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THEORY, METHODS, AND PERSPECTIVES FOR EVOLUTION

Seven Publicações
(Organização)

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SUMMARY

Reframing the learning process of construction management

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Maria Aridenise Macena Fontenelle[1]

ABSTRACT

This article emphasizes the realization of a practical activity of Waldorf Pedagogy in a creative writing workshop held in 2023. Two creative writings were produced: one by students of the discipline of Construction Management and Production in the Civil Engineering course, and another by a student of the Agricultural and Environmental Engineering course of a Public University in the northeast region of Brazil. The first of them was inspired by readings of texts on the management and production of constructions. The second was based on a lecture that was given by a construction manager engineer in the pandemic on the construction processes of a building for the construction management and production class and which had its synthesis written in verse form by a student of that discipline. The technical and artistic productions of the students of the Civil Engineering and Agricultural and Environmental Engineering courses of the studied University show that sensitivity can be activated.

Keywords: Management, Waldorf Pedagogy, Art.

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INTRODUCTION

It was the philosophical ideas present in Anthroposophy that gave rise to Waldorf Pedagogy. The principles of this philosophy founded other areas of human activity and, in education, it was expressed through this pedagogy through the artistic approach, aiming to develop the use of imagination and creativity of its students. (GORAYEB; MATTOS, 2021).

Waldorf Pedagogy, created by Rudolf Steiner, is the application of Anthroposophy and its principles in the education of children and young people. According to anthroposophical teachings, to be an anthroposophist is to act from knowledge. (ROMANELLI , 2008).

This is not a confessional school, in which Anthroposophy is taught. What happens, in fact, is the teaching action based on the observation of the human being and the image that Anthroposophy makes of him. It is an application of artistic procedures so that cognitive development occurs in a dimension of balance between reason and sensibility, in an update of the Aesthetic Education of Man, proposed by the poet Friedrich Schiller. (ROMANELLI, 2008)

Martins (2022) considers that the objective of Waldorf Pedagogy is the development of subjects balanced in their physical, psychic and social aspects who can confidently give meaning and direction to their lives, through the search for understanding the facts, phenomena and ideas that characterize the human being, using the integration between science, art and spirituality.

Waldorf Pedagogy stands on the path of improving the artistic, sensitive, creative and imaginative side of the human being, providing its students with an experience closer to nature, believing that these conditions are essential for preparing for life in the real world. In this way, its methodology is organized in such a way as to promote in a balanced way the alternation between the more intellectualized activity and the practical or artistic activities. (GORAYEB; MATTOS, 2021).

The definition of Art in Waldorf teaching consists of the harmony and organization between the human being and nature, internal and external, in order to bring healthy development to the human being as a whole. It is about allowing the feeling of healthy inner organization through the artistic sense, in the same way that the body has a healthy sensation when it consumes healthy foods. "The knowledge of the human being leads us to understand that consciousness is an artist who works artistically on human bodily matter" (STEINER, 2008, p. 26).

Schiller (1990) explains that in the face of the experience of art and beauty, the refined taste of man can reach the disposition of the ludic impulse, which is an aesthetic willpower acting in harmony with the exercise of morality, capable of purifying human feelings and building character, enabling the balance between sensible and rational forces in the development of ethics in the human being.

At the beginning of the twentieth century, Rudolf Steiner, the creator of Waldorf Pedagogy, already drew attention to the path taken by modern education by expropriating the subjective and

inner reality of the student in favor of the cultivation of an objective rationality dissociated from the totality and complexity of the human experience. Anchored in Anthroposophy, Steiner (2003) inaugurates an education model that aims to meet the formation of children and adolescents from an integral conception of the human being effectively mirrored in a pedagogical praxis that acts in the sense of seeking a harmonious unity in the bio-psycho-emotional and spiritual development of the student.

Furthermore, in line with the sentimental and aesthetic disposition latent in the students who go through this phase, the Waldorf curriculum elects art as the primordial pillar of all education. According to Kügelgen (1989), in Waldorf Pedagogy there is no learning domain that is not enriched by artistic activity, through which the experience is deepened. However, a specific time is not reserved for these activities, they do not occur on the margins of other studies, as usually happens in the vast majority of conventional schools that reserve some space in the curriculum for art; on the contrary, they are "the bond of union between the various matters". In fact, the place attributed to art is very well configured in Steiner's thought (2003, p. 125): "pedagogy cannot be a science – it must be an art. And where is there an art that can be learned without constantly living in feelings?"

Classes in Waldorf schools are organized in such a way as to promote the alternation between the more intellectualized activity and the practical or artistic activities: theoretical teaching is always accompanied, on the one hand, by the practical focus (emphasis on bodily and craft activities) and, on the other hand, by artistic activities which, as indicated, in the Waldorf curriculum are a didactic vehicle for all subjects. Thus, drawing, watercolor painting, music, singing, theater, clay modeling, the art of speech, eurythmy, on the one hand, and handicrafts (knitting, crochet), shape drawing, carpentry, physical education, gardening, on the other, are worked on in the school daily life in a way that is very articulated with the formal contents of each time and with the psycho-emotional demands of the student. according to each phase of their development, so that learning is experienced in a meaningful way.

PLAYFULNESS AND WALDORF PEDAGOGY

Although contemporary education points to an urgent revision in the principles and procedures of pedagogical practice, a careful look at the classrooms makes it possible to see that the day-to-day life of the schools of the official education system has not been in line with the scientific paradigm of today, still reflecting the abstract and mechanical conception of the learning process and reflecting the enormous gap between thinking, feeling and doing; between body and mind; between intelligence, sensitivity and affectivity. *(ANDRADE and SILVA, 2015).*

For Andrade and Silva (2015) the teaching-learning process is very far from a truly playful focus, so that what is commonly observed when one intends to teach playfully is, on the one hand,

the realization of decontextualized playful activities in the classroom, without being clear about the proper correspondence between the objectives of such activities and those that are intended to be ensured, or, on the other hand, the promotion of equally isolated actions that are valued not for the intrinsic value of their educational function, but rather for the utilitarian function they assume, since, in these cases, they always serve as a means to transmit theoretical contents.

For Luckesi (2005), playfulness is an internal state of the subject who fully experiences an experience, it is synonymous with the plenitude of experience – considering here "plenitude of experience" as the maximum possible expression of the non-division between thinking/feeling/doing. According to him, playfulness is related to the internal attitude of the individual who experiences an experience of integration between his feeling, his thinking and his doing.

By considering playfulness as "an internal state of the subject who acts and/or experiences a playful activity", Luckesi (2005) presents a significant contribution to the understanding of this phenomenon, adding to the current approaches, generally dedicated to the external manifestations of the subject who experiences a game or a game, a look now focused on the internal dimension of the human being.

These reflections bring a great contribution to the binomial education and playfulness, enabling a more comprehensive understanding of what a playful education is: one that, transcending the strictly rationalist bias that has characterized education and orienting itself towards the cognitive, emotional, ethical, and physical creative development of the learner as a multidimensional human being, is committed to the promotion of meaningful learning that can involve the student as a whole, thus providing the harmonious integration of their thinking/feeling/doing.

From this perspective, therefore, the mere use of games or games in the classroom, or the choice of unconventional methodological strategies that use play activities as accessories to facilitate the acquisition of formal contents, as occasionally happens in the conventional educational environment, is very far from corresponding to the ideals of a ludic education, since the instrumental character of teaching still persists, prioritizing, even if covertly, the rationality of the student.

Contrary to the trend commonly observed in formal educational environments, which mistakenly conceives the relationship between education and playfulness from the simple use of playful methodologies in the educational context, disregarding the need to overcome the instrumental conception of teaching and, therefore, reorient the pedagogical practice towards the global development of the students and the multidimensionality of the educational process, Waldorf Pedagogy stands out.

From what Luckesi taught us, we can say that a playful education can be understood as one that provides the fullness of the formative experience, requiring a deep involvement of those involved in claiming not only their rationality, but their entire presence in the classroom: thinking,

feeling and doing integrated and, in unison, favoring and stimulating truly meaningful learning. As we have seen, therefore, the great contribution of Waldorf Pedagogy is to demonstrate, in its curricular and methodological organization, a path effectively underway towards the integration between thinking, feeling and doing in the context of formal education, in order to truly meet the essential assumptions of ludic education.

For Andrade and Silva (2015), Waldorf Pedagogy presents itself as an effective model of playful education and, therefore, consonant with the educational paradigm of contemporaneity.

PARODIES ON CONSTRUCTION MANAGEMENT AND PRODUCTION

Two creative writings were produced: one by students of the discipline of Construction Management and Production in the Civil Engineering course, and another by a student of the Agricultural and Environmental Engineering course of a Public University in the northeast region of Brazil. Both are summarized in image 1 below.

Image 1 – Parody - Build, build, my people

Music - Build, build, my people – 2023.1

Ednardo Fernandes de Medeiros
Marcos Antonio dos Santos Filho
Sandra Maria de Almeida Fernandes

Build, build, my people
That the works cannot stop
But apply Lean Construction, which you can only gain

On-time delivery, less waste and double work
There is continuous improvement, cost savings and a healthy environment
Greater predictability, reduction of conflicts, time and rework
But the best thing about it all is the happy customer with a smile on his lips
---
Build, build, my people
That the works cannot stop
But apply Lean Construction, which you can only gain

That's exactly what you heard, Lean Construction takes you to the top
High productivity, profit, quality and all within the time frame
It has been around for a long time to be able to add to the entire market
You just can't apply even if you want to stay in 94

Build, build, my people
That the works cannot stop
But apply Lean Construction, which you can only gain

Image 2 – Parody - Construction of the painting

0 Construction to paint
Parody (I'm like this without you)
Rebeca Barros de Paula
2023.1

Construction has steps
Let's learn What you need to do

The first step
Is the terrainLook, how is it? If there is gravel and debrisYou need to clean It is the first step
For construction
Come and see, what needs to change...

The step now
It is the earthworks
Then see the foundations
Which should be very deepThen the installations

Why, that has to be so? Because you can't falter Attention is important! To make a construction To not cause destruction

Electrical and Hydrosanitary Installations
In good condition Attention is important
Why? Why?

To not cause problems or damage to the construction And then we can see, the waterproofing
Just be careful
Not to forget
What's next
It is the coating
Come see, what you need to do

Right after that, we go to the painting,
And finally the decoration
And now to finish....
You can already contemplate

The construction you made
That everyone will look for you
Wondering
How do you get to know
Youee Youee

The creative writing produced by the students of the Civil Engineering course was inspired by readings of texts on construction management and production.

The written parody of Agricultural and Environmental Engineering was based on a lecture that was given by a construction manager engineer in the pandemic for a construction management and production class and which had its synthesis written in verse form by a student of that discipline.

Image 3 – Creative writing - Building from scratch to coverage

CONSTRUCTION FROM ZERO TO COVER – 2020.1
LUAN ALVES

Let's learn
From beginning to end
A construction to make
First step
For a good construction
If there's something before
A good demolition
It's not cool yet
Before you begin
Let's clean up
And the flowerbed organizes
With everything clean
It became a good landscape
And now yes
The next process, earthmoving
So let's go
Don't get confused
Part of the foundations
They are direct and profound
After the foundations
Coming to armor
Everyone knows what I'm talking about
The part of the structures has arrived
Now everything is flowing
Each in their role
Construction goes up
With the sealing stage
With everything in place
Electrical and plumbing installations begin
Always in good condition
But that's not all
To have a good construction
Many things are needed
Including waterproofing
To make everything beautiful
With good workmanship
We need the installation
Give a good coating
After all this already said
It is with great joy
That are placed
Beautiful frames
To finish
Our beautiful construction
How about we do Painting and decoration

The student of the Agricultural and Environmental Engineering course liked the text and adapted it to parody.

FINAL CONSIDERATIONS

The parody prepared by the students of the civil engineering course and the one produced by the student of the Agricultural and Environmental Engineering course promoted an integration of knowledge in a light and relaxed way.

As an observer of the artistic activity carried out by the students, the professor agrees with Steiner when he states that this type of practice provides meaning to understand also with the intellect and to permeate also as the sense of duty what the individual has learned to see in art as the beautiful and the purely free human.

The technical and artistic productions of the students of the Civil Engineering and Agricultural and Environmental Engineering courses of the studied University show that sensitivity can be activated.

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Entrepreneurial education in the biological sciences course at Campus VI-UNEB, Caetité-BA

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Maurizete Jesus Silva[1] and Jaqueline dos Santos Cardoso[2]

ABSTRACT

Entrepreneurial education is to develop the entrepreneurial spirit and encourage people to become central actors in the scenario of economic and social changes. This work aimed to analyze the learning instruments within the degree course in Biological Sciences-UNEB, Campus VI that provide students with the development of an entrepreneurial education. The results show that the course presents only one discipline with the methodology focused on entrepreneurial education, however activities that can be worked on to promote entrepreneurial activity in several disciplines were identified. As for the students, they all think entrepreneurial education is important for the Biological Sciences course and some already have experience with entrepreneurship from the family environment. In this context, the Degree in Biological Sciences has some important activities and projects for entrepreneurial education and it is clear that students think that entrepreneurial education is important for the course and for their future professional performance.

