonismo estudantil.

Palavras-chave: Competências Socioemocionais. Inteligência Emocional. Ambiente Escolar. BNCC.

RESUMEN

Las competencias son fundamentales para el desarrollo integral del alumnado y para el éxito académico y profesional. En el contexto escolar, las competencias socioemocionales son esenciales para promover la convivencia, la inclusión y el bienestar del alumnado. Este artículo busca reflexionar sobre la importancia de las competencias socioemocionales en el entorno escolar y las estrategias para promover su desarrollo en el alumnado de educación básica. Esta investigación se basa en procedimientos técnicos de investigación bibliográfica. Destaca la existencia de diversas acciones que el profesorado de educación básica puede implementar, basándose en criterios de mediación, para estimular las competencias socioemocionales en el entorno escolar. Los resultados de esta investigación permiten concluir que es relevante abordar las competencias socioemocionales en la educación básica para mejorar la acción pedagógica y estimular el trabajo en equipo y la reflexión activa en el alumnado, generando así un aprendizaje más significativo, permeado por el protagonismo estudiantil.

Palabras clave: Competencias Socioemocionales. Inteligencia Emocional. Entorno Escolar. BNCC (Base Curricular Nacional Brasileña).

1 INTRODUCTION

The development of socio-emotional skills in the school environment is an essential need to prepare students for daily life and two projections for the future. Schools need to adapt to this reality and seek to invest in this change in behavior, aiming to promote a more harmonious school environment that contributes to the formation of more balanced citizens who are aware of their role in society, that is, the formation of an integral human being capable of experiencing the hardships of daily life more emotionally strengthened. From this perspective, it is understood the need to insert in the classes the instigations and guidance on socio-emotional competences, regardless of the curricular component that is being taught, so that students, based on reflections in groups, can develop and strengthen affective, emotional and social bonds, vitalizing learning in the classroom.

Fonte (2019, p.61) states that "when we aim at the education of the individual in its full sense: individual, social, spiritual, cognitive and physical, we realize that the collaboration of all who live with him in the formative years is necessary." For this reason, it is very important to involve and monitor the family in the learning process, in the promotion of educational co-responsibility.

The development of this research was based on the fact that the need to see the other person as a partner in the life journey is becoming more and more clarified. And this learning can be started at the earliest age and be continued throughout school life, thus generating, in our understanding, the relevance of expanding knowledge related to the theme addressed in this research.

This is a research based on the technical procedures of bibliographic research on the importance of socio-emotional competencies in the school environment. Its general objective is to foster reflections on the theoretical foundations used in educational practice related to socio-emotional skills and emotional intelligence.

2 SOCIO-EMOTIONAL SKILLS AND EMOTIONAL INTELLIGENCE

The school environment is sometimes placed as a seesaw of sensations, which are aligned in an interweaving of facts and actions permeated by a range of emotionality that strengthen or weaken the sensory threads that are reflected in interpersonal and intergroup relationships on a daily basis. In the case of classroom teaching, this is very explicit, since the most varied skills are inserted in it, among them, technical, emotional, social, psychosocial and others that foster their pedagogical practice. In this sense, Chiavenato

(2010, p. 81) states that "People's human behavior is oriented towards the satisfaction of their personal needs and the achievement of their goals and aspirations."

Wallon identifies several stages in the development of personality, since, from birth, the human being experiences an extreme dependence on the people around him, especially with the mother, "The child's sensitivity extends to the environment; it reproduces its features and does not know how to distinguish itself from them" (Wallon, 2007, p. 121).

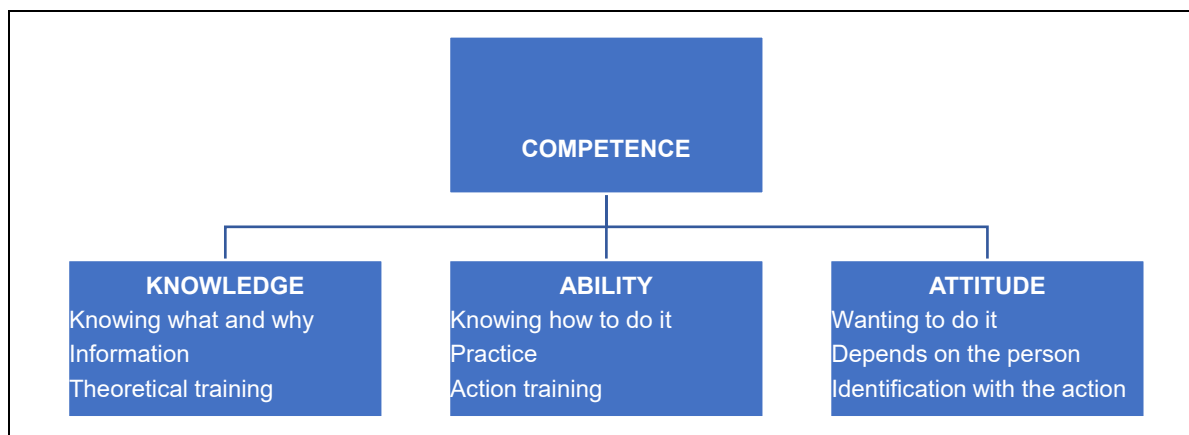
This initial period of life is essentially nourished by emotions and the child communicates through crying, because he does not know how to speak and express his needs. According to this author, in this relationship with maternal bond, a language nourished by emotionality emerges, in which the individual gradually conceives the awareness of himself and the world.

Following the development and growth of the person, this daily interaction with significant other people supports the construction of the individualization of this human being and the exercise of their emotional intelligence, based on situations, of agreement and/or opposition to other people and the world, which can be observed in the school environment or any socialization space that they are participating in throughout their life.

According to the Holanda dictionary (2010, p. 398) the word intelligence means "faculty of knowing, understanding and learning; ability to understand and resolve new problems and conflicts and to adapt to new situations. Zarifian (2001, p.72) emphasizes that "Competence is a practical understanding of situations that is based on acquired knowledge and transforms it as the diversity of situations increases". It is corroborated, therefore, with the ideas emerged by Oliveira et al (2008) when they emphasize that "for there to be total competence, it is necessary that theoretical knowledge be accompanied by the qualities and capacity that allow decisions to be executed."

Figure 1

Understanding the concept of competence



Source: figure created by the author of the research

In this sense, it is observed in figure 1 that the exercise of competence requires the accumulation of knowledge about something, the ability to know how to perform actions related to this knowledge and, mainly, the attitude, which is characterized by deciding to do something. This determination to do something must be aligned with the values of the individual who performs it, as it can generate consequences for themselves and for their surroundings. Currently, these socio-emotional skills are called *Soft skills*, especially in the business area.

For Robles (2012, p. 457) conceptually "*Soft skills* are character traits, attitudes and behaviors, rather than technical aptitude or knowledge". *Soft skills* are intangible, non-technical skills specific to the personality that determine strengths as a leader, facilitator, mediator and negotiator.

From this perspective, Swiatkiewicz (2014, p. 678), when dealing with universal/transversal skills, brings them closer to the understanding of socio-emotional competencies by stating that

Universal/transversal skills, non-academic and not related to the training or performance of technical functions, personality traits, goals, preferences and motivations, career attributes, such as: ability to communicate, dialogue, response, cooperation with others, teamwork/group work, ability to solve problems/conflicts, motivate, stimulate, encourage, facilitate, support, know how to adapt, creativity, initiative, knowing how to behave and having etiquette.

We agree with this author when he deals with these universal skills and the possibilities of behavioral improvement that can come from their exercise, especially if they are stimulated

in the school environment and that can help in shaping the personality if they are experienced earlier, stimulating emotional intelligence.

Currently in business environments, when exercising *Soft skills*, employees can, based on socio-emotional skills, manage their emotions, formulate goals, seek to achieve objectives, problematize situations, seek to solve problems, in addition to maintaining social relationships and making decisions responsibly. These situations can be experienced in work, social or school environments. The dynamics of work action in various environments has changed from the moment they began to identify that their employees can master both technical skills and demonstrate behavioral, emotional and social skills supported by socio-emotional skills in the performance of the tasks and actions proposed in the sectors in which they are included.

At school, this complexity of human coexistence can also be observed in various sectors. In the classroom, for example, when educators organize teamwork, problem solving, adaptation, creativity, there is an urgent need to exercise cognitive and sociobehavioral characteristics for the educational proposal to be successful, despite the level of complexity of the defined task. Fonte (2019) corroborates when he states that

Learning must be done together. Together, we can seek new paths, envision possibilities that meet the real interests of the life we have to face. All of this implies emotional intelligence. I don't think it's easy, but I believe that we are on the path and we need to unite to gather forces.

We agree with this author and also affirm that there is an urgent need to learn to deal with the new generation that is in school environments. We must be willing to learn in the same way that we must prepare ourselves to teach, thus transforming the school space into a space for the exchange of experiences and the realization of learning.

Regarding Emotional Intelligence (EI), psychologists Mayer and Salovey (1990, p. 189) defined it as "the ability of the individual to monitor the feelings and emotions of others and his own, to discriminate against them and to use this information to guide his own thinking and actions". (free translation) Subsequently, Mayer, Caruso and Salovey (2001) perfected this concept of Emotional Intelligence and highlighted the existence of the Quotient (EQ) which has four components, which are: the ability to perceive, evaluate and correctly express an emotion; the ability to generate or have access to feelings when they can facilitate their understanding of oneself or others; the ability to understand emotions and the knowledge

derived from them and the ability to control one's emotions to promote emotional and intellectual growth. Emotional intelligence implies both intrapersonal relationships and interpersonal and intergroup relationships.

Fernández-Berrocal et al. (2012) highlight that the development of emotional intelligence increases the feeling of well-being and helps to formulate people's concept of happiness, in addition to helping to cope with problematic situations, generating adaptation and regulation, which can increase the chances of success and minimize the possibility of failure.

It is understood, therefore, that an emotionally healthy person is one who experiences their emotions when they occur, who is frustrated with losses, who gets angry when something is out of their control, who seeks to understand their fears and inconstancies, but is also one who seeks to improve themselves daily by understanding their potentialities and weaknesses. For this reason, the promotion of education focused on the development of socio-emotional skills aims to form more understanding and problem-solving human beings.

The pillars of EI are shown in Table 1 below, according to Goleman (2007), who organized the conceptualization of Emotional Intelligence based on competencies, which include affective and cognitive skills, structured in five dimensions and two categories.

Table 1

The Pillars of Emotional Intelligence

IE-related dimensions		Skills	Competency Categories
1.	Knowledge of one's own emotions – Self-knowledge	Cognitive skills	Dealing with you
2.	Control of one's emotions – Self-control		Dealing with you
3.	Ability to motivate yourself – Self-motivation	Affective skills	Dealing with you
4.	Empathy		Dealing with the other
5.	Good interpersonal relationship		Dealing with the other

Source: Adapted from Goleman (2007)

From this line of reasoning, it is understood that the structural organization of socio-emotional competencies can be understood as an interdependent set, formed by knowledge, postures, actions and attitudes permeated by emotionality and that are necessary for the exercise of living in the school environment, making this space productive and harmonious.

In this context, Malta and Teixeira (2022, p. 296) in the article called "Socio-emotional skills in Elementary School with the use of games and dynamics" when dealing with good relationships in the work environment highlight that

This well-being related to the school work environment can activate non-cognitive skills and be transmuted into motivation, functional engagement, good interpersonal and intergroup relationships, and commitment to their daily tasks.

Due to the sharing of experiences in the area of Basic Education, Higher Education and studies from specializations in the area of Psychology, it is understood that socio-emotional skills are aligned with individual capacities when the construction of thought and stimulation in the brain of cognitive, conative, affective and practical functions that can awaken skills, assertive skills and attitudes, which are essential for the exercise of a healthier social experience. To better understand the conative functions, it is explained that these are related to emotions, motivation, temperament formatting and the organization of the person's personality.

Over the years, these skills have received other names and have been adapted to the various living environments to stimulate meaningful learning aimed at individual and collective development.

Thus, it is noteworthy that regarding emotional intelligence, Goleman (1997, p. 54) deals with the need to regulate the state of mind in the organization of thought

The ability to motivate oneself and persist in spite of frustrations, to control impulses and postpone reward; to regulate one's own state of mind and prevent discouragement from subduing the faculty of thinking; to feel empathy and to have hope.

According to this author, emotional intelligence groups five behaviors (Figure 2) in a generalized model to be cited: "self-awareness, self-control, motivation, empathy and relationship management" (Goleman, 1997, p. 63).

Figure 2

Model of the five behaviors of Emotional Intelligence



Source: Escola Objetivo website (2016)

Observing Figure 2, it is possible to understand socio-emotional competencies as the set of skills related to cognitive competencies that activate characteristics capable of making conviviality more sociable, such as: empathy, decision-making process, flexibility in conflicts, curiosity, persistence, creativity, among others, which are very significant for the formation of the integral human being. Mullins and Sabherwal (2018, p. 66) regarding the importance of emotion for the variety of the human experience and the construction of its motivational force, point out that

The importance of emotion to the variety of human experience is evident in evoking feelings of joy, sadness, pleasure, and pain. Emotion provides the main currency in human relationships, as well as the motivational force for the best and worst of human behavior. (our translation)

Therefore, it becomes relevant to know yourself more and more every day and try to live collaboratively with other people so that we can give more meaning to the act of living in this world.

Corroborating the ideas of the authors cited above on the exercise of social relations, Malta and Teixeira (2021, p. 322) state that

Precise education is always focused on the exercise of social relations, since the human being is an essentially social being. Thus, it is understood that the development of social thinking is as important as operative thinking. Thus, it is interesting not only to study the development of logical thinking but also to encourage students to think

and apply this thinking not only to the sciences and arts, but to moral and social life, to the relationship of man with his fellow men and with society.

It is emphasized that we can suppose that when social relations in the school environment are permeated by affectivity, there is a regulation of the relationships that are established between the mediation made by teachers, students (learning subjects) and the objects of knowledge that are interwoven in the curricular components existing in the common base and in the diversified base that are taught in the classroom or any learning space of the school, such as: experimentation in the laboratory, games on the court, reading projects in the library.

3 THEORETICAL FOUNDATIONS IN EDUCATIONAL PRACTICE RELATED TO SOCIO-EMOTIONAL COMPETENCIES

The theoretical foundations in educational practice related to socio-emotional competencies are based on several theories and models that seek to understand and promote the emotional and social development of students.

It is noteworthy that Meier and Garcia (2008), based on Feuerstein's contributions, list some mediation criteria, in agreement with actions supported by socio-emotional competences, which can be transposed to the classroom

Next, in Table 2, we organize and adapt from the BNCC the mediation criteria that are interrelated with socio-emotional competencies and support teaching action.

Table 2

Actions supported by Socio-emotional Skills

MEDIATION CRITERIA	BNCC SOCIO-EMOTIONAL COMPETENCIES	ACTIONS THAT CAN BE TAKEN BY THE EDUCATOR BASED ON THE MEDIATION CRITERIA THAT STIMULATE CSE
Intentionality and reciprocity	Self-control	Present clear and concrete objectives/goals – seeks to increase congruence of objectivity among students.
Meaning	Self-knowledge	Explain the concept/theme taught in class and its inferences with other concepts clearly and verify the student's level of understanding.
Transcendence	Social awareness	Articulate learning in a way that favors the student's understanding of the sublimity that exists in the information that is being passed on and the social context in which he is inserted.
Competence	Responsible decision-making	Activate the student's ability to learn, with motivation, self-esteem and self-confidence, providing opportunities for explanations, evaluations and languages according to the theme and level of

		complexity addressed in class. Stimulating the ability to make conscious personal choices.
Regulation and control of behavior	Self-control	Guide the student to perceive/control/regulate their emotions/actions in different situations, including stressful ones. Reflective discussion in the classroom is an important strategy.
Share	Relationship skills	Reinforce the school climate of respect permeated by the exchange of ideas and the like, aiming at mutual help and the appreciation of shared coexistence and the balance between personal and group objectives/goals.
Individuation and psychological differentiation	Social awareness	Clarify and value differences, developing awareness of individuality and also of collectivity in each classroom.
Planning and pursuit of goals	Self-control	Support the student in identifying their goals, since they need to be objective, clear, feasible and respectful of other people. The anticipation by mental images helps in the concrete planning of the possible steps to be carried out. Dialogue is an important tool at this time.
Search for the new and complexity	Responsible decision-making	Propose situations with various levels of complexity that can favor the search for new knowledge and problem solving in a balanced and respectful way.
Awareness of modifiability	Self-knowledge	Seek new paths, resources, strategies to generate cognitive and socio-emotional support for all students. Every day a new learning process can be accomplished.
Sense of belonging	Social awareness	To help students to feel that they belong identified with a group, activity or physical space, so they can learn to identify in the people they live with their congruences or disagreements of ideas.
Bond building	Relationship skills	Seek to interact with students in order to generate the creation of bonds to improve daily coexistence by feeding back trust.

Source: Adapted from the text of the National Common Curriculum Base (BNCC, 2017)

In Table 2 it is observed the interconnection between learning and teaching permeated by socio-emotional competencies that has an interactionist approach that appears in the theoretical foundation of this dissertation from the theories of Jean Piaget, Lev Vygotsky and Henri Wallon. Alicia Fernández's contributions help in the design of a psychopedagogical look that seeks to rescue the complexity of the teaching-learning process, thus weaving a web of interrelations and interdependence between the numerous factors involved in learning. The authors chosen and cited bring in their theories subsidies to reflect on some of the aspects of the problem of integration between cognitive, social and emotional skills and competences.

Among them, we will concentrate the research on Henry Wallon on the theme of affectivity, so necessary for good coexistence in a society that is placed with sensitivity

surfaced by many motivations transmuted in various daily situations and added to all this, a global pandemic that has strongly affected everyone's education, especially Basic Education.

For this reason, the participation of the family in the monitoring of their children in the school environment can be characterized as a preponderant factor of emotional strengthening of the students, the closer this relationship, the more the possibility of problem situations being solved with balance, consistency and harmony is strengthened.

From this perspective, Vera Vale in the article "From weaving to mending: the threads of socio-emotional competence", suggests that it is essential that there is a more concrete and enlightened interaction between teachers and families by highlighting that

Classically, the social and emotional function was attributed to parents, and teachers the intellectual function. Nowadays these boundaries are blurred, and parents and educators sometimes clash over value systems. Prevention that really prevents is based on adequate, early and concerted emotional education between parents and educators. (Vale, 2009, p. 142)

It is corroborated by this author, stating that re-signifying this division of tasks between family and school in the formation of children and adolescents in its various aspects and, specifically, in the socio-emotional aspect is essential. In this sense, Resolution No. 4/2010 of the National Council of Education, which deals with the General National Curriculum Guidelines for Basic Education, emphasizes that basic education must be governed by the principle of caring and educating and in its pedagogical work

[...] It seeks to ensure the learning of curricular contents, so that the student develops interests and sensibilities that allow him to enjoy the cultural goods available in the community, in his city or in society in general, and that also allow him to feel like a valued producer of these goods. (Brazil, 2010, p. 9)

In this sense, it is argued that education has the power to rescue the development of the human being despite all its complexity and diversity, in addition to structuring the possibility of creating new social and cultural knowledge.

The studies of Vygotsky and Wallon always lead us to reflect that the relationship between affectivity and intelligence has a social character and is necessary for the process of development of the human being to be valid.

In this context, it is emphasized that public policies and political-pedagogical projects in school environments need to prioritize actions that provide the construction of cognitive

knowledge and the search for the development of socio-emotional skills in the learning process. Thus, it is essential that there be more investments in the construction of pedagogical materials that can strengthen the integral development of students, especially in Basic Education, a phase in which learning is stimulated from the knowledge of oneself and of the other.

Regarding the need to discover the other, Delors (2010, p. 97) states that "education has the mission, on the one hand, to transmit knowledge about the diversity of the human species and, on the other hand, to make people aware of the similarities and interdependence between all human beings on the planet." It is understood that because we are biophysical-psycho-spirit-social beings, we are constantly adapting to environments and people.

The Organization for Economic Cooperation and Development - OECD (2018, p. 4) formed by member countries that are dedicated to promoting economic development and social well-being highlights in its project "The Future of Education and Skills" regarding the mobilization of knowledge that

Students who are best prepared for the future are agents of change. They can have a positive impact on their surroundings, influence the future, understand the intentions, actions, and feelings of others, and anticipate the short- and long-term consequences of what they do. The concept of competence implies more than just the acquisition of knowledge and skills; It involves the mobilization of knowledge. (our translation)

In this line of thought, it is observed that the much-envisioned change is placed from the moment that both the school with its pedagogical projects and the students and their families are directed towards the same goal, which is the formation of an integral human being capable of cognitively accumulating knowledge and living with balanced emotionality. It is understood that neither this concern nor the studies are recent in relation to socio-emotional competencies in education.

It is noteworthy that the role and importance of socio-emotional skills were highlighted in the 1990s, since during this period the Jacques Delors Report was published, organized by the United Nations Educational, Scientific and Cultural Organization (UNESCO), which represented an important step towards discussions on the importance of full education, that aims to consider the human being in an integral way. "The process of learning knowledge is never finished, and it can be enriched by any experience." (Delors, 2010, p. 92)

In this document, the concern about the teacher's work in the school environment is identified, since his functional action does not consist only in transmitting information or knowledge to students, but must think of ways to present the contents in order to stimulate problem solving and contextualization, thus seeking to broaden the view on the perspectives that are part of his life context.

In this sense, Malta and Teixeira (2021, p. 318) in the article called "Socio-emotional competencies in the school environment: a brief discussion" highlight

In general, it is observed that the number of situations in which emotional intelligence through the activation of socio-emotional skills can be applied in the school environment is infinite. It is understood, therefore, that emotional intelligence influences both intrapersonal relationships and interpersonal and intergroup relationships to make right or wrong decisions.

The authors point out that in several situations emotional intelligence helps in the development of social thinking, helping in an equal degree of importance the realization of action through operative thinking. Thus, it is interesting not only to study the development of logical thinking but also to encourage children to think and apply this thinking not only to the sciences and arts in the school environment, but to life in its moral and social aspects, to the relationship of man with his fellow men and with society. Regarding social relations, Minicucci (2001, p. 73) states that

Our acquaintance with other people can never reach the degree of abstract-logical certainty that we can apply to physical reality. However, our intellect can stop its functioning when it comes to social relations. The most far-reaching effects of a major intellectual achievement finally manifest themselves in a change in the way society views the person. This is a complete network of values, interests, traditions and customs that society transmits to the younger generations.

This author makes us reflect that social reality includes people in concrete relationship with others and makes their network of values and intentionality permeate the generations, thus creating their traditions and customs.

Piaget (1993, p. 31) argues that "learning is a consequence of development." It results from the actions and interactions of the subject with the environment where he lives and that all knowledge is a construction that is elaborated since childhood, through the interaction of the subject with the objects he seeks to know, whether they are from the physical, cultural or social world.

In view of this, it is believed that a learning process developed in a creative way allows the individual to develop their cognitive skills in a more complete way. Thus, the classroom requires social interaction with classmates and adults who experience this environment so that they can make it cognitively and emotionally productive.

Fernández (1991, p. 48), regarding the relationship between teacher and learner in the learning process, points out that

Learning is a process with a bonding and playful matrix and with bodily roots that has levels of relationship between teacher and learner that can be organized for understanding as follows: organic (inherited individual organism), cognitive (internationally constructed intelligence), bodily (speculatively constructed body) and affective (desire that is always the desire of the other).

Highlighting the affective aspect in the learning process, research is pointed out (Tassoni, 2000; Negro, 2001; Silva, 2001) that sought to delimit the possible role of affectivity in the mediation process of teachers and their students in the classroom. Tassoni (2000), identified in the interpretation of the data received in the reports of students from three classes of the 1st grade of Elementary School that the affective behavior of their teachers in the classroom helped their learning.

Negro (2001), in his research in a 4th grade class of Elementary School, sought to highlight the aspects of proximity and receptivity and identified that the students reported that *"being close is having friendship, it is liking them, it is caring about what they do, it is explaining with affection"* and this generated motivation for learning in each of the students, because it generated reliability and affection and in addition, the teachers used praise in their classes that helped to encourage the desire to learn and overcome their weaknesses and mistakes. Silva (2001) did his research in a 5th grade class of Elementary School in the classes of the Portuguese Language curricular component about the Teacher-Student relationship and from the verbalized words of the researched students, he observed that the affective mediation made by the teacher intervened in the relational dynamics of the classroom.

According to this researcher, the student-participants of the research made comments such as "we feel more comfortable to ask, it is not scary, it gives me more security, I want to be close to the teacher."

In summary, in this excerpt of these three studies exemplified here, it is identified that the interpretation made by the students regarding the behavior of their teachers in the

classroom was directed to their affective nature. This demonstrates once again the positive influence of the appropriate relationship in the teaching-learning process. Another important point observed in these three studies was the evidence of intentionality in the behavior of the teachers, as they demonstrated concern in taking care of the relationship experienced in the school environment with the objective of mediating with affectivity between the student and the object of knowledge to strengthen the motivational action of learning.

In this line of thought, recalling Piagetian theoretical points, it is understood that for learning to be effective, there must be an articulation between intelligence and desire to learn, so that there is an effective balance in the assimilation and accommodation of the information learned.

Piaget, Vygotsky and Wallon protect the great importance of affectivity in the constitution of cognitive development. For Piaget, intelligence and affectivity, although of multiple natures, are inseparable, with affectivity being a factor that generates energy for cognitive development and the structuring of knowledge; for Vygotsky, affectivity would be the driving force for meaningful and stimulating learning in the potential zone, aiming at the search for the expansion of knowledge in the potential zone, and for Wallon, "development takes place through successive differentiations and integrations between the functional fields affectivity, motor act and intelligence." (ABED, 2014, p. 49)

When studying Wallon's Theory, it is noted that the process of evolution depends on both the biological capacity of the human being and the environment in which he is inserted, since it affects him in various ways. According to this theory, the human being has organic characteristics that favor certain situations, but that the living environment can allow these potentialities to develop.

For Wallon (2007, p. 65) "The functional domains between which the study of the stages that the child goes through will be divided will be, therefore, those of affectivity, of the motor act, of knowledge and of the person."

From a psychogenetic perspective, Wallon's theory of development highlights that the development of the person is made from the interaction of the genetic potential typical of the species and a wide variety of environmental factors. The essence of this theory is the emphasis given to the interaction of the child with the environment, an integrative relationship between organic and sociocultural factors.

The Wallonian view goes through the dichotomy between the biological aspect and the social aspect related to human development, since there is an interrelationship between

them. Thus, Wallon (1990, p. 133) regarding the interactions between the organism and the environment states that

But in these interactions, between the organism and the environment, always under the selective control of the higher nervous activity, the biological is not completely distinct from the social. The interrelationship of the two is primary and fundamental. It is no longer valid to determine the properties of the two separately according to their particular natures. The processes take place in such a way that the two, the biological and the social, are complementary components. These substitutions: processes instead of properties, acts instead of substances, are precisely the revolution that dialectics has brought about in our modes of cognition.

Wallon strengthens the informative web by highlighting that human development is organized from four fields or functional domains: motor skills, affectivity, cognition, and the formation of the self. The field "formation of the self" is a field in itself, but it is also the result of the convergence of the other three fields (Prandini, 2004, p. 68).

Mahoney and Almeida (2005) in the article entitled "*Affectivity and the teaching-learning process: contributions of Henri Wallon*" dealing with the emotions that accompany the human being from the beginning of life and the affectivity that is related to the availability of the human being to be affected in a negative or positive way by sensations coming from the external and internal world. From this point of view, the authors show that

In puberty and adolescence, the main learning resource from the affective point of view is once again opposition, which deepens and enables the identification of differences between ideas, feelings, values of one's own and those of the other, adult, in the search to answer: *Who am I? What are my values? Who will I be in the future?* which is permeated by many ambiguities.

The teaching-learning process that facilitates from the affective point of view is the one that allows the expression and discussion of these differences and that they are taken into account, as long as the limits that guarantee solidary relationships are respected.

Some young people use the exercise of opposition to everything they need to experience as a way to create their world in a bell jar. Understanding who you are as a human being and how to best identify with your surroundings creates internal conflicts and the possibility of misuse of your socio-emotional skills, if you are not guided with respect and open dialogue.

Nunes (2022, p. 138) states that "Recognizing socio-emotional capacities as one of the structuring axes of human development is, therefore, fundamental for us not to escape

from an integrated and integrative view of the subjects." It is understood, therefore, that this integrative vision serves as a support for the development of young students.

In the article entitled "Social and emotional learning: reflections on theory and practice in the Portuguese school" by Costa and Faria (2013), it is observed an implicit valorization of the function of emotional competencies in school and the search for their transdisciplinary and universal role. Thus, the authors point out that

From this perspective, it can be emphasized that the School, in order to guarantee its increasingly transdisciplinary and universal role, must integrate a broader and more holistic model of student development, not only focusing on their cognitive development, but also on their social and emotional development. (Costa; Faria, 2013, p. 412)

We agree with the authors when they state that it is necessary to prepare students for success in life by interweaving cognitive and socio-emotional skills that help regulate emotions. This success needs to be interwoven with a more comprehensive look at affectivity. Corroborating this idea, Laurinda Almeida in her exceptional article on the Wallonian theory called "Cognition, body and affection" makes us reflect on the child as a complete person and emphasizes that

It is worth remembering that the school designed by Wallon, like today's, is a social institution that assumes multiple roles in the continuity of the socialization of students. The culture of the school, both through the explicit content it conveys and the hidden curriculum that runs parallel to the explicit one, imposes subtle mechanisms to instill values and model behaviors. Understanding the child as a complete, integrated, contextualized person is the way for the school to promote inclusion, and not social exclusion. (Almeida, 2010, p. 31)

Observing the human being in a broad way can be essential to understand the multiplicity of roles routinely experienced and how positive and negative emotions can cause oscillating sensations in the learning environment.

For this reason, in the school environment, especially in Elementary School, individual differences in cognitive development and the potential for collaborative actions of students must be taken into account, since all of this directly implies pedagogical practice. And both the student and the teachers are bio-psycho-spiritual-social beings. These well-aligned interpersonal relationships can help consolidate cognitive-affective development in

relationships that stimulates collaboration and solidarity exercised between the individual and society, as recommended by the Wallonian theory.

4 FINAL CONSIDERATIONS

Socio-emotional skills are a fundamental axis for the integral formation of students and for the construction of more collaborative, welcoming and conducive school environments for learning. The great challenge that is currently being configured is to invest in cognitive/academic skills and socio-emotional skills in the school environment in order to improve coexistence and regulate possible conflicts that occur in daily life.

The study concludes that socio-emotional skills are essential for the integral development of students and that teachers play a key role in promoting these skills. In addition, it shows that socio-emotional development does not occur spontaneously, as it requires pedagogical intentionality, continuous planning and the participation of the entire school community, so it suggests that school management should prioritize socio-emotional education, providing formative moments to its staff so that they can help develop these skills in educational experiences with students.

Finally, it is important to invest significantly in studies, research, discussions and continuing education for all educators on socio-emotional skills in Basic Education, as it is believed that if this practice is encouraged, it will provide a school environment experienced with more welcoming, empathy, resilience, respect and cognitively more productive.

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**PEDAGOGY OF ENCOUNTER: BUILDING RELATIONSHIPS BETWEEN
SCIENCE EDUCATION AND CLOWNING**

**PEDAGOGIA DO ENCONTRO: CONSTRUINDO RELAÇÕES ENTRE
EDUCAÇÃO EM CIÊNCIAS E PALHAÇARIA**

**PEDAGOGÍA DEL ENCUENTRO: CONSTRUYENDO RELACIONES ENTRE LA
EDUCACIÓN CIENTÍFICA Y EL CLOWNING**

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ABSTRACT

This article reports on a formative experience conducted in a Pedagogy course. Its objective was to investigate the possible relationships between clowning and science education, identifying how clowning, as an artistic practice, can offer new understandings and transformations in the pedagogical practice of a teacher in the discipline of Methodology of Natural Science Teaching. Starting from a turbulent institutional moment that produced professional discouragement and unease regarding an excessively rational science education training for future pedagogues, the teacher returned to his clown, Melancia, to teach a class. The methodological approach of the research was based on self-study with an emphasis on the narrative of lived experience. The primary data sources for the research were the class notebook for the discipline of Methodology of Natural Science Teaching, offered in the fourth semester of the Pedagogy course, and the initial narrative constructed by the teacher, which was later analyzed and reformulated by the authors of the research. Three lessons emerged from the analysis of this narrative. The first lesson presents vulnerability as a pedagogical virtue and as a foundation for human connection. The second highlights the need to explain to students the pedagogical reasoning that underpins our teaching practices. The third, finally, values enchantment as a constituent element for a more holistic scientific education that values emotions and aesthetic aspects. It concludes that the dialogue between clowning and education offers a fertile ground for rethinking teacher training, promoting a more authentic, human, and sensitive pedagogy, capable of embracing uncertainty and reframing failure as a learning experience.

Keywords: Clowning. Vulnerability. Teacher Training. Science Education.