Keywords: Education, Biological Sciences, Labor market.

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INTRODUCTION

The job market, with the advancement of technology, has been undergoing a major change in terms of the requirements needed for professionals in the various areas of activity. In this context, professionals must be up-to-date and trained with skills to enter the market. According to Dolabela (2011), entrepreneurial education makes it possible to develop the entrepreneurial spirit, and encourages people to become central actors in the scenario of economic and social changes.

Entrepreneurial Education focuses on the development of students' entrepreneurial capacity, as a tool to support the development of innovative activities.

Historically, the teaching of entrepreneurship was born in the United States, in business schools and spread to several countries (LOPES, 2010). In Brazil, the teaching of entrepreneurship began to be explored in Business Administration courses in the 80s, by the School of Business Administration of the Getúlio Vargas Foundation, in São Paulo (OLIVEIRA et al., 2016).

Entrepreneurship as a field of academic research has been studied by several areas of the humanities and social sciences, such as economics, psychology, sociology and administration (ZAMPIER AND TAKAHASHI, 2011).

Entrepreneurial education is of paramount importance for the training of undergraduates of all courses, as it contributes to students having new perspectives on the development of educational instruments, new companies and consequently new jobs.

The Degree in Biological Sciences is one of the courses that provides several opportunities in the job market, however some of these require the professional to have entrepreneurial skills. We have as an example the work as speakers and consultants, which differs from the professional who has passed the exam, because they are constantly looking for opportunities. In this context, it is a challenge for these institutions to include the teaching of entrepreneurship as part of all higher education courses offered, regardless of the area of knowledge (SEBRAE, 2018).

The inclusion of the theme of entrepreneurship in higher education has also caused confusion both due to educational issues related to curricula and teachers, as well as due to adherence to the values and demands of the labor market (SOUZA AND SARAIVA, 2010).

Entrepreneurial education is essential for undergraduate students in Biological Sciences to accumulate the necessary entrepreneurial skills so that, after completing the course, they can take advantage of the job opportunities that may arise. An example of this would be the creation of opportunities to undertake in your area, to explore the opportunities manifested by the market. And this makes the concepts of Entrepreneurial Education also different between areas. Therefore, the present work was based on the concept of Dolabela (2011), and the concept of entrepreneurial education is discussed by several authors such as Andrade and Torkamian (2001); Dolabela (2011); Lopes (2010); Zampier and Takahashi (2011); Oliveira et al., (2016); Sebrae (2018); and Amorim

(2018). Entrepreneurial education according to Dolabela (2011) is to develop the entrepreneurial spirit, and encourage people to become central actors in the scenario of economic and social changes.

Educational institutions, as well as universities, are spaces of multiple learning that allow the articulation of scientific knowledge with the generation of products for society, through the pillars of research and extension. In this way, it is an important place for discussion of Entrepreneurial Education, but in Brazil they are not yet references in this theme. And that's why students have been looking for universities less and less when they want to train on entrepreneurship. However, institutions such as MIT (Massachusetts Institute of Technology) is recognized as an institution with a strong entrepreneurial culture and this has brought fantastic results to the academic population and to the country as a whole (SOUZA, 2017). Studies have identified that in 2014 more than 30 thousand companies were founded by former students of this institution and generated a GDP (Gross Domestic Product) higher than that of Brazil in Endeavor (2015).

In addition, as a teaching degree course, it is necessary for future teachers to enable an entrepreneurial education in basic education, as recommended by the LDB (2017). According to the Law of Guidelines and Bases of Education - LDB (FEDERAL SENATE, 2017), basic education aims to develop the student, ensure him the common training indispensable for the exercise of citizenship and provide him with the means to progress in work and in further studies. It also mentions in its article 27 that the curricular contents of basic education will also observe guidelines, among which the orientation to work is mentioned.

In this context, the present study sought to identify the entrepreneurial education in the undergraduate course of the Degree in Biological Sciences of the State University of Bahia through the analysis of the entrepreneurial profile of the students, to identify training learning instruments within the degree course that can provide students with the development of entrepreneurial characteristics and an innovative creative behavior.

Thus, the general objective of this study is to analyze the learning instruments within the degree course in Biological Sciences (UNEB - *Campus VI) that provide students with the development of an entrepreneurial education, and as specific objectives: to identify the course documents (syllabus, disciplines, internships and projects) and to describe which instruments on entrepreneurial education exist within the Biological Sciences course; and to identify the perception of the students in the Biological Sciences course. students of the course on entrepreneurial education.*

ENTREPRENEURIAL EDUCATION

Entrepreneurial Education is a possible proposal to train entrepreneurial individuals, capable of facing difficulties and overcoming the great challenges of the economy, of a globalized and competitive world.

The changes in the world economic scenario influence the labor market, which has been demanding professionals with particularity and capacity that were not necessary before. Therefore, the importance of entrepreneurial education in the curriculum of the various courses in higher institutions is noted. Entrepreneurial Education enables the formation of a subject who knows his potentialities and weaknesses, his skills and competences, capable of creating, standing out and facing the social and economic reality, that is, who can face and create different ways to guarantee his subsistence (DOLABELA, 2003).

According to Tavares et al., (2013), entrepreneurial education equips the student to make their choices and contribute to the strengthening of their life project. It is the preparation of young people to participate in the construction of social development. Also according to this author, this education develops skills and competencies in young people, strengthening their freedom, in order to decide about their own future.

Entrepreneurial training, which is already considered a priority in many countries, has been gaining importance even in Brazil, where schools and universities are increasingly concerned with the creation of specific entrepreneurship courses and subjects (AMORIM, 2018).

The challenge of entrepreneurial education is to overcome domesticating education, which is hegemonic within educational institutions, which in some cases consolidates an environment that is infertile for the development of creative, innovative, and entrepreneurial subjects (LOPES, 2017).

> Entrepreneurial Education is the process that aims at the development of the human being in the context of the identification and use of opportunities and their subsequent transformation into reality, which contributes to the generation of financial, social and cultural values for society (ANDRADE AND TORKAMIAN, 2001, p.301).

Entrepreneurial education in educational institutions can change the lives of many young people, developing skills and abilities that can generate a source of income and reduce school dropout, as they no longer have to choose between work and studies.

ENTREPRENEURSHIP AND ENTREPRENEURIAL EDUCATION

The field of entrepreneurship can be defined as one that studies entrepreneurs, examines their activities, characteristics, social and economic effects, and the support methods used to facilitate the expression of entrepreneurial activity, (FILION, 1999).

As stated by Tavares et al., (2013), the expression entrepreneurship is best known for characterizing the activity of an innovative person who perceives opportunities in the market, in order to launch a new business, develop products and services. And so Zampier and Takahashi (2011) reinforce the idea that entrepreneurs are commonly identified, especially in relation to characteristics of innovation and recognition of opportunities.

And to understand entrepreneurship in this sense, it is important to understand how entrepreneurs develop their skills. For this, it is also necessary to understand how the entrepreneurial learning process occurs, since the literature has already given and proven sufficient evidence of this interrelationship (ZAMPIER AND TAKAHASHI, 2011).

For Dornelas (2001), Entrepreneurship is the involvement of people and processes that, together, lead to the transformation of ideas and opportunities. And the perfect implementation of these opportunities leads to the creation of successful businesses. Therefore, it can be said that "to undertake is to find your light among so many others, and most importantly, to make it remain shining" (AZEVEDO, 2013).

First of all, entrepreneurship involves the process of creating something new, of value. Second, it requires the devotion, the commitment of time, and the effort necessary to grow the company. And third, that calculated risks are taken and critical decisions made; it takes boldness and courage despite failures and mistakes (DORNELAS, 2001).

METHODOLOGY

OBJECT OF STUDY

This study was carried out with the analysis of course documents and interviews with students in the 9th semester of biology. This course is located at *Campus* VI of the State University of Bahia (UNEB), in Caetité.

> The Teaching Degree Course in Biological Sciences at UNEB, *Campus* VI, Caetité, had its implementation and operation authorized by CONSU/UNEB Resolution No. 288/2004, published in the Official State Gazette on July 23, 2004 and began to operate regularly in 2005.2. The Recognition of the Course was approved at the 699th Session of the Full Council, on March 12, 2013 with a workload of 3,355 hours, 40 annual vacancies, regular offer, face-to-face modality, lasting 08 (eight) semesters (morning) (PORTAL DA UNEB, 2018).

CHARACTERIZATIONS OF THE RESEARCH

A case study was carried out characterized by qualitative and quantitative analysis on Entrepreneurial Education in the Biological Sciences course at UNEB – *Campus* VI. This study was carried out through the analysis of course documents and interviews with students in the 9th semester of biology.

For Yin (2015), a case study investigates a contemporary phenomenon in its real-world context, especially when the boundaries between the phenomena and the context may not be clearly evident. For Trivinos (1987), some authors understand qualitative research as a "generic expression". This means, on the one hand, that it includes research activities that may have specific characteristics.

This research is descriptive, as it describes the point of view of the students of the 9th semester of biology. According to Traldi and Dias (2011), descriptive research seeks to describe a certain phenomenon or a population. This is also a documentary research, because for the elaboration of the work, the course syllabus, sagres, and curriculum were analyzed. This research was also structured with a case study that, according to Gil (2010), is a research modality widely used in the biomedical and social sciences, which consists of a deep and exhaustive study of one or a few objects.

METHODOLOGICAL PROCEDURES

The documents related to the Biological Sciences course were analyzed, including a table of disciplines, syllabus, internships, research and extension projects available on the UNEB website (https://portal.uneb.br/caetite/cursos/biologia/?post_id=3418) and on the UNEB academic portal (http://www.portalacademico.uneb.br/PortalSagres/Acesso.aspx). In these documents, the instruments on entrepreneurial education that exist within the Biological Sciences course were analyzed. In the research, teaching and extension projects, available in the SIP (Integrated Planning System) (https://www.sip.uneb.br/projeto/list) it was identified which ones included entrepreneurship or some derived word in the title. All consultations were carried out on the aforementioned pages until October 2018.

To classify the activities mentioned in the course syllabus, the table by Rocha and Freitas (2014) was used to compare the methodologies that may include Entrepreneurial Education (Table 1).

Table 1 - Main methodologies for Entrepreneurial Education extracted from Rocha and Freiras (2014).

N°	Key methodologies	Description
1	Business Plan Competition	Develop communication, persuasion and strategy skills. Develop the ability to observe, perceive and apply improvements in the quality standard of the plans presented. Encourage the opening of companies through the winning plans.
2	Incubators	Provide the student with space to motivate and create the new company, developing multiple skills, such as leadership, organizational skills, decision-making and understanding the stages of the life cycle of companies. Encourage the strengthening of the network with financiers, suppliers and customers
3	Suggested readings	Provide the student with theory and concepts about Entrepreneurship. Raise awareness of the entrepreneurial act
4	Company games and simulations	Develop the ability to create business strategies, solve problems, work and make decisions under pressure. Learning from your own mistakes. Develop risk tolerance, analytical thinking, intra and intergroup communication.
5	Movies and videos	Develop the ability of critical and analytical thinking, associating the assisted context with theoretical knowledge. Stimulate group discussion and debate of ideas.
6	Product Creation	Develop creativity skills, persistence, innovation and a sense of evaluation.
7	Individual practical assignments	Construction of the ability to apply individual theoretical knowledge, stimulating self-learning. Stimulate the ability to work and self-realization.
8	Individual theoretical work	Construction of the ability to generate individualized knowledge, stimulating self-learning. Induce the process of self-learning.
9	Individualized service	Develop the ability to communicate, interpret, take initiative and solve problems. To bring the student closer to the real daily life lived in small businesses.
10	Application of essay tests	Test students' theoretical knowledge and written communication skills.
11	Company Creation	Transpose the information from the business plan and structure the necessary contexts for formalization. Understand various stages of the company's evolution. Develop the ability to organize and plan operations.
12	Seminars and lectures with entrepreneurs	Transfer knowledge of the experiences lived by entrepreneurs from the perception and creation of the product, opening the business, successes and failures that occurred in the entrepreneurial trajectory.
13	Brainstorming	Building the ability to conceive ideas, prospect opportunities, recognizing them as entrepreneurial opportunities. Stimulate intuitive reasoning to create new combinations of services or products, transforming them into innovations.
14	Focus groups	Develop the ability to test new ideas. Develop the ability to evaluate changes and prospect them as a source of opportunities.
15	Practical group work	Building the ability to act in a team. Develop the ability to plan, divide and execute tasks in groups, to pass and receive constructive criticism. Expand the integration between knowing and doing.

16	Theoretical group work	Building the ability to learn collectively. Develop the ability to research, dialogue, integrate and build knowledge, seek solutions and make value judgments in the realization of the written document.

The existence of methodologies that promote entrepreneurial education based on the study by Leite et al., (2009) was identified and analyzed. For this, the activities were analyzed and classified as to whether or not they existed in the Biological Sciences Degree course.

Questionnaires with open and closed questions were also applied to students in the 9th semester of the course (APPENDIX 2). The questionnaire was prepared based on the principles of entrepreneurial education, with thirteen questions, eight open and five closed.

All data were collected on October 5, 2018, through questionnaires applied to thirteen students of the course. Subsequently, the data obtained were tabulated and analyzed.

RESULTS AND DISCUSSION

ENTREPRENEURIAL EDUCATION IN THE DEGREE COURSE IN BIOLOGICAL SCIENCES

Course disciplines that favor Entrepreneurial Education

The Degree in Biological Sciences at the State University of Bahia - (UNEB) *Campus* VI, has an extensive curriculum with fifty-two disciplines, six of which are optional (APPENDIX 1), totaling a workload of 3,475 hours. Among these disciplines, no specific discipline on entrepreneurship was identified in the Biological Sciences course. In addition, the mention of the word entrepreneur, entrepreneurship or any derived word was also not identified in any discipline.

28 types of teaching and evaluation activities were identified (Figure 1) in the course syllabus. 10 of the 16 main methodologies cited by Entrepreneurial Education scholars and organized by Rocha and Freitas (2014) were identified (Table 2). The 28 activities were included in the 10 methodologies, because in some syllabi they often did not have details about the activities and, in addition, many activities were included in the broader terminologies used by Rocha and Freitas (2014).

Figure 1- Activities identified in the syllabus of the disciplines of the Degree in Biological Sciences - UNEB: *Campus* VI.

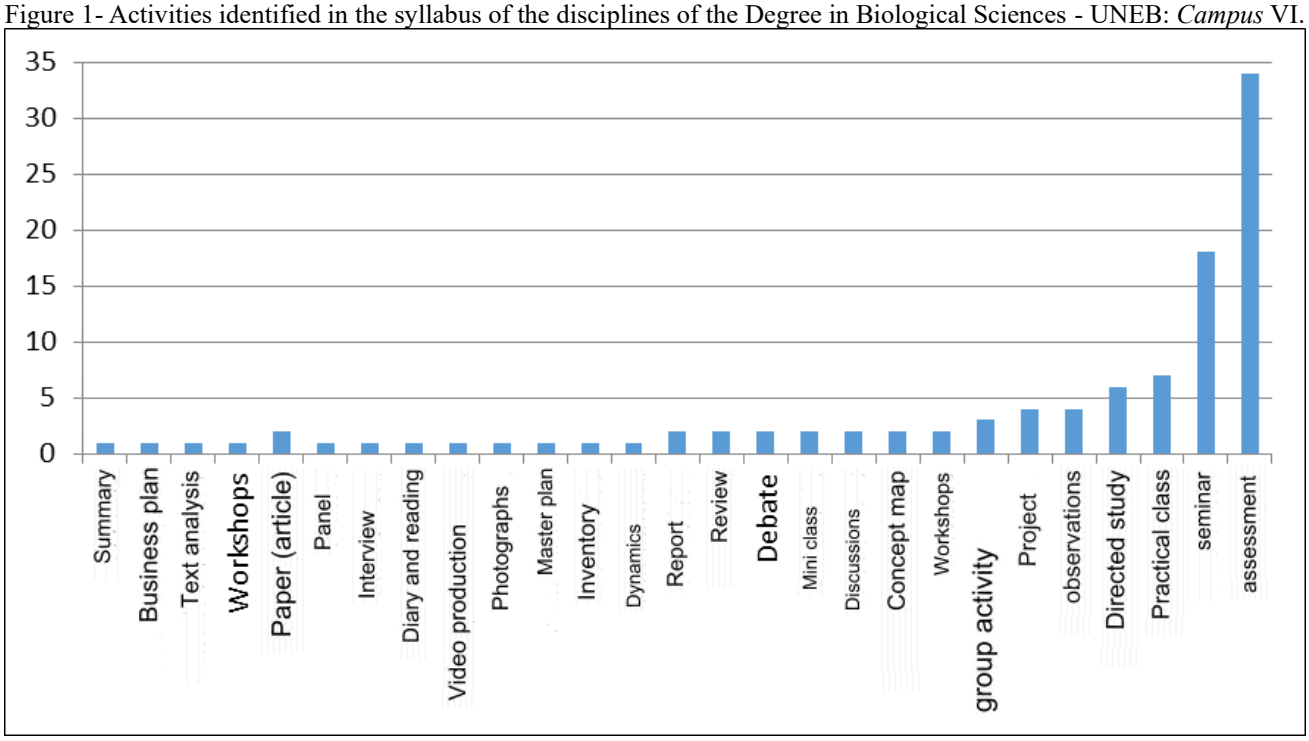

Table 2 - Activities that favor Entrepreneurial Education in the syllabus of the disciplines of the Degree in Biological Sciences - UNEB: *Campus* VI compared to the table made by Rocha and Freitas (2014).

N°	Main methodologies cited by Rocha and Freiras (2014)	Activity identified in the Biological Sciences course (UNEB-Campus VI)
1	Business Plan Competition	Business Plan
2	Incubators	Not identified
3	Suggested readings	Paper, Text analysis.
4	Company games and simulations	Not identified
5	Movies and videos	Video Production
6	Product Creation	Not identified
7	Individual practical assignments	Master plan, group activity, Workshops, seminar, Practical class, observations, Directed study, Mini class, Dynamics, Inventory, Photographs, Diary and reading and Interview, Panel.
8	Individual theoretical work	Group Activity, Concept Map, Project, Inventory.
9	Individualized service	Not identified
10	Application of essay tests	Review, Report, evaluation.
11	Company Creation	Not identified
12	Seminars and lectures with entrepreneurs	Not identified
13	Brainstorming	Not identified

14	Focus groups	Debate, Discussions, Workshops.
15	Practical group work	Master plan, group activity, workshops, seminar, practical class, observations, Directed study, Mini class, Dynamics, Inventory, Photographs, Interview, Panel.
16	Theoretical group work	Group Activity, Concept Map, Project, Inventory.

The methodologies of Incubators, Business Games and Simulations, Product Creation, Individualized Service, Company Creation, Seminars and Lectures with Entrepreneurs and Brainstorming were not identified in the menus. However, it is worth noting that the six activities that were not identified may be carried out by the professors responsible for the disciplines, but are not explained in the syllabus. Therefore, a more in-depth study with the professors of the course would be necessary.

The methodology that had the highest occurrence among the disciplines was individual and group practical and theoretical work. However, some activities were repeated between these four methodologies, because it was not explicit in the course plan whether they were individual or group. Figure 1 shows that only three disciplines mention group activities in their syllabus. The disciplines were General Ecology, Pedagogical Practice IV, and Cellular and Molecular Biology.

Group activities favor the creation of important skills for the professional future. The group activity seeks to develop responsible collective work skills and verbalization skills, so that students learn to express themselves and defend their points of view (LIBÂNEO, 2013).

Practical classes (4), directed studies were also mentioned in four disciplines, Cellular and Molecular Biology, Biophysics, Biostatistics, and Plant Physiology. These methodologies favor the application of the theoretical content studied, which can enable Entrepreneurial education as long as they take into account the student's training for their future professional performance.

The methodology of observations and projects was cited by four disciplines, Research Project II, Paleontology, Pedagogical Practice and Supervised Internship I and II.

There are some activities that were identified only in one discipline, such as: the discipline "Reading and Text Production Laboratory" used the Reading Diary as an evaluation; Video and photo production in "Laboratory of Reading and Image Production"; the paper in "Research Project I"; Inventory in "Biology of Chordates"; and workshop on "Comparative Animal Physiology". These activities can favor entrepreneurial education through the development of students' skills, abilities, and creativity. This can be a means of discovering talents and later improving to become a source of income, such as the use of photography in marketing.

Application of essay tests was mentioned and included the activities of review, report and evaluation. This methodology is important because we live in a literate society, in which writing is

one of the main instruments of communication. It was identified in the disciplines of Supervised Internship II, Paleontology, Education and Playfulness, Bioethics, Comparative Animal Physiology, Entomology, General Ecology, Plant Physiology, Microbiology, Chordate Biology, Fungal Biology, Biostatistics, Genetics and Evolution, Plant Systematics, Invertebrate Biology I and II, Venomous Animals, Libras, Pedagogical Practice III, Plant Anatomy and Organography, Developmental Biology, Genetics, Environmental Education, Pedagogical Practice II, Plant Biology I, Biology of Protoctists, Biochemistry, Phylogenetic Systematics, Biophysics, Afro-Brazilian and Indigenous Culture, Reading and Text Production Laboratory, Epistemology of Sciences, Cellular and Molecular Biology, Physics Topics, and Fundamentals of Chemistry.

Discussion group was mentioned in the disciplines Pedagogical Practice III, Pedagogical Practice and Supervised Internship I, and Comparative Animal Physiology, with the activities of Debate, Discussions, and Workshops.

Films and videos were mentioned in the discipline Laboratory of Reading and Production of Images with the activity of video production. These audiovisual activities help in the development of students in their skills.

The methodology of Business Plan Competition was identified in the Biotechnology discipline. In this discipline, the preparation of a business plan is used as an evaluation methodology, which is the simplest and best structured way to evaluate whether an activity of production and sale of goods or services is economically viable, to the point of satisfying your desire as an entrepreneur and becoming a small, medium or large entrepreneur (MOREIRA, 2017).

The methodology of Reading suggestion was identified, however, it was not possible to verify if they were readings that can promote the student's training in the concepts of Entrepreneurship. To identify this aspect, it would be necessary to analyze the articles and texts used in each discipline. This is because, according to the concept of Rocha and Freiras (2014), this methodology will promote Entrepreneurial education if the content of these reading materials promotes the student's training in the concepts of Entrepreneurship.

However, any methodology can be worked on to achieve the objectives of Entrepreneurial Education, as long as they take into account its principles. Different methodologies and resources can be found in the literature to help teachers promote Entrepreneurial Education (GIOVANELA et al., 2010; BOYLES, 2012; EUMUTI et al., 2012).

All evaluation activities should favor the intellectual, social and moral development of students, and aim to diagnose how the school and teachers are contributing to this (LIBÂNEO, 2013). In the labor market, professionals are evaluated in terms of qualification and their technical and human skills, and therefore schools and universities must be prepared to train students for their

future professional performance (MURAD, 2017). The European Commission report (2012) cited by Lopes (2017) states that,

> The main objective of entrepreneurial education is to develop entrepreneurial skills.
> 1-Stimulate attitudes and skills such as initiative, creativity, risk-taking, independence, self-confidence, planning and achieving goals, among others, which are basic to the entrepreneurial mentality or behavior.
> 2- To expand students' awareness of career possibilities as self-employed (self-employment) and entrepreneur.
> 3- Use practical methodologies in which students engage in projects or activities outside the limits of the educational institution, linking them with the local community or the business world.
> 4- Develop basic business skills, knowledge about how to open and develop commercial or social activities and equip students.

The job market usually evaluates creativity, attitude, relationship, respect and proactivity. However, with the traditional methodology, the student is a passive subject, where the teacher explains in an expository class and the student listens. However, the market evaluates attitude, skill and competence in professionals, so it is necessary to think of learning strategies that favor these skills, such as active learning.

In active learning, students have the opportunity to engage in activities that require more than listening, performing actions aimed at developing their skills (MATTOSOGLIO AND SOSTER, 2017). The new methodology brings students a better education for the professional future, as it develops their skills and competence that enables the student to stop being a passive subject and become active and reflective.

RESEARCH AND EXTENSION PROJECTS THAT FAVOR ENTREPRENEURIAL EDUCATION

144 research, teaching and extension projects were identified on *Campus* VI registered in the SIP (Integrated Planning System) system. Of these projects, only the one entitled "Entrepreneurial Biologist: an action inside and outside the classroom" mentions a word in the title derived from entrepreneurship. This project is registered with the institution with the following code DCHVI-3.

In addition, the presence of activities that favor entrepreneurial education in the course was also analyzed according to table 3, based on the study by Leite et al., (2009). Of the five activities listed in table 3, two were not identified in the course. No workshops for business games and business incubator programs were identified. According to Lacruz (2004), business games represent a dynamic educational technique developed to provide players with a remarkable and playful learning experience as a bridge between academia, past experiences and the business environment. Business incubators are a space in which a set of instruments and policies is made available to the business units installed in them that aim to assist their development (RAUPP AND BEUREN, 2009).

Table 3 - Activities identified in the Biological Sciences course at UNEB - *Campus* VI that promotes Entrepreneurial Education based on Leite et al., 2009.

ACTIVITY	There is no	Exists
Junior Company		X
Scientific Initiation, teaching and extension with themes on Entrepreneurial education (cites entrepreneurship)		X
Business Incubator Program	XX	
Workshops (business games)	XX	
Lectures on entrepreneurship		X

The three activities identified were the presence of Junior Enterprise, Extension Projects on Entrepreneurship and Lecture on Entrepreneurship. These three activities are carried out by the Singulatha Junior Enterprise team, which is located on *Campus* VI of UNEB and is linked to the collegiate of the Biological Sciences Course. This company promotes entrepreneurial training actions for students and has an extension project registered with the institution "Entrepreneurial biologist: an action inside and outside the classroom".