RESUMO

O presente artigo relata uma experiência formativa conduzida em um curso de Pedagogia. Seu objetivo foi investigar as possíveis relações entre palhaçaria e educação em ciências, identificando como a palhaçaria, enquanto prática artística, pode oferecer novas compreensões e transformações na prática pedagógica de um formador da disciplina de

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Metodologia do Ensino de Ciências Naturais. Partindo de um momento institucional conturbado que produzia desânimo profissional e de uma inquietação frente a uma formação em educação em ciências excessivamente racional das futuras pedagogas, o formador retomou seu palhaço, Melancia, para ministrar uma aula. A abordagem metodológica da pesquisa se fundamentou no autoestudo com ênfase na narrativa da experiência do vivido. As fontes primárias de dados da pesquisa foram o caderno de aulas da disciplina Metodologia do Ensino de Ciências Naturais, ofertada no quarto período do curso de Pedagogia e a narrativa inicial construída pelo formador que posteriormente foi analisada e reformulada pelos autores da pesquisa. Da análise dessa narrativa emergiram três lições. A primeira lição apresenta a vulnerabilidade como virtude pedagógica e como alicerce para a conexão humana. A segunda destaca a necessidade de explicitarmos aos educandos o raciocínio pedagógico que sustenta nossas práticas de ensino. A terceira, por fim, valoriza o encantamento como elemento constituinte para uma educação científica mais integral que valoriza as emoções e os aspectos estéticos. Conclui-se que o diálogo entre palhaçaria e educação oferece um campo fecundo para repensar a formação docente, promovendo uma pedagogia mais autêntica, humana e sensível, capaz de acolher a incerteza e ressignificar o fracasso como momento de aprendizado.

Palavras-chave: Palhaçaria. Vulnerabilidade. Formação de Pedagogas. Educação em Ciências.

RESUMEN

Este artículo relata una experiencia formativa realizada en un curso de Pedagogía. Su objetivo fue investigar las posibles relaciones entre el clown y la enseñanza de las ciencias, identificando cómo el clown, como práctica artística, puede ofrecer nuevas comprensiones y transformaciones en la práctica pedagógica de un docente de Metodología de la Enseñanza de las Ciencias Naturales. A partir de un momento institucional turbulento que generó desánimo profesional e inquietud respecto a una formación excesivamente racional en educación científica para futuros pedagogos, el docente recurrió a su clown, Melancia, para impartir una clase. El enfoque metodológico de la investigación se basó en el autoaprendizaje con énfasis en la narrativa de la experiencia vivida. Las fuentes de datos principales para la investigación fueron el cuaderno de clase de Metodología de la Enseñanza de las Ciencias Naturales, impartido en el cuarto semestre del curso de Pedagogía, y la narrativa inicial construida por el docente, la cual fue posteriormente analizada y reformulada por los autores de la investigación. Tres lecciones emergieron del análisis de esta narrativa. La primera lección presenta la vulnerabilidad como una virtud pedagógica y como fundamento de la conexión humana. El segundo destaca la necesidad de explicar al alumnado el razonamiento pedagógico que sustenta nuestras prácticas docentes. El tercero, finalmente, valora el encantamiento como elemento constitutivo de una educación científica más holística que valore las emociones y los aspectos estéticos. Concluye que el diálogo entre el clown y la educación ofrece un terreno fértil para repensar la formación docente, promoviendo una pedagogía más auténtica, humana y sensible, capaz de aceptar la incertidumbre y replantear el fracaso como una experiencia de aprendizaje.

Palabras clave: Payasadas. Vulnerabilidad. Formación del Profesorado. Educación Científica.

1 INTRODUCTION

The pedagogy course, as a space for teacher training, is a space conducive to the experimentation of approaches that transcend the mere transmission of content and techniques, enabling formative experiences connected to the pedagogy of the sensitive, which can evoke admiration, enchantment, perceptions and critical reflections throughout the process of construction of professional identity. Thus, this text results from the curiosity and research of the authors, who are teachers in the pedagogy course, about the opportunities that certain non-conventional artistic languages can offer for the teaching of science. The choice of the theme was justified by the conviction that clowning, with its ethos of vulnerability, playfulness and human connection, could offer valuable perspectives to reimagine the role of pedagogues when dealing with science themes in Early Childhood Education and in the first years of elementary school.

Our experience in the training of teachers in the Pedagogy course shows that young children still have few opportunities to come into contact with scientific knowledge. In Early Childhood Education and in the early years of Elementary School, science themes are rarely treated as a priority, taking a back seat to other curricular areas such as mathematics and the literacy and literacy process.

On the other hand, we noticed that situations related to science cross the school routine, but are often not recognized by the teachers. A dinosaur carried by a child, caterpillars and butterflies in the garden, discoveries made on walks or visits to green areas, intriguing questions about planets or the bottom of the sea, the enchantment in front of a rainbow or the sunset, and even the unexpected visit of a bird in the schoolyard are examples of events that could turn into rich opportunities to explore science topics. However, most of the time, such situations are not incorporated into pedagogical practices.

Thus, in the Science Teaching Methodology courses we offer, we seek to encourage attentive listening to these moments and foster a feeling of admiration and enchantment in relation to nature, scientific knowledge and the world around us. In our pedagogical approach, clowning fulfills precisely this objective, providing the space, sensitivity and charm necessary for these situations to become educational experiences.

The relevance of this research lies in the contribution of clowning to expand the didactic-pedagogical repertoire in the initial training of teachers, proposing an innovative dialogue between scientific education and clowning. By articulating these two apparently dissonant fields, the study is justified by the need to think about formative strategies so that

future teachers not only master content, but also develop a sense of admiration for science, nature and the world.

In this sense, the research problem that guided this work was formulated from the following question: how can clowning, as an artistic practice, inform and transform the pedagogical practice of a trainer in the discipline of Methodology of the Teaching of Natural Sciences, enhancing the construction of more horizontal and sensitive relationships with scientific knowledge in a pedagogy course? To answer this question, we outlined as a general objective to analyze the possible interfaces between science education and clowning in the training of pedagogues, from a perspective of self-study of teaching practice.

This general objective unfolded into specific objectives that guided the structure of the work, which are: to describe and analyze the formative meetings developed within the scope of the research; identify and reflect on the moments of tension, discovery and insight experienced by the trainer-researcher; and synthesize the lessons learned through the narrative of the experience, reflecting on how clowning can meet and articulate with scientific education. The central axes that underlie this research will be presented and discussed in the following sections.

In the subsequent sections, the main axes that underlie this investigation will be presented and analyzed. At first, we will discuss the context of the pedagogue's training, as well as the role of Science Education in Early Childhood Education and in the first years of Elementary School, analyzing the challenges and potentialities of this area of knowledge in teaching practice. Next, we will address a less traditional domain, investigating the intersections between Clowning and Education, where the theoretical foundations that connect the art of clowning to educational processes will be discussed. In a subsequent moment, the methodological approach that guided the research will be presented, detailing the methods used for data collection and analysis. Finally, we will carry out an analysis of the experience, in which the narrative experience with the clown Melancia will be investigated in the light of the theoretical references previously outlined, aiming to extract lessons and implications for the training of teachers.

2 PEDAGOGY OF ENCOUNTER

2.1 THE FORMATION OF THE PEDAGOGUE AND SCIENCE EDUCATION IN EARLY CHILDHOOD EDUCATION AND THE EARLY YEARS OF ELEMENTARY SCHOOL

In Brazil, research in Science Education is configured as a solid field, with specialized journals, groups and lines of research in graduate programs, in addition to an agenda full of congresses, meetings and symposia that involve an extensive network of researchers. Despite this advance, it is possible to note that there is still a lack of research specifically aimed at Early Childhood Education and the early years of Elementary School. Despite the increase in interest in the last twenty years, the production is still small compared to the large amount of research focused on the final years of Elementary School and High School.

According to Sá and Maués (2024), this scenario is not restricted to the Brazilian context. At the international level, there is also a predominance of research in the more advanced segments of schooling. However, since the 1990s, different documents and curricular proposals have sought to reaffirm the importance of ensuring the teaching and learning of science from childhood, recognizing that this initial stage is equally fundamental for the scientific training of subjects.

International research also shows that science teaching occurs sporadically when compared to subjects such as Portuguese Language and Mathematics (Blank, 2013). In the early years of elementary school, less than 10% of instruction time is usually allocated to this field (Engel et al., 2023; Trygstad et al., 2013). In addition, the literature specialized in Science Education also points out that this absence is largely related to the lack of confidence of many teachers to teach science. Researchers argue that the limitation in the mastery of scientific concepts compromises the safety of teachers and directly influences their pedagogical practice (Loughran; Mulhall; Berry, 2004; Traianou, 2006; Roth, 2014). Thus, professional insecurity tends to be reflected in a lower emphasis on working with science in the early years of elementary school.

In the context of the training of pedagogues, authors such as Lima and Maués (2006), Maline et al. (2018), Maués et al. (2023) and Sá and Maués (2024) denounce what they call the belief in the teacher's content deficit model that:

considers that the little time dedicated to teaching and learning science in the early years is due to the fact that teachers have limited knowledge of science content. This belief has as its background the debate about the profile of the most suitable teacher to teach science in the first years of Elementary School, pedagogues or specialist

teachers. Assuming that a good knowledge of science content is a necessary condition for teaching science to children. Such discussion ends up affecting the conceptions of training of pedagogues in sciences that work both in the first years of Elementary School and in Early Childhood Education. (Maués et al., 2023, p. 48).

According to these authors, the belief in the content deficit model still has a significant impact on the training of pedagogical teachers and on investigations into their teaching practice. This view usually limits teacher training to the simple compensation of lack of scientific knowledge. Such logic is criticized for not only reinforcing the idea of the ineffectiveness of science education in the early school years, but also for sustaining training practices and teaching materials that are based on the premise that it is necessary to "correct" the knowledge of pedagogues. In addition, they point out the inconsistencies of the model when applying conclusions from studies carried out with high school specialists to generalist teachers in the early years, without clarifying which would mean having a proper understanding of science for this situation. This creates an incessant cycle of demands, where it is always assumed that there is a lack of content, endlessly increasing the requirements for initial and continuing education (Maués et al., 2023).

These researches produce relevant reflections for teacher training, defending a perspective that recognizes teachers and their knowledge, adopting a broader approach to training needs and criticizing the content deficit model. However, they still show themselves in a predominantly rational way, focusing on the development of investigative and analytical skills, but paying little attention to the affective, aesthetic and enchanting aspects that could bring the teacher closer to science in a more sensitive and inspiring way.

2.2 THE CLOWN AND EDUCATION

At its core, the clown represents both the vulnerability and the imperfection of the human being. Their slips and mistakes are not just elements of humor, but reflections of an experience that is universal: that of learning and transforming from our mistakes. It is precisely in this failure that we identify ourselves, since it reveals the fragility and inadequacy that constitutes us. By exposing what is most laughable in us, the clown touches the deepest essence of the human condition, which is the fragility of life. With genuine innocence, he navigates the unexpected and transforms small everyday gestures into great achievements, making simplicity a form of greatness.

Although he is often reduced to the image of a simple entertainer, whose role is to make people laugh to soften the harshness of life, the art of the clown is much more than that. Those who surrender to understanding their language realize that the laughter they generate comes from an attentive reflection on their own life. The clown represents what we often try to hide: the complexity of our emotions and the tension between joy and pain. He does not allow himself to be trapped by the social norms that stifle us, but remains receptive to the totality of human experience. Its power lies in not submitting to the standard, but in fully embracing its own inadequacy, transforming itself into an authentic mirror of human reality.

The modern clown is a portrait of human inadequacy in a world that has become mechanized. His melancholic representation, gestated in the heart of the Industrial Revolution, is that of the man who has lost his place. Coming from the countryside to the city, he became the stranger, the unemployed, the vagabond, the one whose worth was measured only by his productivity, a gift he lacked. His appearance is a visual testimony of his displacement: a pile of other people's patches, colors that scream with dissonance, and huge shoes, which are not his, prevent him from even walking with dignity. He is the personification of the 'outsider', the one who, because he cannot adapt, is forced to transform his own misery into a spectacle, offering his failure as a gift of laughter to the audience (Bolognesi, 2003).

Clowns play a variety of roles in society, performing in different contexts, such as circuses, streets, theaters, rodeos, hospitals, nursing homes, orphanages, conflict zones, refugee camps, disaster regions, and wars. Some, such as Hotxuá, a shaman of the Krahô ethnic group of Indians from northern Tocantins, play specific roles in sacred rituals, promoting harmony and balance in the villages. Despite the diversity of their roles, it is notable that clowns' visits to schools usually take place during children's week. This raises questions about why the clown's presence is often viewed with hesitation in schools.

Larrosa (2010), when discussing the comic and laughter, questions why there is so little laughter in the educational field, both in pedagogy, understood as a discourse about education, and in the educational institutions themselves. For the author, this situation originates in the simultaneously moralizing and excessively optimistic discourse of pedagogy, a perspective that tends to be incompatible with the detachment inherent to laughter and the comic. In this context, the teacher's discourse is commonly associated with a rational, virtuous and normative attitude, which often leaves no room for doubt, enchantment or vulnerability. It is in this gap that, therefore, the figure of the clown and his characteristic hesitation are inserted.

When we think about the approximations between education and clowning, it is not a matter of imagining that teachers should enter the classroom as clowns, nor of directly adapting their practices to teaching. Its meeting point is deeper, in the way of looking. To be a clown is to relearn to see the world as if it were the first time, with childlike eyes that are surprised by science and nature. It is to let yourself to touch through naivety, to cultivate admiration, to open oneself to the game and play that bring teacher and child closer. It is accepting improvisation and failure, welcoming empathy and walking courageously through the spaces of discomfort that teaching and learning require. In this spirit, education also becomes an act of enchantment and wonder.

The methodological path of this work is based on the qualitative approach, with emphasis on self-study. According to Loughran (2004), this perspective gained strength from the 1990s onwards, when teacher educators began to investigate how their own practices influenced the learning of future educators. By researching and publishing about their work, these professionals sought to value their role as producers of knowledge, record the complexity of their practice, and question assumptions consolidated in teacher training. In this sense, self-study, which initially emerged as a form of "internal investigation", has become a field of research that admits and values the knowledge of trainers, both in the direct context of practice and in the broader organizational and structural scenarios in which their work is inserted.

Considering the diversity of uses of self-study in teacher education research, this article elects the Narrative of Lived Experiences as a strand of self-study to be investigated. From this perspective, the narrative report is an act of reflection in which the subject, when revisiting his experience, seeks to produce knowledge. As Lima, Geraldi and Geraldi (2015) define it, this knowledge emerges by "extracting lessons that are valid as knowledge produced a posteriori, resulting from the clash between experience and theoretical studies carried out after the narrated experience" (p. 19).

For the generation of data, the research is based on the reflections and narratives of one of the authors of this work, recorded in his class notebooks of the discipline Methodology of Natural Sciences, taught in the fourth period of the Pedagogy course at a public university throughout the year 2023. Although the focus falls on the formative experience of a single teacher-researcher, the analytical process assumed an essentially collaborative character, sustained by the continuous dialogue between the co-authors and the joint analysis of the narratives. As LaBoskey (2004) and Samaras (2011) argue, self-study, even if it has individual

practice as its starting point, gains in validity and interpretative depth when developed collaboratively, with the participation of critical peers who accompany, question and enrich the reflection on what has been experienced. Thus, the co-authorship in this article is justified by the collective construction of the analyses and by the theoretical-methodological contribution of all those involved in the process of systematization and interpretation of the narrative data. The object of investigation is the construction of a clown presentation developed in the discipline, analyzing its relations with the training of future pedagogues and with the principles of Science Education.

As for the procedures, the research followed the stages of an initial dialogue, in which the professor-researcher who experienced the experience discussed his records and impressions with the other co-authors. Based on this exchange, he elaborated a descriptive narrative of the experience, which was shared with the group. This initial narrative was then submitted to a collaborative analysis, being discussed collectively in the light of the theoretical references of self-study and teacher training. Finally, from the insights generated in this process, a final reflective narrative was produced, in which the analyses, understandings and lessons collectively constructed from the investigated experience are made explicit. It should be noted that, although the narrative presented in the next section is written in the first person, it is, in essence, the consolidated product of this collaborative interaction between all the authors of the investigation.

4 ANALYSIS OF THE EXPERIENCE

My experience with clowning began in 2006, when my daughters were still young and I was looking for new ways to play and learn from them. At that time, I began to participate in various workshops, watch plays and attend festivals. I bought the clown nose and shoes, and so the clown Watermelon was born. Always very rational, I used to be, and still am, the worst student in the workshops, due to a difficulty in improvising. My body remained stuck, often without grace or expression. Embarrassments and failures were frequent, but I understood that, if failure is one of the clown's trademarks, perhaps I was on the right track.

During this period, I read several books on the subject and noticed similarities between children's thinking and clown thinking: the fantastic and syncretic character, the presence of animism, artificialism, finalism, egocentrism and unusual solutions to problems. These characteristics inspired me, in 2007, to prepare a short presentation integrated with a class in the pedagogy course of a college particular. At the time, I considered this experience

extremely positive, being probably the best experience of the course. However, I could not continue, since I only had that opportunity to teach the discipline and, with that, life took me down other paths.

In 2018, I started teaching in the disciplines of Science Teaching Methodology in the pedagogy course at a public university. The course has three disciplines in this area. The first, offered in the third period, mainly addresses the genesis of scientific concepts in childhood, as well as notions and practices of Health Education. The second, taught in the fourth period, mainly discusses the methodological trends of Science Education. Finally, the last discipline, in the sixth period, focuses on evaluation in the teaching of Science, teacher training and topics related to environmental education and sustainability.

In the first semester of 2023, when teaching classes for the fourth period of the course, I register in my notebook a concern that had accompanied me for some time about the training of pedagogues:

In methodology classes, I seek to offer theoretical support and strengthen the students' self-confidence, since many arrive at the course insecure to teach science content. Over time, I notice that this perception changes: they begin to recognize the value of experimental activities, to explore argumentation and investigation, in addition to approaching socio-scientific issues. Still, I realize that there is a feeling that teaching science requires excessive effort and that it is easier to prioritize the mother tongue and mathematics. I feel that my approach, which is very rational, does not touch their hearts. I think that it is necessary to rethink training from other perspectives, based on strategies that awaken enchantment, create mystery, surprise and reveal the beauty of science. Perhaps in this way, they can realize the value of teaching science.

What I perceived was more intuitive, coming from my experience as a trainer. I realized, for example, that inquiry, with its whole set of practices such as observing, classifying, arguing, analyzing data, etc., was often approached without any connection to what students felt when learning. In fact, science teaching is still, for the most part, thought of as a purely cognitive process, without considering aspects such as the mystery, surprise, and enchantment that a phenomenon or a scientific experience can generate.

This gap became a constant source of unease for me. Although I had an urgent need to address it, I had no theoretical basis for discuss this topic and did not know how to proceed. I was sure of one thing: I considered it essential that my students, who would one day be teachers, not only experiment with investigative approaches, but also experiment aesthetically with science and cultivate a true enchantment for it. He believed that only by

integrating these dimensions would they be able to cultivate the self-confidence and motivation indispensable to teach science to children.

The search for a more human and aesthetic dimension of science education, however, encountered concrete challenges in the institutional environment. The unit in which I work has gone through difficult times during this time. The course's Pedagogical Political Project was reformulated and the changes significantly affected the teachers' routine, which generated heated debates and a troubled atmosphere.

The pedagogy course was until then guided by the principle of an integrated and interdisciplinary training, which was based on the investigation of practice. This model was materialized in components such as the Pedagogical Integration Activity, taught collectively by all teachers during the period, and in weekly meetings dedicated to the study of themes common to disciplines previously articulated in the curriculum. This structure fostered constant collaborative action, with teachers teaching classes in pairs or groups throughout various moments of training. Despite its innovative character, the model required a high number of professors for its operation.

In 2023, external pressures resulted in a curricular reform that suppressed these integrative and interdisciplinary activities. As a consequence, there was a reduction in the workload of many teachers, and some requested removal to other units, in an exhausting process for the collective. It was in this climate of instability that, at the beginning of the second half of 2023, I recorded in my notebook a reflection that translated my feeling in the face of the situation:

The imposed changes start classes, empty schedules, silence voices, leave teachers adrift. Even so, there are those who defend them. Going to college is no longer exciting. The runners weigh down, the faces get tired. Teaching, which has always been my shelter, became a shadow. I can't stay like this. They may try to take everything away from me, but they will not take away from me the desire to be a teacher.

At this difficult moment in the profession, when discouragement was already setting in, my daughter, who had started a technical course in circus arts, commented on the clown workshop in which she had participated. When I showed her my clown books, I began to leaf through them and, during our conversation, rereading marked passages, the presentation I made to my students in 2007 came to mind. In my lecture notes, I recorded:

... I can't continue with this feeling of discouragement. I think the best thing to do is to get involved with new projects. Every time I went through something similar, the classroom was always my way out. Perhaps clowning is a path. I can go back to the 2007 presentation, at the time, it had very interesting aspects to work with the students on children's thinking. The clown, as a comic figure, is an unusual response to everything that happened. I'm going to put my nose on red, bring humor, irony and laughter to the classroom, discuss the training and teaching of science from other perspectives and, who knows, transform my misery into joy. The challenge is figuring out how to do it!

So, I resumed my studies in clowning and began the creation of a show that combined classical numbers, scientific experiments and some magic tricks. It took me approximately a month and a half to put together the presentation, doing an in-depth research on YouTube about clowns like Márcio Libar, David Larible, Avner Eisenberg, Gardi Hutter, Oleg Popov and many others. Throughout the process, I realized that I should be careful not to transform clowning into something purely instrumental, emptying its meaning and reducing its language to a mere technique or tool at the service of an educational end. In this context, clowning could not be subordinated to education or science teaching, but rather be recognized as a dialogue partner, capable of revealing dimensions and raising issues that previously went unnoticed by me.

In the performance, the clown Watermelon alternated between playing alone with his props and experiments and inviting audience members to join him. In the planning, I sought to emphasize magical thinking, creative solutions, ingenuity, discovery and the playful aspect of the game. Understanding that the clown's essence is intrinsically linked to his "inner child", I thought of Watermelon as a boy who would like to share with the audience his magic tricks, his unusual scientific inventions and his curiosity about the world. At the same time, I added to the presentation the trampling, clumsiness and frustration typical of clowning.

The experiments used had strong visual appeal with unexpected results, many of them being common in clown or magician acts. An example was the trick of pulling the tablecloth without knocking over the objects. To do this, Melancia called four students with cell phones. Three were seated, facing the audience, and had their devices placed on the table. The fourth student was invited to film the scene. The clown asked the audience to count to three and looked at the students, implying that he would pull the towel. When the audience shouted "already!", Melancia did not pull, generating momentary relief in the students. However, by surprise, he quickly pulled the towel, keeping the cell phones intact on the table.

Another experiment was the nail chair. The master of ceremonies presented the clown Watermelon as a great knife-swallowing fakir. As there were no knives, Melancia swallowed a "spaghetti" balloon and then called someone from the audience to sit on a chair covered by a cloth. When he removed the cloth, he revealed himself to be a chair of nails, posing the question: who would risk sitting down first? The clown, seized by fear, hesitated in the face of the challenge.

We also used the famous experiment of the four benches, quite recurrent in clown performances. In this number, Melancia said that he would demonstrate his powers of hypnosis. Four people were called to the stage and positioned on benches so that each one lay on the other's lap. Then, the clown removed the benches, leaving the group suspended, supported only by the human structure in balance.

These were some examples of the experiments incorporated into the presentation, which we seek to describe here so that the reader has an idea of how they were explored on stage. In the figure below, we present the number of the four banks.

Figure 1

Number of the four banks



Source: researchers' personal archive

The presentation lasted approximately forty minutes. To create expectation, he told the students that he would invite a former student, the clown Melancia, who would do a number and then a lecture on the dialogues between education and clowning. When I arrived in character, the surprise was immediate and had a great impact. The lecture itself was a process that required prior study and revealed to me that clowning opens up a range of relational possibilities, the complexity of which would require a more in-depth investigation, both from the point of view of the teacher-researcher and the clown. Throughout this process,

several concerns have emerged, many of which still need to be answered, while others manifest themselves only as intuitions or initial ideas.

In the lecture, I sought to share these issues with the students, hoping that a collective dialogue could, later on, contribute to the construction of more consistent arguments. I laid out the motivations behind the presentation, explored the comic figure of the clown, his origins and essential characteristics, and proposed possible connections between clowning and education. To instigate reflection, I raised concerns such as: What is the role of humor and comics in the school environment? How can the clown help us to reframe the error in the educational process? What resonances exist between the thought of the clown and the children's universe? Considering that interactions and games are guiding axes of Early Childhood Education, could the clownish logic inspire new understandings for the pedagogical practice of teachers? And, going further, how can it foster a more sensitive listening and a pedagogical relationship based on the ability to affect and be affected? Finally, and possibly the most instigating: would it be feasible, under the guidance of the principles of clowning, to imagine a teacher training that not only recognizes, but also embraces the fragility of the educator, converting their failures into instruments of learning and strengthening of human relationships? I wasn't a clown of the best. At first, Melancia was a little shy and blushing, but as time went by, he adapted and managed to make some people smile and laugh. As the audience was familiar, everything went smoothly and no one left the performance. Then, I started the class talking about the origin of the clown, his role in society and explained to the students the reasons that led me to make that presentation. I detailed the entire preparation process, showing how the comic numbers related to the ideas i he wanted to discuss.

The students asked me how I performed certain actions, such as swallowing the balloon or taking off the towel without letting the cell phones fall. I took advantage of this moment to explain that I had chosen tricks based on scientific principles. In addition, I showed that, in situations where there were no experiments, the numbers served to illustrate how the clown's thinking and feelings resemble those of children. Some students commented on the importance of hearing about class planning, as this made my actions, justifications and choices clearer, something that, according to them, teachers usually do not make explicit when planning their activities.

I went on to discuss the themes I had prepared, addressing vulnerability and failure in the art of the clown. I commented on how teacher training emphasizes reflection and success

stories, but little is said about failure. I mentioned that, in the first years of their careers, a large number of teachers leave the profession or face serious difficulties due to what Huberman (2000) calls the "reality shock".

From then on, I began to narrate my own cases of failure in teaching, emphasizing that such experiences are common to all teachers. I stressed the importance of discerning, in these situations, what is the responsibility of the educator, the students or the institution. Throughout the class, I noticed that some students were visibly moved in three different moments. The participation was intense: they asked questions, shared comments and many mentioned that they started to see the figure of the clown in a totally new way. In the end, they thanked me for the class.

As a teacher, I left there very happy, with a clear feeling of accomplishment and, at the same time, taken by a certain perplexity in the face of the depth of the experience. Soon after, I recorded in my class notebook:

I need to understand what that was... I'm impressed. The class felt like a catharsis. I've had good classes, very good indeed, but nothing like today. The energy was different, an intense exchange, a strong connection with the group. Melancia helped, of course, relaxed, made the students happy, light... But it wasn't just that, it can't have been just that. What did I do differently? What happened there to make them so emotional, so connected in class?

After reflecting on the episode, I understood that Melancia highlighted my own vulnerability. At that moment, I did not present myself with the symbolic authority of the teacher's toga, but with the threadbare cloak of the vagabonds, the hat of jester's bells and the clown's red nose (LARROSA, 2010). By assuming and sharing his fragility, the clown establishes a bond of empathy with the audience. In this process, failure is re-signified as a possibility of success, and vulnerability and foolishness are constituted as mediating elements of the relationship with the other.

As a teacher, we often seek to hide our vulnerabilities. In academic culture, there is a tendency to maintain a certain distance between those who teach and the act of teaching itself. Although the educational field values multiple forms of knowledge, a cult of objective knowledge, associated with reality, to the detriment of subjectivity, still predominates. In this scenario, teachers see objective facts as something pure, while feelings are viewed with suspicion and considered impure. The "I" is rarely recognized as a source of exploitation, being treated more as a threat to be eliminated. For this reason, teachers often hide their

vulnerability, try to be bulletproof, cloister themselves in a virtuosity of knowledge by distancing themselves from their students. Today I realize that on that day, Melancia, both in the presentation and in the class that followed, made it possible for the teacher to reveal all his vulnerability and establish a connection with the fragility of the students.

Vulnerability is a central element in both teaching practice and the art of clowning. Palmer (1998, p. 17) defines it as a "daily exercise" in the context of teaching, emphasizing that the teacher's exposure to the students does not represent fragility, but a necessary condition for the construction of bonds. Similarly, in the artistic field, the clown's vulnerability sustains the close relationship with the audience. In both cases, it is configured as a resource of strength and authenticity, capable of deepening the connection with the other. However, unlike clowns, we teachers are still, at many times, reluctant to demonstrate our vulnerability to students. We often prefer to exercise control over the teaching-learning process to reinforce an image of competence and expertise. In the face of this stance, Brown (2015) offers a powerful perspective, considering vulnerability as:

Vulnerability is not knowing about victory or defeat, but understanding the need for both; is to get involved. It is to be completely dedicated. Vulnerability is not weakness, and the uncertainty, risk, and emotional exposure we face every day are not optional. Our only choice is a matter of engagement. Our willingness to take on and interact with our vulnerability determines the depth of our courage and the clarity of our purpose; the level to which we protect ourselves from being vulnerable is a measure of our fear and disconnection (BROWN, 2015, p.2).

In this episode of life, marked by a troubled moment full of professional uncertainties, the clown Watermelon taught me that vulnerability can be a great gift for genuine connection. Education, after all, is always situated at the dangerous intersection between personal and public life. When teaching classes, we are permanently exposed to student evaluations and judgments. For this reason, we usually rely on our intellectual authority and our didactics to win their trust. However, the clown presented us with other paths: the courage to be vulnerable, to welcome and to meet the other in their difference. The clown showed that all of us, teachers and students, share this vulnerability and have maladjustments in relation to life, time and the world. Thanks to her example, I was able to establish a closer and truer relationship with my students, and these teachings were recontextualized throughout the semester.

During this class, the students made a relevant observation that, until then, had gone unnoticed by me: the explanation of the process of class construction and presentation. In teacher training, teaching is often conceived as a self-explanatory process. Methodologies, strategies, learning theories and educational themes are usually presented, but the act of teaching itself is rarely made explicit. In general, the principles, reasoning, mediation strategies, paths and justifications that pedagogically support the teachers' choices are not socialized with the students. Although the importance of reflection on practice is affirmed, little is effectively taught about how to reflect, nor is a reflection built in a shared way with students about the activities carried out in the classroom (LOUGHRAN; RUSSELL, 2007). This was another lesson we learned in this episode: the need to make my teaching more transparent to the students, an aspect that currently constitutes one of the central axes of my pedagogical practice.

5 FINAL CONSIDERATIONS

We believe that the experience that the teacher-trainer had as a clown Melancia went far beyond a playful activity or a different pedagogical strategy. It represented a milestone of rupture and discovery about the

The essence of the educational relationship, with lessons that have become permanent and have come to guide its practice. Among them, three stand out as the most central.

The first lesson was to understand that vulnerability should not be seen as a weakness to be hidden, but rather as a strength that deserves to be shared. The professor-researcher, by presenting himself as Watermelon, without the "symbolic toga of the teacher", revealed his vulnerability, his fear of not succeeding and his lack of ability. Unlike the academic posture that, in many cases, preserves an image of unshakable wisdom, this authentic exposure did not diminish her authority, on the contrary, it created a connection of empathy and trust with the students. They related not to a "perfect" teacher, but to a real human being, who, like them, also makes mistakes and feels insecure. Genuine connection, based on daring to be vulnerable (BROWN, 2015), proved to be a solid basis for transformative learning.

The second lesson stems from a shrewd observation of the students: the importance of making visible the backstage of teaching. It is perceived that, in teacher training, ready-made products are often presented, such as theories, methodologies and lesson plans, without exposing the process that constituted them, including errors, doubts, choices and

untrodden paths. By detailing the process of construction of that class, the teacher demonstrated how to teach, making the pedagogical act an object of reflection. This transparency allowed the students to view teaching not as the mere application of a technical rationality, but as a deliberate practice, constantly rethought and based on criticism. Experience has thus shown that the trainer should aim not only to instruct future teachers, but to act as a teacher of teachers, one who unveils the complexity and deliberations inherent to the profession, forming autonomous professionals with their own thinking.

Finally, the third lesson that the experience has brought us is the confirmation that education is not only about knowledge, but also about feeling, the aesthetic and the relational. Clowning, with its humor, its absurd character and its ability to evoke both laughter and amazement, awakened an aspect that had been forgotten in the rationalist formation of teaching degree courses: that of enchantment. By incorporating the playful aspect, surprise and aesthetics into the classroom, Melancia showed that it is feasible and essential to know both by reason and by heart. This training should

To contemplate, above all, training processes that enable these educators to resume their enchantment with nature, with science and with the world, an essential element in the training of teachers for early childhood education and for the early years, especially with regard to the teaching of natural sciences. Recovering the affective and sensitive face of scientific knowledge is indispensable for future teachers to be able, based on their experiences of enchantment and amazement in the face of natural phenomena, to provoke such experiences in children.

In short, the clown Watermelon taught us that teaching is an act of courage. This courage is present in the openness to vulnerability, in the sharing of the backstage of the educational process and in the search for the formation of the integrality of the being. Far from constituting definitive conclusions, these lessons have been consolidated as guiding principles of a teaching practice committed to being more humane, reflective and transformative.