> It is possible, with the methodology used by universities, to increase students' awareness of entrepreneurship, providing the tools to identify and value their opportunities and qualities, and, fundamentally, to be able to encourage students to believe in their potential, to dream big and to make dreams come true (LEITE, 2009, p.8).

The Junior Enterprise of Biology – Singulatha is a non-profit company developed within the university (UNEB – *Campus* VI) by undergraduate students and professors where they develop projects and receive training for social life and the job market. As Pimentel (2008, p.115) states,

> Junior Enterprise is a non-profit civil association, constituted and managed exclusively by undergraduate students from colleges or universities, in which it is inserted, provides services and develops projects for companies, entities and society in general in its areas of activity, always under the supervision of professors.

According to Ziliotto and Berti (2012), the Junior Enterprise offers students the possibility of occupying organizational functions similar to those they will dedicate themselves to in their professional future. In addition, there is an exchange of knowledge with the companies to which they provide services.

It is of fundamental importance that there is a relationship between the university and junior companies, as this is a space to develop skills and competencies for participants and the academic community. The Junior Enterprise of Biology - Singulatha over these five years of existence has been developing within *Campus* VI projects, events and training courses for students and employees.

Over these five years, EJ offered students three projects, four lectures, and thirteen courses. One of the first works developed was the project "Management plan and medicinal plants in the

surroundings of the Alto sertão wind farm", where the students of the Biological Sciences course, administrators of the EJ, with the supervision of professors, carried out a management plan. This work contributed to the students obtaining a greater knowledge about endangered species and also the technique of handling medicinal plants. According to Silva (2017), the consulting projects are prepared in partnership with the advising professors, which enables contact with professionals who already have experience in the area. It also contributes to students obtaining experiences for the job market, as they will experience in practice how to carry out a management plan. A social project "All for the AEDS aegypti" was also developed, where detailed information about this transmitter was worked on.

Subsequently, projects were developed with a focus on the environmental area, which had as its theme "Environmental management of UNEB - *Campus* VI", where aspects such as energy efficiency, water efficiency, and solid waste were worked on. This project contributed to the development of students, instigated them to think critically about environmental problems and was also a professional consulting experience.

The EJ also promoted lectures thus helping students to acquire greater knowledge about the area of activity of a professional Biologist, through lectures entitled "Professional performance of the Biologist in consulting", "Lecture with Junior Enterprise of Administration of Guanambi-UNEB Campus XII", "Lecture of the Entrepreneurial Biologist Project", and "Day of the biologist (CRBIO speaker)".

In addition, Singulatha has been training junior entrepreneurs with courses in "Environmental management consulting and consulting in the analysis of plant diversity (flora)" and thus enabling students to develop work for other companies in the region. According to Silva and Cavalcante (2017), junior consultants learn strategies related to corporate sustainability, in addition to developing the teaching/learning, extension, research and professional improvement side.

Courses such as "Administrative routines", "How to budget a project", "Personal marketing", "Introduction to environmental management", "Professional experiences of former students of the biological sciences course", "Innovation management: a brief introduction", "Analysis of administrative staff competencies", and "Consulting for the preparation of CAR/CEFIR" were also offered.

These courses are of paramount importance, because to become an excellent professional or a successful entrepreneur, it is necessary to develop knowledge, skills, competence and innovation, to know how to behave in a work environment, and with appropriate clothing.

The EJ also offered the following courses to the students of *Campus* VI: "How to carry out consultancy with birds", "Importance of the quality of soil health for the environment", "Bat ecology: from conservation to the job market", "Introduction to the use of GPS" giving them the opportunity

to obtain qualification for the curriculum, in addition to the knowledge acquired to later use as a tool to enter the job market.

> The biology junior enterprise contributed to the students' professional lives, with skills developed when they participated in it, such as public speaking, entrepreneurial training, solving environmental problems and group work, professional experience, enriching the curriculum, and acquiring new knowledge (SILVA, 2017, p.32).

THE STUDENTS' PERCEPTION OF THE COURSE

Most of the interviewees answered that entrepreneurial education is "Developing the entrepreneurial spirit, encouraging people to become central authors in the scenario of economic and social changes". Only 8% answered that it is an act or effect of managing and another 8% said it is a study of the reciprocal relations between man and his moral, social, and economic environment. We can observe that a large part of the public answered the correct statement, this shows that most know what an entrepreneurial education is.

The issue cited by the majority is right, because as stated by Tavares et al., (2013), entrepreneurial education refers to equipping the student to make their choices and contribute to the strengthening of their life project, it constitutes the preparation of young people to participate in the construction of social development.

Upon finishing graduation, 53% say they intend to pass a civil service exam, 15% do a master's degree, 15% want to open a company and the other 15% work in a company. Half of those questioned intend to be a civil servant, this makes us reflect, that people do not want to take risks, they want something that gives stability, even knowing that they can go further. This, according to Dolabela (2011), is the "employee syndrome", the sufferer needs someone to create a job for him.

Regarding graduation, when asked if they had any discipline or activity that worked with entrepreneurial education, 92% said yes and 8% informed no. All those who reported that they learned about entrepreneurial education in their undergraduate studies mentioned the Biotechnology discipline. In fact, this discipline has a methodology aimed at entrepreneurial education according to the course syllabus, as mentioned above in the previous topic of this study. Silva et al., (2017), state that although the growth of entrepreneurship courses in higher education is good news, the offers are still timid in terms of the number of disciplines on the subject, which are, in most cases, elective. This was also what happened in the Biological Sciences Degree course studied. The Biotechnology discipline is an optional course for the course.

When asked if they think entrepreneurial education is important for the Biological Sciences course, they all answered yes. In fact, it is important, as Dolabela (2011) states: "The learning of entrepreneurial content is fundamental in all courses in all areas of knowledge". When asked if they

have already carried out any entrepreneurial action, 23% say they have already started a company, 15% have been a reseller, 7% are a consultant for a brand, 58% have marked as others.

> It is not possible to attribute the cause of mortality to a single factor, but rather to a combination of factors in four major areas: the situation of the entrepreneur before opening, business planning, training in business management, and the management of the business itself (DATASEBRAE, 2018).

The reseller is usually called a sales consultant who demonstrates and explains the products individually and has a profit margin in direct sales and a score that will be the basis for calculating the bonuses (PATROCÍNIO, 2018).

Most of those questioned, 78%, have someone in the family who is an entrepreneur such as "aunt, sister-in-law, father, cousin, sister and husband", and only 23% do not. According to Dornelas (2008), the heir entrepreneur learns the art of entrepreneurship with family examples and usually follows in their footsteps.

Most of the interviewees think that it is possible to teach entrepreneurial education as a teacher of basic education. Only 8% do not think it is possible. According to Silva (2015), teachers will be able to encourage their students to dream about the future without necessarily interfering with the objectives, that is, projecting the adult's dream onto the child or adolescent. But it is possible to verify that the public did not have this contact with entrepreneurial education in basic education, as 92% report not having had contact in basic education with entrepreneurial education, only 8% had this contact. In basic education there is a resistance from teachers to work with entrepreneurial education, because it needs a differentiated methodology, but it is important to use methods to develop the entrepreneurial spirit in children from an early age so that they can be an excellent professional.

Regarding the elements that are not part of entrepreneurial education, 46% answered that it is studying technical concepts without a professional application. 8% say it is to stimulate attitudes and skills such as initiative, creativity, and independence. The other 46% think that it is none of the alternatives. It can be seen that the opinion of the respondents is well divided in relation to the principles of entrepreneurial education.

Most respondents say they do not have a dream, only 15% reported that they do. Those who reported having the dream mentioned the following: "to be fulfilled in the goals I have, striving to follow the goal I planned in the time I stipulated to achieve each goal"; "Owning my own property, I still don't know how"; "Good financial stability, such as: studying and being approved in a public exam"; "Set up a local "home café" for snacks, with 20 thousand reais"; "Grow professionally with my own business with effort and dedication..."; " Pass a public exam, such as: study hard"; "Own a home, such as: studying to pass a public exam"; "To have a master's degree and work in the job

market with good remuneration, such as: dedicating myself, seeking more and more to qualify myself to act in the best way". We can observe several dreams here, and an entrepreneur is an individual who seeks to put his dream into practice, because "the dream can bring the origin and organize a life project, synergistically articulating desires, worldviews, values, and skills" (Silva, 2015, p.32). It can be seen through the answers that some students seek financial instability with a public exam and others intend to continue their studies and specialize.

When asked if they have participated in any project on entrepreneurial education that had any contribution in their professional life, most said no, only 23% participated in "Singulatha". They informed that the participation took place through the realization of projects and discussion on the subject, which instigated the entrepreneurial spirit and gave a notion of how to carry out a consultancy". When asked if they had already participated in any project carried out by the junior company, it was well divided where 46% say they have participated in one of the projects "Environmental management", or "Technique of methods of capturing birds", and 54% did not participate. The importance of a Junior Enterprise in entrepreneurial education is perceived, as there is "development of important skills and competencies for the professional future of students" (SILVA AND CAVALCANTE, 2017, p.67).

CONCLUSION

We conclude that this work was fundamental to know if there is entrepreneurial education in the undergraduate course in biological sciences and also the students' perception on the subject. It was possible to perceive the lack that the course has, of disciplines focused on entrepreneurial education and it is clear that students think that entrepreneurial education is important for the course. These results demonstrate the importance of entrepreneurial education to instigate the entrepreneurial spirit in students, through activities aimed at the development of skills and competencies, which will later be necessary for them to enter the job market, which is very competitive and it is necessary to have a differential to stand out. Because most students when completing the course do not get a job in the area or with good remuneration. In this context, it is important that undergraduate courses develop important activities to enable students for their professional performance.

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Psychology training and remote teaching: Perception of learning in the "new normal"

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ABSTRACT

The research sought to identify, analyze and compare the perception of learning in remote teaching of professors and students of the Psychology course at Estácio de Sá University, from a campus in the north zone, in the city of Rio de Janeiro. Using a qualitative and multimethodological approach, documentary research and narrative interview procedures were used, focusing on the (auto)biographical approach. 20 students and 13 professors participated, including doctors and masters. The main methodological tool to obtain the narratives of professors and students was the semi-structured (voice) interview, conducted mainly remotely via Microsoft Teams or Google Meets. Before the interview topics, information on socio-professional characteristics such as gender, age, and academic background were collected. The professors were asked about the teaching time, the subjects taught and the experience in other Institutions, while the students shared data about the academic period and previous training. For both, the perception of remote and face-to-face teaching was addressed. The analysis considered the collected narratives, documents referring to the training of the Psychologist in Brazil and the curricular matrix of the course. The results reveal the difficulty of the interviewees in differentiating remote and online teaching. In the answers there is consensus on positive points (elimination of displacement) and negative points (lack of interaction). Regarding professional training, both teachers and students express concerns. The preference for the face-to-face modality is almost unanimous among students, who also mention overcrowded remote teaching rooms. It is concluded that knowing the perception of these groups about remote learning can generate valuable reflections for educational practice.

Keywords: Remote teaching, Psychology, Learning, Teachers, Students.

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INTRODUCTION

The SARS-Cov2 coronavirus pandemic has disrupted face-to-face activities for 91% of students worldwide (United Nations Educational, Scientific and Cultural Organisation [UNESCO], 2020). Higher education institutions needed to adapt to reduce pedagogical losses and risks to public health, ensuring the maintenance of quality and safe higher education.

In Brazil, about a month after the declaration of a public health emergency of national importance as a result of Covid-19 and the adoption of measures to address it (Ordinance No. 188, 2020), the Emergency Operating Committee of the Ministry of Education - COE-MEC was established (Ordinance *No. 329*, 2020). From this committee, Ordinance No. 343/2020 (amended by Ordinances No. 345/2020 and No. 395/2020) and a Provisional Measure (Provisional Measure No. 934, 2020) were published, which authorize the replacement of face-to-face classes with classes in digital media – which use information and communication media and technologies, except internships, laboratory practices and, for Medicine courses, boarding schools (Ordinance No. 329, 2020). The documents cited made it possible for Higher Education institutions to respond to the period of social isolation by suspending face-to-face activities or replacing them with classes "in digital media".

This is what happened with Estácio de Sá University, which, after a week of stoppage of its face-to-face classes, started classes in the Emergency Remote Education - ERE model (Hodges, Moore, Lockee, Trust, & Bond, 2020). Emergency Remote Teaching, although it has similarities with the distance education (DE) modality, presented itself as a new modality at the University, with synchronous activities and live classes. A virtualization of face-to-face classes was made and live classes continued to take place on the days and times when students could attend the University.

The surprise of the pandemic did not allow planning to be carried out intensively in this new model. Only with the advance of vaccination in the country and the return to face-to-face activities, reflections on the consequences and learning of this period begin, which, in some way, brought new ways of relating to each other and possibly, of learning and teaching.

In this context, the research that seeks to know the perceptions of professors and students of the Psychology course of a *University campus* , located in the north of the city of Rio de Janeiro, about learning and about gains and losses of Remote Emergency Teaching, is inserted. The data collected bring important information about this moment, enabling reflection on new strategies for higher education, especially in the Psychology course, where face-to-face has always been considered essential.

The research "Training in Psychology" thus aimed to identify, analyze and compare the perception of learning in remote teaching of professors and students of the Psychology course at Estácio de Sá University, from a *campus* in the north of the city of Rio de Janeiro. This is a

qualitative research, with a multimethodological approach, using documentary research procedures and narrative interviews, from the perspective of the (auto)biographical approach. From the analysis of the National Curriculum Guidelines for the Undergraduate Course in Psychology – DCN (Resolution No. 5, 2011) and the Curricular Structure of the Undergraduate Course in Psychology at Estácio de Sá University, the perceptions of professors and students about remote teaching in Psychology were investigated.

The collection of oral information, in the form of narrative interviews, recorded in electronic format, allowed the identification of meanings and meanings expressed by the interviewees about the proposed themes. The interviews were mostly conducted remotely, using the *Microsoft Teams* or *Google Meets platforms.* To characterize the sample of professors and students, before the interview questions itself, information was collected on gender, age, academic background, time in higher education teaching, subjects taught and experience in other educational institutions. For the sample of students, in addition to data on gender and age, information on the current academic period and previous training were requested.

For both groups, the difference in learning between remote and face-to-face teaching was questioned. However, the approach used for the two groups of interviewees was different. The professors were asked about their relationship with the students of Higher Education. The students narrated their experiences with the professors. The view of the impact of this modality on the training of future Psychology professionals was also questioned for both groups. The relevance of the theme is inserted in the context of the abrupt change in the teaching modality caused by the SARS-Cov2 coronavirus pandemic. Such adaptation occurred with 91% of the world's students (UNESCO, 2020). Thus, considering the experience at Estácio de Sá University, it can be seen that, after a week of stoppage of their face-to-face activities, classes began in the ERE model (Hodges et al., 2020). The ERE, although it has similarities with the Distance Education (DE) modality, presented itself as a new modality at the University, with synchronous activities and live classes, on the days and times already established, using the Microsoft Teams platform as a tool.

It can be said that, since March 2020, the teaching-learning process, both nationally and internationally, has had to make significant changes in its methodologies. Apparently, such changes have remained more or less expressive in various educational contexts. Thus, despite the end of the health emergency of the Covid-19 pandemic by the World Health Organization (WHO) since May 5, 2023, the remote modality persists as a practice in most educational institutions in Brazil and many institutions must adopt hybrid teaching, with face-to-face and remote classes (Infobase, 2022; World Health Organization [WHO], 2023). Taking into account this scenario, we sought to understand the perception of Psychology professors and students at the Estácio de Sá University, on the aforementioned *campus*, about learning and remote teaching.

The research was carried out within the Scientific Initiation Program of the Estácio de Sá University and submitted to the Ethics Committee of the same University. It was authorized by the management of the *campus* in question, and also by the coordination of the undergraduate course in Psychology. The research was conducted in accordance with the precepts of the Resolution of the National Health Council (Resolution No. 466, 2012), ensuring autonomy, non-maleficence, beneficence and justice, as well as the provisions of Resolution No. 510/2016 of the National Health Council.

PANDEMIC, TECHNOLOGY AND LEARNING

In 2020, with the outbreak of the coronavirus pandemic, responsible for Severe Acute Respiratory Syndrome, called COVID-19, the world needed to review the ways of teaching. Therefore, in March of the same year, the Ministry of Education of Brazil published Ordinance No. 343/2020, which provides for the replacement of face-to-face classes with classes in digital media for the duration of the pandemic situation of the New Coronavirus – COVID-19 (Ordinance No. 343, 2020), thus seeking to reduce the potential damage caused to education. Subsequently, in May 2020, Ordinance No. 473 of 2020 extended the deadline. And since then, even though the definition is not clear to everyone (Behar, 2020), the terms in vogue in academia have become: online education, distance learning, and remote teaching. This is because, when the health emergency was established and all the practices and knowledge needed to be adapted, it was not yet clear to the professors and students what each of these terms was referring to.

It is worth remembering that, although the distance learning (DE) modality has gained visibility with the new Information and Communication Technologies (ICTs), including the internet, the records point to its presence in the academic sphere, when considering, for example, courses carried out through letters and other methodologies. Thus, the distance learning (DE) method was only expanded with the use of the internet (Fernandes, Henn, & Kist, 2020). The legal bases of Distance Education in Brazil were established by the Law of Guidelines and Bases of National Education (Law No. 9,394, 1996), by Decree No. 2,494, of February 10, 1998 (published in the Official Gazette of 04/28/98), Decree No. 2,561, of April 27, 1998 (published in the Official Gazette of 04/28/98) and by Ministerial Ordinance No. 301 of April 7, 1998 (published in the Official Gazette of 04/09/98). Article 80 of Law No. 9,394/96 states that "The Government shall encourage the development and dissemination of distance learning programs, at all levels and modalities of education, and continuing education" (Law No. 9,394, 1996). In order to understand what these three letters EaD encompass, Decree No. 9,057 (2017) is used, which, in its article 1, defines that:

> (...) Distance education is considered to be the educational modality in which the didactic-pedagogical mediation in the teaching and learning processes occurs with the use of information and communication means and technologies, with qualified personnel, with

> access policies, with compatible monitoring and evaluation, among others, and develops educational activities by students and education professionals who are in different places and times.

Distance education in Brazil has had a long history since its inception through correspondence, with the expansion of the media reaching radio and television until acquiring a large proportion in the mid-1990s with the world wide web (Batista & Souza, 2015). Ordinance No. 2,117, of December 6, 2019, authorizes Higher Education Institutions (HEIs) to offer up to the limit of 40% of the course load in the distance learning modality (Ordinance No. 2,117, 2019). In this bias, the internet becomes the most important resource for distance education, since this technological tool aims to bring students and teachers closer together, providing the construction of collective knowledge.

Distance Learning, however, is a broad term that encompasses a diversity of ways of teaching and learning. It is then necessary to elucidate what the terms related to what is meant by distance learning mean. The "online" modality is the one that offers asynchronous classes, previously recorded, which offers students greater flexibility in offering schedules and organizing their personal routine. In turn, remote teaching provides synchronous classes, that is, at a time established by the Higher Education Institution, with students and professors geographically separated, but brought closer by the mediation of ICTs, such as the internet. Using electronic devices such as cell phones, computers, *tablets*, etc., it becomes possible to share, in real time (synchronously) knowledge, thoughts, projects, etc., in class format, for example, with the supposed advantage of the fact that this meeting can be recorded, that is, recorded in an electronic file, allowing, for example, access to those who may not have been able to watch it live (Matos & Menezes, 2021). Added to this is the construction of differentiated formats of teaching modality, such as the hybrid modality, which mixes online classes with remote classes, face-to-face classes with remote classes, offering synchronous classes and non-face-to-face activities with the use of digital resources.

That said, it is necessary to extend this discussion to what should have been contemplated when there was a determination to establish the continuity of teaching without disrespecting the guidance of social isolation, that is, how learning takes place in remote teaching, the preparation of teachers and students for the modality and access to technology. This determination required students and teachers to make use of tools that until then were not part of their routines and many did not even have the knowledge of how to use them. In addition, the use of technological tools demands, more than knowledge, financial conditions to adapt. It is worth mentioning that, according to the ICT module of the Continuous National Household Sample Survey of the Brazilian Institute of Geography and Statistics - IBGE, at the end of 2017 only 79.1% of the population used the world wide web, most of the time via cell phone, since the same survey shows that at the time the microcomputer was only used in 48.1% of these households, data that show the size of the difficulty

faced in establishing distance learning in general (Brazilian Institute of Geography and Statistics [IBGE], 2018).

Thus, considering the change imposed by the pandemic, which made face-to-face classes impossible, the short time and the need to return to academic activities even with social distancing, it was not possible to have a very large time gap, leading many professors and students not to obtain a tutorial or adequate help to understand how to use and access the technological tools necessary for remote teaching. It was not only the technological difficulty that created obstacles to remote teaching, but also the resistance, models, and individual teaching and learning preferences of each one. This set of factors and motives, by both parties (professors and students), made the initial adaptation occur with less fluidity and quality, since students were used to interacting with their peers and professors and using physical structures such as blackboards, chairs and other environments and tools typical of the traditional academic universe. Considering this scenario, teacher training based on more traditional pedagogical and didactic styles has contributed to the incorporation of technology as a teaching model not being fully accepted, a reason for tensions and uncertainties.

Considering the reference of Pimentel and Nicolau (2018), which alludes to children and adolescents in Public Schools, if the public does not have minimum access to these technologies, they should, in addition to the essential basic subjects, have pedagogical activities capable of preparing them for the construction of computational thinking, which consists of learning to use the computer as an instrument for the development of the cognitive capacity of human beings. But there was no time for this preparation. But after all, how does learning happen in remote teaching? Would it be the same way that happens when there is proximity between people who circulate in the same school environment, in physical classrooms, with blackboards, chairs and real interaction with their classmates and teachers?

The nature of human learning and the interest in understanding how man constructs knowledge was already the subject of study in Ancient Greece (Natel, Tarcia, & Sigulem, 2013). However, it is at the end of the nineteenth century, when Scientific Psychology was born, with the creation of the first experimental Psychology laboratory in Leipzig, in 1897, with Wilhelm Wundt (1832-1920), that the study of human learning becomes a specific field of study (Monteiro, 2023). Today there are many theories about learning, especially human learning. Such theories propose a systematic attempt to interpret, organize and predict how learning occurs. Theories do not converge to consensus, they are plural and even contradictory. Some emerged and developed in close times, but in different socio-historical contexts, based on different researches, and have different understandings of the learning phenomenon. Theories, like psychological knowledge, do not

constitute a harmonious whole, just as the societies within which they (and he) have been produced are not harmonious (Giusta, 2013).

Some theories focus more on the observable aspect of behavior, others on cognitive aspects and/or innate tendencies, others on social and historical-cultural aspects. They have different understandings of the learning phenomenon. In any case, they have influenced and continue to be present in the discourses and practices of teachers, even though they do not always know their foundations. In general, they indicate the need for teacher training that develops reflections on concepts, instead of just presenting them in a light way, in their more simplistic, more obvious versions of common sense.

ANALYSIS OF DOCUMENTS

According to Resolution No. 597/2018, the National Curriculum Guidelines for undergraduate courses in Psychology establish and define, at the national level, the principles, foundations, conditions of offer and procedures for the training of psychologists, and should guide the preparation of pedagogical projects for undergraduate courses in Psychology offered by higher education institutions in the country (Resolution No. 597, 2018). In the period of development of this research, the training of psychologists in Brazil was governed by the National Curriculum Guidelines (DCN) dating from 2011. This set of Guidelines for the Psychology course was approved in 2004 (Opinion No. 0062, 2004) and revised in 2011 (Resolution No. 5, 2011), making higher education institutions have to implement them, with all the adjustments and modifications that this model requires of the curricula and course structures in force until then and centered on the Minimum Curriculum. The Estácio de Sá University was based on these DCNS and its Pedagogical Project refers to it, including respect for the number of hours of the course, the existence of the School Service and the presentation of the Curricular Emphases (a delimited and articulated set of competencies and skills that configure opportunities for concentration of studies and internships in some domain of Psychology). namely, Psychology and clinical processes and Psychology and processes of prevention and health promotion. The curricular structure of the Psychology Course is based on Resolution CNE/CES No. 2, of 06.18.20, which defines the minimum workload and procedures related to the completion and duration of undergraduate courses, bachelor's degrees, in the face-to-face modality, and on Resolution CNE/CES No. 5, of 3.15.2011, published in the Official Gazette of 3.16.2011, which establishes the DCNs for undergraduate courses in Psychology, and other pertinent legislation (Resolution No. 2, 2007; Resolution No. 5, 2011).