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**THE RIGHT TO EDUCATION AND HOMELESSNESS IN BRAZIL AND
MARANHÃO: AN ANALYSIS OF LAYERS OF VULNERABILITY BASED ON
FLORENCIA LUNA**

**DIREITO À EDUCAÇÃO E SITUAÇÃO DE RUA NO BRASIL E NO MARANHÃO:
UMA ANÁLISE DAS CAMADAS DE VULNERABILIDADE A PARTIR DE
FLORENCIA LUNA**

**EL DERECHO A LA EDUCACIÓN Y LA SITUACIÓN DE CALLE EN BRASIL Y
EN MARANHÃO: UN ANÁLISIS DE LAS CAPAS DE VULNERABILIDAD A
PARTIR DE FLORENCIA LUNA**

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ABSTRACT

This article analyzes the right to education of homeless people in Brazil, with a specific focus on the state of Maranhão, based on Florencia Luna's theory of layers of vulnerability. Although education is constitutionally guaranteed as a fundamental right, its effective implementation remains limited for socially vulnerable groups. Methodologically, the study adopts a qualitative, theoretical-documentary approach, combining critical literature review with the analysis of legal frameworks and public data. The discussion draws on critical pedagogy, human rights, and vulnerability theories, engaging with authors such as Paulo Freire, Judith Butler, Achille Mbembe, and Boaventura de Sousa Santos. The findings indicate that educational exclusion among homeless populations results from overlapping layers of vulnerability—documentary, institutional, territorial, symbolic, and socioeconomic—intensified in Maranhão by historical and racial inequalities. The article concludes that ensuring the right to education requires intersectoral public policies, inclusive pedagogical practices, and the recognition of homeless people as rights holders and knowledge producers.

Keywords: Right to Education. Homelessness. Vulnerability. Human Rights. Maranhão.

RESUMO

O presente artigo analisa o direito à educação das pessoas em situação de rua no Brasil, com recorte específico no estado do Maranhão, a partir da teoria das camadas de vulnerabilidade proposta por Florencia Luna. Parte-se do reconhecimento de que, embora a educação seja constitucionalmente assegurada como direito fundamental, sua efetivação permanece limitada para grupos socialmente vulnerabilizados. Metodologicamente, o estudo adota abordagem qualitativa, de natureza teórico-documental, com revisão de literatura crítica e análise de documentos normativos e dados públicos. A discussão articula os aportes da pedagogia crítica, dos direitos humanos e das teorias da vulnerabilidade, dialogando com autores como Paulo Freire, Judith Butler, Achille Mbembe e Boaventura de Sousa Santos. Os resultados indicam que a exclusão educacional das pessoas em situação de rua decorre

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da sobreposição de múltiplas camadas de vulnerabilidade — documentais, institucionais, territoriais, simbólicas e socioeconômicas — intensificadas no contexto maranhense por desigualdades históricas e raciais. Conclui-se que a garantia do direito à educação exige políticas públicas intersetoriais, práticas pedagógicas inclusivas e o reconhecimento da população em situação de rua como sujeitos de direitos e produtores de conhecimento.

Palavras-chave: Direito à Educação. Situação de Rua. Vulnerabilidade. Direitos Humanos. Maranhão.

RESUMEN

Este artículo analiza el derecho a la educación de las personas en situación de calle en Brasil, con un enfoque específico en el estado de Maranhão, a partir de la teoría de las capas de vulnerabilidad propuesta por Florencia Luna. Aunque la educación está constitucionalmente garantizada como un derecho fundamental, su materialización sigue siendo limitada para los grupos socialmente vulnerabilizados. Metodológicamente, el estudio adopta un enfoque cualitativo de carácter teórico-documental, basado en una revisión crítica de la literatura y en el análisis de documentos normativos y datos públicos. La discusión articula aportes de la pedagogía crítica, los derechos humanos y las teorías de la vulnerabilidad, dialogando con autores como Paulo Freire, Judith Butler, Achille Mbembe y Boaventura de Sousa Santos. Los resultados indican que la exclusión educativa de las personas en situación de calle resulta de la superposición de múltiples capas de vulnerabilidad —documentales, institucionales, territoriales, simbólicas y socioeconómicas— agravadas en Maranhão por desigualdades históricas y raciales. Se concluye que la garantía del derecho a la educación exige políticas públicas intersectoriales, prácticas pedagógicas inclusivas y el reconocimiento de estas personas como sujetos de derechos y productores de conocimiento.

Palavras-chave: Derecho a la Educación. Sin Hogar. Vulnerabilidad. Derechos Humanos. Maranhão.

1 INTRODUCTION

Homelessness is one of the most acute expressions of contemporary social inequality, revealing the historical insufficiency of public policies aimed at guaranteeing fundamental rights. In Brazil, the continuous growth of the homeless population exposes the persistence of exclusionary social structures that operate by denying access to housing, work, health and, in a particularly sensitive way, education. Although this is constitutionally recognized as a right of all and a duty of the State, its implementation remains profoundly unequal, especially for socially vulnerable groups.

In the educational field, the exclusion of homeless people is not limited to the absence of vacancies or the precariousness of the school offer. It is a structural phenomenon, produced by multiple institutional, symbolic and material barriers that make access, permanence and completion of educational trajectories unfeasible. The school, often organized based on rigid normative standards, shows little sensitivity to the living conditions marked by instability, extreme poverty and the rupture of social bonds that characterize the street experience.

The state of Maranhão is significantly inserted in this debate, since it presents historically unfavorable social and educational indicators, associated with persistent racial, territorial and economic inequalities. The reality of Maranhão shows how the educational exclusion of homeless people cannot be understood only as an individual failure or absence of interest, but as a result of structural processes that produce and reproduce vulnerabilities over time.

In this context, this article proposes to analyze the right to education of homeless people in Brazil, with emphasis on Maranhão, based on the theory of layers of vulnerability developed by Florencia Luna. This approach allows us to understand vulnerability as a relational and dynamic phenomenon, resulting from the overlapping of different social, legal and institutional factors, moving away from simplifying readings that naturalize exclusion.

By articulating the fields of education, human rights and public policies, the study seeks to contribute to the deepening of the academic debate on homelessness, highlighting the centrality of education as an instrument of recognition, dignity and social inclusion. More than describing a social problem, the article intends to problematize the conditions that limit the exercise of the right to education and to indicate analytical paths capable of subsidizing the construction of intersectoral public policies and pedagogical practices committed to social justice.

2 PROBLEMATIZATION

The guarantee of the right to education for homeless people highlights a central contradiction of the Democratic Rule of Law: the distance between the formal recognition of rights and their concrete realization for historically marginalized groups. Although the Brazilian legal system affirms education as a universal right, reality shows that this right does not materialize in an equitable way, especially for those whose existence is marked by extreme social exclusion.

In the case of homeless people, the educational problem cannot be understood in isolation or reduced to individual factors, such as supposed lack of interest or personal incapacity. On the contrary, it is a structural phenomenon, produced by multiple mechanisms of exclusion that operate simultaneously and cumulatively. Homelessness, economic precariousness, the rupture of family ties, social stigma and institutional violence are elements that hinder or make it impossible to access traditional educational policies.

In Maranhão, this problem takes on even more complex contours, due to historical inequalities that cross the state, such as high rates of poverty, illiteracy, informality of work and racial inequality. The combination of these factors contributes to the intensification of the educational exclusion of the homeless population, revealing the insufficiency of existing public policies to face the complexity of the problem.

Another central element of the problematization refers to the way educational institutions are organized. To a large extent, the school operates based on normative standards that presuppose residential stability, regular documentation, continuous attendance and availability of time — conditions that do not correspond to the reality of homeless people. This disconnection between the institutional organization and the concrete living conditions of the subjects results in processes of silent exclusion, in which the right to education is formally guaranteed, but materially denied.

In addition, it is observed that the homeless population remains, to a large extent, invisible in educational diagnoses and sectoral public policies. The absence of systematic data, the fragility of administrative records, and the scarce specific academic production on the subject in Maranhão hinder the formulation of evidence-based policies and reinforce the marginalization of this group in the educational field.

Given this scenario, the central problematization that guides this article can be formulated as follows: how do the multiple layers of vulnerability interfere in the exercise of

the right to education of homeless people in Brazil and, particularly, in Maranhão, and how have public educational policies responded to – or failed to respond – to this reality?

This question leads to the need for an analytical approach capable of overcoming simplifying explanations and recognizing the complexity of social vulnerability. In this sense, the theory of layers of vulnerability offers a relevant conceptual instrument to understand how different factors overlap and produce educational exclusion, allowing us to rethink public policies and pedagogical practices from a fairer, more inclusive perspective committed to human rights.

3 RATIONALE

The choice to analyze the right to education of homeless people in Brazil, with a specific focus on the state of Maranhão, is justified by the social, scientific and political relevance of the theme. Homelessness represents one of the most extreme faces of social exclusion, in which the denial of fundamental rights manifests itself simultaneously and continuously. Among these rights, education occupies a central place, as it is an essential instrument of emancipation, recognition and social participation.

In the Brazilian context, despite the normative advances in the area of human rights and education, there is a significant gap between the legal discourse and the reality experienced by the homeless population. The persistence of high rates of illiteracy, school dropout and low schooling among this group shows that the right to education is not yet fully realized, especially when it comes to subjects who live in conditions of extreme social vulnerability.

The justification for the Maranhão approach is based on the fact that the state has historically unfavorable social and educational indicators, in addition to deep territorial and racial inequalities. Maranhão is among the federative units with the highest rates of poverty and illiteracy in the country, which makes the analysis of homelessness and access to education even more urgent. In addition, there is a lack of academic studies that systematically articulate education, human rights and homelessness in the context of Maranhão, which reinforces the scientific relevance of this investigation.

From a theoretical point of view, the adoption of the approach of layers of vulnerability, proposed by Florencia Luna, confers originality and analytical rigor to the study. Although widely used in the field of bioethics, this perspective is still little explored in educational analyses and public policies aimed at the homeless population. Its application allows us to

understand vulnerability as a relational and cumulative phenomenon, avoiding generalizations and enabling the identification of specific factors that require differentiated interventions.

In addition, the dialogue with authors of critical pedagogy, human rights and contemporary social theories contributes to broadening the understanding of educational exclusion as a product of historical and structural processes, and not as an individual failure. This approach reinforces the need for intersectoral public policies and pedagogical practices committed to social justice, human dignity and the recognition of homeless people as bearers of rights.

Finally, this study is justified by its potential practical contribution, by offering theoretical and analytical subsidies for the formulation and improvement of more inclusive educational public policies. By highlighting the limits of the actions that currently exist and pointing out possible ways to overcome the layers of vulnerability, the article seeks to collaborate with public managers, educators and researchers interested in building a more just and democratic society.

4 GENERAL OBJECTIVE AND SPECIFIC OBJECTIVES

4.1 GENERAL OBJECTIVE

To analyze the right to education of homeless people in Brazil, with emphasis on the state of Maranhão, in the light of the theory of layers of vulnerability proposed by Florencia Luna, identifying the structural, institutional and symbolic factors that interfere in the access, permanence and effectiveness of this right, as well as the implications for the formulation of educational and intersectoral public policies.

4.2 SPECIFIC OBJECTIVES

1. To examine the national and international normative framework related to the right to education and protection of homeless people, highlighting its limits of effectiveness in the Brazilian context.
2. To understand the main social, economic and educational characteristics of the homeless population in Brazil and Maranhão, based on documentary data and existing studies.

3. Identify and analyze the multiple layers of vulnerability that affect homeless people, considering documentary, territorial, institutional, socioeconomic and symbolic aspects.
4. To evaluate how public educational policies, especially Youth and Adult Education, have responded to the needs of this public in the context of Maranhão.
5. Analyze the role of educational institutions in the production or mitigation of school exclusion, considering pedagogical practices, bureaucratic requirements and institutional dynamics.
6. Discuss the relevance of the intersectoral perspective in guaranteeing the right to education, articulating education, social assistance, health and human rights.
7. To contribute to the academic debate on education and social vulnerability, expanding the application of the theory of layers of vulnerability to the educational field and public policies.

5 THEORETICAL FRAMEWORK

5.1 EDUCATION, HUMAN RIGHTS AND SOCIAL EXCLUSION

Education is recognized in the field of human rights as a fundamental right and an indispensable means for the exercise of citizenship and human dignity. In the Brazilian legal system, this right is supported by the Federal Constitution of 1988 and the Law of Guidelines and Bases of National Education, which establish education as a duty of the State and a right of all. However, the realization of this right remains deeply unequal, especially for historically marginalized groups, such as homeless people.

The critical literature points out that educational exclusion cannot be understood only as the absence of access to school, but as the result of social processes that produce inequality and invisibility. In this sense, education operates both as an instrument of emancipation and, paradoxically, as a space for the reproduction of inequalities when it does not consider the concrete living conditions of the subjects. The homeless population, marked by trajectories of ruptures, extreme poverty and institutional violence, finds in the traditional organization of the educational system a series of obstacles that make it impossible for them to remain and participate effectively.

Authors in the field of human rights point out that the denial of the right to education for this group constitutes a systematic violation of rights, reinforcing cycles of social exclusion and preventing access to other fundamental rights. Thus, education must be understood as

an interdependent right, whose implementation requires articulation with social assistance, health, housing and work policies.

5.2 CRITICAL PEDAGOGY AND EDUCATION AS A PRACTICE OF EMANCIPATION

Critical pedagogy, especially from the contributions of Paulo Freire, offers a central reference to understand the role of education in the transformation of the realities of exclusion. Freire conceives education as a political and ethical practice, oriented towards the liberation of subjects and the recognition of their life experiences as legitimate knowledge. This perspective is particularly relevant when it comes to the education of homeless people, whose trajectories are often disregarded by traditional pedagogical models.

Freire's proposal of a dialogical, contextualized and problematizing education is opposed to the banking logic of teaching, which tends to reinforce hierarchies and silencing. In the context of homelessness, the absence of dialogue and recognition of lived experiences contributes to the distancing of these subjects from the school environment. Critical pedagogy, on the contrary, proposes educational practices capable of welcoming the diversity of trajectories and promoting processes of awareness and autonomy.

In this sense, thinking of education as an emancipatory practice implies questioning rigid curricula, inflexible methodologies and bureaucratic requirements that disregard social vulnerability. Critical pedagogy provides, therefore, theoretical foundations for the construction of inclusive educational practices committed to social justice.

5.3 VULNERABILITY, PRECARIOUSNESS AND THE PRODUCTION OF EXCLUSION

The concept of vulnerability has been widely used in the social sciences to analyze situations of risk, exclusion, and inequality. However, recent approaches warn of the limits of generalizing conceptions, which treat entire groups as essentially vulnerable. In this debate, Florencia Luna's contribution is central in proposing the metaphor of the layers of vulnerability, understanding vulnerability as relational, dynamic and contextual.

For Luna, vulnerability is not an intrinsic condition of the subject, but results from the overlapping of social, institutional, economic, and political factors that can be identified and potentially removed. This approach allows for a more accurate analysis of situations of exclusion, avoiding stigmatization and enabling targeted interventions. In the educational field, the application of this theory allows us to understand how different layers — such as

lack of documents, territorial instability, extreme poverty, and discrimination — accumulate and hinder the exercise of the right to education by people living on the streets.

The notion of precariousness, developed by Judith Butler, complements this analysis by showing that certain lives are socially produced as less worthy of protection. Precariousness, in this sense, is not distributed equally, but is crossed by power relations that define which groups will have access to rights and which will remain on the margins. The homeless population is included in this scenario as a group whose existence is often naturalized as disposable.

5.4 NECROPOLITICS, COLONIALITY, AND EPISTEMOLOGIES OF THE SOUTH

Reflection on the educational exclusion of homeless people also requires dialogue with approaches that problematize contemporary forms of life and death management. The theory of necropolitics, formulated by Achille Mbembe, contributes to understanding how the absence of effective public policies and state negligence can be interpreted as forms of production of social death. The continuous denial of access to education, in this context, configures a form of civil death, in which subjects are deprived of rights and recognition.

On the epistemological level, Boaventura de Sousa Santos denounces the persistence of an epistemicide that silences knowledge produced by subalternized groups. Homeless people, often excluded from formal spaces of knowledge production, have their experiences delegitimized and made invisible. In Maranhão, marked by deep colonial legacies and structural inequalities, this dynamic takes on even more intense contours.

The epistemologies of the South propose, therefore, the valorization of situated knowledge and the construction of public policies sensitive to local realities. In the educational field, this implies recognizing the experiences of homeless people as a legitimate source of knowledge and rethinking pedagogical practices that reproduce exclusionary patterns.

5.5 CONTRIBUTIONS OF THE THEORETICAL FRAMEWORK TO THE ANALYSIS OF MARANHÃO

The articulation between critical pedagogy, theory of layers of vulnerability, precariousness, necropolitics and epistemologies of the South offers a robust theoretical framework to analyze the right to education of homeless people in Maranhão. This theoretical set allows us to understand educational exclusion as a structural phenomenon, produced by multiple layers of inequality that reinforce each other.

By adopting this framework, the article dispels simplifying interpretations and contributes to the development of critical analyses capable of subsidizing more inclusive educational public policies. The theoretical framework, therefore, not only underpins the subsequent empirical analysis, but also guides the construction of proposals committed to the realization of human rights and to the overcoming of the historical inequalities that mark the context

6 ANALYSIS AND DISCUSSION OF THE RESULTS FROM THE LITERATURE REVIEW

6.1 THE HOMELESS SITUATION AS AN EXPRESSION OF OVERLAPPING LAYERS OF VULNERABILITY

The analysis of the literature allows us to understand the homeless situation not as an isolated phenomenon or resulting exclusively from individual choices, but as a result of a historical and structural process marked by deep inequalities. In the Brazilian context, several studies point out that factors such as extreme poverty, breakdown of family ties, unemployment, structural racism, urban violence, and the absence of consistent public policies act in combination, producing trajectories of prolonged exclusion.

Based on the theoretical contribution of Florencia Luna, it is possible to interpret homelessness as a condition crossed by multiple layers of vulnerability, which accumulate and reinforce each other. These layers are neither fixed nor homogeneous, but vary according to the social, territorial and institutional context. In the case of homeless people, the denial of the right to education constitutes a central layer, which enhances other vulnerabilities and hinders social reintegration processes.

This approach makes it possible to overcome simplifying readings that classify the homeless population as inherently vulnerable, shifting the focus to the social and state mechanisms that produce and maintain this condition.

6.2 RIGHT TO EDUCATION AND INSTITUTIONAL INVISIBILITY

The literature review shows that, although the right to education is formally ensured, its implementation for homeless people faces significant obstacles. Bureaucratic barriers, such as the requirement for documentation, proof of address, and regularity of attendance, operate as mechanisms of indirect exclusion. In addition, institutional practices marked by prejudice and stigmatization contribute to distancing these subjects from educational spaces.

In this scenario, education ceases to fulfill its emancipatory role and starts to function as a device for the reproduction of inequalities. Authors in the field of critical pedagogy point out that the absence of specific educational policies for vulnerable populations reveals a restrictive conception of citizenship, in which only certain subjects are recognized as legitimate recipients of rights.

In Maranhão, this institutional invisibility is aggravated by historical regional inequalities, low socioeconomic indicators, and limitations in the provision of inclusive educational policies. The literature points out that the absence of systematized data on the schooling of the homeless population in the state contributes to the formulation of fragmented and ineffective policies.

6.3 COLONIALITY, EPISTEMICIDE AND PRODUCTION OF EDUCATIONAL EXCLUSION

The educational exclusion of homeless people can also be analyzed in the light of the critique of the coloniality of power and knowledge. The production of public educational policies in Brazil, in general, is still guided by homogeneous models, little sensitive to local realities and life trajectories marked by exclusion. This logic reinforces a process of epistemicide, in which the knowledge produced by marginalized subjects is disregarded.

In this sense, it is questioned whether homeless people are not, in a way, imprisoned by an epistemological colonialism, which defines which lives are worthy of educational investment and which can be relegated to marginality. The critical literature indicates that the denial of the right to education for this group is not only an administrative failure, but an expression of a political rationality that hierarchizes lives.

In Maranhão, where strong colonial legacies and territorial inequalities persist, this logic is manifested in an intense way, especially in large cities, where the homeless population lives with the absence of educational policies articulated with social assistance policies.

6.4 EDUCATION AS A POSSIBILITY OF BREAKING THE LAYERS OF VULNERABILITY

Despite the adverse scenario, the literature also points to experiences that show the potential of education as an instrument for breaking the layers of vulnerability. Popular education initiatives, youth and adult education programs, and intersectoral actions demonstrate that flexible, contextualized, and dialogical pedagogical practices can favor processes of rapprochement of the homeless population with the right to education.

Inspired by Freire's pedagogy, these experiences recognize homeless subjects as bearers of knowledge and stories, breaking with welfare and paternalistic approaches. From Florencia Luna's perspective, such initiatives act directly on certain layers of vulnerability, reducing their impacts and expanding the possibilities of autonomy and social participation.

In the context of Maranhão, although still incipient, experiences of this nature indicate possible paths for the construction of educational policies that are more sensitive to local specificities and to the multiple dimensions of social exclusion.

6.5 ANALYTICAL SUMMARY OF THE DISCUSSION

The analysis and discussion of the results, based on the literature review, allow us to affirm that homelessness and the denial of the right to education are interconnected phenomena, produced by overlapping layers of vulnerability. The approach proposed by Florencia Luna contributes decisively to understanding the complexity of these dynamics, avoiding generalizations and guiding more precise interventions.

In Brazil and, in particular, in Maranhão, the realization of the right to education for homeless people requires the recognition of structural inequalities, the overcoming of exclusionary institutional practices and the valorization of epistemologies committed to human rights and social justice.

7 FINAL CONSIDERATIONS

This article aimed to analyze the right to education of homeless people in Brazil, with emphasis on the context of Maranhão, from a critical approach based on human rights and the theory of layers of vulnerability proposed by Florencia Luna. Throughout the analysis, it was evident that homelessness cannot be understood as an individual or circumstantial condition, but as a result of historical, social and institutional processes that produce exclusion and invisibility.

The literature review showed that the denial of the right to education for homeless people constitutes a systematic violation of fundamental rights, aggravated by bureaucratic practices, institutional prejudices and educational models that are not very sensitive to the realities of extreme vulnerability. In this sense, education, although formally recognized as a universal right, remains inaccessible to a significant portion of the population, reinforcing cycles of poverty and marginalization.

The application of the metaphor of the layers of vulnerability allowed us to understand that educational exclusion is only one of the dimensions that overlap in the lives of people living on the streets. Factors such as homelessness, economic precariousness, social discrimination, lack of access to health and fragility of family ties constitute layers that, combined, intensify the denial of rights. This approach proved to be particularly relevant to avoid generalizations and stigmatizations, in addition to offering subsidies for the formulation of more effective public policies.

In the context of Maranhão, regional inequalities, colonial legacies and the fragility of public educational policies contribute to the intensification of these layers of vulnerability. The absence of systematized data on the schooling of the homeless population in the state highlights the need for greater investment in research and intersectoral policies that articulate education, social assistance, health and housing.

It is concluded that the realization of the right to education for homeless people requires not only the expansion of access to formal educational systems, but the construction of critical, flexible and contextualized pedagogical practices, capable of recognizing the subjects as bearers of knowledge and rights. Overcoming the inequalities analyzed requires the commitment of the State and society to the promotion of human dignity, social justice and the consolidation of human rights, especially in historically marginalized territories, such as Maranhão.

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**PEDAGOGICAL COORDINATION AND DIVERSITY: A LITERATURE REVIEW
ON COMBATING BULLYING IN SCHOOLS**

**COORDENAÇÃO PEDAGÓGICA E DIVERSIDADES: UMA REVISÃO DA
LITERATURA SOBRE O COMBATE AO BULLYING NAS ESCOLAS**

**COORDINACIÓN PEDAGÓGICA Y DIVERSIDADES: UNA REVISIÓN DE LA
LITERATURA SOBRE EL COMBATE AL ACOSO ESCOLAR EN LAS
ESCUELAS**

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ABSTRACT

This study investigates bullying in the school environment and its implications for students, with emphasis on the role of educational management in preventing and combating such violence. The research was conducted through a narrative review of literature, analyzing public policies, conflict mediation and promotion of the culture of peace as essential strategies for building an inclusive and democratic school environment. It is characterized as applied research, with a qualitative approach and exploratory character. We consulted theoretical references published between 2010 and 2024, covering legislation, scientific articles and dissertations that discuss the prevention of bullying in schools. The data analysis followed the narrative literature review methodology, allowing a critical view of the state of the art on the subject. The results indicate that the Brazilian legislation, including the Statute of Children and Adolescents (SCA) and Law 13.185/2015, establishes guidelines for the prevention of bullying, but its implementation in schools still faces challenges. The study highlights different manifestations of bullying - physical, verbal, psychological, social and virtual - and its impacts on students' mental health, academic performance and social interaction. In addition, it highlights the crucial role of educational management in the early identification of the problem, the training of teachers and the development of institutional strategies to combat bullying. It is concluded that the fight against bullying requires an integrated approach,

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involving schools, families and communities. School management should foster awareness policies and conflict mediation strategies, ensuring a safe and welcoming environment for all students.

Keywords: Conflict Mediation. Coping with Violence. School Management.

RESUMO

Este estudo investiga o bullying no ambiente escolar e suas implicações para os estudantes, com ênfase no papel da gestão educacional na prevenção e no combate a essa violência. A pesquisa foi conduzida por meio de uma revisão narrativa da literatura, analisando políticas públicas, mediação de conflitos e promoção da cultura de paz como estratégias essenciais para a construção de um ambiente escolar inclusivo e democrático. Caracteriza-se como uma pesquisa aplicada, de abordagem qualitativa e de caráter exploratório. Foram consultadas referências teóricas publicadas entre 2010 e 2024, abrangendo legislações, artigos científicos e dissertações que discutem a prevenção do bullying nas escolas. A análise dos dados seguiu a metodologia de revisão bibliográfica narrativa, permitindo uma visão crítica do estado da arte sobre o tema. Os resultados apontam que a legislação brasileira, incluindo o Estatuto da Criança e do Adolescente (ECA) e a Lei n.º 13.185/2015, estabelece diretrizes para a prevenção do bullying, porém sua implementação nas escolas ainda enfrenta desafios. O estudo destaca diferentes manifestações do bullying – física, verbal, psicológica, social e virtual – e seus impactos na saúde mental, no desempenho acadêmico e no convívio social dos estudantes. Além disso, evidencia o papel crucial da gestão educacional na identificação precoce do problema, na capacitação de professores e no desenvolvimento de estratégias institucionais de combate ao bullying. Conclui-se que o enfrentamento do bullying exige uma abordagem integrada, envolvendo escolas, famílias e comunidades. A gestão escolar deve fomentar políticas de conscientização e estratégias de mediação de conflitos, garantindo um ambiente seguro e acolhedor para todos os estudantes.

Palavras-chave: Enfrentamento à Violência. Gestão Escolar. Mediação de Conflitos.

RESUMEN

Este estudio investiga el acoso escolar en el entorno educativo y sus implicaciones para los estudiantes, con énfasis en el papel de la gestión educativa en la prevención y el combate de esta forma de violencia. La investigación se llevó a cabo mediante una revisión narrativa de la literatura, analizando las políticas públicas, la mediación de conflictos y la promoción de una cultura de paz como estrategias esenciales para la construcción de un ambiente escolar inclusivo y democrático. Se caracteriza como una investigación aplicada, de enfoque cualitativo y de carácter exploratorio. Se consultaron referencias teóricas publicadas entre 2010 y 2024, que abarcan legislaciones, artículos científicos y disertaciones que abordan la prevención del acoso escolar. El análisis de los datos siguió la metodología de revisión bibliográfica narrativa, permitiendo una visión crítica del estado del arte sobre el tema. Los resultados señalan que la legislación brasileña, incluido el Estatuto del Niño y del Adolescente (ECA) y la Ley n.º 13.185/2015, establece directrices para la prevención del acoso escolar; sin embargo, su implementación en las escuelas aún enfrenta desafíos. El estudio destaca diferentes manifestaciones del acoso escolar—física, verbal, psicológica, social y virtual—y sus impactos en la salud mental, el rendimiento académico y la convivencia social de los estudiantes. Además, evidencia el papel crucial de la gestión educativa en la identificación temprana del problema, la capacitación docente y el desarrollo de estrategias institucionales para combatir el acoso escolar. Se concluye que el enfrentamiento del acoso escolar requiere un enfoque integrado que involucre a las escuelas, las familias y las comunidades. La gestión escolar debe promover políticas de concienciación y estrategias

de mediación de conflictos, garantizando un entorno seguro y acogedor para todos los estudiantes.

Palavras-chave: Enfrentamiento a la Violencia. Gestión Escolar. Mediación de Conflictos.

1 INTRODUCTION

According to Guimarães and Souza (2025), bullying is a social manifestation that is extremely relevant within the school context. For the authors, it can be defined as a set of repetitive actions that involve intimidation actions; physical, verbal or emotional violence; humiliation and exclusion among students. Reis et al. (2016) corroborate these statements by stating that bullying is a negative form of interpersonal relationships among students, which triggers serious consequences for the victims of this behavior, such as: anxiety, isolation, irritability, aggressiveness, affective problems and exclusion.

For Lourenço et al. (2009), bullying also encompasses all actions practiced in the school environment that involve unequal power relations, with or without evident motivation; adopted by one or more students in an aggressive, intentional and repetitive way, which make it possible to intimidate the victim, causing him or her feelings of pain and anguish. In view of these allegations, it is up to school management to be aware of this form of violence so that they can diagnose, intervene and create ways to prevent it in the educational sphere.

Adão and Bastos Junior (2020) defend the use of public policies and the application of projects that involve conflict prevention and mediation and the promotion of a culture of peace as a way to mitigate manifestations of violence at school. Orique; Hammes and Moita, (2021) reiterate the importance of knowing the reality of the school and the socioeconomic context in which it is inserted, with the active participation of the entire school community (school institution, family and community) in the actions and projects developed in the search to achieve positive results.

Mattos; Komuro and Shimada (2023) state that education aimed at disseminating a culture that promotes human rights is capable of propagating evaluative principles that contribute to the maintenance of the democratization of civil society. In this context, the authors state that the representation of students through the Student Council and Human Rights Commissions in schools favors the fight against bullying, as students become protagonists by accepting part of these demands in the elaboration of methodologies, projects and research aimed at raising the awareness of other colleagues.

Therefore, this work seeks to analyze, through a narrative review of the literature, the phenomenon of bullying in the school environment and its implications for students; as well as the role of educational management in preventing and combating this form of violence, highlighting the importance of public policies, conflict mediation and the promotion of a culture of peace as strategies for building a more inclusive and democratic school environment.

Initially, the research describes the main public policies and conflict mediation actions carried out by schools in the fight against school bullying. Then, the theme of bullying within the school context will be explored; as well as the role of educational management in identifying, preventing and combating it.

2 METHODOLOGY

For Gil (2008), research is an investigative process that is concerned with discovering the relationships between aspects involving facts, phenomena, situations or things. It consists of a rational and systematic procedure that seeks to find answers to the problems that are proposed. It is accompanied by several stages, from the formulation of the problem to the presentation and discussion of the results.

As for its nature, this work is characterized by applied research. For Pereira (2023), when applying research, it serves to test or refute theories or hypotheses; as well as having the ability to diagnose, intervene and solve problems arising from a social and productive world, due to its ability to collect, process facts and data, in order to generate results that cause an impact on society. In relation to its objectives, it is an exploratory type of research. Its purpose is to provide greater familiarity with the problem, with a view to making it more explicit (Gil, 2008).

The approach used in this work will be qualitative. In it, the purpose of this study is to understand and reconstruct existing knowledge on the investigated theme. Thus, qualitative research aims to describe, interpret and seek to understand facts, phenomena and situations from an analysis of their content (Leite, 2017).

Among the procedures used for the development of the work are: bibliographic research - with a survey of theoretical references already analyzed and published by written and electronic means: such as books, scientific articles, dissertations and theses; in order to analyze the content of these works and meet the objectives proposed in this research (Fonseca, 2002). Scientific articles published in national and international journals, regardless of the language in which they were written, from the last fifteen years (2010 to 2025) were collected using the following keywords: 'conflict mediation'; human rights'; 'the legislation on bullying in schools'; 'bullying in elementary school final years'; 'pedagogical management and bullying'; 'Education for diversity: combating bullying in schools'.

The data analysis took place through the narrative literature review, which aims to describe and discuss the "state of the art" of a given theme based on the consultation of the existing literature and critical analysis by the author himself (Silva, 2022).

3 RESULTS AND DISCUSSION

50 works were selected for the analysis and critical discussion of the state of the art on the subject, with 42 scientific articles published in national and international journals between 2010 and 2025, six Brazilian federal laws and two state laws in Ceará.

3.1 PUBLIC POLICIES AND CONFLICT MEDIATION ACTIONS IN SCHOOLS

Pereira, Fernandes, and Dell'Aglio (2022) conducted a documentary study on Brazilian legislation with the aim of investigating the nature of the rules and verifying whether they had a punitive, preventive, or informative nature. The authors analyzed documents such as the Federal Constitution of 1988 (Brasil, 1988), the Statute of the Child and Adolescent (ECA) (Brasil, 1990), the Law of Guidelines and Bases of National Education (LDB) (Brasil, 1996), as well as legislation under debate or approved in the National Congress and in the State Legislative Assemblies.

According to the second article of the Law of Guidelines and Bases of National Education (Brasil, 1996), "[...] education, a duty of the family and the State, inspired by the principles of freedom and the ideals of human solidarity, aims at the full development of the student, his preparation for the exercise of citizenship and his qualification for work". In this context, Bichaco, Bonfim and Dedoné (2020) state that it is up to the school community to build an educational environment that stimulates empathy and develops social skills capable of promoting collective awareness about respect for diversity and bullying prevention, directing attention to compliance with the legislation.

Law No. 13,185/2015, which established the Program to Combat Systematic Intimidation (Bullying), characterizes, in its article 2, forms of bullying as any type of physical or psychological violence, as well as discriminatory acts involving intimidation and humiliation, which may result in physical aggression, systematic provocation and name-calling, pejorative nicknames, prejudiced expressions and insults. In addition, the law includes any type of threat, regardless of the means by which it is carried out, that results in premeditated social isolation.

Article 3 of the aforementioned law classifies bullying into different categories:

- I. Verbal: insults, curses and pejorative nicknames;
- II. Moral: defamation, slander and dissemination of rumors;
- III. Sexual: harassment or abuse, directly or indirectly;
- IV. Social: acts that result in the isolation, exclusion or rejection of the victim;
- V. Psychological: persecution, intimidation, fear, blackmail and emotional distress;
- VI. Physical: aggressions such as punches, kicks and other types of bodily injuries;
- VII. Material: thefts, robberies and destruction of the victim's belongings;
- VIII. Virtual (cyberbullying): sending offensive messages, exposing the victim's intimacy, tampering with images and disclosing personal data, resulting in suffering and psychological and social embarrassment.

According to Pereira, Fernandes and Dell'Aglio (2022), the ECA provides that, given the vulnerability of children and adolescents, especially because they are in the process of development, there must be a broad and effective prevention policy, ensuring the rights established in the legislation. These rights can be classified into three levels:

1. Primary: guarantee of the fundamental rights provided for in the Federal Constitution;
2. Secondary: creation and implementation of programs aimed at supporting and guiding young people and families at risk;
3. Tertiary: measures to mitigate and solve the problem through specialized care and referrals to multidisciplinary teams.

Some legislation, such as Law No. 13,277/2016, which establishes the National Day to Combat Bullying and Violence at School, are informative and preventive. Likewise, Law No. 13,663/2018, which amends Law No. 9,394/1996 (LDB), reinforces the role of schools in raising awareness, preventing and combating all forms of violence, promoting a culture of peace in the school environment.

In the State of Ceará, Law No. 14,754/2010 allows the executive branch to institute programs to prevent and combat school bullying, based on interdisciplinary actions and the participation of the school community. Article 4 of this law determines the creation of a multidisciplinary team in each teaching unit, composed of teachers, students, parents and volunteers, with the purpose of developing didactic, informative and preventive activities related to bullying.

Article 6 establishes that school units must approve an action plan aimed at combating and preventing bullying, including these activities in the school calendar to ensure their effective application. In addition, the first paragraph determines that schools keep a record of

occurrences and measures adopted to raise awareness, prevent and combat bullying on their premises. The second paragraph requires educational institutions to adopt appropriate measures and submit bimonthly reports of occurrences to the Department of Education of the State of Ceará (SEDUC-CE) and the Prosecutor's Office for Children and Adolescents. Article 8 of the law also provides that victims and aggressors can be referred to medical, social, psychological and legal assistance services, through partnerships and agreements.

In addition, Law No. 14,943/2011 established the Whistleblower Hotline service to combat bullying in the State of Ceará. The rule establishes that the "disque-bullying" works free of charge, 24 hours a day, throughout the year, and SEDUC-CE is responsible for providing the necessary support for the implementation of the law, aiming at the eradication of this problem in schools.

3.2 THE PHENOMENON OF BULLYING IN THE SCHOOL CONTEXT

In the school context, bullying has been consolidated as a recurrent theme of great relevance in discussions about violence and forms of coexistence in educational environments. This phenomenon has been intensified by cyberbullying, which has become even more prevalent with the increase in students' access to electronic devices and the reduction of supervision by adults (Waasdorp & Bradshaw, 2015).

In addition, bullying predominantly affects children and adolescents, stages of development in which the school, through its educational processes and active methodologies, must offer psychosocial and emotional support, positively influencing the formation of these individuals. Such aggressive and violent behaviors arouse social concern, since they have similarities with the psychic devices triggered by fascist ideology (Silva et al., 2017).

At the heart of school bullying are behaviors ranging from physical aggression to more subtle forms of violence, such as insults and social exclusion (Silva & Costa, 2016). As described by Pozzoli, Gini and Thornberg (2016), such attitudes encompass humiliation, threats and intimidation, seeking to reinforce the aggressor's position of power in relation to the victim. The diversity of these manifestations makes the phenomenon complex, requiring diversified approaches for its understanding and intervention.

Research indicates the existence of multiple forms of violence in the school environment. Among them, the following stand out: physical: direct bodily aggression (Mattos, Komuro & Shimada, 2023); verbal: insults and curses (Batalha Júnior, 2019); psychological:

threats and behavioral manipulations (Silva Neto, 2023); sexual: harassment and coercion (Fernandes & Yunes, 2021; Santos, 2020); patrimonial: destruction or subtraction of other people's belongings. These different modalities reinforce the need for effective educational policies to prevent and mitigate such behaviors.

Mattos, Komuro, and Shimada (2023) point out that the advent of the internet, digital technologies, and mobile devices has introduced new dimensions to bullying, especially in the form of cyberbullying, which uses these means to perpetuate aggression. Mallmann, Lisboa and Calza (2018) highlight that this modality allows the aggressor to reach the victim in virtual spaces, overcoming the barriers of the school environment and intensifying the emotional and social impacts. The expanded reach of digital aggression highlights the need for strategies that protect students in both the physical and virtual environments.

The impacts of bullying extend significantly to the mental health of students (Vieira et al., 2020). Bottino et al. (2015) state that victims of this violence are more likely to develop anxiety disorders, stress, low self-esteem, in addition to having a higher risk of use or abuse of licit and/or illicit drugs. Symptoms of depression, suicidal ideation, and suicide attempts are also frequent and can persist into adulthood. According to Tavares et al. (2022), these psychological consequences compromise not only the emotional well-being of students, but also their ability to establish healthy interpersonal relationships, impairing social interaction and quality of life.

Zequinão et al. (2017) emphasize that the persistence of a negative school environment can generate a vicious cycle, in which the reduction of student engagement contributes to the increase in school dropout rates and, consequently, to the perpetuation of educational inequalities. In addition to the damage to mental health, bullying directly impacts the academic performance of students, demonstrating that a hostile environment interferes with concentration and class performance, leading to school dropout and lower performance (Zequinão et al., 2021).

From a social point of view, bullying contributes to the isolation of affected individuals, since victims often withdraw from interactions to avoid further aggression. This social retraction can result in difficulties in forming affective bonds and building support networks, essential elements for healthy development (Fernandes & Yunes, 2021). The absence of robust social support, as pointed out by Zequinão et al. (2017), can intensify the negative effects of bullying, promoting an environment of constant insecurity and vulnerability.

Understanding the phenomenon of bullying therefore requires a multidimensional approach that takes into account not only the direct manifestations of violence, but also its profound impacts on students' mental, social, and academic health (Serpa, 2023). Systematic studies demonstrate that effective interventions must involve a partnership between schools, families, and communities, with the aim of creating an educational environment that prioritizes respect, inclusion, and the well-being of all involved. Among the possible initiatives, awareness programs, training for teachers, and institutional policies aimed at preventing and confronting bullying stand out (Alliprandini, 2014; Fernandes et al., 2015).

In summary, bullying in the school context represents a complex challenge that requires integrated and sustainable responses. Recent scientific evidence demonstrates that combating this phenomenon should focus both on the early identification of aggressive behaviors and on the implementation of strategies that promote resilience and support for victims (Faraj et al., 2021). In this way, the creation of a safe and welcoming environment becomes a fundamental pillar for the integral development of students and for the construction of a more just and equitable society (Barbosa & Barros, 2016).

3.3 THE ROLE OF EDUCATIONAL MANAGEMENT IN IDENTIFYING, PREVENTING AND COMBATING BULLYING

Pedagogical coordination plays a crucial role in identifying, preventing, and combating this problem, acting as a mediator between teachers, students, principals, and the school community (Orique; Hammes; Moita, 2021). Early identification of bullying is essential for the implementation of effective intervention measures (Duboc et al., 2021).

Pedagogical management, due to its strategic position, has the responsibility of observing and analyzing interactions between students, identifying signs of aggression and victimization (Adão and Bastos Junior (2020). Silva and Bazon (2017) emphasize that the continuous training of educators is essential to improve sensitivity and competence in identifying bullying situations, contributing to a safer and more inclusive school environment.

In addition, it is essential that coordinators develop standardized instruments and protocols for collecting data on bullying incidents, allowing for a more accurate analysis and the development of appropriate intervention strategies, in order to comply with what is established in the educational legislation that deals with the subject. The use of anonymous questionnaires and individual interviews with students can be an effective tool in this process, as suggested by Crochík et al. (2014).

Bullying prevention involves creating a positive school climate, where values such as respect, empathy, and solidarity are promoted and practiced. School management plays a central role in the implementation of educational programs to combat bullying, together with the teaching staff, addressing these issues, integrating them into the school curriculum and promoting activities that encourage reflection and awareness among students (Ferreira; Mendonça, 2023).

Pereira Júnior et al. (2024) highlight the effectiveness of "Help Teams", a strategy that involves stimulating youth protagonism in promoting healthy coexistence and reducing school violence. According to the authors, the project consists of the creation and training of student teams, which act as a support system among equals, in which the students themselves are trained to act as mediators and supporters in situations of bullying, social exclusion and isolation

However, the implementation of prevention programs faces significant challenges, such as: resistance on the part of some members of the school community (especially when bullying is established in issues related to gender diversity, such as transphobia, for example); and the lack of material and human resources (Rabelo; Porto, 2024).

To overcome these barriers, it is essential that pedagogical coordination seeks partnerships with external institutions, such as universities and non-governmental organizations, aiming at the continuous training of educators and the development of appropriate teaching materials (Bedin et al., 2013). In addition, it is important to involve families in the educational process, promoting a collaborative approach to coping with bullying (Silva; Borges, 2018).

With regard to the effective fight against bullying, school management must act in the elaboration, articulation and implementation of clear and coherent institutional policies, which must be aligned with the school's Pedagogical Political Project (PPP) and its internal regulations. These documents should encourage practices of respect for diversity to be developed with students throughout the school year, including the definition of norms and procedures for conflict management, which enable all members of the school community to understand their role and responsibilities within this context (Bezerra, 2013).

The research by Crochik et al. (2014) indicates that school managers who recognize the social determinants of school violence tend to propose more structured and effective actions to combat bullying. In addition, it is essential that coordinators promote a favorable environment for discussion and continuing education of teachers, enabling them to deal with

bullying situations in an assertive and empathetic manner (Silva and Rosa, 2013). Silva and Bazon (2017) emphasize that raising educators' awareness of the various forms of aggression is crucial for appropriate intervention and for the promotion of a less violent and exclusionary school environment.

Thus, the role of pedagogical coordination in identifying, preventing, and combating bullying is of paramount importance for building a healthy and inclusive school environment (Lima and Ingrassia, 2023). Through coordinated actions, which involve the continuous training of educators, the implementation of prevention programs, and the development of clear institutional policies, coordinators can contribute significantly to the reduction of bullying rates and to the well-being of the entire school community (Serpa, 2023).

Recent literature reinforces the need for an integrated and collaborative approach, which considers the specificities of each context and promotes the active participation of all actors involved in the educational process, promoting inclusive education that guarantees human rights and essential learning for all students (Nascimento and Neto, 2020).

4 FINAL CONSIDERATIONS

The present study analyzed the problem of bullying in the school context, highlighting public policies and conflict mediation actions, the complexity of the phenomenon and the essential role of educational management in identifying, preventing and combating this practice. The data showed that, although the Brazilian legislation contemplates preventive, informative and punitive measures, the effectiveness of these norms depends on the implementation of concrete strategies in the school environment, ensuring the construction of a culture of peace and respect for diversity.

The analysis of the phenomenon of bullying revealed its multiple manifestations — physical, verbal, psychological, social, sexual, material and virtual — and its consequences for the academic, social and emotional development of the victims. The study indicates that bullying negatively impacts the mental health of students, and can lead to the development of disorders such as anxiety, depression, and suicidal ideation, in addition to compromising school performance and encouraging dropout. The advent of new technologies has increased the complexity of this problem, requiring approaches that contemplate both the physical and virtual environments.

In this context, educational management assumes a central role in the formulation and execution of institutional policies aimed at preventing and confronting bullying. The

continuous training of educators, the implementation of standardized protocols to identify cases of violence, the adoption of methodologies that encourage empathy and respect, in addition to articulation with the school community, are fundamental actions to mitigate the problem. In addition, strategies such as the creation of "help teams", which encourage the active participation of students in promoting a healthy coexistence, and the strengthening of the relationship between school and family are essential elements for the success of the interventions.

Thus, the construction of a safe and welcoming school environment depends on an integrated approach, which involves the entire school community in the creation of a learning space free of violence. For the fight against bullying to be effective, it is necessary that educational policies be accompanied by concrete pedagogical practices and a collective commitment to the formation of more aware and respectful citizens. Based on the analysis carried out, this study recommends that school managers adopt clear and coherent institutional policies in the fight against bullying, integrating them into the Pedagogical Political Project (PPP) and the school's internal regulations.

In the academic sphere, it is suggested that future research deepen the relationship between bullying and academic performance, investigating the long-term impacts on the social and emotional development of students. Additionally, these surveys can explore innovative prevention and intervention strategies, such as the use of educational technologies and socio-emotional skills. Based on the results presented, future actions should prioritize the creation of inter-institutional support networks, promoting partnerships between schools, universities, social organizations and government agencies, ensuring that confronting bullying is part of a collective and continuous commitment to promoting a more inclusive and equitable education.

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HISTORIOFIGURE Y OF INDIGENOUS EDUCATION PUBLIC POLICIES: A CUT FROM THE 1988 FEDERAL CONSTITUTION TO CONTEMPORANEITY

HISTORIOGRAFIA DAS POLÍTICAS PÚBLICAS DE EDUCAÇÃO INDÍGENA: UM RECORTE A PARTIR DA CONSTITUIÇÃO FEDERAL DE 1988 ATÉ A CONTEMPORANEIDADE

HISTORIOGRAFÍA DE LAS POLÍTICAS PÚBLICAS DE EDUCACIÓN INDÍGENA: UN RECORTE A PARTIR DE LA CONSTITUCIÓN FEDERAL DE 1988 HASTA LA CONTEMPORANEIDAD

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ABSTRACT

The present article is an excerpt from a chapter, the result of the author's master's thesis in which she analyzed the historical and legal trajectory of public education policies aimed at indigenous peoples in Brazil. It was based on a qualitative and descriptive approach, grounded in historiographical research and document analysis. The study highlights the transformations that have occurred since the Federal Constitution of 1988, a legal milestone that consolidated the right to differentiated education until the mid-2017 with the promulgation of the BNCC, in order to characterize such policies in their respective potentialities and/or weaknesses. The discussions highlight the indigenous protagonism in the conquest of their rights and the slow construction of public policies that recognize the cultural and linguistic diversity of these peoples. The analysis presented here demonstrates that, although legal advances have occurred, structural challenges still persist in the implementation of intercultural, bilingual, and contextualized indigenous school education.

Keywords: Indigenous School Education. Public Policies. Indigenous Peoples. Educational Legislation. Cultural Diversity.

RESUMO

O presente artigo é um recorte de um capítulo, resultado da dissertação de mestrado da autora na qual analisou o percurso histórico e legal das políticas públicas de educação voltadas aos povos indígenas no Brasil. Fundamentou-se em uma abordagem qualitativa e descritiva, com base em pesquisa historiográfica e análise documental. O estudo destaca as transformações ocorridas desde a Constituição Federal de 1988, marco legal que consolidou o direito à educação diferenciada até meados dos anos 2017 com a promulgação da BNCC

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de forma a caracterizar tais políticas em suas respectivas potencialidades e/ou fragilidades. As discussões evidenciam o protagonismo indígena na conquista de seus direitos e a lenta construção de políticas públicas que reconhecem a diversidade cultural e linguística desses povos. A análise aqui apresentada demonstra que, embora avanços legais tenham ocorrido, ainda persistem desafios estruturais na efetivação de uma educação escolar indígena intercultural, bilíngue e contextualizada.

Palavras-chave: Educação Escolar Indígena. Políticas Públicas. Povos Indígenas. Legislação Educacional. Diversidade Cultural.

RESUMEN

El presente artículo es un extracto de un capítulo, resultado de la disertación de maestría de la autora en la que analizó el recorrido histórico y legal de las políticas públicas de educación dirigidas a los pueblos indígenas en Brasil. Se fundamentó en un enfoque cualitativo y descriptivo, basado en investigación historiográfica y análisis documental. El estudio destaca las transformaciones ocurridas desde la Constitución Federal de 1988, hito legal que consolidó el derecho a la educación diferenciada hasta mediados de 2017 con la promulgación de la BNCC, con el fin de caracterizar dichas políticas en sus respectivas potencialidades y/o fragilidades. Las discusiones evidencian el protagonismo indígena en la conquista de sus derechos y la lenta construcción de políticas públicas que reconocen la diversidad cultural y lingüística de estos pueblos. El análisis aquí presentado demuestra que, aunque se han producido avances legales, aún persisten desafíos estructurales en la efectiva implementación de una educación escolar indígena intercultural, bilingüe y contextualizada.

Palabras clave: Educación Escolar Indígena. Políticas Públicas. Pueblos Indígenas. Legislación Educativa. Diversidad Cultural.

1 INTRODUCTION

In the current academic-scientific context, there is a significant increase in studies on the indigenous peoples of Brazil, especially with regard to historical and cultural terms.

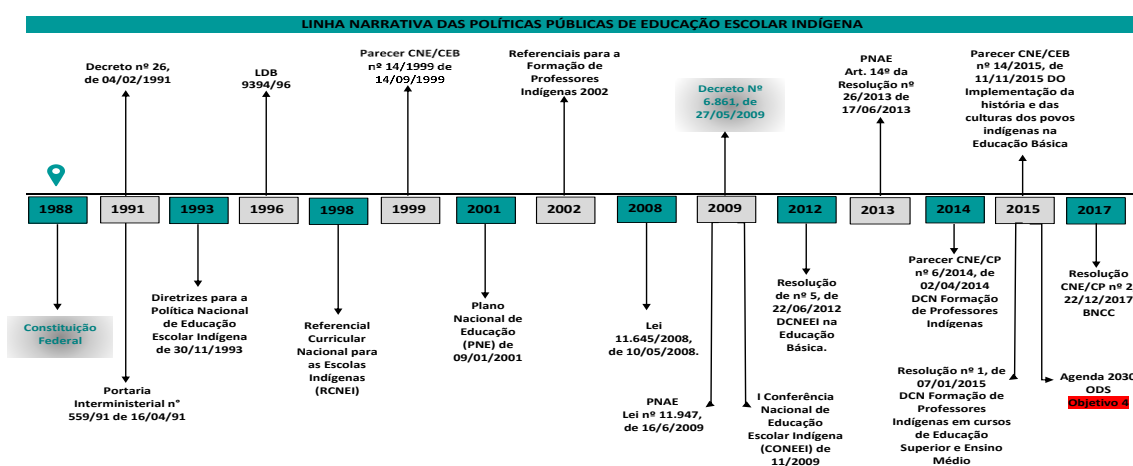
As a result of greater indigenous participation in decision-making in the field of public policies, over many years and gradually, legal apparatuses emerged in different segments such as health, education, territorial issues and the like, being favorable to the indigenous people. However, based on the history of these peoples and their reports, it can be pointed out that these achievements are the result of a slow process and watered by a lot of blood and native sweat (Lima, 2019).

When it comes to the history and transformations of indigenous school education, some authors report that they took place in two distinct moments, the first during the colonial period in which the focus was on catechization for the domination and assimilation of gentiles, and the other, after the 1988 Constitution, which opened the way for new perspectives of education with a view to respecting and democratizing this teaching (Medeiros, 2018).

In this section, we will review, within the socio-historical perspective, the transformations of public policies for indigenous education, as presented in the following narrative line:

Figure 1

Narrative Line of Public Policies for Indigenous School Education



Source: Prepared by the Author

Until the promulgation of the Federal Constitution (FC) of 1988, there was in fact no form of legislation aimed at indigenous school education, but what has been observed throughout history were genocidal and/or ethnocidal attempts at instructions largely aimed at

civilizing processes. Even so, it cannot fail to say that before that, the indigenous people have not experienced educational or learning moments, since their way of learning often takes place by oral means, passed from generation to generation, contrary to what will be presented from now on, which is indigenous school education, properly speaking and guaranteed by law today.

Thus, Azevedo (1996) points out that:

In order to better understand the development of indigenous school education in Brazil, in addition to the policies implemented, it is also necessary to investigate the legislation, since one of the most precious documents for the study of the evolution of the character of a civilization is found in school legislation, in teaching plans and programs and in the set of educational institutions (Azevedo, 1996, p.56).

From the Federal Constitution (FC) of 1988, a new era for indigenous education in Brazil emerges, because as we have described so far, the first attempts at education aimed at native peoples since European colonization took place in a broadly catechetical and assimilationist strand and with the FC, there were ruptures in this integrationist bias, in which education began to be made possible in a differentiated way, specific, intercultural and bilingual.

Throughout 1988, the indigenous movement and the movement in support of the Indians articulated to carry out initiatives related to indigenous rights in the future Constitution of the country. In addition to participating in discussions on related topics, they advised parliamentarians in the preparation of proposals and constitutional amendments in favor of the Indians. This mobilization was fundamental to ensure the consecration of indigenous rights and to stop the actions of opposing groups, interested in the exploitation of the natural resources of indigenous territories (BRASIL, 2001, p. 13).

As described by Faustino (2012), the revolution that took place in Indigenous Education in the 1990s was marked by the Federal Constitution of 1988, which since then, has ensured that Brazilian indigenous people have the unconditional right to a differentiated education, in which they would have access to universal education but in an adapted way, taking into account their mother tongues, cultural traditions and teaching being given by teachers from their communities, that is, indigenous teachers, as cited in Grupioni (1997):

With the 1988 Constitution, the Indians in Brazil were guaranteed the right to remain Indians, that is, to remain themselves, with their languages, cultures and traditions. By

recognizing that the Indians could use their mother tongues and their learning processes in school education, the possibility was established for the indigenous school to contribute to the process of ethnic and cultural affirmation of these peoples, ceasing to be one of the main vehicles of assimilation and integration (Grupioni, 1997, p. 130).

According to the 1988 Federal Constitution, the Indians came to be respected as differentiated ethnic groups, with the right to maintain their social organization, customs, languages, beliefs and traditions (CF Art. 231). In the same sense, in its article 210, the CF guarantees indigenous communities the use of their mother tongues and their own learning processes, and the State must protect the manifestations of indigenous cultures, which would later support the Law of Guidelines and Bases of National Education (LDBEN), guaranteeing indigenous peoples, in articles 78 and 79, the provision of bilingual and inter-cultural school education (BRASIL, 1996).

Among these legal apparatuses, the Indians are guaranteed the right to a school with specific characteristics, in addition to seeking the valorization of the traditional knowledge in force in their environment.

The rights guaranteed to indigenous peoples in the 1988 Constitution are the result of international policy and the actions of the Indians themselves who, together with the movements in support of the indigenous people, have articulated themselves, barring discriminatory actions by forces contrary to indigenous interests, participating in discussions so that their rights would be recognized (Buratto, 2007, p. 07).

In the last three decades that preceded the Constitution, the education of the indigenous people was assigned to the guardian body, the National Indian Foundation – FUNAI. With Decree No. 26, of February 4, 1991, which provides for Indigenous Education in Brazil, this reality was changed, and the Ministry of Education was responsible for integrating indigenous school education into the regular education systems, as well as coordinating actions related to these schools at all levels of education (BRASIL, 1991).

Art. 1 The Ministry of Education is responsible for coordinating actions related to Indigenous Education, at all levels and modalities of education, after consulting FUNAI. Art. 2 The actions provided for in Art. 1 shall be developed by the Secretariats of Education of the States and Municipalities in consonance with the National Secretariats of Education of the Ministry of Education (BRASIL, 1991).

In order to obtain subsidies and technical support regarding indigenous school education, Interministerial Ordinance No. 559/91 was created, which provides for the creation of an Indigenous School Education committee in the states, in addition to defining a range of guidelines in order to guide how the Ministry of Education (MEC) should assume its new functions. (BRAZIL, 1991).

Since then, several work and reflection fronts have been created with specialists, entities and people, which together would corroborate the elaboration of different guidelines for the implementation of a differentiated and pedagogically adequate education for indigenous students, not only in indigenous lands, but also outside them. In order to break with the model of catechization and integration of the Indians into national society, the MEC came up with the possibility of complying with the legislation guaranteeing indigenous peoples the right to a specific and differentiated education (BRASIL, 1991).

Prepared by the Indigenous School Education Committee, from the Ministry of Education, the Indigenous Education Policy emerged at the end of 1993, in which it presented the "Guidelines for the National Policy for Indigenous School Education". These Guidelines arise with the intention of serving as a basic reference for the operational plans of the States and Municipalities (BRASIL, 1993).

Based on the constitutional rights of indigenous peoples, this document was elaborated as an essential instrument in the implementation of a policy that guarantees, at the same time, respect for the specificity of indigenous peoples (in relation to non-Indians) and their internal diversity, be it linguistic, cultural or historical (BRASIL, 1993).

This document, which represents a milestone for indigenous school education in Brazil, establishes the principles for pedagogical practice in a context of cultural diversity. The proposal of a differentiated indigenous school represents a great novelty in the country's educational system and requires the responsible institutions and bodies to define new dynamics, conceptions and mechanisms, both so that these schools are actually incorporated and benefited by their inclusion in the official system and respected in their particularities (BRASIL, 2002, p. 02)

From the CF onwards, indigenous school education became the responsibility of the State, however, these guidelines will only be effective if all the agents involved (states, municipalities, MEC, FUNAI and universities) assume their respective responsibilities in the face of the new challenges of education towards these peoples (Grupioni, 2002).

According to Oliveira and Nascimento (2012), in addition to these Guidelines from 1993 to the present day, the MEC has also instituted a set of other guidelines with the aim of guiding the measures to be taken in the face of indigenous education issues, such as the National Curriculum Reference for Indigenous Schools (1998) and the References for the Training of Indigenous Teachers (2002). which bring in their texts, the principles and pedagogical and curricular proposals for indigenous schools, in addition to guiding the education systems regarding the construction and development of EEI policies (Oliveira; Nascimento; 2012)

On December 20, 1996, the National Congress approved the Law of Guidelines and Bases of National Education (LDBEN). This law establishes standards for the entire Brazilian educational system, establishing guidelines and bases for national education from Early Childhood Education to Higher Education.

With regard to Indigenous School Education, the LDB treats school education for indigenous peoples in a punctual way, making it clear that it should be organized differently from other schools in the education systems, as well as giving freedom to each indigenous school to define its Pedagogical Political Project (PPP) according to its particularities (BRASIL, 1996)

In addition, the practice of bilingualism is also emphasized in article 32, which establishes that its teaching will be taught in Portuguese, but ensuring that indigenous communities use their mother tongues and their own learning processes (BRASIL, 1996).

In Articles 78 and 79 of the same law, education for indigenous peoples is presented as offering a bilingual and intercultural school education, with a view to strengthening socio-cultural practices and the mother tongue of each indigenous community. Thus, the LDB determines the elaboration of integrated teaching and research programs through the articulation of education systems, together with the participation of indigenous communities in their formulation and in the development of specific curricula, including exclusively the cultural contents corresponding to the respective communities, in addition to the training of specialized professionals to work in schools, as well as the preparation and publication of specific and differentiated teaching materials (BRASIL, 1996).

Article 78. The Federal Education System, with the collaboration of the federal agencies for the promotion of culture and assistance to the Indians, will develop integrated teaching and research programs to offer bilingual and intercultural school education to the indigenous peoples, with the following objectives: I - to provide the

Indians, their communities and peoples with the recovery of their historical memories; the reaffirmation of their ethnic identities; the appreciation of their languages and sciences; II – to guarantee to the Indians, their communities and peoples, access to information, technical and scientific knowledge of the national society and other indigenous societies and não-índias. Art. 79. The Union shall provide technical and financial support to the education systems in providing intercultural education to indigenous communities, developing integrated teaching and research programs. § 1 The programs shall be planned with the audience of the indigenous communities. § 2 The programs referred to in this article, included in the National Education Plans, shall have the following objectives: I - to strengthen the socio-cultural practices and the mother tongue of each indigenous community; II - to maintain training programs for specialized personnel, intended for school education in indigenous communities; III - to develop specific curricula and programs, including the cultural contents corresponding to the respective communities; IV - systematically prepare and publish specific and differentiated didactic material (BRASIL, 1996).

In line with Article 79 of the LDB, in 1998 the Ministry of Education published the National Curriculum Reference for Indigenous Schools (RCNEI), in which the document was prepared with the purpose of offering subsidies for the elaboration of indigenous school education programs, as well as guidelines for the construction of the curriculum, teaching materials and for the training of teachers.

According to the RCNEI (1998), both schools and their respective materials must be based on community, intercultural, bilingual or multilingual, specific and differentiated principles.

The RCNEI/Indigenous intends to serve as an auxiliary instrument in this discussion and reflection, since it proposes to: a) explain the common frameworks that distinguish indigenous schools from non-indigenous schools, b) reflect the new educational intentions that should guide public educational policies for Brazilian indigenous schools, c) present the minimum principles necessary in each area of study of the curriculum, so that the objectives to be achieved can be translated into classroom procedures (BRASIL, 1998, p. 13).

This document arises under the understanding that the school has assumed different scenarios throughout history in a movement that ranges from the imposition of educational models on indigenous peoples, through domination, denial of identities, integration and cultural homogenization, to educational models claimed by the Indians, within paradigms of cultural pluralism and respect and appreciation of ethnic identities (BRASIL, 1998).

According to the Ministry of Education (MEC), the RCN should be understood as a tool to stimulate reflection, and not as a manual to be followed. It also serves as a subsidy to

expand and scrutinize the principles outlined in the document "Guidelines for the National Policy for Indigenous School Education" of 1993. In short, it is a document with the objective of integrating selected universal knowledge and the ethno-knowledge of each indigenous people, unlike the National Curriculum Parameters (PCNs) and the National Curriculum Guidelines (DCNs) that are considered normative documents, the RCN is a document with additional subsidies, therefore, it provides information beyond that provided in the preparation of curricular proposals. Generally, RCNs are prepared for areas that need additional information, as is the case of School Education in Indigenous Schools (Menezes, 2001).

As a consequence of the RCNEI, Opinion CNE/CEB No. 14/1999 was approved on September 14, 1999, which provides for the National Guidelines for the operation of indigenous schools.

[...] the CNE believes that it contributes to the advance towards the creation and development of the Indigenous School category in the recovery of historical, ethnic, linguistic and scientific memories, typical of these communities and, at the same time, aiming at successful access to interculturality, bilingualism and universal knowledge with social quality (BRASIL, 1999).

Seen as a great advance to the educational system, the proposal of the differentiated indigenous school represents another milestone in the achievements of indigenous peoples, because until then, the entire teaching-learning process of indigenous peoples still occurred within the standards of non-Indians and as much as there have been advances in educational issues so far, These peoples were not yet assured of school rights within the standards of their cultures, because from then on, the responsible institutions and bodies were required to define new dynamics, conceptions and mechanisms, both so that these schools are actually incorporated and benefited by their inclusion in the system, as well as respected for their particularities.

It is worth remembering that indigenous education differs from the term indigenous school, since the former is not necessarily linked to the place of teaching, but to all forms of cultural, linguistic and ancestral learning that each individual goes through throughout his or her life, while indigenous school education, the focus of CNE/CEB Opinion No. 14/1999, aims to legally regulate the conditions for an Indigenous school education, not only with regard to learning itself, but also the teaching methodology, adequate teaching materials, school calendar, evaluation, qualified professionals and other peculiarities, in a way that is appropriate to the sociocultural reality of each indigenous community.

But according to Oliveira and Nascimento (2012, p. 776), in the school context of the time, these guidelines guided the education systems to respond to the demands of indigenous schools that, at that time, offered only the initial years of elementary education, but that thirteen years later, would publish new guidelines for the ISS with the need to offer all basic education in indigenous school contexts.

On January 9, 2001, the National Education Plan (PNE) was enacted. In this plan, indigenous school education is presented in a chapter that discusses the situation of the provision of education to these peoples, as well as the guidelines, goals and objectives to be achieved in the short, medium and long term. Among the twenty-one objectives and goals, the universalization of educational programs in all grades of elementary education stand out, in addition to the granting of autonomy to indigenous schools with their pedagogical projects, such as the use of financial resources. (Grupioni, 2002).

In addition to these objectives, the PNE for indigenous schools also provides for the effective participation of communities in decisions related to schools, and the creation of lines of financing for the implementation of education programs in indigenous schools, in order to guarantee them, basic didactic-pedagogical equipment, as well as libraries, video libraries and other support materials. (Grupioni, 2002).

With the PNE, the legal responsibility for indigenous education and their respective schools is transferred to the state education systems, therefore, it is the responsibility of these bodies to professionalize and train indigenous teachers, as well as their public recognition among the categories in the teaching career. (Grupioni, 2002).