In their curricula in progress at the time of the development of the research, called 118 and 220 (Universidade Estácio de Sá [UNESA], 2018, 2020), there is a quantity of up to 20% of the workload of online courses. In none of them is there mention of remote classes. Both were prepared

on dates prior to the pandemic. On the other hand, the DCNs of 2011 do not explain the need for face-to-face training in the training of psychologists, perhaps due to the inexistence (or scarcity), at that time, of activities offered in a different way from face-to-face. During the preparation of this article (precisely on 10/11/23), however, CNE/CES Opinion No. 1,071, of December 4, 2019, was approved, which deals with the National Curriculum Guidelines (DCNs) for undergraduate courses in Psychology and establishes standards for the Complementary Pedagogical Project (PPC) for the Training of Psychology Teachers (Ministry of Education, 2023; Opinion No. 1,071, 2019). This approval defines the new DCNs for the training of Psychology professionals in Brazil and informs, about the organization of Psychology courses, that the courses will be offered in the face-to-face modality and, in compliance with the legal precepts for graduation, must lead the student to know and properly use the current technological resources. It also emphasizes, in article 14, which deals with internships, that the activity of supervised mandatory internship must have face-to-face guidance, conducted by psychologist teachers, teachers of the training institution. But what is face-to-face after the WHO declaration on the end of the Public Health Emergency of International Concern related to COVID-19 on May 5, 2023? Remote teaching emerged as an alternative for maintaining teaching in institutions in the face of the health crisis. And, with synchronous classes, it was considered face-to-face, even though there was no contiguity between the subjects. Or as Arruda (2020) says: "classes are transmitted in instant time by web conferencing systems, the so-called lives, which allow teachers and students to be able to interact and organize their learning times in a way that is closer to face-to-face education". In addition, it is important to highlight that, in order to adapt the way the disciplines are presented, adaptations can and should be made. But in general, what was planned for face-to-face teaching is followed.

Considering the recent homologation, it will not be possible, at this time, to analyze the adequacy that the University may institute in its training course in Psychology. Considering the 2011 DCNs, it is understood that the University, until the declaration of the pandemic, had been respecting all its precepts, and offering disciplines within the guidelines of the National Health Council.

ANALYSIS OF THE INTERVIEWS

20 students from the 8th, 9th and 10th periods, between 22 and 54 years of age, and 13 teachers, 8 men and 5 women, and aged between 35 and 68 years, were interviewed. Following the proposal of Jovchelovitch and Bauer (2015) for the analysis of the interviews, the indexed elements (concrete references within the narrative: who did what, when, where and why) and the non-indexed elements (which express values, judgments and a whole generalized form of "life wisdom") are presented first, thus identifying the "trajectories" (indexed elements) and the "analysis of knowledge" (non-indexed elements). In the trajectories of the professors, analyzing the order of events for each

individual, the following were organized: academic training, their professional experience and time at the University. In the trajectories of the students, analyzing the order of events for each individual, the following were organized: their academic period at the University and their previous education, if any.

Next, the "analysis of knowledge" is considered: opinions, general theories and the reflections of the interviewee, which represent his understanding of the events he has lived and is experiencing. This space presents the interviewees' conception of learning and the factors involved with it, the difference between remote teaching and distance learning, the relationship between teachers and students, gains and losses in remote teaching and the impacts on the training of psychologists in the remote or hybrid modality. Throughout the presentation of the interviews, the trajectories of the two groups were compared, with the elaboration of categories used in the participants' discourses and the confrontation between them, with the objective of highlighting constitutive elements of the individuals' experiences. Which leads to the last step, where trajectories are placed within context and similarities are established. This process allows the identification of collective trajectories. Then the trajectory of the two groups.

RESULTS

Regarding the professors: there are 12 psychologists and 01 professor graduated in Biological Sciences. All of them work in the Psychology course, have a master's or doctoral degree and are between 35 and 68 years old. Three professors have 3 to 4 years of experience in higher education; The others have between 10 and 25 years of experience. All interviews were recorded, with the authorization of the interviewees, as recommended by the Resolution of the National Health Council (Resolution No. 510, 2016). These teachers will be referred to in the text as P1, P2, P3, P4, (...) and P13.

Teachers speak *of learning* as a process. A process of change, of transformation that necessarily implies a dialogical relationship with the other, as P11 (teacher/62y) says:

> Learning I think is a dialogical process of organizing knowledge, be it of any order, so it can be learning... Scientific knowledge, you know, basically what we're reporting on, and any other way of learning anything, behavioral patterns, from an affective perspective, we learn affection too, so learning is this, this, this dialogue, you know (...).

The teachers also refer, in many answers, to the need for the exchange of affection in this process, as teacher P5 (teacher/65y) says: "it is essential that this interaction is crossed by an affective relationship". Regarding the *difference between remote teaching and distance learning (DE)*, teachers are not very clear in their answers and some even confuse the two, such as teacher P2 (teacher/35y) who says: "I don't know if I see a difference." Or teacher P6 (teacher/40y), who talks

about the students: "But in practice I would say that for most students... students haven't made that distinction much in the last two years."

Regarding *the relationship with the student*, a fundamental point when they answer about what learning is, the teachers report that the relationship in the remote modality leaves something to be desired, because they do not know after all who is in the virtual classroom and have no way to get *feedback* from the students, as teacher P6 (teacher/40y) says: "You never know who is actually participating in the class. So some always participate, some even open the camera (...). But I feel that it is very difficult to make bonds." As teacher P13 (teacher/53y) says, it turns out to be a more "cognitive" relationship, without affectivity, a factor already said to be fundamental for learning: "So the relationship with the student mediated by the machine becomes more cognitive". Teacher P1 (teacher/48y) says: "I say that it's as if we were in a classroom, and we were only in the front row. And the rest of the students were in the dark." Contact with students, with the class is highlighted by teachers as being the main loss in remote teaching, as teacher P2 (teacher/35y) says "(...) I believe the losses go in the direction of this human interaction, this quality of contact in the interactions". Another P11 teacher (teacher/62y) pointed out: "The losses were the ones I talked about, right, of feeling powerless, of not being able to manage some conflicts, of not being able to perceive the dynamics of the class in fact, right".

But there are also *gains in remote teaching*, highlighted by the professors. Almost everyone begins to mention at this point the issue of commuting around the city not being necessary when they are in remote learning. Others highlight the possibility of permanent access to the internet, during classes when they are connected, the possibility of recording classes and also the focus of students during classes, as they are all at home or work separately and there is no interaction and face-to-face conversations in the group. As the teachers say: "And there are also the gains of accessing some things over the internet that you can do while you are in class, and this is very interesting" (P4, teacher/45y); "It is easy for you to be able to record the class, you know, the class can be recorded, and the student can suddenly watch it at another time, you know" (P5, teacher/65y); "He's different, that's all. It is not lost... I don't lose focus on the content" (P9, teacher/66y).

Regarding *losses* and problems, another issue highlighted by all teachers and that deserves special attention is the issue of evaluation in remote teaching. It is flawed, difficult, a challenge in remote teaching: "yes, it was another challenge, right, the deconstruction of that crystallized assessment, right, that monobloc, that traditional assessment , right" (P3, teacher/52y); "I think that the evaluations are very flawed" (P1, teacher/48y); "I think that the test in remote teaching, they end up accessing each other's test, exchanging information via whatsapp, other groups, other social networks" (P4, teacher/55y); "yes, I also understand that it's a... complex, not to say flawed aspect (...)" (P9, teacher/66y); "It's a challenge. (...) the same technological resources are used to take the

test, the student (...) has to be very mature when reviewing this process and finally understand that (...) must follow the same ethical criteria" (P2, teacher/35y); "I think that the evaluation, it needs to adjust to the remote model" (P3, teacher/52y); "I think that the issue of remote teaching in terms of evaluation, it is problematic, right" (P13, teacher/53y).

The *impacts on the training of psychologists in the remote or hybrid modality*, such as the one presented at the time of the construction of this article, that is, remote classes, distance learning and face-to-face, teachers are sure of the impacts, but doubt whether they will be positive or negative and only time will have this answer. But they already pose some questions that are fundamental for analysis, such as the issue of reviewing the evaluation in the remote modality, the presentation of specific disciplines only in the face-to-face modality; the number of students, which should be reduced and the number of subjects that the student can take in each semester, as the professors say:

> (...) so, for example, disciplines that are, knowledge that should be exclusive to the psychologist, the teaching of assessment instruments, tests, etc., that cannot be done, cannot be done remotely, I mean they cannot, they simply cannot (P11, teacher/62y).
> In the pandemic and in remote teaching, she told me that she was doing it to be able to graduate soon, if I'm not mistaken, 14 subjects. It is impossible for this student to have a satisfactory performance, it is impossible for this student to be learning something by taking 14 subjects in the semester (...) (P6, teacher/40y).
> As I said, the problem is not remote teaching, it's what they do with remote teaching. So, in this sense, it is clear that there are many losses in remote teaching. But not for remote teaching, but what they do with remote teaching (P7(teacher/68y).
> I think if you ask, are we training current bad students? Yes. But it's not because it's remote. I mean, it's not just because it's remote, we've been training badly because of a lot of things, because of unavailability, because of the lack of availability, because when I'm talking about bad training, it's not Estácio, it's Estácio, UFRJ, UERJ, [...], it's training badly, that is, we just have to look at ENADE and we'll see how badly we're training (P11, teacher/62y).

What the professors mention are issues to be discussed, worked on, modified so that remote teaching or hybrid teaching is established. Because as teacher P8 (teacher/39y) says: "It is no use having resistance to the processes, but it is important that we have the sensitivity to understand and discuss these processes, and how we can use these processes to our advantage."

Regarding the *students*: there were 20 interviewees, 17 women and 03 men, in the age group between 22 and 54 years. They are distributed as follows: 04 in the 8th period, 05 in the 10th period and 11 in the 9th period (at first it was not the intention to interview someone from the 8th period, but the students in question have disciplines between the 8th and 9th period and their experience with remote and face-to-face teaching was considered). Among these 20 students, 10 are in their first training, 08 in the second or more training and 02 not informed. These students will be referred to in the text as students A1, A2, A3, A4, (...) and A20.

When asked about *learning*, students have different statements that are related to the capture of information and/or knowledge, transformation and use of knowledge for practice. Only one student places learning unlinked to the University: "Learning is something that we acquire not only

at the university, but anywhere, with anyone" (A1, student/26y). The others talk about learning related to the University and/or the Psychology course. As for the factors involved with it, the students especially mention the motivation and interest factor, but also, repeatedly, the relationship with the teacher, as student A12 (student/29y) says:

> Learning is much more than taking the notebook and going to class, it is built on the relationships between us and the teacher, between us and our colleagues, I think this is all part of learning, it all contributes, right?

Or student A7 (student/23y): "I think there are several (the factors involved in learning), the relationship you have with the teacher, your willingness to learn, your motivation to learn certain content". Or student A8 (student/28y):

> Learning is when the teacher exposes to us a form of knowledge and a didactic that we can understand, from his knowledge we internalize, learning everything that has happened in class, learning is an exchange of knowledge.

Despite this connection between learning and teachers, almost half of the students (8) consider that the most efficient resources for learning are videos, readings, writings and TV series, and few (3) mentioned teachers as an efficient learning resource. In this context, *the relationship with the teachers* was the subject of reflection, since several report the damage in the relationship with the teachers, as student A14 (student/25y) says:

> The face-to-face is much better, I think the relationship we create with the teachers, with the experiences they go through, right? For us it's much better than that in remote learning, because sometimes in remote teaching we end up in the rush of home, we end up not being able to take the microphone, exchange so much with the teacher, but in the face-to-face as we are there with the teacher, it is easier for us to have this exchange also with colleagues, talk about experiences and so on. So I believe that in the face-to-face there is much more exchange.

It was observed that more than half of the students could not explain *the difference between remote teaching and online teaching*. Some even report that they only thought about it at the time they were asked in the interview. As student A2 (student/50y) says: "Now I can't tell you the difference like this... there are some that are recorded, there are others that happened at the same time... who would be who there, I don't know...". Or student A4 (student/23y) who says:

> No, wait, now that I now that I paid attention, sorry. The online one I think would be more like not having a teacher, the remote one in this case we have a teacher there helping online, we are on our own, we have to learn from what is being taught.

Almost all students interviewed believe that the training of professionals in Psychology in remote teaching will have some negative impact on future professionals. As student A17 (student/22y) says:

I think so, and negatively, because we need practice, we need to be exchanging knowledge with people. Our profession is very much that, we need to be aware of what the other is doing, learn from their mistakes, from their successes and I think that through the remote we can't see that.

As the teachers said, they talk about the impact on training and mention that some subjects can be remote, others not. As student A4 (student/23y) says: "I think it depends a lot on the subject, because there are subjects that cannot be online, they have to be face-to-face. Even like the internship we were having, we were having online". And this same student:

> It was very good, we also learned, but for the psychologist the best would be the face-to-face that he will be dealing with there in the face-to-face with people face to face, face to face. Apart from that, online, there is always that problem in listening because of the internet, sometimes the internet does not work well and you cannot hear the other, the other cannot hear you. So, I think it would not be so good for psychologists (A4, student/230y).

Regarding the *positive and negative points of the remote teaching modality*, in the same way as the professors, the students also point out as positive the issue of the absence of locomotion: being able to attend classes from wherever they are, whenever they want and being able to review the classes; the convenience of taking subjects even on campuses without commuting and that if they had not adhered to remote teaching during the pandemic they would be behind in training. As the students say: "Gain is the facilities, at the same time that we lose by being at home, we also win. Now in higher education it was possible to take more disciplines, on other campuses, which would not be possible in face-to-face, remote teaching made it easier" (A3, student/23y)*;* "The gain is that the class can be recorded, we don't have a problem with locomotion either" (A1, student/26y)*;* "The gain is that this modality allowed me to take subjects, which perhaps was not possible at that time, for example: subjects in the morning shift I can only do if it is online" (A9, student/41a). As can be seen in the statements, some students do not seem to mind doing other activities during remote classes: "we can be doing other things while attending class" (A17, student/22y). The recording of the class is also mentioned as a facilitator of the process.