In addition to the legal apparatuses for the benefit of Brazilian indigenous communities that have emerged over the years after the Federal Constitution, we must also highlight an important achievement in the history of both native peoples and black communities, which was Law 11.645/2008, published on May 10, 2008, as referenced in figure 2.

Figure 2

Curriculum: Afro-Brazilian and Indigenous History and Culture



Source: Pereira, 2010

This law amends Law No. 9,394, of December 20, 1996, modified by Law No. 10,639, of January 9, 2003, which establishes the guidelines and bases of national education, to include as mandatory the theme "Afro-Brazilian and Indigenous History and Culture", in the official curriculum of the school system:

Article 1. Article 26-A of Law No. 9,394, of December 20, 1996, is now in force with the following wording: "Article 26-A. In public and private elementary and high schools, the study of Afro-Brazilian and indigenous history and culture becomes mandatory.

§ 1 The syllabus referred to in this article will include various aspects of the history and culture that characterize the formation of the Brazilian population, based on these two ethnic groups, such as the study of the history of Africa and Africans, the struggle of blacks and indigenous peoples in Brazil, the black and indigenous Brazilian culture and the black and the Indian in the formation of national society, rescuing his contributions in the social, economic and political areas, pertinent to the history of Brazil.

§ 2 The contents referring to Afro-Brazilian history and culture and of Brazilian indigenous peoples will be taught within the scope of the entire school curriculum, especially in the areas of artistic education and Brazilian literature and history." (BRAZIL, 2008)

The school is seen as one of the main spaces to reflect, teach and learn not only necessary content for reading, writing and calculation skills, but above all about different races, as well as about the origin and influence of black and indigenous peoples who form the variety of cultures from north to south of the country.

In this sense, Goularte and Melo (2013, p. 36) highlight the importance of working on the issue of interculturality in school from an early age, as it can contribute to the fight against discrimination, as well as encourage respect for different cultures, promoting exchange

between them, producing new meanings and expanding knowledge and notions of responsibility and solidarity.

And they also complement by saying that it is issues like these and the need to rescue and/or legitimize the different cultures that are part of the formation of Brazilians that motivated the institution of Law 11.645/08. (Goularte; Melo; 2013, p. 36)

With Decree No. 6,861, of May 27, 2009, which provides for Indigenous School Education, its organization is now defined as Ethnoeducational Territories (TEEs), of which the indigenous school education policy begins to corroborate not only in matters of territorial organization, but also in the form of management and conduction of the same, allowing indigenous communities, greater participation and autonomy in the decision-making of their education systems, as reported in articles 1, 3 and 4 of the same decree:

Art. 1 - Indigenous school education shall be organized with the participation of indigenous peoples, observing their territoriality and respecting their needs and specificities.

Art. 3 - Indigenous schools shall be recognized as schools with their own standards and specific curricular guidelines, aimed at intercultural and bilingual or multilingual teaching, enjoying special prerogatives for the organization of school activities, respecting the flow of economic, social, cultural and religious activities and the specificities of each community, regardless of the calendar year.

Art. 4 The following shall constitute basic elements for the organization, structure and functioning of the indigenous school:

I - its location on lands inhabited by indigenous communities;

II - exclusivity of service to indigenous communities;

III - teaching in the mother tongues of the communities served; and

IV - own school organization. (BRAZIL, 2009)

According to FUNAI, (2021, p. 08),

The TEE was designed as a space for the articulation of public policies aimed at Indigenous School Education, involving its different actors and agents (MEC, FUNAI, states, municipalities, Universities, Federal Institutes, NGOs) in the discussion and joint planning of actions.

In addition, FUNAI participates in the coordination of the TEE, integrating its Management Committee, as well as playing an important role in the mobilization of communities and the execution of meetings, and also providing technical and financial support for various demands of indigenous peoples included in the Action Plans of each TEE. (FUNAI, 2021).

Figure 3

Total Indigenous Schools by region



Source: BRAZIL, National Program of Indigenous Ethno-educational Territories, 2013

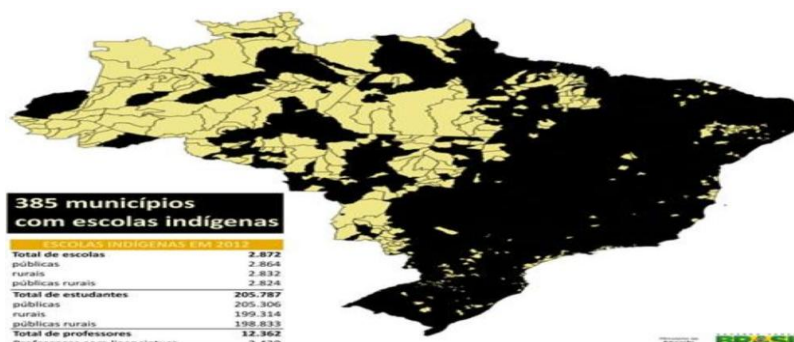
For Bergamachi and Sousa (2015), this policy inaugurates a new moment in the historical process of indigenous school protagonism, as it presents a more autonomous character to the indigenous educational process. And they also emphasize that:

(...) In this process, states and municipalities are called upon to assume their responsibilities in relation to indigenous school education, leaving only the indigenous peoples to decide whether to accept or reject the implementation of an ethnoterritory. (Bergamachi; Souza; 2015; p. 155)

Based on the 2012 Census, the 2013 National Program of Indigenous Ethno-educational Territories, a survey was carried out that up to that moment, 385 municipalities had already assumed their responsibilities regarding the recognition of a school education, since, between urban and rural schools, 2,872 indigenous schools were already part of this recognition, as can be seen as follows:

Figure 4

Indigenous Schools throughout Brazil



Source: BRAZIL, National Program of Indigenous Ethno-educational Territories, 2013

In addition, the authors describe that the Decree also offers possibilities for the implementation and execution of ethnoterritories, with indications of the responsibilities of each entity involved in the process, including in relation to budget allocations, including not only teaching materials but also school meals specific to each ethnic group, actions that will later be better discussed in the Ordinance of the Ministry of Education GM/MEC No. 1,062, of October 30, 2013, which will institute the National Program of Ethnoeducational Territories - PNTEE, which consists of an articulated set of technical and financial support actions by the MEC to the education systems, for the organization and strengthening of Indigenous School Education, as provided for in Decree No. 6,861, of May 27, 2009 (FUNAI, 2021).

Art. 5 The Federal Government shall provide technical and financial support to the following actions aimed at expanding the provision of school education to indigenous communities, among others that meet the objectives set forth in this Decree: I - construction of schools; II - initial and continuing training of indigenous teachers and other education professionals; III - production of didactic material; IV - secondary education integrated with professional training; and V - indigenous school feeding. (BRAZIL, 2009).

Regarding the implementation of this Decree, according to data from MEC/INEP (2012), 22 ethno-educational territories by 2013 had been agreed, and another 21 were being planned to be created by the year 2016. Of those that are already in force, it can be highlighted that most are located in the northern region of the country, as can be seen in Figure 5:

the federal government transfers, to states, municipalities and federal schools, supplementary financial amounts made in 10 monthly installments (from February to November) to cover 200 school days, according to the number of students enrolled in each school system. (PNAE, 2021).

Based on Castro et. all. (2014, p. 2402), "the PNAE is characterized as a public policy in the area of food and nutrition security, which began in the country in the 1950s". It can be said that it is considered one of the most comprehensive and long-lasting in the area of school feeding in the world, with the objective of meeting the nutritional needs of students during their stay in schools, including indigenous schools and those located in remaining quilombo areas. (Castro et al., 2014).

According to the PNAE (2021), the amounts transferred to the states and municipalities are according to the number of students and respecting each modality and stage of education, as shown in table 1:

Table 1

ETAPA E MODALIDADE DE ENSINO	VALOR DE REPASSE
Creches	R\$ 1,07
Pré-escola	R\$ 0,53
Escolas indígenas e quilombolas	R\$ 0,64
Ensino fundamental e médio	R\$ 0,36
Educação de jovens e adultos	R\$ 0,32
Ensino integral	R\$ 1,07
Programa de Fomento às Escolas de Ensino Médio em Tempo Integral	R\$ 2,00
Alunos que frequentam o Atendimento Educacional Especializado no contraturno	R\$ 0,53

Source: Prepared by the author based on PNAE, 2021

In addition, through Law No. 11,947, of June 16, 2009, it is established as School Feeding Guidelines that the National School Feeding Program (PNAE) must invest 30% of this amount in the direct purchase of family farming products in order to stimulate the economic and sustainable development of communities (BRASIL, 2013), as shown in table 2.

Table 2

PNAE Guidelines

Alimentação Saudável e Adequada	Orienta para o uso de alimentos variados, seguros, que respeitem a cultura, as tradições e os hábitos alimentares saudáveis, contribuindo para o crescimento e o desenvolvimento dos alunos e para a melhoria do rendimento escolar, em conformidade com a sua faixa etária e seu estado de saúde, inclusive dos que necessitam de atenção específica.
Educação Alimentar e Nutricional	Fomenta a inclusão da educação alimentar e nutricional no processo de ensino e aprendizagem, que perpassa pelo currículo escolar, abordando o tema alimentação e nutrição e o desenvolvimento de práticas saudáveis de vida. na
Universalização	Atende a todos os alunos matriculados na rede pública de educação básica.
Participação social	Favorece o acompanhamento e ao controle da execução por meio da participação da comunidade no controle social, por meio dos Conselhos de Alimentação Escolar (CAE).
Desenvolvimento Sustentável	Incentiva a aquisição de gêneros alimentícios diversificados, produzidos em âmbito local e preferencialmente pela agricultura familiar e pelos empreendedores familiares rurais, priorizando as comunidades tradicionais indígenas e de remanescentes de quilombos.
Direito à alimentação escolar	Garante a segurança alimentar e nutricional dos alunos, com acesso de forma igualitária, respeitando as diferenças biológicas entre idades e condições de saúde dos alunos que necessitem de atenção específica e aqueles que se encontram em vulnerabilidade social.

Source: FNDE, 2015

When it comes to the school menu, in article 14 of Resolution No. 26/2013, minimum percentages are established to meet the specific nutritional needs of students, so it must be prepared by a nutritionist, respecting local and cultural eating habits. (PNAE, 2021).

According to data from the Ministry of Agriculture, Livestock and Supply (MAPA, 2020), with the arrival of the Covid-19 Pandemic, decreed by the WHO in March 2020, there was a need for social isolation measures, especially for indigenous peoples and traditional communities, who isolated themselves in their territories, making it difficult for them to flow and sell their products and mainly, directly affecting the supply of school meals. (MAPA, 2020).

According to the Ministry of Agriculture (2020), this scenario brought to light the need to make public policies that involve the food security of these peoples more flexible, showing even more the importance of acquiring products from the community itself.

At the end of 2009, more precisely in November, the First National Conference on Indigenous School Education (CONEEI) took place, through which representatives of indigenous peoples, government organizations and civil society met with the purpose of discussing the realities and educational needs of Indigenous School Education and proposals for improvement in its offer. especially in relation to the management model, as the primary focus of this Conference was the creation of a Proper System of Indigenous School Education in Brazil.

[...] at the national level, with a specific and differentiated legal system, under the coordination of the Ministry of Education (MEC) and with the guarantee of the protagonism of indigenous peoples in all processes of creation, organization, implementation, implementation, management, social control and inspection of all actions related to indigenous school education, contemplating and respecting the territorial situation of each indigenous people.... The Indigenous School Education System must recognize, respect and enforce the right to specific, differentiated, intercultural, community and quality education, especially with regard to the curricular issue and the differentiated calendar, which define specific norms, which ensure pedagogical autonomy (accepting the proper teaching and learning processes) and the managerial autonomy of indigenous schools as a way of exercising the right to free determination of peoples guaranteeing to the new generations the transmission of traditional indigenous knowledge and values (Final document of the First Conference on Indigenous School Education, 2009b, p. 4).

In view of the school context of the time and the increasingly growing demands of the ISS, which until then offered only the initial years of elementary school, Resolution No. 5 was instituted on June 22, 2012, which defines the National Curriculum Guidelines for Indigenous School Education in Basic Education. In this document, new guidelines for the ISS emerge with a focus on the provision of basic education in indigenous schools, through which they will guide its organization, in all stages and modalities, according to the principles of social equality, difference, specificity, bilingualism and interculturality. (BRAZIL, 2012).

In this sense, Resolution No. 5 (2012) will determine that the states will assume a fundamental role in offering this type of education, or even sharing this competence with the municipalities. In addition, in their Article 25, these regulations will also guide the offer and evaluation of initial and continuing training actions for indigenous teachers; the promotion of the continuing education of the technical teams of the education systems that carry out

indigenous school education programs; the preparation and publication of specific didactic material for indigenous schools; the holding of national conferences on indigenous school education, in addition to technical and financial support to education systems. (BRAZIL, 2012).

In the case of specific training for indigenous teachers, two years after the enactment of Resolution No. 5, the National Curriculum Guidelines for the Training of Indigenous Teachers were published under Opinion CNE/CP No. 6/2014, of April 2, 2014 and in 2015, Resolution CNE/CP 01/2015 that establishes the National Guidelines for the Training of Indigenous teachers at the Secondary Level and Higher Education, whose objective is to regulate programs and courses aimed at the initial and continuing training of indigenous teachers at the national level, this being not only a legal requirement, but also a claim of these peoples for many years, as highlighted by Bettiol and Leite (2017, p.12835).

The demand for the training of indigenous teachers became a struggle of the movement of these peoples and their organizations, pleading for specific training that contemplated the sociocultural characteristics of their communities and could meet the principles of the community, specific, differentiated, intercultural and bilingual indigenous school.

Such guidelines are based on the right of indigenous peoples to a differentiated school education, that is, with their own teaching and learning processes and to the use of their languages, but for this to actually occur, it is understood that there is a significant lack in the number of indigenous teachers with the appropriate training to work in all stages of Indigenous School Education. therefore, these guidelines will present indigenous teachers as the main interlocutors of their peoples, as well as those most responsible for conducting their schools, for this, they need to be able to critically reflect on the pedagogical political practices of Indigenous School Education, as already highlighted in Resolution CNE/CEB No. 5/2012 in Article 19, paraFigure 2:

It is up to indigenous teachers to critically reflect on the pedagogical political practices of Indigenous School Education, seeking to create strategies to promote the interaction of the various types of knowledge that are presented and intertwined in the school process: on the one hand, the so-called universal knowledge, to which every student, indigenous or not, should have access, and, on the other hand, ethnic knowledge, specific to their social group of origin, which today assumes increasing importance in indigenous school contexts (BRASIL, 2012).

Therefore, according to Article 4 of CNE Resolution 01/2015, it advises that:

The initial training of indigenous teachers should be carried out in specific courses of teaching degrees and intercultural pedagogies and, when applicable, in other teaching degree courses, special programs of pedagogical training and use of studies or, even, exceptionally, in other courses aimed at indigenous teaching at the secondary level in the normal or technical modalities (BRASIL, 2015).

Therefore, it is understood with this document that these courses must train to work in Indigenous School Education with a view to the integrated exercise of teaching, management and research assumed as a pedagogical principle, in a perspective of intercultural formation, expanding not only their cultural knowledge, but also broadening their horizons for non-indigenous education as well (BRASIL, 2015).

Understood as being one of the great achievements in the face of the protagonism of indigenous peoples and as a result of Law No. 11,645/2008, in the same year of 2015, CNE/CEB Opinion No. 14/2015, of November 11, 2015, was instituted, which will deal with the Operational Guidelines for the implementation of the history and cultures of indigenous peoples in Basic Education, as a result of Law No. 11,645/2008.

With this document, the school presents itself with an important role in strengthening interethnic relations between different ethnic and racial groups, of which the work on the prism of dialogue and the acceptance of differences, will contribute to the construction of a more just and egalitarian society. Therefore, this opinion will require, through correct and up-to-date information, a more in-depth and reliable knowledge about indigenous peoples, their ways of life, their worldviews, their knowledge and practices, their languages, their histories and their political struggles (BRASIL, 2015).

In summary, this document aims to guide the theme of the history and culture of indigenous peoples not to be restricted only to commemorative dates, but to extend to the entire formative life of each student and in different disciplines and approaches, thus providing a new look at the plurality of sociocultural experiences present in our country (BRASIL, 2015).

With regard to the views on the specificities of indigenous school education, it can be said that the year 2015 was a very "productive" year, because in addition to the policies mentioned above, in that same year, world leaders met at the UN headquarters in New York and outlined a global action plan called the 2030 Agenda for Sustainable Development. This plan is composed of a set of goals to be met with the main objective of eradicating poverty,

protecting the planet, and ensuring that people achieve peace and prosperity (2030 Agenda Platform, 2021).

To support these goals, 17 objectives were established called Sustainable Development Goals or SDGs, which bring together practical actions that should be developed universally by the year 2030 (2030 Agenda Platform, 2021).

According to the 2030 Agenda Platform, the 17 Goals are integrated and indivisible and mix, in a balanced way, the three dimensions of sustainable development, such as the economic dimension, the social dimension and the environmental dimension.

Figure 6

SDG areas of action



Source: Agenda 2030 Platform, 2021

Among these dimensions, it can be highlighted that the 17 Sustainable Development Goals (SDGs) are given in: poverty eradication; zero hunger, good health and well-being; quality education; gender equality; clean water and sanitation; affordable and clean energy; decent employment and economic growth; industry, innovation and infrastructure; reduction of inequalities; sustainable cities and communities; responsible consumption and production; combating climate change; life underwater; life on earth; peace, justice and strong institutions and finally; Partnerships in favor of the goals, as shown respectively in Figure 7:

Figure 7

Sustainable Development Goals (SDGs)



Source: Agenda 2030 Platform, 2021

These goals aim to improve universal education and goal number 4 will deal specifically with Quality Education, which is intended to ensure inclusive and equitable quality education for all individuals, promoting lifelong learning opportunities (IPEA, 2021).

Aiming to expand the opportunities of the most vulnerable people on the path to development, the promotion of the training and empowerment of individuals is at the heart of goal 4.0 (2030 Agenda Platform, 2021).

When it comes to indigenous peoples, they are mentioned in goal number 4.5, by which Brazil should, by 2030, eliminate gender and race inequalities in education and ensure equal access, permanence and success at all levels, stages and modalities of education for groups in vulnerable situations, especially people with disabilities, rural populations, itinerant populations, indigenous and traditional communities, adolescents and young people in compliance with socio-educational measures, and the homeless population or in deprivation of liberty (IPEA, 2021).

In the SDGs, quality education is seen as a key element in the eradication of poverty, because in addition to learning itself, it is also understood as a very important instrument of emancipation and empowerment. This is what has been observed over the years with regard to indigenous peoples. They have realized that the more access to quality education (respecting their specificities), the more protagonists they become in decision-making in search of their rights.

Therefore, the educational practice of these schools must conceive the teachings thinking about the development of their students in all its dimensions, that is, taking into

account an integral education, which contemplates both the intellectual, as well as their emotional, physical, social and especially cultural skills and competences.

In 2017, the Ministry of Education (MEC) approved the National Common Curriculum Base (BNCC), which emerged with the aim of defining the set of essential learning that all students must develop throughout the stages and modalities of Basic Education, in which its main objective is to delimit the quality of education in the country through the establishment of a level of learning and development to which all students are entitled.

It is up to the BNCC to guide the formulation of the curricula of the school systems and networks throughout the country, indicating the competencies and skills that all students are expected to develop throughout schooling.

In the words of Nazareno and Araújo (2018), it was provided for by Article 210 of the Federal Constitution (1988), with its legitimacy ensured by the legal texts specifically directed to Brazilian education guaranteed both in the Law of Guidelines and Bases of National Education - LDBEN, Art. 26 – 1996, 2013; as well as in the General National Curriculum Guidelines for Basic Education – DCNGEB – 2009; in the National Education Conference - CONAE and in the National Education Plan.

However, when it comes to education in indigenous schools, when analyzing the document, it is perceived that it is contradictory to all the achievements of this type of education, because in addition to not contemplating the specificities of a differentiated curriculum, it is necessary to take into account the enormous diversity on which indigenous school education is presented.

Under the critical eye of Nazareno and Araújo (2018, p. 38), "proposing a Curricular Base based on the History of Brazil constituted an audacious proposal to break with the teaching practiced in History of Basic Education classes, essentially Eurocentric."

Therefore, they point out that the revised BNCC leaves aside, in fact, the achievements of Brazilian indigenous peoples in the field of education in recent decades, as highlighted:

The result achieved with all these achievements and with the production of pluriepistemic knowledge, innovated indigenous school education, which seeks in its pedagogical and political project the decoloniality of indigenous and non-indigenous schools led by epistemic subjects, authors of their school curricula. Such postulates also point to changes in the ways in which non-indigenous education can deal with difference and diversity. (Nazarene; Araújo; 2018, p. 56).

For the authors, such achievements are part of the repertoire of Brazilian universities, which have long supported these causes and constantly debate the issue, since it is through this incessant work that advances have been observed regarding the quality of teaching materials as they are in accordance with the reality of many indigenous school communities. (Nazarene; Araújo; 2018).

Experts on the subject, when analyzing the document, proposed an intense revision of the document, based on two important ideas:

The first suggestion requires an equity between quilombola, indigenous or other populations' knowledge and cultures and knowledge of a Eurocentric matrix based on interculturality and transdisciplinarity. The second suggestion radicalizes the critical position towards the BNCC by proposing the creation of an Indigenous Intercultural Curriculum Base (BCII) in dialogue with the previous one, but which fulfills the function of democratizing indigenous school education by continuing the conquests of indigenous rights and allowing the sociolinguistic reality and societal projects of each people to be contemplated in their particularity to the detriment of the overvaluation of the Portuguese language and, consequently, from the prejudices arising from the hierarchy of knowledge. (Nazarene; Araújo; 2018, p. 40).

Therefore, what has been discussed so far is that the BNCC was created without due attention to the specificities of indigenous schools or their students, because in its reference, it is noted that when it is elaborated, it does not contemplate the Curricular Guidelines for Indigenous Education, since this modality of education requires, in addition to the participation of these communities in its elaboration, it needs to take into account the different realities of each ethnic group.

It is true that from colonization to the present moment, with regard to indigenous education, there have been significant advances throughout history; however, it is also possible to say that, since the Federal Constitution, there has been a greater indigenous role in the achievements of these peoples.

By dialoguing with the authors treated in this text, it was realized that even in the face of significant advances with regard to public policies for indigenous school education, there are still important gaps to be filled so that this school education is truly bilingual, specific, differentiated, intercultural and, above all, of quality as the goals established for the future of 2030 aspire to.

All this legal apparatus that has been presented so far supports not only a differentiated education, but further enhances equality of rights and human dignity.

Corroborating this view, it is recognized that public policies must still face the great challenge of putting an end to all forms of discrimination and oppression of indigenous peoples, not only educational issues, but especially with regard to cultural diversity, primordial foundations of a democratic society.

2 FINAL CONSIDERATIONS

This text presented an excerpt of a chapter, the result of the author's master's dissertation research in which she analyzed the historical and legal course of public education policies aimed at indigenous peoples in Brazil, of which, in view of the proposed theme, we sought to circumscribe a detailed theoretical study of how this historical process of production of the current public policies of indigenous education in Brazil was, from the Federal Constitution of 1988 to mid-2017 with the enactment of the BNCC, in order to characterize such policies in their respective potentialities and/or weaknesses.

Through this research, it was possible to characterize the public policy of indigenous education in contemporary Brazil, from which it was perceived that from it, Brazilian education began to look at the education of these peoples with greater care, understanding that it is essential to ensure them public policies that guarantee respect not only for their languages, but also for their languages. but mainly its cultural and organizational realities, as is the case of the creation of Ethnoeducational Territories (TEEs).

Also a result of greater indigenous protagonism, it is clear that over the centuries, public policies have been structured (according to the interests involved) and legislation has been transformed as different actors, institutions and resources have mobilized in this same ideal. Thus, what was initially treated as something irrelevant, such as the issue of respect for the mother tongues of indigenous peoples, with the CF begins to gain importance and with the enactment of the Law of Guidelines and Bases of Education – LDB (9394/96), it becomes an indispensable and inexorable right.

In addition, with the LDB, indigenous peoples, for the first time, conquered the right to have specialized professionals as teachers, a fact that throughout history had always occurred by priests and/or religious. However, it is noted that even in the face of some significant advances in recent decades, it is known that these peoples still face great challenges with regard not only to access to other educational achievements, but also to the permanence and maintenance of those that have already been guaranteed to them by law.

According to FUNAI, among these challenges, the production of bilingual materials for the last years of elementary school and high school also stand out, as well as the implementation of intercultural high school in indigenous schools, a reality that is little experienced in many Indigenous Lands, as well as the construction of a differentiated system of indigenous school evaluation and the institutionalization of policies for indigenous students' access to higher education and that allow them to remain.

It was possible to perceive that the legislation aimed at indigenous school education is developing through a slow process, but that it is gradually following its course and the right to a differentiated education is gradually being conquered through many struggles and subsequent legislations.

In this sense, after researching and understanding the historical transformations for the production of the current public education policy, indigenous education in Brazil is conceived as being in fact an acquired/conquered right over many decades. And what was clear from this study is that what most contributed to these transformations were not the initiatives coming from the public authorities to bring improvements to the native peoples, but rather, thanks to their greater role in the struggle for their rights, it is that there is no longer any discussion about whether or not they have the right to have a school, but rather, what kind of school do they want.

Furthermore, there is an evident recovery in the production of knowledge in the face of different cultures, something that in the early days of colonization, was totally devalued and even forbidden to be passed on, as seen in the catechetical processes.

As has become evident in the media, in contemporary Brazil, we are experiencing very difficult times and even significant setbacks with regard to indigenous populations, but in the face of everything they have suffered throughout history, coming close to total extermination, it is believed that today they are much more protected, not only legally, but mainly in the recognition of the importance of their rights, and it is precisely through education that future generations will still take possession of many other rights.

In the few visits that were made during the master's research, to learn about the reality of indigenous schools in the Midwest region of São Paulo, such as those located in the Indigenous Lands of Icatu (Braúna/SP), Vanuíre (Arco-Íris/SP) and Araribá (Avaí/SP), it was possible to perceive that they have buildings standardized to the indigenous people, as well as their teachers and employees. They are also all from local communities. In fact, the

assignment of classes for the hiring of teachers, which used to occur in the Education Directorates (DEs) of each region, is now transcribed internally in each UE.

Public policies for indigenous education have been gradually structured and a large part of indigenous lands and villages have school buildings, most of which follow architectural features linked to the standards of indigenous culture and have specific disciplines of indigenous culture, in addition to preferably indigenous servers and teachers. However, it is noted that there are still many aspects to be studied in order to culminate in improvements in service, with emphasis on the curricular matrix, teaching methods, didactic material, the organization of the school calendar and finally the training of teachers.

As guaranteed by law, such schools are also supported by the Department of Education of the State of São Paulo, from which, through the Education Boards (DEs), they receive supervision and pedagogical support. Other functions, such as the provision of school uniforms and public transportation to students who need to study outside indigenous schools, are the responsibility of the municipalities.

With regard to compliance with school days and class schedules, these schools also follow the guidelines in force for other non-indigenous schools. As for the materials, it was not possible to have access to them, so it is not known in advance if they follow the standards of non-indigenous schools or if they are adapted to the reality of each ethnic group. However, it was possible to identify the presence of specific teachers for the teaching of the mother tongue in each TI according to their local languages.

Understanding the legislation and public policies on indigenous education, tensioned by contemporary social and political structures, it was found that the main challenges of Brazilian indigenous school education are mainly due to the lack of recognition of the cultural diversity of these peoples by the State, as this requirement is a decisive factor in guaranteeing their rights. directly influencing both the production of specific didactic materials and the training of teachers and the pedagogical organization.

Because of this lack of recognition and disrespect for its particularities, indigenous education still goes through moments of "plastering" in the elaboration of its Pedagogical Political Projects (PPP), because they have to follow "norms" applied to non-indigenous schools.

In fact, many of the Brazilian indigenous schools, in addition to the lack of materials and specialized teachers, do not even have adequate physical structures for their students, much less the guarantee of food security, mandatory by law.

In short, in view of the challenges of this intercultural education, it is necessary and urgent to listen more carefully to the complaints of these peoples, in order to plan a truly inclusive educational policy, but for this, it is of paramount importance that there are more spaces among the representative bodies (such as the secretariats and ministries), of indigenous leaders, because only in this way, These policies will become de facto enforceable.

Finally, it was possible to observe that there are still important gaps in studies and policies in this area, and even though they are legally supported, these gaps have not been overcome as they should. Therefore, the relevance of greater participation of the public university in the development of more research on this theme is reinforced, in order to help society, at the level of managers and legislators and also at the level of the original communities in the search for improvements in education processes indigenous school in Brazil.

Thus, it is understood that legislation must meet the demands and thus ensure that Brazilians in general, and indigenous people in particular, have a differentiated educational policy, so that their values, knowledge and cultural tradition are valued in the educational process.

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SOCIAL ANXIETY AS A BARRIER TO ADAPTATION TO HIGHER EDUCATION

**ANSIEDADE SOCIAL COMO BARREIRA NA ADAPTAÇÃO AO ENSINO
SUPERIOR**

**ANSIEDAD SOCIAL COMO BARRERA EN LA ADAPTACIÓN A LA EDUCACIÓN
SUPERIOR**

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ABSTRACT

Late adolescence constitutes a critical stage in the transition to higher education, characterized by academic, social, and emotional demands that may increase students' psychological vulnerability. In this context, social anxiety represents one of the most frequent problems, as it directly interferes with academic participation, interpersonal interaction, and emotional well-being. This article aims to analyze a psychopedagogical case study of an 18-year-old university student identified with symptoms compatible with social anxiety and avoidant traits, based on an institutional support process. A qualitative methodology with a case study design was employed, supported by analysis of the psychopedagogical record, clinical observation, and longitudinal follow-up across several intervention sessions. The analysis of the records allowed the identification of initial manifestations of social inhibition, anticipatory fear of external judgment, intense self-criticism, cognitive rumination, and maladaptive emotional regulation strategies, such as self-external dialogue. Difficulties in the perception of family support and in interpersonal self-efficacy were also observed, which intensified during the university adaptation process. The psychopedagogical intervention was structured through strategies of gradual social exposure, cognitive restructuring, social skills training, work on self-perception and body image, and the strengthening of emotional containment skills. The results demonstrate a progressive evolution of the student, reflected in increased social initiative, reduced avoidant behaviors, a decrease in the frequency of self-external dialogue, and greater integration into academic and family contexts. It is concluded that age acts as a relevant triggering factor in the onset and maintenance of social anxiety during entry into university. Furthermore, the effectiveness of early psychopedagogical intervention is highlighted as a secondary prevention strategy, as it promotes emotional regulation, adaptation to the university environment, and academic persistence, consolidating the role of the educational institution as an active agent of comprehensive support in student mental health.

Keywords: Late Adolescence. Social Anxiety. Case Study. Psychopedagogy. Emotional Regulation.

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RESUMO

A adolescência tardia constitui uma etapa crítica na transição para o ensino superior, caracterizada por exigências acadêmicas, sociais e emocionais que podem aumentar a vulnerabilidade psicológica dos estudantes. Nesse contexto, a ansiedade social representa uma das problemáticas mais frequentes, pois interfere diretamente na participação acadêmica, na interação interpessoal e no bem-estar emocional. O presente artigo tem como objetivo analisar um estudo de caso psicopedagógico referente a um estudante universitário de 18 anos, identificado com sintomatologia compatível com ansiedade social e traços evitativos, a partir de um processo de acompanhamento institucional. Empregou-se uma metodologia qualitativa, com delineamento de estudo de caso, fundamentada na análise do prontuário psicopedagógico, na observação clínica e no acompanhamento longitudinal de diversas sessões de intervenção. A análise dos registros permitiu identificar manifestações iniciais de inibição social, medo antecipatório do julgamento externo, autocrítica intensa, ruminação cognitiva e estratégias desadaptativas de regulação emocional, como o diálogo autoexterno. Também foram observadas dificuldades na percepção de apoio familiar e na autoeficácia interpessoal, as quais se intensificaram durante o processo de adaptação universitária. A intervenção psicopedagógica foi estruturada por meio de estratégias de exposição social gradual, reestruturação cognitiva, treinamento em habilidades sociais, trabalho de autopercepção e imagem corporal, e fortalecimento de habilidades de contenção emocional. Os resultados evidenciam uma evolução progressiva do estudante, refletida no aumento da iniciativa social, na redução de comportamentos evitativos, na diminuição da frequência do diálogo autoexterno e em maior integração nos contextos acadêmico e familiar. Conclui-se que a idade atua como um fator desencadeador relevante no surgimento e na manutenção da ansiedade social durante o ingresso na universidade. Destaca-se, ainda, a eficácia do acompanhamento psicopedagógico precoce como estratégia de prevenção secundária, ao favorecer a regulação emocional, a adaptação ao ambiente universitário e a permanência acadêmica, consolidando o papel da instituição educacional como agente ativo de acompanhamento integral da saúde mental estudantil.

Palavras-chave: Adolescência Tardia. Ansiedade Social. Estudo de Caso. Psicopedagogia. Regulação Emocional.

RESUMEN

La adolescencia tardía constituye una etapa crítica en la transición a la educación superior, caracterizada por exigencias académicas, sociales y emocionales que pueden incrementar la vulnerabilidad psicológica de los estudiantes. En este contexto, la ansiedad social representa una de las problemáticas más frecuentes, ya que interfiere de manera directa en la participación académica, la interacción interpersonal y el bienestar emocional. El presente artículo tiene como objetivo analizar un estudio de caso psicopedagógico correspondiente a un estudiante universitario de 18 años, identificado con sintomatología compatible con ansiedad social y rasgos evitativos, a partir de un proceso de acompañamiento institucional. Se empleó una metodología cualitativa con diseño de estudio de caso, sustentada en el análisis del expediente psicopedagógico, la observación clínica y el seguimiento longitudinal de varias sesiones de intervención. El análisis del registro permitió identificar manifestaciones iniciales de inhibición social, temor anticipatorio al juicio externo, autocrítica intensa, rumiación cognitiva y estrategias de regulación emocional desadaptativas, como el diálogo autoexterno. Asimismo, se observaron dificultades en la percepción de apoyo familiar y en la autoeficacia interpersonal, las cuales se intensificaron durante el proceso de adaptación universitaria. La intervención psicopedagógica se estructuró mediante estrategias de exposición social gradual, reestructuración cognitiva, entrenamiento en habilidades sociales, trabajo de autopercepción e imagen corporal, y fortalecimiento de habilidades de contención emocional. Los resultados evidencian una evolución progresiva del estudiante, reflejada en el incremento de la iniciativa social, la disminución de conductas

evitativas, una reducción en la frecuencia del diálogo autoexterno y una mayor integración en contextos académicos y familiares. Se concluye que la edad actúa como un factor detonante relevante en la aparición y mantenimiento de la ansiedad social durante el ingreso a la universidad. Asimismo, se destaca la eficacia del abordaje psicopedagógico temprano como estrategia de prevención secundaria, al favorecer la regulación emocional, la adaptación al entorno universitario y la permanencia escolar, consolidando el papel de la institución educativa como agente activo de acompañamiento integral en la salud mental estudiantil.

Palabras clave: Adolescencia Tardía. Ansiedad Social. Estudio de Caso. Psicopedagogía. Regulación Emocional.

1 INTRODUCTION

Entry into higher education is a critical transition stage in students' personal, academic, and emotional development, particularly during late adolescence. In this period, more complex academic demands, the need to establish new interpersonal relationships and intensive processes of identity construction converge, which increases psychological vulnerability when the resources for emotional regulation and coping are not sufficiently consolidated. From educational psychology, it is recognized that these conditions can have a direct impact on learning, academic participation and school permanence.

Within this framework, social anxiety is positioned as one of the most frequent emotional problems in the young university population. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR), social anxiety disorder is characterized by an intense and persistent fear of social situations in which the individual may be negatively evaluated by others, accompanied by avoidance behaviors, significant distress, and functional impairment in relevant areas of academic life, social or work. In the university context, these manifestations are usually expressed through verbal inhibition, avoidance of participation in class, difficulties in collaborative work and high self-criticism, interfering with the training process.

From a psychopedagogical perspective, social anxiety should not be understood only as a clinical diagnostic category, but as a phenomenon that affects academic performance and adaptation to the educational environment. Educational psychology has pointed out that learning is an integral process in which cognitive, emotional and social variables interact; therefore, the presence of social anxiety can limit the student's attention, motivation, self-regulation, and perceived self-efficacy, affecting their academic career. In this sense, social anxiety becomes a risk factor for poor performance, dropout and institutional isolation.

Late adolescence, approximately between 17 and 19 years of age, has been identified as a particularly sensitive period for the onset or exacerbation of social anxiety. During this stage, students face greater demands for emotional autonomy, social exposure, and constant evaluation, while neuropsychological systems linked to emotional control and behavior regulation continue to develop. Various theoretical approaches in developmental psychology and higher education agree that the lack of consolidated socio-emotional skills, combined with highly demanding educational contexts, can intensify the symptoms of social anxiety in new students.

In this context, psychopedagogical intervention acquires a fundamental role as a strategy for early detection and secondary prevention. Unlike exclusively clinical approaches, the psychopedagogical approach integrates the analysis of the student's emotional functioning with their academic performance and educational context, allowing the design of interventions aimed at strengthening emotional regulation, self-efficacy, social skills and university adaptation. This type of intervention is consistent with current models of mental health care in higher education institutions, which emphasize comprehensive and preventive accompaniment.

This article is oriented to the analysis of a psychopedagogical case study corresponding to an 18-year-old university student who presents manifestations consistent with social anxiety during his process of adaptation to higher education. Based on the analysis of the institutional psychopedagogical file and the monitoring of the intervention process, it seeks to articulate the theoretical framework of the DSM-5-TR with the contributions of educational psychology, with the purpose of evidencing the relevance of the early psychopedagogical approach in the promotion of emotional well-being, academic integration and school permanence in young university students.

2 DEVELOPMENT

The approach to social anxiety in the university context requires a comprehensive understanding that articulates the clinical criteria established in the DSM-5-TR with the contributions of educational psychology and psychopedagogy. From this perspective, social anxiety is not limited to a set of individual symptoms, but is configured as a phenomenon that directly impacts the learning process, academic participation and institutional adaptation of the student.

According to the DSM-5-TR, social anxiety is characterized by an intense and persistent fear of social situations in which the individual may be negatively evaluated, accompanied by avoidance behaviors and significant discomfort. In the university environment, these manifestations acquire particular relevance, since the student is constantly exposed to scenarios of social interaction and evaluation, such as participation in class, teamwork, the presentation of projects and daily coexistence with peers and figures of academic authority.

From educational psychology, it is recognized that learning is a process mediated by emotional and social variables. The presence of social anxiety interferes with key cognitive

functions such as attention, working memory, and self-regulation, which can translate into difficulties expressing ideas, requesting academic support, or actively engaging in classroom dynamics. In new students, these difficulties are often intensified due to a lack of familiarity with the university environment and the pressure to meet high academic and social expectations.

In the case analyzed, corresponding to an 18-year-old university student, initial manifestations of social inhibition, anticipatory fear of external judgment, intense self-criticism and cognitive rumination were identified, elements that coincide with the diagnostic criteria of social anxiety described in the DSM-5-TR. These manifestations were accompanied by avoidant behaviors, such as difficulty in initiating conversations, verbal inhibition in academic contexts, and withdrawal from family and social spaces. Likewise, a maladaptive emotional regulation strategy consisting of self-external dialogue was observed, used as a mechanism to reduce the feeling of loneliness and internal discomfort.

From a psychopedagogical reading, these behaviors not only reflect emotional discomfort, but also a low perception of interpersonal and academic self-efficacy. High self-demand and the presence of cognitive distortions such as "I must" or "I have to" contributed to reinforce a cycle of anxiety-avoidance, limiting the student's social and academic learning opportunities. This pattern was intensified by the perception of little emotional support in the family context and by constant comparisons with close figures who had greater social skills, which increased the feeling of personal inadequacy.

Late adolescence was identified as a key factor in the understanding of the case, since it corresponds to a stage in which emotional regulation and social coping skills are still developing. Developmental psychology and higher education agree that, during this period, students require accompaniment to strengthen socio-emotional competencies that allow them to adaptively face the demands of the university environment. The absence of this accompaniment can favor the chronification of social anxiety and the establishment of academic trajectories marked by withdrawal and demotivation.

In response to these needs, the psychopedagogical intervention was aimed at progressively strengthening the student's social and emotional skills, integrating strategies consistent with the principles of educational psychology. Gradual social exposure reduced anticipatory fear and expanded the repertoire of adaptive social behaviors, while cognitive restructuring facilitated the identification and modification of dysfunctional beliefs related to negative self-evaluation. The work on self-perception and body image, as well as training in

emotional containment skills, contributed to improving emotional awareness and interpersonal empathy.

From this perspective, the development of the case shows that social anxiety in university students cannot be addressed in isolation from the educational context in which it manifests itself. The integration of the clinical framework of the DSM-5-TR with the contributions of psychopedagogy allows us to understand social anxiety as a dynamic phenomenon, susceptible to intervention through preventive and formative strategies that favor university adaptation, emotional well-being and school permanence.

3 GENERAL OBJECTIVE AND SPECIFIC OBJECTIVES

3.1 GENERAL OBJECTIVE

To analyze, from a psychopedagogical approach, a case study of social anxiety in an 18-year-old university student, with the purpose of understanding its impact on emotional regulation, adaptation to the university environment and academic performance, based on the clinical criteria of the DSM-5-TR and the contributions of educational psychology.

3.2 SPECIFIC OBJECTIVES

To identify the emotional, cognitive, and behavioral manifestations associated with social anxiety present in the student, according to the diagnostic criteria established in the DSM-5-TR.

To analyze the relationship between social anxiety, emotional regulation, and the college adjustment process during late adolescence, from the perspective of educational psychology.

Describe the psychopedagogical intervention process implemented and assess its contribution to the strengthening of the student's socio-emotional skills, social interaction and academic integration.

4 OBJECT OF STUDY

The object of study of this research is the **process of psychoeducational adaptation of an 18-year-old university student**, specifically the **interaction between social anxiety, emotional regulation and academic performance** during the late adolescent stage, in the context of higher education.

This process is analyzed from a psychopedagogical case study, considering the emotional, cognitive and behavioral manifestations associated with social anxiety, according to the clinical criteria described in the DSM-5-TR, as well as its incidence on academic participation, interpersonal interaction and institutional integration of the student.

Likewise, the object of study contemplates the analysis of the **impact of an institutional psychopedagogical intervention**, aimed at strengthening socio-emotional skills, cognitive restructuring and gradual social exposure, as a secondary prevention strategy to favor emotional regulation and university adaptation. In this way, the study addresses social anxiety not only as an individual clinical condition, but as a phenomenon that directly affects the educational process and that can be intervened from a comprehensive psychopedagogical approach within higher education institutions.

5 METHODOLOGY

This research was developed under a **qualitative approach**, with a **psychopedagogical case study design**, which allows a deep and contextualized analysis of complex phenomena related to emotional regulation and university adaptation. This approach is pertinent when seeking to understand subjective and relational processes that cannot be adequately addressed through quantitative methodologies.

The study focused on an **18-year-old university student**, identified with manifestations compatible with social anxiety during his process of adaptation to higher education. In order to guarantee the ethical principles of confidentiality and protection of personal data, names, registration, career and any information that would allow the identification of the participant were deliberately omitted, keeping only age as a relevant analytical variable.

5.1 TYPE OF STUDY

This was a **unique case study**, of a descriptive-analytical nature, aimed at exploring the interaction between social anxiety, emotional regulation and academic performance in a university context. This design allowed us to examine the evolution of the case over several sessions of psychopedagogical intervention, considering both the initial manifestations and the changes observed during the accompaniment process.

5.2 TECHNIQUES AND INSTRUMENTS

Information collection was carried out using various qualitative techniques, including:

- **Review of the institutional psychopedagogical file**, which contained detailed records of the sessions, clinical reports, agreements and progress observations.
- **Systematic clinical observation**, focusing on the student's verbal and non-verbal behavior, body posture, social interaction, and emotional expression during sessions.
- **Application of projective techniques of socio-emotional evaluation**, aimed at exploring aspects related to sociability, self-confidence, relational organization and self-perception in social contexts.
- **Qualitative analysis of the discourse**, based on the student's reports, with emphasis on patterns of self-criticism, cognitive rumination and dysfunctional beliefs.

5.3 PROCEDURE

The methodological procedure was developed over several consecutive psychopedagogical sessions during the academic semester. In an initial phase, indicators of social anxiety and university adaptation difficulties were identified. Subsequently, a structured psychopedagogical intervention was implemented, based on strategies of gradual social exposure, cognitive restructuring, training in social skills, self-perception and body image work, and strengthening of emotional containment skills.

The follow-up of the case made it possible to record longitudinally the changes in the student's social behavior, emotional regulation and academic integration, facilitating the analysis of the evolution of the process and the assessment of the effectiveness of the intervention.

5.4 ETHICAL CONSIDERATIONS

The study was conducted in accordance with the ethical principles of psychopedagogical and psychological practice, guaranteeing confidentiality, respect for the dignity of the participant and the responsible use of information for exclusively academic and research purposes. The registration of signatures and consents was kept in institutional formats independent of this article.

6 DEVELOPMENTAL PHASES

In order to operationalize the methodology of the case study and account for the psychopedagogical intervention process implemented, the accompaniment was structured in **progressive and sequential phases**, designed to respond to the emotional, social and academic needs of the student during their adaptation to higher education. Each phase was based on the clinical criteria of the DSM-5-TR and the principles of educational psychology, allowing for a gradual, systematic and contextualized intervention. The description of the phases reflects the actual course of the process, as well as the evolution observed in the student's emotional regulation, social interaction, and academic integration.

Phase 1. Detection, framing and initial assessment

The initial phase of the process was aimed at detecting indicators of social anxiety and difficulties in university adaptation during late adolescence. In the first sessions, a profile characterized by marked social inhibition, anticipatory fear of external judgment, intense self-criticism, cognitive rumination and maladaptive emotional regulation strategies, such as self-external dialogue, was identified. Likewise, difficulties in initiating and sustaining social interactions were observed, as well as a withdrawn body posture and poor eye contact.

During this phase, the psychopedagogical framework of the process was carried out, establishing initial therapeutic objectives and generating a space of trust that favored emotional expression. The institutional file was reviewed and projective socio-emotional evaluation techniques were applied, which confirmed the presence of low sociability, interpersonal insecurity, need for approval, and fear of rejection. These findings were consistent with the criteria of social anxiety described in the DSM-5-TR and allowed to delimit the subsequent lines of intervention, tests for psychometrics. In order to identify the student's perceived level of security in various social behaviors, a social skills confidence scale was applied during the initial phase of the evaluation process, the results of which are presented in **Figure 1**.

Figure 1

Social skills confidence scale applied in the initial assessment phase

2. Escala de Confianza en Habilidades Sociales
Instrucciones: Indica en qué medida te sientes seguro de ti mismo al realizar las siguientes conductas sociales.

Escala:
1 = Nada seguro | 2 = Poco seguro | 3 = Medianamente seguro | 4 = Bastante seguro | 5 = Muy seguro

1. Iniciar una conversación con un compañero de clase.
Respuesta (1-5): 2
2. Mantener una conversación de al menos 5 minutos.
Respuesta (1-5): 1
3. Hablar de tus intereses personales con alguien más.
Respuesta (1-5): 1
4. Expresar tu desacuerdo con un amigo o compañero.
Respuesta (1-5): 3
5. Hacer preguntas en clase o en público.
Respuesta (1-5): 2
6. Unirse a un grupo de personas que ya están conversando.
Respuesta (1-5): 1
7. Pedir ayuda a un profesor o autoridad.
Respuesta (1-5): 3
8. Invitar a un compañero a realizar una actividad (ej. estudiar juntos, ir a comer).
Respuesta (1-5): 2
9. Hacer cumplidos o comentarios positivos a otros.
Respuesta (1-5): 3
10. Aceptar una crítica sin enojarte.
Respuesta (1-5): 4

Note. A self-assessment instrument used to identify a student's perceived level of confidence in different social behaviors, such as initiating conversations, maintaining interactions, and expressing disagreements. The results allowed us to detect low social self-confidence in the initial phase of the psychopedagogical intervention process. Prepared by the author based on the institutional file.

As part of the initial detection and evaluation process, the Liebowitz Social Anxiety Scale was applied in its brief version, in order to assess the levels of anxiety and avoidance in social and performance situations; the results obtained are shown in **Figure 2**.

Figure 2

Liebowitz Social Anxiety Scale (short version) applied at the beginning of the process

Instrumentos de Evaluación: Ansiedad Social y Habilidades Sociales

FECHA VIM
 NOMBRE
 EDAD 14

1. Escala de Ansiedad Social de Liebowitz (Versión breve en español)
 Instrucciones: A continuación encontrarás una lista de situaciones sociales. Por favor, marca con qué frecuencia te generan ansiedad o miedo y en qué medida las evitas.

Ansiedad o miedo:
 0 = Ninguno | 1 = Leve | 2 = Moderado | 3 = Intenso

Evita la situación:
 0 = Nunca | 1 = Ocasionalmente | 2 = Frecuentemente | 3 = Siempre

1. Hablar en público.
 Ansiedad (0-3): 2 Evitación (0-3): 2

2. Participar en una pequeña reunión.
 Ansiedad (0-3): 1 Evitación (0-3): 3

3. Comer o beber delante de otros.
 Ansiedad (0-3): 1 Evitación (0-3): 1

4. Hablar con una persona desconocida.
 Ansiedad (0-3): 2 Evitación (0-3): 1

5. Mantener una conversación con alguien que consideras autoridad (profesor, jefe).
 Ansiedad (0-3): 0 Evitación (0-3): 1

6. Ir a una fiesta.
 Ansiedad (0-3): 1 Evitación (0-3): 3

7. Entrar a una habitación donde ya hay personas reunidas.
 Ansiedad (0-3): 2 Evitación (0-3): 1

8. Ser el centro de atención.
 Ansiedad (0-3): 3 Evitación (0-3): 3

Note. Instrument used to assess levels of anxiety and avoidance in various social and performance situations. The application made it possible to identify indicators compatible with social anxiety, according to the criteria of the DSM-5 and DSM-5-TR, guiding the design of the psychopedagogical intervention. Prepared by the author based on clinical records.

Phase 2. Psychoeducation and emotional awareness

Once the clinical and educational manifestations of the case were identified, a psychoeducation phase was developed aimed at helping the student understand the relationship between emotions, thoughts and social behaviors. In this stage, we worked on the identification of emotional triggers, the normalization of discomfort associated with social

interaction, and the recognition of dysfunctional cognitive patterns, particularly those related to excessive self-demand and the perception of personal inefficacy.

The psychoeducation process allowed the student to recognize the initial adaptive function of some behaviors, such as self-external dialogue, while exploring their limitations for the development of social skills. This phase favored the increase of introspection and the willingness to change, laying the foundations for the implementation of active strategies of psychopedagogical intervention.

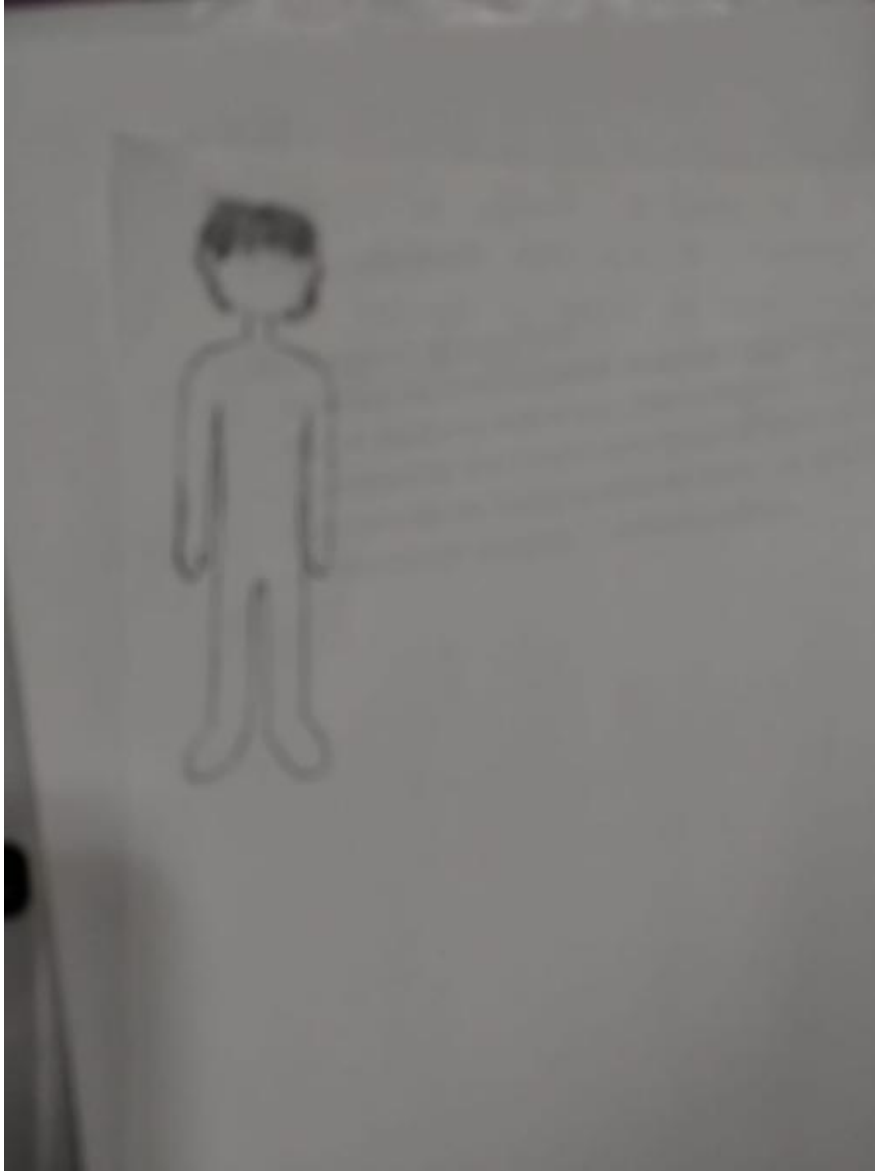
Phase 3. Intervention in self-perception, body image and emotional regulation

With the aim of strengthening self-confidence and body awareness, strategies focused on self-perception and emotional regulation were implemented. Among the techniques used were exercises in front of the mirror, work with personal photography and color psychology, aimed at reducing the avoidance of one's own image and promoting a more empathetic relationship with oneself.

This phase allowed us to observe a progressive decrease in the discomfort associated with self-observation, as well as an improvement in body posture and tone of voice. At the same time, work was done on the recognition and validation of emotions, favoring greater emotional stability and reducing the frequency of self-external dialogue as a regulation strategy. To explore the student's self-perception, body image, and relationship with himself, a graphic projective technique was used during the intervention phase in emotional regulation, which is represented in **Figure 3**.

Figure 3

Projective representation of self-image and body perception

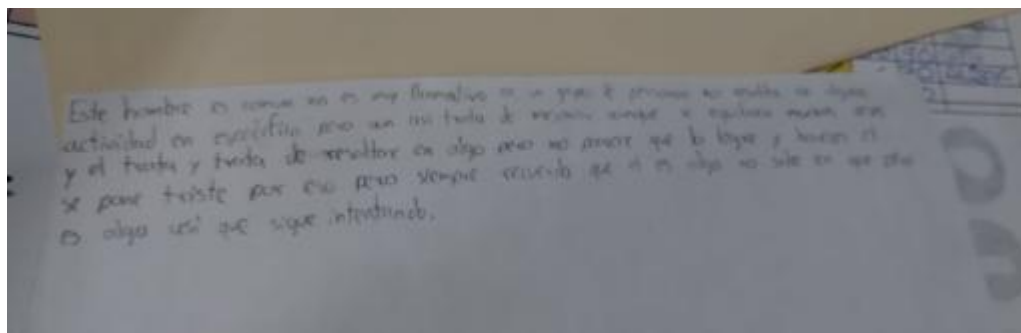


Note. Projective technique used to explore self-perception, body image, and the student's relationship with himself. The figure shows elements of emotional distancing and low integration of personal image, which were addressed during the psychopedagogical intervention. The authors.

As a complement to the graphic projective technique, the student was asked to write a self-description in order to deepen their self-concept and introspective processes; this material is presented in **Figure 4**.

Figure 4

Written production associated with the projective technique of self-description



Note. Text prepared by the student as a complement to the projective technique, in which elements of self-concept, introspection and personal assessment are reflected. The qualitative analysis of this material allowed us to identify traits of self-demand, emotional sensitivity and internal resources relevant to the intervention. Prepared by the author based on clinical records.

Phase 4. Gradual social exposure and social skills training

Subsequently, the intervention focused on gradual and controlled social exposure, with the purpose of expanding the student's repertoire of social skills and reducing avoidant behaviors. Specific and progressive goals were established, such as starting short conversations, greeting colleagues, maintaining eye contact and asking questions based on observation of the environment.

Significant progress was made during this phase, including spontaneous interactions with peers, the establishment of new friendships, and greater participation in academic contexts. Likewise, emotional containment skills were worked on, teaching the student strategies to emotionally accompany others, which strengthened their interpersonal empathy and their perception of social competence. In order to evaluate relational organization, perception of interpersonal proximity, and social initiative, a projective technique with figures was applied during the phase of gradual social exposure, which is illustrated in **Figure 5**.

Figure 5

Projective technique with figures for the evaluation of sociability and relational organization



Note. A technique used to explore the student's perception of interpersonal proximity, social initiative, and participation in group contexts. The arrangement of the figures initially showed a tendency to isolation and, later, allowed us to work on social integration and gradual exposure. The authors based on the intervention session.

Phase 5. Generalization of skills and approach to the family context

As the process progressed, the generalization of the skills acquired to other significant contexts, particularly the family, was promoted. Tasks aimed at increasing emotional proximity were assigned, such as sitting with the family during daily activities and generating brief spaces for interaction with parental figures.

This phase made it possible to identify both progress and resistance in the family environment, as well as to strengthen the student's ability to tolerate the initial emotional discomfort without resorting to avoidant behaviors. An increase in empathy towards the emotional states of others and a greater willingness to maintain gradual approaches were observed, even when these generated anxiety.

Phase 6. Monitoring, consolidation of progress and partial closure of the process

The final phase of the process was aimed at monitoring the progress made and consolidating the socio-emotional skills developed. There was a sustained improvement in social initiative, emotional regulation, and academic and family integration. The student showed greater awareness of their difficulties, as well as an active commitment to their personal development process.

Due to the vacation period, a partial closure of the psychopedagogical accompaniment was carried out, establishing agreements for the maintenance of progress and the continuity of the process at the beginning of the next semester. This phase reinforced the idea that

emotional discomfort is part of the process of change and that psychopedagogical intervention is an effective resource to promote university adaptation and emotional well-being in young students.

6 RESULTS AND DISCUSSION

The longitudinal analysis of the case study allowed us to identify progressive changes in emotional regulation, social interaction and academic adaptation of the 18-year-old university student throughout the psychopedagogical intervention process. The results are derived from systematic clinical observation, analysis of the psychopedagogical file and monitoring of the agreements and progress recorded during the sessions.

6.1 RESULTS

In the initial phase, the student presented a profile characterized by high social anxiety, verbal inhibition, withdrawn body posture, limited eye contact, and a marked tendency to self-criticism and cognitive rumination. Likewise, maladaptive emotional regulation strategies were identified, such as frequent self-external dialogue, as well as a low perception of interpersonal and academic self-efficacy. These manifestations coincided with the criteria described in the DSM-5-TR for social anxiety, particularly in relation to anticipatory fear of external judgment and avoidance of social situations.

As the intervention progressed, gradual but consistent changes were observed. The student was able to initiate brief social interactions, establish new relationships with peers, and increase their participation in academic and everyday contexts. At the same time, there was a progressive decrease in the frequency of self-external dialogue, as well as an improvement in body self-perception and tolerance to self-observation.

In later stages, the advances were extended to the family context, showing a greater willingness for emotional proximity and direct interaction, even when these situations generated initial discomfort. Likewise, an increase in the student's ability to resolve school conflicts, request academic support and show empathy towards the emotional states of others was identified.

In general terms, the results indicate a significant improvement in emotional regulation, social initiative and academic integration, suggesting that the psychopedagogical intervention had a positive impact on the university adaptation process.

6.2 DISCUSSION

The results obtained confirm what has been indicated by the specialized literature in educational and clinical psychology, which highlights that late adolescence constitutes a period of high vulnerability for the development of social anxiety, particularly during the entrance to higher education. The symptomatology observed in the case analyzed coincides with the criteria of the DSM-5-TR, evidencing how social anxiety can directly interfere with the student's academic performance and social participation.

From educational psychology, the findings reinforce the notion that university learning and adaptation depend on the interaction between cognitive, emotional, and social variables. The improvement observed in academic participation and interpersonal interaction after the psychopedagogical intervention suggests that the strengthening of socio-emotional skills favors self-efficacy and reduces avoidant behaviors.

Likewise, the decrease in self-external dialogue and the increase in emotional self-awareness can be interpreted as indicators of better emotional self-regulation, which coincides with studies that point out the importance of adaptive coping strategies in the prevention of the chronification of social anxiety. The generalization of advances towards the family context reinforces the idea that psychopedagogical interventions must transcend the clinical space to impact the student's significant environments.

Overall, the results and their discussion allow us to affirm that early psychopedagogical intervention constitutes an effective secondary prevention strategy, as it favors healthier university adaptation processes and reduces the risk of social isolation and academic dropout, as shown in Table 1.

Table 1

Evolution of psychoeducational indicators throughout the intervention process

Indicator evaluated	Initial phase	Intermediate phase	Final phase
Observable social anxiety	High	Moderate	Low
Social Interaction Initiative	Null	Occasional	Frequent
Auto-External Dialogue Frequency	High	Media	Low
Body self-perception	Negative	Ambivalent	More accepting
Academic participation	Limited	Partial	Active
Family integration	Avoidant	Gradual	Greater proximity

Note. Qualitative evaluation based on clinical observation and analysis of the psychopedagogical file.

Estimated percentage change in adaptation indicators:

Based on the comparative pre-post intervention analysis, an approximate improvement of **60–70%** in the indicators of social interaction and emotional regulation was estimated, considering the reduction of avoidant behaviors, the increase in social initiative and the generalization of skills to academic and family contexts.

The percentage is derived from a **structured qualitative assessment**, based on **multiple indicators**, not a single variable. The indicators observed were:

Indicators evaluated

1. Social Interaction

- Onset: near-total avoidance, slurred speech, isolation.
- End: spontaneous conversations, new friendships, greater initiative.

2. Emotional regulation

- Onset: elevated anxiety, rumination, frequent self-external dialogue.
- End: better emotional identification, decreased talking alone, increased tolerance for discomfort.

3. Avoidant behaviors

- Onset: avoidance of eye contact, closed body posture, withdrawal.
- End: gradual exposure, more open posture, social participation.

4. Generalization of skills

- Onset: difficulties in academic and family contexts.
- Final: application of skills with peers, teachers and family.

According to Table 2, its progress can be observed.

Table 2

Levels of Change of Interaction

0–20 %	Minimal change
21–40 %	Low Shifting
41–60 %	Moderate change
61–80 %	Significant change
81–100 %	Very high change

In this case:

Student **did NOT go from 0 to 100**

But **it did clearly advance more than halfway** in most indicators

That is why it is **reasonably** in the **60–70% range**, which corresponds to a **significant**, but **realistic and defensible** change.

7 CONCLUSION

The analysis of the case study showed that social anxiety during late adolescence is a relevant factor that significantly interferes in the process of adaptation to higher education, affecting emotional regulation, social interaction, and academic performance of the student. The initial manifestations of social inhibition, intense self-criticism, cognitive rumination and avoidant behaviors observed in the case analyzed coincide with the clinical criteria described in the DSM-5-TR, as well as with the contributions of educational psychology that point to the influence of emotional variables on learning.

The results of the psychopedagogical intervention process showed progressive and clinically significant changes in university adaptation indicators, particularly in social initiative, emotional regulation, and the generalization of skills to academic and family contexts. The decrease in avoidant behaviors and maladaptive emotional regulation strategies, such as self-external dialogue, as well as the strengthening of self-perception and interpersonal self-efficacy, reflect the effectiveness of early psychopedagogical accompaniment as a secondary prevention strategy.

From a psychopedagogical perspective, the study confirms the importance of intervening in a comprehensive way in the emotional and social processes of the student, recognizing that social anxiety not only represents an individual clinical condition, but a phenomenon that directly impacts the educational process. The structured, gradual and

contextualized intervention favored university adaptation and reduced the risk of social isolation and academic dropout, consolidating the role of the higher education institution as an active agent in the promotion of student mental health.

Finally, the study provides evidence on the relevance of implementing psychopedagogical programs for early detection and emotional support in new students, particularly during late adolescence. Although the findings are limited to a case study, they offer valuable elements for the design of future research and institutional strategies aimed at strengthening emotional well-being, school permanence and the integral development of the university population.

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**TEACHING ARCHITECTURE, LEARNING TEACHING: A CRITICAL
EXPERIENCE IN BRAZILIAN GRADUATE EDUCATION**

**ENSINAR ARQUITETURA, APRENDER DOCÊNCIA: UMA EXPERIÊNCIA
CRÍTICA NA PÓS-GRADUAÇÃO BRASILEIRA**

**ENSEÑAR ARQUITECTURA, APRENDER DOCENCIA: UNA EXPERIENCIA
CRÍTICA EN EL POSGRADO BRASILEÑO**

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ABSTRACT

This article presents a critical analysis of teacher education in Architecture and Urbanism in Brazil, based on the experience of the course “Pedagogies in Architecture and Urbanism”, offered in the Graduate Program of FAU-UnB in 2025. Starting from the recognition that teaching in the field has historically been treated as a natural extension of professional practice—rather than as a specific field of knowledge—the study problematizes the absence of structured pedagogical training in graduate programs, as well as the effects of this gap on higher education. The analyzed course was designed to address this shortcoming by integrating theoretical foundations of education, active pedagogical practices, and spaces for reflection on the political, ethical, and social role of the Architecture professor. The formative trajectory included dialogical classes, workshops, seminars, analyses of regulatory documents, methodological experimentation, and formative assessment processes. The heterogeneous composition of the class, with students from different academic levels and trajectories, fostered the circulation of diverse experiences and broadened the debate on contemporary challenges of teaching, especially those related to critical mediation, active listening, and the role of the design studio as a learning space. Evaluations indicate high levels of engagement and recognition of the course as a safe and stimulating environment for discussing the tensions that permeate Architecture education in Brazil. The results reveal both potentialities and structural limitations, such as reduced workload, institutional fragility of teacher education, and the persistence of traditional models. It is concluded that, although isolated initiatives are essential, there is a need to advance toward institutional policies that place pedagogy at the center of the training of architect-educators.