As negative points they point out: the dependence on the quality of the internet; lack of skill with virtual environments; the impossibility of opening the microphone and asking questions with a colleague; the inhibition factor when answering a question via microphone; the ease of dispersion being greater; interference from the family at home. The exchange between students and professors is highly emphasized as negative, as the students say: "I think this is a loss. This contact is also face-to-face, this exchange, enrichment of the debate" (A13, student/48y); "The losses are the face-to-face contact with the teacher, with a greater exchange of materials" (A7, student/23y)*;* "There are losses, because face-to-face contact facilitates learning, this even helps the teacher" (A9, student/41y).

Students are also concerned about *the impacts on psychologist training in the remote or hybrid modality*, but, unlike teachers, they are more incisive and definitive in the negative impacts**.**

And they specifically mention the issue of the evaluation of the disciplines, which is precarious, as student A15 (student/45y) says: "I believe it will negatively affect the quality of the professional. The student leaves college developing very little reading and writing skills, due to precarious evaluations". Or the students:

> Unfortunately, yes. We are students, and many tests were carried out in groups, because some students were not interested in taking the test so I took advantage of it, there are also those who entered the class just for their presence and not interested in the content, so it will have an impact because there are people who simply took the diploma, but this is also a matter of character (A8, student/28y).
> The remote, at the same time that it makes it easier, it makes it difficult to exercise the ability to reason, because in the remote everything is at hand, if you have to do a work, a test, you will not make as much effort as in the face-to-face, because you know the possibility of opening a window and researching during the test, that is, you do not dedicate yourself 100% to what you are studying, soon you end up getting lazy, in addition to the issue of attention that you are not as focused on the remote as on the face-to-face, no matter how much you are in a reserved environment, the fact that you are not in the classroom makes you distracted by other factors (street noise, family members, etc.), at home the attention is divided with other things (A10, student/28y).

Throughout the analysis of the narratives of teachers and students, several common points are observed, specific concerns, such as about evaluations as well as the benefit of not moving people around the city, in the case of remote teaching. The impacts are also mentioned and this seems to be a necessary agenda in current education, considering that the proposal of remote teaching, it is believed, is here to stay.

FINAL CONSIDERATIONS

The coronavirus pandemic has affected the world. The transformations caused several changes, affecting all areas of society, including the educational area. There were and continue to be multiple questions about viable alternatives for student learning, doubts about the use of remote activities, anxieties about the return to normality and the possibility of a "new normal". In publications made during and after the pandemic, the "new normal" is spoken of as a concept that seeks to encompass the conditions that guarantee our survival during and after the pandemic (Nakagawa, 2020; Raic, 2021). In the educational area and especially in higher education and in Psychology training, the idea of the "new" normal, which presupposes, of course, an old one, draws attention. What was the "old" normal in Psychology training? How did the professors of the Psychology course understand learning before the pandemic? Is this known? The very concept of learning for Psychology is not unanimous and the various theories of learning created throughout the twentieth century do not seem to be sufficient for understanding the process.

The research indicates that the issue of learning in remote teaching in Psychology worries teachers and students and everyone has doubts about what will be the effect of this process, still in progress, on the training of Psychology professionals. In particular, the interviewees are concerned

about the personal interaction between teachers and students in remote teaching, which is different from the interaction in face-to-face, physical teaching in the classroom. Teachers and students include this factor as essential in learning. The assessment of learning is also a concern of both groups of interviewees and should be rethought. Perhaps, as one teacher interviewed said, some disciplines can be thought and planned to be remote and this is not harmful to learning.

The field study allowed to highlight the concerns of teachers and students regarding the quality of the training of professional psychologists, considering technical and human determinants involved in the planning and development of academic activities under the label of a "new normal". Shortly before the completion of this article, the National Institute for Educational Studies and Research Anísio Teixeira (INEP) made public the partial result of the National Student Performance Exam (ENADE), carried out in November 2022, by students in the area of Human Sciences, including Psychology (National Institute for Educational Studies and Research Anísio Teixeira [INEP], 2023). ENADE is a component part of the National Higher Education Evaluation System (SINAES) and according to the report:

> (...) It is an important reference for understanding the quality of Brazilian higher education, considering that its results can contribute to promote improvements, as well as to define strategies and institutional actions, with the purpose of strengthening the development of higher education courses. (INEP, 2023, p. 8)

It is not possible, at this time, to examine all the indicators presented in the Report released by INEP. However, in view of the theme of this research, it is worth emphasizing the importance of also using this framework for the analysis of training in Psychology. As the report says, it is relevant that the results of the perceptions of students and coordinators about the ENADE test gain weight as an additional element in the analysis of the offer of courses in the face-to-face and distance modalities, at the national level. Also added here are the teachers who are involved with the training of new psychologists. It is expected, therefore, that, in a formative view of evaluation, the knowledge and analysis of the results of this research, as well as the analysis of ENADE, can contribute to the construction of pedagogical alternatives for quality training in Psychology.

But, to learn more about this, there is still a lot to research about what happened and about the changes going forward.

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Impacts of burning on nutrient availability in the soil of the Chapada dos Guimarães National Park – MT

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ABSTRACT

The objective of this work was to investigate the impacts of Integrated Fire Management (IFM) in an area of the Chapada dos Guimarães National Park, to understand the effects of burning, both adverse and beneficial, on the availability of P and N, and to evaluate soil pH and moisture. Samples were collected in the Chapada National Park, which is located in the Midwest region of the country, in the state of Mato Grosso, located between the geographic coordinates 15°10' and 15°30'S and 56°00' and 56°40'W is within the Cerrado Biome, presenting a great biological diversity. The chemical parameters analyzed for the study area were: pH, moisture, phosphorus (P), total nitrogen and ammonia. The results were evaluated by Tukey's test ($p<0.05$) to compare the means when significant. Therefore, prescribed burning can alter the chemical characteristics of the soil without depending on the depth and seasonal period that was analyzed, in which it proves that fire is capable of altering them.

Keywords: Phosphorus, Soil organic matter, Soil chemistry, Nitrogen.

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INTRODUCTION

Integrated Fire Management (IFM) associates ecological, cultural, socioeconomic, and technical aspects in the execution, integration, monitoring, evaluation, and adaptation of actions related to the use of fire, through prescribed and controlled burning, to the prevention and fighting of forest fires (IBAMA, 2023).

The Chico Mendes Institute for Biodiversity Conservation (ICMBio) carries out here in the Cerrado region, Chapada dos Guimarães, the prescribed burns that are essential in the prevention of forest fires, especially in the months of June and July due to the climatic conditions of the region and thus minimize environmental impacts (ICMBIO, 2020).

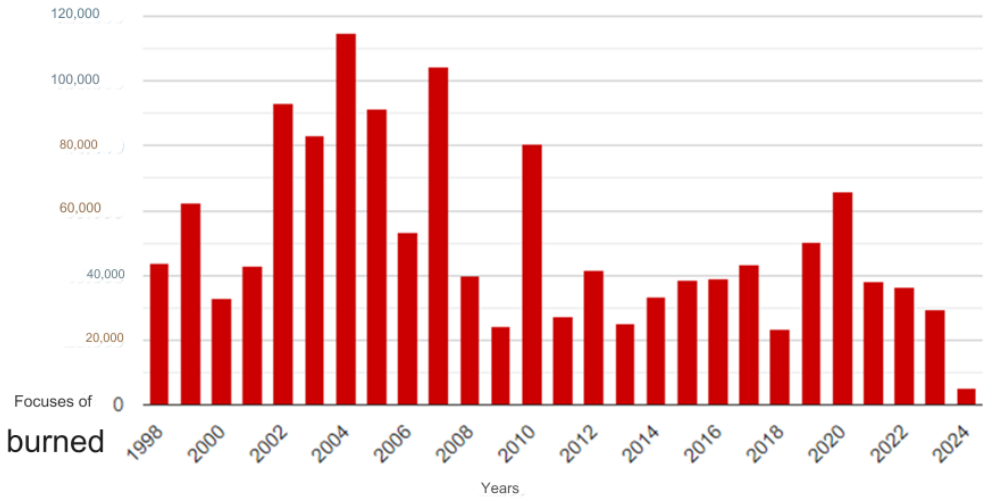
Prescribed burning is the use of fire in portions of vegetation creating a natural barrier to prevent the spread of flames when forest fires occur during the dry season. Burning and forest fires have a major contribution to the emission of air pollutants and this can cause direct and indirect effects on human health and the environment (IBAMA, 2023).

Tropical savannas are located in Asia, Australia, Africa, and Central and South America, corresponding to about 20% of the entire land surface (ICMBIO, 2020). They are characterized by the spatial and temporal heterogeneity of their physiognomies, discontinuous tree cover, herbaceous stratum vegetation, well-defined dry and rainy periods and frequent occurrence of fire. In Brazil, savannas are called by the term Cerrado, being the second largest Brazilian biome and the most biodiverse savanna on the planet, it presents a complex of phytophysiognomies, forming a mosaic in which grassland, savanna and forest formations are included (ICMBIO, 2020).

According to Bragança (2019), Brazil has 334 federal conservation units, of which 149 are full protection and 185 are sustainable use, in some regions of the country, in particular, the Cerrado Biome has one of the aspects that most require attention from managers is fire management in Conservation Units (UCs).

According to Figure 1, which shows the historical series in the country of fire outbreaks from 1998 to 2024, extracted from the Inpe website.

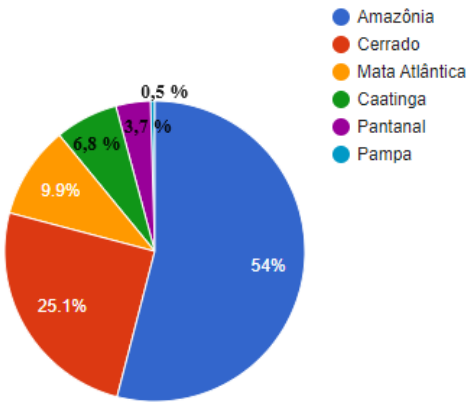
Figure 1. Historical series of the total active outbreaks detected by the reference satellite in the period from 1998 to 07/15/2024.



Source: Inpe, 2024.

In Brazil, it is observed that in the months of June and November there is an increase in the records of hot spots by the National Institute for Space Research (Inpe) and it happens in the Cerrado, Amazon and Pantanal Biomes and it is observed in this year of 2023 there is a great drought in the Amazon, the Pantanal with a large fire and this has been increasing deforestation indicators according to Figure 2.

Figure 2. Fire outbreaks in the year 2024.

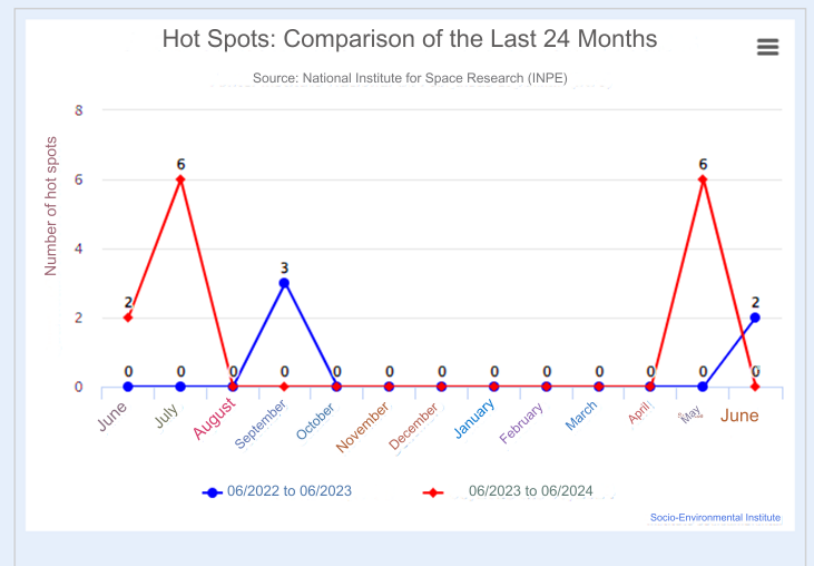


Source: Inpe, 2024.

Figure 03 shows the hot spots, a comparison of the last 24 months in which the area covered by the point is observed: a focus indicates the possibility of fire in an element in the pixel (image resolution) that varies from 1 km x 1 km to 5 km x 4 km. At this image resolution, one or several different fires can occur, but the indication will be a single focus. If the burn is too large, it will be

detected in some neighboring pixels, that is, several fire outbreaks are associated with a large burn (INPE, 2024).

Figure 3. Heat sources: comparison of the last 24 months.



Source: Inpe, 2024.

According to the United States (2023), future projections for the regions where hot spots occur suggest that fire regimes will intensify and due to climate change, these regions have become more flammable and dry, they will double the area burned by forest fires by 2050.