Keywords: Teacher Education. Architecture Education. Critical Pedagogy.

RESUMO

Este artigo apresenta uma análise crítica da formação docente em Arquitetura e Urbanismo no Brasil, a partir da experiência da disciplina “Pedagogias em Arquitetura e Urbanismo”, ofertada no Programa de Pós-Graduação da FAU-UnB em 2025. Partindo do reconhecimento de que a docência na área tem sido historicamente tratada como extensão natural da prática profissional - e não como campo de saber específico -, o estudo problematiza a ausência de formação pedagógica estruturada nos cursos de pós-graduação,

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bem como os efeitos dessa lacuna sobre o ensino superior. A disciplina analisada foi concebida para enfrentar essa carência, integrando fundamentos teóricos da educação, práticas pedagógicas ativas e espaços de reflexão sobre o papel político, ético e social do professor de Arquitetura. O percurso formativo incluiu aulas dialogadas, oficinas, seminários, análises de documentos regulatórios, experimentações metodológicas e processos de avaliação formativa. A composição heterogênea da turma, com estudantes de diferentes níveis e trajetórias, favoreceu a circulação de experiências diversas e ampliou o debate sobre os desafios contemporâneos da docência, especialmente aqueles relacionados à mediação crítica, à escuta ativa e ao papel do ateliê como espaço de aprendizagem. As avaliações indicam alto engajamento e reconhecimento da disciplina como espaço seguro e instigante para discussão das tensões que atravessam o ensino de Arquitetura no país. Os resultados revelam tanto potencialidades quanto limites estruturais como a carga horária reduzida, fragilidade institucional da formação docente e persistência de modelos tradicionais. Conclui-se que, embora iniciativas isoladas sejam essenciais, é necessário avançar para políticas institucionais que centralizem a pedagogia como componente fundamental na formação do arquiteto-docente.

Palavras-chave: Formação Docente. Ensino de Arquitetura. Pedagogia Crítica.

RESUMEN

Este artículo presenta un análisis crítico de la formación docente en Arquitectura y Urbanismo en Brasil, a partir de la experiencia de la asignatura “Pedagogías en Arquitectura y Urbanismo”, impartida en el Programa de Posgrado de la FAU-UnB en 2025. Partiendo del reconocimiento de que la docencia en el área ha sido históricamente tratada como una extensión natural de la práctica profesional —y no como un campo específico de conocimiento—, el estudio problematiza la ausencia de una formación pedagógica estructurada en los programas de posgrado, así como los efectos de esta carencia en la educación superior. La asignatura analizada fue concebida para enfrentar esta deficiencia, integrando fundamentos teóricos de la educación, prácticas pedagógicas activas y espacios de reflexión sobre el papel político, ético y social del profesor de Arquitectura. El recorrido formativo incluyó clases dialogadas, talleres, seminarios, análisis de documentos normativos, experimentaciones metodológicas y procesos de evaluación formativa. La composición heterogénea del grupo, con estudiantes de distintos niveles y trayectorias, favoreció la circulación de experiencias diversas y amplió el debate sobre los desafíos contemporáneos de la docencia, especialmente aquellos relacionados con la mediación crítica, la escucha activa y el papel del taller como espacio de aprendizaje. Las evaluaciones indican un alto nivel de compromiso y el reconocimiento de la asignatura como un espacio seguro y estimulante para la discusión de las tensiones que atraviesan la enseñanza de la Arquitectura en el país. Los resultados revelan tanto potencialidades como limitaciones estructurales, como la carga horaria reducida, la fragilidad institucional de la formación docente y la persistencia de modelos tradicionales. Se concluye que, si bien las iniciativas aisladas son esenciales, es necesario avanzar hacia políticas institucionales que sitúen la pedagogía como un componente central en la formación del arquitecto-docente.

Palabras clave: Formación Docente. Enseñanza de la Arquitectura. Pedagogía Crítica.

1 INTRODUCTION: GAPS AND URGENCIES OF TEACHING IN ARCHITECTURE

Teaching in Architecture and Urbanism in Brazil is historically a paradoxical field: essential for the reproduction and renewal of the profession, but little themed in its pedagogical specificity. To a large extent, the training of the architect-teacher has been based on the implicit expectation that the experience of the studio, the projectual experience or the professional trajectory would be enough to qualify the future teacher. It is an inheritance of the culture of the schools of Fine Arts and Polytechnics – the matrix of many courses still today – in which the figure of the "master" prevailed, whose authority derived more from artistic or technical practice than from a systematic training for teaching. As Saviani (2008) points out, this conception of teaching as an extension of professional practice dilutes the scientific and political character of teaching, reducing it to an artisanal exercise based on the reproduction of models.

This scenario is even more tense in the face of the fact that the Architecture and Urbanism courses remain, for the most part, as bachelor's degrees and not as licentiate degrees – which shifts the responsibility for pedagogical training to the graduate program, as provided for in the Law of Guidelines and Bases of National Education - LDB (Brasil, 1996). However, in practice, *stricto sensu* graduate studies rarely assume such a role. The absence of specific curricular components aimed at teacher training in the main programs of excellence in the country, as indicated in table 1, highlights a structural gap.

Table 1

Presence of the education theme in disciplines and theses

PROGRAM	CAPES NOTE	PEDAGOGICAL TRAINING DISCIPLINES (in 2025)	NUMBER OF THESES DEFENDED IN THE LAST 5 YEARS THAT ARE CLOSE TO THE THEME OF EDUCATION
Graduate Program in Architecture and Urbanism (NPGAU) at EA- UFMG	7	Only Teaching Internship	5
Graduate Program in Urbanism (PROURB) at FAU-UFRJ	7	None	0

Source: Prepared by the author, 2025.

The teaching internship becomes the only approximation of graduate students with the teaching experience in higher education, but it is only mandatory for CAPES scholarship

holders (Brasil, 1999). However, for Joaquim et al. (2013, p.354) "teaching internship, as it has been developed in part of higher education institutions, is based only on practical knowledge, and there is no way to guide teacher training only in practice for practice's sake". In other words, understanding that teacher training takes place through the process of mimes of other teachers, in an instrumental and utilitarian view, does not stimulate critical and reflective thinking about the teaching-learning processes (Chamlian, 2003). And, despite this, it is observed that there are doctoral researches – specifically at NPGAU/UFMG – that are close to teaching.

Therefore, it is possible to perceive weaknesses of pedagogical training in the field of architecture, although the teaching-learning theme is the target of research. This mismatch had already been observed by authors such as Anastasiou & Alves (2003) and Masetto (2015), who denounce the "pedagogically silent" character of Brazilian graduate programs, focused primarily on research and academic productivity, but little committed to the improvement of teaching.

In the field of Architecture and Urbanism, this gap is even more sensitive. International studies that discuss the training of architect-teachers, such as Salama (2015) and Schön (1983; 1986), reinforce that the specificity of design pedagogy requires its own methodologies, capable of dealing with creative processes, spatial reasoning, open problem solving, and aesthetic criticality – characteristics that do not find adequate space for discussion in generic training on higher education. Schön (1986), particularly when dealing with the *reflective practitioner*, shows that teaching in the studio requires a continuous investigative posture, in which the teacher thinks and acts "in action", revisiting decisions, strategies and modes of intervention. Even so, little attention has been given in Brazil to the systematic formation of this pedagogical reflexivity.

In addition, recent research in the field of higher education (Tardif, 2014; Nóvoa, 2017) reinforce that the university professor operates in a complex network of knowledge – professional, pedagogical, curricular, experiential – that is not produced intuitively. On the contrary, it requires intentional processes of continuous training and critical analysis of practice. However, many professors in the field of Architecture continue to reproduce inherited models, transmitted through generations, without theoretical mediation or reflection on their contemporary relevance. Such permanence produces what can be classified as a "pedagogy of tradition", based on ingrained habits, without responsiveness to the social, technological and epistemological transformations of the field.

In this context, it is urgent to problematize the absence of more robust teacher training policies in Architecture and Urbanism courses. The contemporary challenges of teaching – which include the expansion of access to higher education, the emergence of digital technologies, the need for inclusive pedagogical practices, the advancement of active methodologies and the complexification of university-society relations – demand a teacher who is better prepared to deal with diversity and new learning ecologies (Santos & Almeida Filho, 2008; Beetham & Sharpe, 2019). To continue to maintain that teaching is learned "by practice", "by the example of the teacher" or "by imitation" means ignoring decades of theoretical production in the field of education and neglecting the institutional responsibility of training critical and reflective teachers.

It is in this scenario that the discipline "Pedagogies in Architecture and Urbanism" is inserted, created and offered in the Graduate Program of FAU-UnB in 2025. Its proposition is based on the recognition that pedagogical training is not peripheral, but central in the construction of teacher identity, especially in areas - such as Architecture - marked by a strong design tradition and by evaluation practices that are often not very transparent or justified (Anthony, 2002). The discipline was born, therefore, as a response to a historical void: it seeks to constitute a space for investigation, reflection and experimentation on teaching in the area, articulating theoretical foundations, active methodologies, documentary analysis and classroom practices.

The objective of this article is to present a critical account of the process of conception, implementation and development of this discipline, discussing its potentialities and limitations as a formative experience. By doing so, it is intended to contribute to the debate on teaching in Architecture and Urbanism, understood here not as a mere technical exercise, but as a situated, politically and socially committed practice - in the terms of Freire (1996), hooks (2017) and Pimenta (2012). More than describing an isolated experience, this text seeks to address the question that crosses the entire field: **how are we training those who will train future architects and urban planners?** And more: **what epistemologies, methodologies and values guide this process?**

By deepening this discussion, it is intended to reinforce the urgency of repositioning pedagogy at the center of the debates on training in Architecture and Urbanism, questioning the naturalization of teacher improvisation and claiming the collective construction of a solid, critical pedagogical culture committed to social transformation.

2 BRIEF THEORETICAL FRAMEWORK: TEACHING HOW TO TEACH

Discussing teacher training in Architecture and Urbanism implies recognizing that teaching is a complex, situated and non-linear practice. It is not a matter of applying ready-made methodologies or transposing professional experience directly to the classroom, but of understanding that the pedagogical act involves epistemological, ethical, aesthetic, political, and relational dimensions (Nóvoa, 2017; Tardif, 2014). Teaching, therefore, requires a repertoire that goes beyond the technical domain of the specific field, incorporating pedagogical knowledge that allows for the mediation of diverse learning processes - especially in a course whose formative practices have historically been anchored in the studio, in public criticism (*jury* or boards) and in project production (Cuff, 1991; Salama, 2015).

2.1 BETWEEN TEACHING AND LEARNING: FUNDAMENTAL DIALOGUES OF CONTEMPORARY PEDAGOGY

As already discussed in the first version of this text, teaching and learning constitute interdependent dimensions of a process that is not merely transmissive (Libâneo, 1992). However, authors such as Dewey (2007) and Ausubel (2003) expand this understanding by emphasizing that learning is an act of signification, and not of reception. In educational experiences that involve creativity, interpretation and multiple forms of representation - such as in Architecture - this perspective is even more relevant: learning is constructed by the subject, in interaction with the collective, the culture and the environment.

Vygotsky (1988) introduces the structuring role of language and mediation, recalling that knowledge emerges from social interaction. In schools of Architecture, where critical discourse, drawing and design constitute their own languages, this mediation is central and, at the same time, little pedagogically thematized. Repeated criticisms of the studio model - especially the "heroic studio" described by Anthony (2002), marked by vertical authority, low evaluative transparency and idealization of the "creative genius" - reinforce that the absence of pedagogical clarity is not neutral: it produces inequalities, exclusions and silencing.

2.2 EDUCATION AS A POLITICAL AND EMANCIPATORY PRACTICE

The discipline "Pedagogies in Architecture and Urbanism" was conceived from critical references, especially from Paulo Freire (1996; 2011), for whom teaching is a political and ethical act. The critique of banking education - mechanical reproduction of knowledge - is

particularly pertinent to the teaching of design, often organized around the teacher as an aesthetic and disciplinary authority. Inserting Freire's pedagogy in the field of Architecture does not mean denying the role of technique or creativity, but tensioning the way these elements are taught and evaluated, expanding spaces for dialogue, autonomy and critical reflection.

Bell hooks (2017), when proposing the pedagogy of transgression, reinforces that the classroom should be a space for listening, belonging, and circulation of multiple subjectivities. For the author, teaching is not just a profession, that is, a job that requires a certain level of technical or scientific training. In his words, it is necessary to overcome this instrumental and utilitarian vision and think:

Education as a practice of freedom is a way of teaching that anyone can learn. This learning process is easier for those teachers who also believe that their vocation has a sacred aspect; who believe that our job is not simply to share information, but to **participate in the intellectual and spiritual growth of our students**. Teaching in a way that respects and protects the souls of our students is essential to create the necessary conditions for learning to **begin from the deepest and most intimate** (hooks, 2017, p. 25 – emphasis mine)

Its notion of *open learning community* confronts the competitive and hierarchical environment that has historically marked Architecture schools, as also demonstrated in the studies of Stevens (2003) and Till (2009). These authors argue that the training of the architect has been structured by the logic of distinction and performance, which reinforces inequalities and discourages collaborative approaches.

2.3 THE REFLECTIVE TEACHER AND THE STUDIO AS A FIELD OF UNCERTAINTY

Schön (1983; 1986) is an unavoidable reference when discussing the teaching of professions based on creative and situated practices, such as Architecture, Urbanism and Design. By proposing the *reflective practitioner*, the author criticizes the technical rationality that organizes curricula centered on fixed contents, rigid protocols, and linear problem solving. In project teaching, the process is marked by ambiguities, open decisions, multiple solutions and real contingencies - elements that require reflection in and about action.

Teaching, in this scenario, cannot be reduced to technical or aesthetic corrections. As Mahfuz (2013) argues, the teaching of design needs to overcome both procedural banality and dogmatic authority, recognizing that architectural knowledge is built through

confrontations, experimentation, and reinterpretations. For this, a teacher capable of diagnosing ways of thinking, asking, provoking and guiding, and not just giving opinions or validating solutions, is required.

This perspective is also articulated with the studies of Zeisel (2006) and Lawson (2005), who describe the design process as an iterative and investigative cycle. However, few graduate programs discuss how to teach this process while teaching remains a territory governed by improvisation, tradition, or individual intuition. This gap highlights a structural contradiction: while the field values the cognitive complexity of the project, it continues to treat the teaching of this same process as an artisanal act, devoid of pedagogical foundations and relegated to the subjective authority of the teacher, which perpetuates asymmetries, limits methodological renewal and weakens the training of future architect-teachers.

2.4 BETWEEN TRADITION AND PEDAGOGICAL INNOVATION IN THE TRAINING OF THE ARCHITECT

The international literature on Architecture education (Awan et al., 2013; Salama & Wilkinson, 2007; Webster, 2006) points out that, despite technological and methodological innovations, many schools remain stuck in a traditional studio model. Anthony (2002) describes it as: centered on the figure of the "critic"; based on long hours of individual work; competitive and uncooperative; hierarchical and often hostile; sustained by subjective judgments that are not very transparent.

This permanence is not only due to institutional inertia, but to the absence of teacher training that allows teachers to understand, renew and pedagogically justify their practices. As Beetham & Sharpe (2019) argue, effective innovations in higher education do not arise from the isolated adoption of active methodologies, but from consistent pedagogical ecologies, supported by theoretical foundations and clarity of learning objectives.

Authors such as Masetto (2015) and Zabalza (2004) reinforce that university teaching requires professionalization, understood not as bureaucratization, but as awareness of the teacher's political-social role, planning capacity and mastery of mediation strategies. Thus, teacher professionalization implies understanding the university as a space for the dispute of meanings, in which the teacher not only transmits content, but also performs an intellectual and social function that requires responsibility, intentionality and awareness of the conditions that shape the training process.

However, as the analyses carried out in this research demonstrate, the curricular structures of the Graduate Programs in Architecture and Urbanism rarely include such discussions - which evidences a mismatch between the contemporary demands of the field and the training offered to future teachers. This absence reinforces the reproduction of teaching models centered on the traditional studio, perpetuating intuitive and unreflective practices, and preventing teaching from consolidating itself as a field of knowledge capable of responding to the pedagogical, technological and social transformations that cross the teaching of Architecture today.

2.5 GUIDELINES, NORMS AND THE PROBLEM OF THE STRUCTURED ABSENCE OF TEACHER TRAINING

The National Curriculum Guidelines for Architecture and Urbanism (Brasil, 1994, 2010, 2025) do not deal with pedagogical training, focusing on technical, humanistic and design skills. This normative gap is accompanied by the absence of broader institutional policies that guarantee the didactic training of beginning teachers. The teaching internship provided by CAPES, although important, does not fulfill this role: as Joaquim et al. (2013) argue, it is often a non-theoretically mediated practical experience, based on the model of observation and reproduction.

Educational literature (García, 1999; Zeichner, 2010) amply demonstrates that teacher training that is based exclusively on practice tends to perpetuate traditional models, reinforcing inequalities and limiting the innovative capacity of teachers. In this sense, without a consistent theoretical basis and without institutionalized spaces for reflection, teaching runs the risk of becoming a mere repetition of routines, unable to respond to the complex demands and transformations that cross the teaching of Architecture in contemporary times.

Therefore, to discuss teaching in Architecture is to discuss, simultaneously, the structure of educational institutions, the graduate curricula, the professional norms and the imaginaries that sustain the disciplinary field. Ignoring this debate means keeping intact the logics that naturalize the precariousness of the teaching career, the reproduction of academic hierarchies and the prevalence of anachronistic pedagogical models, preventing the teaching of Architecture from advancing towards a truly reflective, inclusive and socially committed practice.

3 INVENTING A SPACE FOR LEARNING TO TEACH: STRUCTURING THE DISCIPLINE

The construction of the discipline "Pedagogies in Architecture and Urbanism" resulted from a double concern: on the one hand, to fill the historical gap in teacher training in Architecture courses in Brazil; on the other hand, to critically tension the pedagogical models that have sustained the teaching of the area for decades, often in an uncritical or naturalized way. Thus, its conception sought to integrate robust theoretical references, active pedagogical practices and reflective processes, aiming to bring the Brazilian context closer to the international debate on architectural education.

3.1 THE PEDAGOGICAL CONCEPTION OF THE DISCIPLINE

When designing the course, the transmissive model that prevails in most graduate courses was deliberately refused. Inspired by Freire (1996), hooks (2017) and Schön (1983; 1986), a dialogical, collaborative and reflective perspective was adopted, in which the figure of the teacher moves from the position of authority to that of critical mediator. Thus, the curricular structure was organized in such a way as to allow students to move between theoretical foundations, epistemological problematizations and practical experiments.

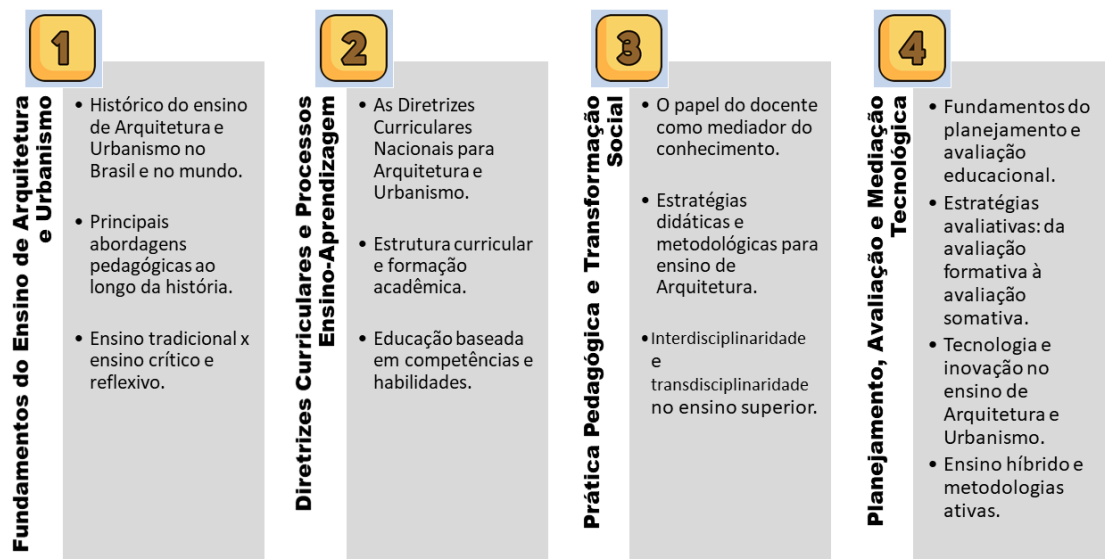
This conception dialogues with important references in international architectural education. The Building *Community report* by Boyer and Mitgang (1996), for example, argues that the teaching of Architecture should articulate citizenship, interdisciplinarity and collaboration - elements that are still insufficiently incorporated in Brazilian schools, marked by strong verticality, especially in design studios. At the same time, studies such as those by Cuff (1991), Anthony (2002) and Salama & Wilkinson (2007) demonstrate that the teaching of architecture, in addition to technical content, involves discursive practices, aesthetic judgments and power relations. Organizing a discipline that explicitly thematizes teaching implies, therefore, denaturalizing these rituals and placing them under critical analysis.

From this perspective, the discipline was structured in four complementary modules: a first focused on the historical and epistemological foundations of the teaching of Architecture; a second dedicated to the curricular and normative guidelines of the field; a third that problematizes the pedagogical practice as an ethical, political and social phenomenon; and a fourth that addresses planning, evaluation and technological mediation instruments. This organization sought to create a coherent path, similar to what Biggs & Tang (2011) call *constructive alignment*, connecting formative objectives, didactic strategies and forms of evaluation.

The teaching plan was structured in four modules: (1) fundamentals of the teaching of Architecture and Urbanism, (2) curricular guidelines and teaching-learning processes, (3) pedagogical practice and social transformation, and (4) planning, evaluation and technological mediation. Figure 01 details the contents of each stage.

Figure 1

Content structure of the course



Source: Prepared by the author, 2025.

By organizing the discipline in this way, we sought to break with the typical fragmentation of curricula, in which theory, practice and politics usually appear dissociated. It is evident, therefore, that teacher training in Architecture requires articulation between epistemological, institutional and sociotechnical dimensions. This articulation is rarely promoted by graduate programs, which are still tied to traditional teaching models and a restricted understanding of the formative role of the university.

The absence of disciplines explicitly focused on the teaching of architecture in Brazilian graduate studies contrasts with the reality of historically consolidated international schools. Institutions such as TU Delft, Bartlett/UCL, MIT and AA London, for example, have formal courses for the pedagogical training of their teachers. In these schools, the study of studio methodologies, theories of criticism, project didactics and evaluation processes is institutionalized, understood as a constitutive part of professional performance.

By incorporating elements of this international debate - such as the study of the discursive practices of critical design, the analysis of the studio as a space for negotiation

between power and creativity, and the problematization of subjectivity in evaluation - the discipline offered at FAU-UnB is close to models used in the northern hemisphere, although adapted to Brazilian specificities. This comparison illuminates the urgency of a more in-depth debate on teacher training in Architecture in the country, a field that remains dependent on heuristics, improvisation and the uncritical reproduction of inherited models.

3.2 DIDACTIC STRATEGIES AND FORMATIVE EXPERIENCES

The discipline adopted diverse didactic strategies, always understood as intentional pedagogical choices and not as isolated techniques. The lectures were used in a punctual manner and with a dialogical character, in order to establish common conceptual landmarks without incurring in the vertical model that marks a large part of the university tradition. The seminars, often reduced to formal presentations, were re-signified as moments of collective problematization, guided by complex questions, conceptual tensions and articulations with concrete teaching experiences.

The pedagogical workshops represented a privileged space for experimentation, allowing the simulation of situations experienced in studios: exercises of critical analysis, discussion of portfolios, dynamics of rapid drawing and debates on formative feedback. In these moments, the opacity of many pedagogical rituals of Architecture became evident, often described by the literature as practices that mix authority, subjectivity and aesthetic judgment (Anthony, 2002; Stevens, 1998; Till, 2009).

Active methodologies, far from being a fad, were incorporated as cognitive mediation devices aligned with project thinking. The rotation by stations, for example, allowed a critical analysis of the curricular guidelines in different historical periods, revealing continuities and ruptures. The dynamics of Project-Based Learning were used for the students themselves to conceive teaching practices situated in their context of action. By asking each participant to develop and test a pedagogical proposal, the exercise of authorship and the investigative posture were stimulated, approaching the notion of teacher-researcher defended by Stenhouse (1987) and García (1999).

Figure 2

Students during the Rotation by station



▲ Estudantes de pós-graduação trabalhando em grupos

◀ Apresentação e debate dos resultados

Source: collage of photos made by the author, 2025.

The evaluation was designed in a flexible way, in the model called "system of free choice of activities" (Gurgel, 2017), with cumulative scores and optional activities, promoting student autonomy. This allows you to:

[...] If it takes full advantage of individual skills, helping students to develop their intellectual capacities, and, to this end, instead of using evaluation only as a way to classify, pass or fail students, it should be used to inform the student about his ability and inform the teacher about how much is being learned. (Gama, 1993, p.8).

Therefore, the evaluation adopted a formative character, based on Perrenoud (1993) and Gama (1993), favoring continuous feedback and self-evaluation. The possibility of choosing activities, instead of following rigid paths, contributed to displacing the traditional meritocratic logic of the studios and valued the uniqueness of individual trajectories. This model is similar to practices used in foreign institutions such as the AA School and MIT, in which continuous *feedback* plays a more relevant role than grades.

Technological mediation was also treated with care, refusing technicist views. The Aprender/Moodle platform worked as a support environment, not as a replacement for face-to-face. This position dialogues with critical digital pedagogy, which understands technology as a tool inserted in human relations, and not as a universal solution (Morris & Stommel, 2018).

objectives, articulating theoretical knowledge and projectual sensitivity - a characteristic of the area often ignored in generalist pedagogical approaches.

Most of the students opted for a corporeal organization as a strategy of conceptual synthesis, in which the different segments of the human body represented levels and dimensions of education: the feet symbolized the fundamentals, the necessary foundation for critical and technical thinking; the trunk, the central curricular structure, which sustains and connects the different fields of knowledge; and the head indicated the main focus of the training, the ultimate objectives or the skills to be developed. Some even attributed specific functions to the arms and hands, such as representations of design practice and operational skills. The activity resulted in a diverse cartography of visions, in which both individual interpretations and collective crossings of the discussions held throughout the classes are articulated (Figure 3), offering a rich panorama of the expectations, concerns and proposals of the students about the teaching of Architecture and Urbanism.

At the same time, the dynamic exposed the contradictions between the official curriculum and the lived curriculum, revealing how training in Architecture still operates under implicit hierarchies that privilege certain competencies to the detriment of others. It was also evidenced the need to overcome models that reduce the formative process to a sequence of fragmented contents, detached from the social, cultural and sensorial demands that shape contemporary design practice.

3.3 TENSIONS, LIMITS AND PEDAGOGICAL DISPUTES OF THE PROCESS

Despite its advances, the discipline also revealed important limits. The restricted workload made it impossible to deepen complex aspects of project teaching, especially with regard to methods of criticism, evaluative design and procedural monitoring of projects. In addition, the institutional culture that is still not very sensitive to the theme restricts the ability to expand this experience beyond the group involved. Another challenge lies in the heterogeneity of the students' trajectories: some were already working as teachers, while others had no classroom experience, which required delicate balances in the pace and approach of activities.

However, perhaps the greatest challenge is to break with the naturalization of the studio as a hegemonic model, a space often idealized as a *locus* of creativity, but which, as several studies point out, also reproduces inequalities, silences and hierarchies (Webster, 2006; Anthony, 2002; Awan et al., 2013). By problematizing this hegemonic imaginary, it

became evident that the almost incontestable centrality of the studio functions as a power device that regulates behaviors, legitimizes exclusionary practices and limits the emergence of other epistemologies, preventing teacher training from advancing towards a more democratic, responsive pedagogy committed to the plurality of ways of thinking and doing Architecture. By making these tensions explicit, the discipline sought to inaugurate a space for critical reflection that is still rare in Brazilian schools of Architecture, where pedagogy remains in a marginal position.

4 WHO LEARNS TO TEACH? VOICES, EXPERIENCES AND TENSIONS OF THE CLASS

The composition of the class that took the discipline "Pedagogies in Architecture and Urbanism" reveals, in itself, a central aspect of teacher training in the area: the profound heterogeneity of trajectories, expectations and previous experiences with teaching. Ten students participated, including undergraduate and master's students, with different backgrounds - some with passages through teaching internships, others completely new to teaching, in addition to two particularly significant cases: a civil engineer entering the area of Architecture and an architect studying for a master's degree in Psychology. This mosaic of paths has created a training environment rich in multiplicity, but also challenging in pedagogical terms, requiring sensitive approaches to the different dispositions, repertoires and modes of participation.

The literature on teacher education (Tardif, 2014; García, 1999; Pimenta, 2012, among others) highlights that heterogeneity is constitutive of the formative processes and should be recognized as a potential - not as an obstacle. In the case of this discipline, such diversity promoted more plural debates and expanded the possibilities of reflection on the teaching of Architecture, often marked by a homogeneous disciplinary ethos, centered on the figure of the architect as the only subject authorized to teach the project. Paradoxically, it was precisely the points of view external to Architecture that tensioned crystallized perspectives, expanding students' understanding of the contemporary challenges of teaching.

The student evaluation, carried out through an online questionnaire at the end of the semester, indicates that the pedagogical strategies adopted were, to a large extent, well received. The diversity of formats - dialogic seminars, workshops, active methodologies, self-reflective activities - was seen as a differential that broke with previous experiences, often characterized by monotony and lack of dialogue. The students reported that the proposed activities created "a common nucleus of interest", favoring the sense of belonging and

formative continuity. This perception converges with what hooks (2017) and Freire (1996) point out about the importance of building learning communities based on horizontal relationships, in which listening and trust are central.

An element particularly valued by the participants was the freedom of choice in the evaluation system. The possibility of selecting activities that dialogued with individual learning styles generated greater engagement and autonomy - aspects often neglected in design studios, where rigid and subjective evaluations predominate. This student autonomy reinforces the idea of evaluation as a *process* and not as a *verdict*, in line with the formative model defended by Perrenoud (1993). The testimonies reveal that the students felt more motivated and less constrained by classificatory logics that, as already demonstrated by Anthony (2002) and Stevens (2003), can generate environments of harmful competition within architectural education.

Another relevant highlight was the recognition of the welcoming environment and active listening. Many participants reported feeling that the discipline constituted a safe space to share experiences, anxieties and expectations related to teaching. One of the students compared this experience to what hooks (2017) describes as "teaching is an act of healing", highlighting that, although the discipline was not intended to be a therapeutic space, there were moments of strong emotional resonance and significant exchange. This affective dimension, often made invisible or delegitimized in Architecture schools, emerges here as an essential component of teacher training - especially in a field where public judgment and aesthetic criticism can produce profound vulnerabilities.

Despite the many positive aspects, the students also indicated points of improvement that become relevant for critical reflection on the discipline. Among the suggestions, the desire for more practical meetings and more time dedicated to the debate of the final articles stands out. Such a demand reveals a structural tension: the limited workload, combined with the complexity of the topics addressed, makes it difficult to deepen both the theoretical and practical dimensions of teaching. In addition, some statements reveal the need to include content more directly linked to the daily teaching routine, such as the elaboration of teaching plans and lesson plans - instruments that, although fundamental in university practice, are rarely systematized in the training of the architect-teacher.

Finally, the external evaluations reveal a productive ambiguity: although the students recognize the power of the discipline, they also identify the limits imposed by the curricular structures and the absence of a broader institutional policy of pedagogical training in graduate

studies. This perception echoes what Nóvoa (2017) and Masetto (2015) argue about the difficulty of promoting significant transformations when training initiatives are isolated and depend exclusively on the individual effort of engaged teachers.

Thus, the profile and evaluations of the class show that the discipline produced a fertile environment for reflection, debate and experimentation, but also highlight challenges that go beyond its internal structure and refer to the broader conditions of institutionalization of pedagogical training in Architecture and Urbanism in Brazil. The student voice, therefore, not only legitimizes the experience, but also points out ways and demands for the consolidation of more robust policies for teacher professionalization in the area.

5 FROM EXPERIENCE TO URGENCY: WHAT THIS DISCIPLINE REVEALS ABOUT THE TEACHING OF ARCHITECTURE

The experience of the discipline "Pedagogies in Architecture and Urbanism" evidences, in a forceful way, the urgent need to incorporate the pedagogical discussion as a structuring axis of the training of the architect-teacher in Brazil. Although teaching is a central activity in the university field - and, particularly, in the training of professionals who work directly in the transformation of the built space - it remains marginalized in the curricula of *stricto sensu* graduate studies, almost always being restricted to the teaching internship and informal practices of learning by imitation. This systematic absence has a direct impact on the quality of teaching, since pedagogical training, when reduced to empirical experience, tends to reproduce traditional, tacit, and often hierarchical models.

The discipline analyzed here sought to tension this scenario, proposing a safe, critical and reflective space to think about teaching from contemporary references of pedagogy, critical education and international literature on the teaching of Architecture. The dialogue with authors such as Freire, hooks, Schön, Cuff, Anthony, Salama and Till allowed us to understand that teaching Architecture is not only transmitting design techniques or formal repertoires, but mediating complex cognitive processes, interpreting subjectivities, building learning communities and facing structural inequalities present in the educational environment. In this sense, the discipline revealed the transformative power of pedagogical practices that integrate theory, reflection and experimentation, approaching international models of teacher training that are still not widespread in the Brazilian context.

The results achieved - especially the high student engagement, the critical appropriation of the readings, the participation in the debates and the reflective production -

confirm that there is a demand for formative spaces that discuss the teaching of Architecture in a systematic way. The students' evaluations, by highlighting the openness to dialogue, the diversity of didactic strategies and the possibility of autonomy in the evaluative choices, demonstrate that grounded pedagogical practices, instead of weakening the educational path, expand the critical capacity, the sense of authorship and the ethical-political commitment of future teachers.

However, the discipline also exposed structural limits that cannot be neglected. The restricted workload, the absence of institutionalization of teacher training policies within the scope of graduate programs and the naturalization of the studio as the only legitimate model of teaching Architecture continue to operate as important barriers. Even with innovative methodologies and compromised pedagogical postures, an isolated discipline does not replace the necessary structural reform that includes: (1) greater integration between pedagogy and research in the context of the PPGs; (2) creation of mandatory subjects on teaching in higher education; (3) critical review of the culture of the studio, historically marked by practices of authority and subjectivity; and (4) institutional policies that recognize pedagogy as an axis of professionalization, and not as an accessory activity.

Thus, the experience reported here should not be understood as an end in itself, but as a starting point for a broader agenda of pedagogical renewal. It shows that it is possible - and necessary - to build educational practices that articulate intentionality, theoretical rigor and sensitivity. It also reveals that teaching in Architecture cannot continue to be treated as an appendix of design practice: it is a complex competence, which requires specific training, critical reflection and commitment to social transformation.

Finally, by opening space for students to reflect on their own paths, expectations and concerns, the discipline reaffirms the principle that there is no teaching without dialogue - and that teaching Architecture is also teaching how to think about the world, to interpret it and to transform it. As a field that directly affects collective life, the teaching of Architecture cannot do without prepared, ethically committed and pedagogically aware teachers. The construction of this awareness is a collective and continuous challenge, which needs to go beyond individual efforts and become institutional policy. The report of this discipline, by making this urgency visible, seeks to contribute to making such a transformation possible.

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TEACHING THE PHOTOELECTRIC EFFECT IN HIGH SCHOOL: AN INQUIRY-BASED APPROACH GROUNDED IN THE HISTORY AND PHILOSOPHY OF SCIENCE

O ENSINO DO EFEITO FOTOELÉTRICO NO ENSINO MÉDIO: UMA ABORDAGEM INVESTIGATIVA COM FUNDAMENTOS DA HISTÓRIA E FILOSOFIA DA CIÊNCIA

LA ENSEÑANZA DEL EFECTO FOTOELÉCTRICO EN LA EDUCACIÓN SECUNDARIA: UN ENFOQUE INVESTIGATIVO FUNDAMENTADO EN LA HISTORIA Y FILOSOFÍA DE LA CIENCIA

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ABSTRACT

The persistence of traditional practices in Physics Education, still centered on content exposition and the mechanical application of formulas, has hindered students' conceptual understanding of Modern Physics topics in High School, including the Photoelectric Effect. Considering the guidelines of the Brazilian National Common Curricular Base and the need for approaches that promote problematization and scientific argumentation, this article aims to present an inquiry-based proposal for teaching the Photoelectric Effect articulated with elements of the History and Philosophy of Science. This is a theoretical-bibliographic and propositional study that systematizes a didactic organization structured around a contextualized problem situation involving light sensors. The proposal mobilizes prior knowledge, fosters hypothesis formulation and confrontation, and leads to the conceptual systematization of the quantum model of light, highlighting the limitations of the classical wave interpretation. The incorporation of historical episodes supports the understanding of transitions between explanatory models and of the nature of science. As a result, a didactic organization suitable for the school context is outlined, capable of promoting comprehension of radiation–matter interaction and the role of frequency in photoelectric emission. It is concluded that the inquiry-based approach, integrated with digital resources and formative

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assessment, is viable and pedagogically relevant for High School, contributing to more meaningful learning aligned with current curricular guidelines.

Keywords: Physics Education. Photoelectric Effect. High School. Inquiry-Based Approach. History and Philosophy of Science.

RESUMO

A permanência de práticas tradicionais no Ensino de Física, ainda centradas na exposição de conteúdos e na aplicação mecânica de fórmulas, tem dificultado a compreensão conceitual de temas da Física Moderna no Ensino Médio, entre eles o Efeito Fotoelétrico. Considerando as orientações da Base Nacional Comum Curricular e a necessidade de abordagens que promovam problematização e argumentação científica, este artigo tem como objetivo apresentar uma proposta investigativa para o ensino do Efeito Fotoelétrico, articulada a elementos da História e Filosofia da Ciência. Trata-se de um estudo de natureza teórico-bibliográfica e propositiva que sistematiza uma organização didática estruturada a partir de uma situação-problema contextualizada envolvendo sensores crepusculares. A proposta mobiliza conhecimentos prévios, fomenta a formulação e o confronto de hipóteses e conduz à sistematização conceitual do modelo quântico da luz, evidenciando os limites da interpretação clássica ondulatória. A incorporação de episódios históricos favorece a compreensão da transição entre modelos explicativos e da natureza da ciência. Como resultado, delinea-se uma organização didática viável ao contexto escolar, a proposta de ensino pretendida, capaz de favorecer a compreensão da interação radiação–matéria e do papel da frequência na emissão fotoelétrica. Conclui-se que a abordagem investigativa, integrada a recursos digitais e avaliação formativa, contribui e é viável e pertinente para ensino médio para uma aprendizagem mais significativa e coerente com as diretrizes curriculares vigentes.

Palavras-chave: Ensino de Física. Efeito Fotoelétrico. Ensino Médio. Abordagem Investigativa. História e Filosofia da Ciência.

RESUMEN

La permanencia de prácticas tradicionales en la Enseñanza de la Física, aún centradas en la exposición de contenidos y en la aplicación mecánica de fórmulas, ha dificultado la comprensión conceptual de temas de la Física Moderna en la Educación Secundaria, entre ellos el Efecto Fotoeléctrico. Considerando las orientaciones de la Base Nacional Común Curricular de Brasil y la necesidad de enfoques que promuevan la problematización y la argumentación científica, este artículo tiene como objetivo presentar una propuesta investigativa para la enseñanza del Efecto Fotoeléctrico, articulada con elementos de la Historia y Filosofía de la Ciencia. Se trata de un estudio de carácter teórico-bibliográfico y propositivo que sistematiza una organización didáctica estructurada a partir de una situación-problema contextualizada relacionada con sensores crepusculares. La propuesta moviliza conocimientos previos, fomenta la formulación y confrontación de hipótesis y conduce a la sistematización conceptual del modelo cuántico de la luz, evidenciando los límites de la interpretación clásica ondulatoria. La incorporación de episodios históricos favorece la comprensión de la transición entre modelos explicativos y de la naturaleza de la ciencia. Como resultado, se delinea una organización didáctica viable para el contexto escolar, capaz de favorecer la comprensión de la interacción radiación–materia y del papel de la frecuencia en la emisión fotoeléctrica. Se concluye que el enfoque investigativo, integrado con recursos digitales y evaluación formativa, es viable y pertinente para la Educación Secundaria, contribuyendo a un aprendizaje más significativo y coherente con las directrices curriculares vigentes.

Palabras clave: Enseñanza de la Física. Efecto Fotoeléctrico. Educación Secundaria. Enfoque Investigativo. Historia y Filosofía de la Ciencia.

1 INTRODUCTION

The contents of Modern Physics occupy a strategic place in High School because they enable the understanding of phenomena that underlie technologies widely present in everyday life. However, their classroom approach does not always favor a consistent conceptual understanding. In many cases, these themes are presented in a synthetic way, excessively formal or disconnected from the scientific problems that gave rise to them, tending to transform them into fragmented and insignificant content for students (Nardi, 2001).

Among these contents, the Photoelectric Effect stands out for marking the transition between classical Physics and Modern Physics. The phenomenon highlights the limits of the wave model of light by demonstrating that the emission of electrons by certain materials depends on the frequency of the incident radiation and not only on its intensity, as predicted by the classical interpretation (Nussenzweig, 1997). This conceptual rupture goes beyond the technical sphere and opens space for epistemological discussions about the construction of scientific knowledge.

In the school context, the problematizing dimension of this historical-scientific episode is not always explored. The Photoelectric Effect is usually presented as a direct application of equations without investigating the experimental evidence that challenged classical physics and motivated new interpretations. By disregarding this historical and conceptual path, the opportunity to discuss science as a dynamic activity, built from debates, tensions and theoretical reformulations is lost (Delizoicov; Angotti; Pernambuco, 2002).

Brazilian curriculum guidelines, especially the National Common Curricular Base (BNCC), emphasize the development of skills related to the investigation of phenomena, evidence-based argumentation, and critical analysis of technological applications (Brasil, 2018). In this horizon, the teaching of the Photoelectric Effect can contribute significantly to articulate Science, Technology, Society and Environment (CTSA) by enabling the analysis of devices such as optical sensors and photovoltaic cells and other devices present in the daily lives of students.

The incorporation of elements from the History and Philosophy of Science (HFC) enhances this approach by showing that scientific models are provisional constructions, formulated in specific contexts and subject to revision in the face of new experimental data (Gil-Pérez, 1993; Cachapuz et al., 2005). Such a perspective favors a less dogmatic understanding of science and more coherent with its historical nature, contributing to the formation of an investigative and critical posture.

In view of these considerations, this article starts from the following research question:

how can an investigative proposal, articulated with elements of HFC, the contextualization of the relations between CTSA and the insertion of Digital Information and Communication Technologies (DICTs), favor the conceptual understanding of the Photoelectric Effect in High School from a contextualized problem-situation?

From this perspective, it is considered that the incorporation of DICTs can expand the possibilities of visualization, simulation and analysis of this phenomenon, as long as it is guided by clear pedagogical intentional objectives that are coherent with the construction of scientific meanings.

In line with this issue, the objective of this work is to present and systematize an investigative proposal for the teaching of the Photoelectric Effect in High School, structured around a problem-situation involving twilight sensors and guided by the problematization, formulation and confrontation of hypotheses and subsequent conceptual systematization of the quantum model of light. It is intended to show how this didactic organization can contribute to the understanding of the role of frequency in photoelectric emission, to the identification of the limits of the classical wave interpretation and to the analysis of technological applications associated with the interaction between radiation and matter, in line with the current curricular guidelines.

2 THEORETICAL FRAMEWORK

2.1 TEACHING MODERN PHYSICS IN HIGH SCHOOL AND THE CHALLENGE OF THE PHOTOELECTRIC EFFECT

The insertion of Modern Physics themes in High School has been defended as part of a scientific education consistent with contemporary demands, especially when linked to the understanding of technologies present in everyday life. The national curriculum guidelines, especially the BNCC, reinforce the centrality of practices that favor investigation, evidence-based argumentation, and critical reading of natural and technological phenomena, shifting teaching from a strictly transmissive logic to learning experiences with meaning and significance (Brasil, 2018).

In this scenario, the Photoelectric Effect acquires relevance because it marks the transition between classical and quantum physical models and allows the interpretation of applications such as sensors, optoelectronic devices, photovoltaic cells, among others.

Despite this relevance, the educational literature and school experience highlight a recurring problem: the Photoelectric Effect is usually presented as a "ready-made episode" of Modern Physics, often reduced to the exposition of the statement and the equation, with little exploration of the conceptual conflicts that make it meaningful.

In this way of teaching, the student tends to memorize relationships without understanding the central point of the phenomenon: the existence of a minimum frequency (or cutoff frequency) and the distinction between the role of frequency in the occurrence of emission and the role of intensity in the amount of electrons emitted. When this is not made explicit through problematization and consistent didactic mediation, intuitive interpretations persist (for example, the belief that "more intensity always guarantees emission"), which clash with the behavior observed in experiments and applications (Nussenzveig, 1997).

Thus, sustaining a proposal for teaching the Photoelectric Effect for High School requires recognizing that the obstacle is not only mathematical: it is epistemological. The theme becomes potent when the student realizes that the classical model, although successful in many contexts, does not explain certain experimental results that the change of model is not a "theoretical whim", but a response to evidence. It is precisely this passage (from the classical wave explanation to a quantum description) that needs to appear didactically as a construction and not as a simple exchange of formulas.

2.2 LEARNING AS CONSTRUCTION OF MEANINGS AND THE ROLE OF PROBLEMATIZATION

Overcoming school practices centered on the mechanical transmission of content remains a historical challenge of education. In educational criticism, Freire (1968) characterizes banking education as a form of teaching that reduces the student to the reception of information, weakening dialogue and problematization.

In another key, Rubem Alves (2010) points out that excessively rigid school models can limit student curiosity, creativity and engagement. This criticism gains even more sensitive contours in topics such as the Photoelectric Effect, because learning depends on the student attributing meaning to the "why" of the change in model and not only to the "how" to calculate a quantity.

From the psychological and pedagogical point of view, conceptual understanding can be favored when teaching is organized in such a way as to relate new information to existing structures, allowing the student to rework his ideas. Ausubel (1985) points out that learning gains meaning when new knowledge is anchored, in a non-arbitrary way, in what the student already knows.

Piaget (1998) contributes by situating cognitive conflict as an engine of conceptual reorganization through movements of imbalance and rebalancing. Vygotsky (1987), in turn, emphasizes social and linguistic mediation, emphasizing that conceptual advancement does

not occur in isolation, but in interaction (for example, teacher and student or between students in group discussion), especially in the Zone of Proximal Development (ZDP).

In curricular terms, this set of contributions converges with the requirement for learning that articulates understanding, argumentation, and critical application of knowledge rather than the reproduction of procedures (Brasil, 2018).

In this sense, the Photoelectric Effect becomes an especially fertile content for work with the construction of meanings, because it can be taught as a point of tension between competing explanations, mobilizing hypotheses and confronting predictions with evidence, instead of being presented as a definitive conclusion from the beginning, since learning implies constructing meanings and establishing relationships (Resnick, 1983).

2.3 TEACHING BY INQUIRY, HFC AND CTSA AND TDICs articulations

One of the most consistent ways to operationalize this change in perspective is teaching by inquiry. Gil-Pérez (1993) and Cachapuz et al. (2005) defend models centered on problem-situations that mobilize previous knowledge, stimulate the formulation of hypotheses and promote argumentative confrontation until the systematization of knowledge. In this approach, the problem-situation does not function as an "applied exercise", but as a trigger for real questions, capable of making initial conceptions explicit and creating conditions for their reconstruction.

In the case of the Photoelectric Effect, the work with HFC elements further strengthens the investigative structure because it helps the student to realize that science is not limited to ready-made truths: it involves debates, limits of theories, decisive experiments and conceptual changes. Historical episodes, when integrated with didactic intentionality, favor the understanding of the nature of science, the transition between explanatory models and the role of evidence in the development of knowledge (Cachapuz et al., 2005). In addition, the problematization can be enriched by links between STSA relationships by placing the phenomenon in dialogue with technologies and social choices that depend on the radiation-matter interaction, bringing the content closer to the student's concrete experience (Brasil, 2018).

The use of DICTs can also broaden the visualization and exploration of the phenomenon, as long as it does not become a substitute for conceptual reasoning. Simulations and digital resources tend to be productive when they come in as instruments to test hypotheses, facilitate the dynamics and visualization of the phenomenon in question, compare predictions and interpret results, maintaining the centrality of argumentation and teacher mediation. In other words, HFC, CTSA and TDIC do not appear as "decorative

additions", but as devices that help to sustain the investigative path and to make the phenomenon understandable at the level of high school schooling.

2.4 FORMATIVE ASSESSMENT, DIDACTIC TRANSPOSITION AND INCLUSION

Consistent with teaching by inquiry, evaluation cannot be limited to the final verification of correct answers. Campos and Nigro (1999) advocate an integrated evaluation of the process, capable of monitoring advances and difficulties and accurately guiding pedagogical interventions. Pozo (2009) reinforces this idea by proposing continuous and multidimensional evaluation strategies that allow observing how the student reorganizes his explanations and what obstacles persist. In the Photoelectric Effect, this is particularly important because many difficulties appear at the explanatory level: the student can even repeat the equation, but continue to interpret the phenomenon under a classical logic of "continuous energy" dependent only on intensity.

In addition, teaching Modern Physics in High School requires attention to didactic transposition. It is not a matter of "simplifying" university physics, but of reorganizing scientific knowledge into school knowledge, preserving its coherence and explanatory power in accessible language aligned with the curriculum (Delizoicov; Angotti; Pernambuco, 2002). From this perspective, materials such as those of the Group for the Reelaboration of Physics Teaching (GREF, 1993) and guidelines of the National Book and Didactic Material Program (PNLD) 2024, already articulate, in some cases, investigative strategies to everyday situations and to elements of HFC, CTSA and TDICs, supporting the teacher in the selection and organization of content in order to avoid mathematical formalism as an end in itself.

Finally, an investigative proposal consistent with the BNCC must consider the inclusive dimension of teaching. The organization of group activities, the use of multiple languages (text, debate, simulation, records), the progressive explanation of concepts and formative monitoring favor equitable participation, as long as the teacher plans interventions that recognize different rhythms, specificities and ways of learning of students (Brasil, 2018).

Thus, the theoretical framework systematized here sustains a proposal for teaching the Photoelectric Effect that seeks to produce conceptual understanding through problematization, investigation, mediation and historical-epistemological sense instead of the mechanical transmission of formulas.

3 METHODOLOGY

This study is presented as a propositional investigation, developed from a qualitative approach and based on theoretical-bibliographic research. By proposing a didactic

organization for the teaching of the Photoelectric Effect in High School, the article is not based on direct empirical application, but on the critical analysis of consolidated references in the field of Physics Teaching and Science Teaching.

Bibliographic research, as Gil (2010) points out, makes it possible to examine and articulate productions already prepared, such as books, scientific articles and normative documents, allowing the systematization of theoretical foundations pertinent to the problem in question. The option for the qualitative approach stems from the interest in understanding pedagogical implications, conceptual meanings and possibilities of didactic reorganization of the content, prioritizing interpretation rather than quantification of data.

Lüdke and André (2013) emphasize that investigations of this nature seek to apprehend meanings and relationships present in the analyzed references, while Bogdan and Biklen (1994) highlight that the focus falls on the contextualized understanding of the phenomenon studied. Although it does not involve subjects or data collection in the field, the present work shares this orientation by critically examining how the Photoelectric Effect is approached in the school environment and which alternatives can favor its conceptual understanding.

The methodological development started from the delimitation of a specific didactic problem: the recurrent presentation of the Photoelectric Effect as an isolated algebraic application, disconnected from the conceptual conflicts that marked the transition between the classical and the quantum interpretation of light.

From this delimitation, the following axes were analyzed: contributions of HFC elements to the teaching of Modern Physics, fundamentals of teaching by investigation, CTSA articulations, pedagogical use of TDICs and national curriculum guidelines with emphasis on the BNCC. We sought to identify theoretical convergences and gaps in the school treatment of the theme, especially with regard to the distinction between intensity and frequency of incident radiation.

In view of this, the investigative proposal presented in the article was elaborated. The didactic organization was structured around a contextualized problem-situation involving twilight sensors, contemplating the survey of previous knowledge, formulation and confrontation of hypotheses, guided insertion of historical episodes and conceptual systematization of the quantum model of light. Mathematical formalization was maintained at the level compatible with high school, preserving the scientific coherence of the phenomenon without reducing teaching to operational procedures.

As a limitation, it is recognized that the proposal was not empirically validated in the scope of this work, configuring itself as a didactic organization based on specialized literature

and open to future investigations of application and analysis in a school context. As this is a theoretical and purposeful study, there was no participation of students or collection of empirical data, dispensing with ethical procedures related to research with human beings.

4 RESULTS AND DISCUSSIONS

The critical examination of the literature selected throughout this work made it possible to outline a didactic organization focused on the teaching of the Photoelectric Effect in High School, conceived from the articulation between the survey of the students' initial conceptions, problematization anchored in a concrete technological context and progressive construction of the scientific model with teacher mediation and support from HFC elements, CTSA and TDICs relationships.

Considering that it is a theoretical-bibliographic and propositional study, the results presented focus on the explanation of this pedagogical organization and the analysis of its formative contributions discussed in the light of academic productions in the area.

4.1 ORGANIZATION OF THE DIDACTIC PROPOSAL

The proposal is organized in sequential and interdependent stages, designed to favor the conceptual reconstruction of the Photoelectric Effect based on a concrete problem. The starting point consists of the survey of the students' initial conceptions about light, energy, light intensity and frequency. This mapping can be carried out through a brief diagnostic pre-test or by guided reading of a short text that explores notions of this theme. The objective is not to classify answers, but to make visible previous ideas, often anchored in the conception that greater luminous intensity implies greater energy transferred.

The proposed problem situation is as follows: poles with twilight sensors turn on at dusk and turn off at dawn, responding differently to LED and incandescent lamps. The question then arises: does the operation of the sensor depend only on the intensity of the incident light or does the frequency of the radiation and the material of the sensor also influence the process?

Organized in small groups, students discuss the proposed situation and record their explanatory hypotheses. Interpretations based exclusively on the intensity of the light often emerge, evidencing an intuitive understanding close to the classic wave model. This conception refers to Maxwell's formulation, in 1865, which unified electricity and magnetism by demonstrating that disturbances in the electric and magnetic fields propagate in a vacuum with speed:

$$c = \frac{1}{\sqrt{\epsilon_0 \mu_0}} \quad (1)$$

whose numerical value is close to 3.0×10^8 m/s, coinciding with the speed of light in a vacuum. From this correspondence, Maxwell concluded that light was an electromagnetic wave, and, in this theoretical framework, the energy carried by radiation was continuously related to its intensity (Nussenzvieg, 1997).

It is at this point that teacher mediation becomes decisive and necessary. The professor asks the groups to explain their justifications, promotes the confrontation between arguments and leads the reflection beyond the classical explanation, opening space for the introduction of experimental impasses that challenged the wave model and boosted the emergence of Modern Physics.

Conceptual systematization is conducted by articulating the problem-situation to historical episodes. In 1887, Hertz observed that the incidence of ultraviolet light radiation facilitated electrical discharges between metal electrodes. The phenomenon, later investigated by Lenard in 1902, revealed two results incompatible with Classical Physics: the existence of a minimum potential and frequency below which no electron emission occurs, and the dependence of the kinetic energy of electrons on the frequency of light and not on intensity. These results explain the limit of the classical wave model (GREF, 1993).

The conceptual rupture gains greater clarity with the introduction of Planck's hypothesis in 1900, according to which energy (J) is quantized and expressed by:

$$E = hf \quad (2)$$

where h is Planck's constant (6.63×10^{-34} J·s) and f is the frequency (Hz) of the radiation.

In 1905, Einstein, based on the law of conservation of energy, applied this idea of Planck's to the photoelectric phenomenon, proposing that light is composed of photons (particles associated with discrete amounts of energy) and formulating the equation of the Photoelectric Effect:

$$E = \phi + K_{\max} \quad (3)$$

where ϕ (J) represents the work function of the material, characterized by the electronic structure of the material and $K_{\max}$ (J) the maximum kinetic energy of the ejected electron. Hence the condition of issuance:

$$hf \geq \varphi \quad (4)$$

defining the cut-off frequency $f_0 = \varphi/h$ (Nussenzvieg, 1997).

For $f < f_0$, there is no emission, even in bright light; For $f \geq f_0$, electrons are ejected and the sensor is triggered. This shows that the color of the light, associated with its f , is decisive for the operation of the sensor, explaining why some lamps are more effective than others.

Once the condition $f \geq f_0$ is satisfied, the intensity of the light starts to act in the process, because its increase leads to the number of incident photons per unit of time, resulting in greater emission of electrons and, therefore, in greater photoelectric current. Thus, the intensity controls the amount of electrons emitted, while the occurrence of the effect depends on the f . As φ is characteristic of the material, different sensors have different f_0 , the higher φ , the higher the f_0 and vice versa.

From the energy point of view, in photoelectric emission, the energy of the incident photon is divided into two parts: one to overcome that of the material and the other converted into the maximum kinetic energy of the emitted electron $K_{\max}$ (J), where $K_{\max} = eV_0$ (4). This energy balance is expressed by Einstein's equation for the Photoelectric Effect, $E = \varphi + K_{\max}$ (3), putting (2) in (3), becomes:

$$hf = \varphi + K_{\max} \quad (5)$$

Thus, it is evident that the energy of electrons depends on the f of light and not on its intensity, in contrast to classical physics.

Although this corpuscular explanation adequately describes the Photoelectric Effect, it does not explain wave-like phenomena of light, such as diffraction and interference, observed in Young's experiment (1801), evidencing the wave-particle duality of light as an electromagnetic wave.

Thus, the discussion expands by problematizing the wave-particle duality. Young's experiment in 1801 demonstrated light interference, confirming the wave-like character of light. Later, Compton, in 1923, reinforced the corpuscular character by observing the scattering of X-rays by electrons, evidenced by the increase in wavelength dependent on the angle, interpreted as a collision between particles, where the photon transfers energy and momentum through:

$$\Delta\lambda = \lambda' - \lambda = (h/mec)(1 - \cos\theta) \quad (6)$$

Thus, for the first time, the understanding that light cannot be described exclusively as a wave or as a particle was consolidated. In interactions with matter, as in the Photoelectric Effect, it manifests corpuscular behavior, according to Einstein's interpretation; in propagation phenomena, such as interference and diffraction, it shows a wave nature, as demonstrated in Young's experiment (1801). This tension between models does not represent a contradiction, but rather an expansion of the explanatory framework of Physics (GREF, 1993).

The wave-particle duality was extended beyond radiation by De Broglie in 1924, when he proposed that dual behavior is not restricted to light, but applies to all matter. According to his hypothesis, each particle with a quantity of motion is associated with a wavelength given by:

$$\lambda = h/p \quad (7)$$

where λ represents the wavelength (m) and h the Planck constant (J·s). For non-relativistic particles, such as electrons in various experiments, linear momentum can be expressed by:

$$p = mv \quad (8)$$

where m is the mass (kg) and v is the velocity (m/s). Substituting (8) in (7) obtains:

$$\lambda = h/mv \quad (9)$$

This relationship shows that the greater the amount of particle motion, the shorter the associated wavelength, making its wavelike character less noticeable. However, for light particles and moderate velocities, such as electrons, the wavelength can be comparable to atomic dimensions, enabling the experimental observation of electron diffraction in the experiment by Davisson and Germer, in 1927, empirically confirming De Broglie's hypothesis and consolidating the conceptual basis of Modern Physics.

The paradigmatic change underway was deepened by Heisenberg, also in 1927, when he formulated the Uncertainty Principle, expressed by:

$$\Delta x \cdot \Delta p \geq h/4\pi \quad (10)$$

This relationship establishes fundamental limits to the simultaneous determination of the position (x) and momentum (p) of a particle, indicating that the very act of measuring

interferes with the observed system. The following year, Bohr synthesized this new understanding by proposing the Principle of Complementarity (1928), according to which wave and corpuscular descriptions are mutually necessary for the complete explanation of quantum phenomena, although they cannot be observed simultaneously in the same experimental arrangement (Nussenzweig, 1997).

Within the scope of the didactic proposal, the historical path is not presented as a mere chronological sequence of discoveries, but as a resource to understand the conceptual conflict faced by science itself. By returning to the problem situation of twilight sensors, students begin to recognize that the activation of the device depends on the energy of the incident photon, the work function (ϕ) characteristic of the material and the frequency of the radiation. The luminous intensity, although it influences the current generated after emission, does not determine its occurrence if condition (4) is not satisfied. $hf \geq \phi$

This articulation between concrete problem, historical tension and progressive formalization of the scientific model makes visible the limits of the classical interpretation, according to which it would be enough to increase the intensity of light to increase the energy transferred. By showing that there is no emission when the frequency is lower than the cutoff frequency, even under intense radiation, the proposal introduces in a conceptually consistent way the foundations of Modern Physics. f_0

Thus, the resolution of the problem-situation explains that the Photoelectric Effect depends on three interrelated factors: the frequency of the radiation that conditions the occurrence of the emission, the intensity that regulates the amount of electrons ejected, and the material of the sensor that defines the work function and, consequently, the cut-off frequency. The phenomenon is no longer presented as an isolated application of an equation and exemplifies the transition between different explanatory models.

In light of the BNCC guidelines, this approach favors the understanding of the nature of science and the relationships between CTSA when analyzing devices such as optical sensors, automatic doors, alarms, photovoltaic cells, among many others. By exploring such applications, the student broadens the interpretation of the concept and constructs meanings beyond the school context, recognizing its presence in everyday technologies.

To consolidate learning, the use of TDICs such as the interactive simulations of Physics Education Technology (PhET), allows you to dynamically observe the interaction between radiation and matter, manipulating the frequency, intensity and material of the metal. In these activities, students relate f , E , and ϕ , strengthening conceptual understanding, preventing mathematics from being reduced to a decontextualized algorithmic procedure. $fE\phi f_0$

With this, the organization of the didactic proposal ends, which integrates problematization, conceptual mediation, HFC elements, CTSA articulations and intentional use of DICTs, paving the way for the discussion of its pedagogical implications in the following subsection.

4.2 DISCUSSION OF THE RESULTS IN THE LIGHT OF THE LITERATURE

The systematized didactic organization converges with constructivist assumptions by mobilizing previous knowledge and promoting cognitive conflict, favoring progressive conceptual reorganization. The initial problematization proves to be fundamental to make alternative conceptions explicit, allowing mathematical formalization to emerge as a response to an explanatory impasse and not as an external imposition.

The incorporation of elements of HFC broadens the understanding of the nature of scientific knowledge. By highlighting the conflicts between classical and quantum interpretations, the proposal contributes to overcoming dogmatic views of science as a set of finished truths. This perspective is aligned with curricular guidelines that emphasize argumentation, critical analysis and contextualization.

Teacher mediation is decisive to maintain the balance between conceptual rigor and student participation. Mathematics is not eliminated, but reintegrated as an explanatory tool. Equations are no longer formulas to be applied mechanically and express interpretable physical relationships.

The articulation with digital resources and technological applications expands the formative reach of the content, reinforcing its relevance in the contemporary context. However, as it is a theoretical systematization, the proposal still lacks empirical validation in a specific school context, presenting itself as a possibility for future investigations.

In general, the results discussed indicate that the problematized teaching of the Photoelectric Effect, articulated with HFC, CTSA relations and the intentional use of DICTs, constitutes a consistent alternative to introduce fundamentals of Modern Physics in High School. By highlighting the limits of Classical Physics and explaining the conflicts that gave rise to the quantum description, the proposal favors a conceptually more solid, critical and contextualized understanding of the phenomenon.

5 CONCLUSION

This article aimed to present and systematize an investigative proposal for the teaching of the Photoelectric Effect in High School, articulated with elements of HFC, CTSA relations and TDICs. From a theoretical-bibliographic and propositional research, a didactic

proposal was outlined centered on a problem-situation contextualized in the activation of twilight sensors as a strategy to mobilize initial conceptions, favor problematization and lead to the progressive construction of the quantum model of light.

The results discussed indicate that the proposal makes it possible to treat the Photoelectric Effect beyond the isolated use of equations, making visible the conceptual core of the phenomenon: the emission condition associated with the cut-off frequency, the work function of the material and the distinction between the role of frequency (occurrence of the effect) and intensity (amount of electrons emitted after the condition is satisfied).

By integrating historical episodes, from Young through Maxwell, Hertz, Panck, Lenard, Einstein, Compton, De Brogli, Davisson and German, Heisenberg and Bohr, with the explicitness of the tensions between classical and modern explanations, the sequence favors a less dogmatic understanding of science and closer to its real dynamics, marked by experimental impasses, dispute of interpretations, paradigm shifts, theoretical reformulations.

From the pedagogical point of view, the proposal is feasible to be applied in the school context because it brings together objective positive points: it starts from a technological problem close to everyday life, organizes clear stages (diagnosis, hypotheses, argumentative confrontation and systematization), preserves mathematical formalization compatible with High School without reducing the theme to algorithmic procedures and opens space for formative evaluation throughout the process through records, syntheses and justifications.

The use of interactive simulations such as PhET, when guided by questions and conceptual goals, tends to broaden the visualization of the phenomenon and support the interpretation of the relationships between frequency, energy, and material, reinforcing meaningful learning.

In summary, the proposal presented constitutes a consistent alternative to introduce fundamentals of Modern Physics in High School in line with the guidelines of the BNCC, by promoting investigation, argumentation and critical reading of phenomena and technological applications.

As a limitation, as it is a purposeful study, the didactic organization was not empirically tested in the scope of this work, pointing to the need for future investigations that implement the sequence in the classroom and analyze evidence of learning and challenges of teacher mediation. Even so, the systematization carried out offers a reasoned and replicable didactic path for the Photoelectric Effect to be taught as a significant conceptual construction and not as a mere application of formulas.

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