During forest fires and the burning of biomass, pollutants are emitted, including particulate matter (PM 2.5), carbon monoxide (CO), sulfur dioxide (SO2), ozone (O3), hydrocarbons (HC), nitrogen oxides (NOx), black carbon (BC), and other toxic substances (ANDREAE, 1991). According to the World Health Organization (WHO), 90% of the world's population breathes air below safe levels. Thus, the risks of acute respiratory infections increase, especially in children and the elderly.

Nutrients are essential elements for soil development. The main components of soil fertilizer are: Phosphorus, Nitrogen, Carbon Knowing the current concentration informs environmental scientists of a nutrient deficiency or surplus in soils used to support plant production, and also provides an overview about the basic biogeochemical cycles of an ecosystem (PEREIRA, 2009).

Phosphorus (P) is considered a nutrient of low mobility in the soil, a behavior attributed to its "fixation" by clay minerals, and this element has a relevant presence in tropical soils that have high levels of iron and aluminum oxides – with which phosphorus has great affinity. Between 20 % and 30 % of the phosphorus applied as fertilizer is used by annual crops in tropical soils, and it is essential to apply quantities that, in general, far exceed the extractions of these crops (PEREIRA, 2009).

Nutrients such as nitrogen and phosphorus are the ones that most limit agricultural production and are necessary in the initial development of plants. However, soils here in Brazil have a low amount of these nutrients. The nutrient phosphorus is associated with three biochemical processes such as: photosynthesis, energy production and respiration, participating in enzymatic processes that make up the structure of plant cells such as nucleic acids and cell membranes as well as being part of compounds responsible for the fixation of atmospheric CO2 and the metabolism of sugars (PEREIRA, 2009).

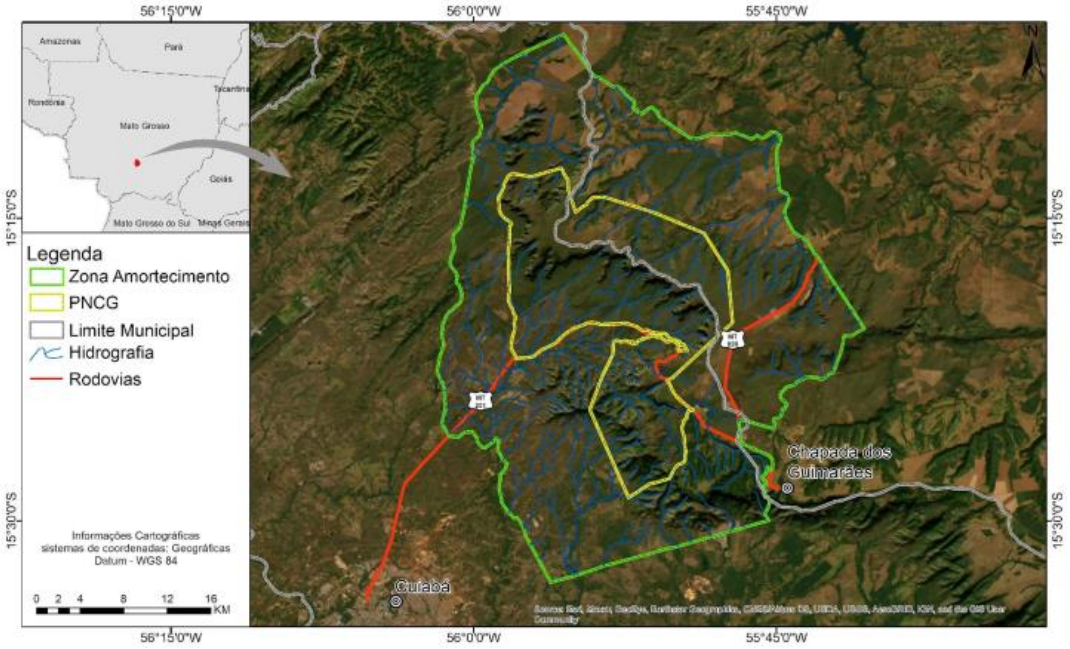
According to Vourlitis et al. (2014), soil fertility is a determining factor for the growth and increase of biomass. The presence of fire has been causing consequences in the existing Biomes, in which the Pantanal and Cerrado stand out. In the Cerrado, surface fires occur in the dry season and thus consume almost all soil biomass (MIRANDA et al., 2002).

It is of paramount importance to assess the impacts caused by fire on tropical soils. The purpose of this research is to: investigate the impacts of Integrated Fire Management (IFM) in an area of the Chapada dos Guimarães National Park, understand the effects of burning, both adverse and beneficial, on the availability of P and N; evaluate soil pH and moisture.

METHODOLOGY

The Chapada dos Guimarães National Park was created by Federal Decree 97.656, of April 12, 1989, to ensure the full protection of the fauna, flora, water resources and natural beauty of the region. In this context, several local groups, representatives of civil entities, have been developing environmental education projects aimed at reversing the current situation of degradation, which is visible in several places in the region. The park has a rich diversity of watercourses, many of them with waterfalls, which are its main tourist attraction (OLIVEIRA and HARDOIM, 2010). The Chapada dos Guimarães National Park (PNCG) is one of the main conservation and protection units of the Cerrado biome in Brazil. It is located in the Midwest region of the country, in the state of Mato Grosso, within the municipalities of Chapada dos Guimarães and Cuiabá (Figure 4) (MENGUE, 2022). Located between the geographic coordinates 15°10' and 15°30'S and 56°00' and 56°40'W, it is located within the Cerrado Biome, presenting a great biological diversity (IBAMA, 2002).

Figure 4. Location of the study area.



Sources: Conservation Units (CNUC, 2015); ZA – Proposal (PCCG/ICMBio, 2009); Hydrography (SEPLAN/MT, 2022); Municipal Limits (IBGE, 2021); Satellite Image (ESRI, 2022).

It covers approximately 32,630 hectares and includes numerous springs, trails, streams, rivers, backwaters and waterfalls, and whose rivers flow into the Cuiabá River, one of the main tributaries of the Pantanal (LOPES et al., 2009). The climatic conditions of the PNCG have a transitional character, mainly due to the differences in altitude between the regions of the Cuiabana Depression (350 m) and the Plateau (800 m), which have a climate classified, respectively, as Aw and Cw, according to Köppen. Both are characterized by being hot and humid, with two well-defined periods, one rainy from October to March (spring and summer) and the other dry between April and September (autumn and winter) (ICMBIO, 2009). The average annual temperatures vary from 25ºC (in the Baixada Cuiabana) to 21.5ºC (in the high peaks of the Chapada dos Guimarães), with the maximum daily temperatures in the Baixada Cuiabana exceeding 38ºC and the minimums, at the top of the Chapada, falling to less than 5ºC (ICMBIO, 2009).

The average annual rainfall remains between 1300 and 1600 mm of rainfall in the Baixada Cuiabana and reaches 2100 mm annually in the highest portions of the Chapada dos Guimarães, with the occurrence of precipitation concentrated in the first three months of the year. In the dry months, the relative humidity can reach levels below 20% (ICMBIO, 2009).

The Chapada dos Guimarães Park is visited by tourists from different places, as it has beautiful waterfalls and landscapes. In 2016, it received 158,365 visitors, ranking seventh in the ranking of the most visited National Parks in the country (ICMBIO, 2016). Thus, the importance of tourism in the conservation and management scenario of these conservation units and in the sustainable economic development of the region can be highlighted, since the economic impact of public use calculated for the park can reach R$ 43.3 million (RODRIGUES et al., 2018). But, despite

the park being a conservation unit and having significant importance for the population of the municipalities of Chapada dos Guimarães and Cuiabá, it suffers several threats, including fire, especially in the dry season, which can modify the structure and floristic composition of the vegetation in a much more drastic way than the fires that occur in the rainy season.

Human occupation is also a threat, as there are private properties and possessions within the National Park, as well as logging and illegal extraction of plant products, in addition to the advance of agriculture (ICMBIO, 2009). The Chapada dos Guimarães National Park is part of the Upper Paraguay Hydrographic Basin (BAP) and is part of the Pantanal Biosphere Reserve as a Core Zone, due to its important main function, which is the protection of biodiversity (ICMBIO, 2020).

The samples were collected in July 2023 in the dry season, but it was not possible to collect the rainy season of the same year, due to the climate changes that happened in the same with a deep drought. In 2024, samples were collected from the rainy season (February) and May 2024 (dry season).

DETERMINATION OF GRAIN SIZE

The screening method was carried out in which coarse and fine sieving is done and stored in waterproof and sealed bags.

DETERMINATION OF HUMIDITY

Soil moisture is defined as the ratio between the mass of water (Ma) contained in a given volume of soil and the mass of the solid part (Ms) existing in that same volume (CAPUTO, 2017).

$$\%U = \frac{M_a}{M_s} * 100$$

The collected soil was transported in impermeable and sealed packaging. It was placed in a freezer until the analyzes were performed.

GREENHOUSE METHOD

It is the most accurate and traditional method in which its determination is very simple: the mass of the sample is determined in its natural state and the complete mass after drying in an oven at 105 ºC to 110 ºC. It has an advantage over the others because it presents reliable results. In Brazil, the determination of soil moisture is standardized by the NBR 6457/2016 standard – Soil samples – Preparation for compaction tests and characterization tests. The following is the procedure for performing the test:

- After passing through the sieve in the granulometry, 10 g of the sample was weighed in containers and taken to the oven for 24 h at a temperature of 105 ºC.
- A new weighing was carried out after removing the set from the greenhouse.
- After that, the moisture was calculated (EMBRAPA, 2017).

Determination of pH

- The potential was measured electronically by means of the immersed electrode (pHmeter) in ground suspension.
- 5 g of sieved soil was weighed, 10 mL of distilled water was added to the numbered 100 mL plastic cup.
- The sample was shaken with an individual glass rod and the pH was read.
- Before taking the pH meter reading, turn on the potentiometer 30 minutes before it starts to be used. The potentiometer was measured with the standard solutions of pH 4.0 and pH 7.0 (EMBRAPA, 2017).

Determination Total Nitrogen (N)

- Digestion method with sodium and copper sulfates and determination of N by volumetry after retention of NH3 in boric acid, and steam distillation.
- 0.7 g of fine earth was weighed, placed in a 100 mL Kjedahl flask, weighed at approximately 0.001 g;
- 15 mL of the acid sulfate mixture was added and digestion was carried out, boiling the contents for 1 h or more, until the organic matter was completely destroyed;
- Allowed to cool, together with 25 mL of distilled water, stirred to homogenize and added 2 drops of syrupy ferric chloride solution;
- The 30% NaOH solution was gradually added until the solution was light brown (beginning of the formation of basic iron compounds);
- Allowed to cool, place the balloon on the scale, add water until the weight of the balloon is more than 60.35 g and mix the solution well;
- 12 g (10 mL) of the partially neutralized solution (extract from N mineralization) was transferred to the Kjedahl microdistiller;
- At the same time, 25 mL of 4 % boric acid solution was placed in a 125 mL Erlenmeyer Erlenmeyer solution, adding 5 drops of the mixed indicator to this solution;
- The free end of the distiller was inserted into the solution, taking care to keep it immersed at all times until the end of the distillation;

- 2 mL of 30 % NaOH was added to the partially neutralized solution (extract from N mineralization) and the ammonia was distilled by steam for 5 minutes;
- The distillate volume was titrated after cooling with a standardized solution of H2SO4 0.01 N until the color changed from purple or bluish to pink;
- Finally, the blank test and calculations were carried out (EMBRAPA, 1997).

Determination of Ammonia Nitrogen

Nessler's colorimetric method

1. Principle of the method: The Nessler reagent (alkaline potassium iodine-mercurate) is decomposed, in the presence of ammonia, into a compound (dimercuryammonium iodide) of color varying from red-orange to brown, forming a precipitate. The reaction is done in basic means. Double potassium and sodium tartrate is added to delay the appearance of the precipitate. The compound formed can be measured in a spectrophotometer with a wavelength of 450 nm.

Reagents

- Potassium tartrate;
- Mercury iodide II;
- Potassium iodide;
- Sodium hydroxide 6 N;
- Ammonium chloride.

Preparation of Solutions

- Reagent 1: 50% potassium tartrate, with distilled water (50 g potassium tartrate for 100 mL distilled water).
- Reagent 2: mix 100 g of mercury iodide II with 70 g of potassium iodide and dissolve in 300 mL of distilled water. Add slowly and with constant stirring 500 mL of 32 % sodium hydroxide (160 g of NaOH to 500 mL of distilled water), after cooling, fill the volume to 1000 mL with distilled water. Stability of ± 2 months in the refrigerator.
- Standard solution (1000 mgN/L): dissolve 3.82 g of ammonium chloride in distilled water and complete the volume to 1000mL.

Procedure

- Centrifuge or filter the sample;
- Transfer 5 mL of sample to a test tube;
- Add 1 drop of Reagent 1 and shake;

- Add 2 drops of Reagent 2 and shake;
- Wait 10 min and read at 450 nm;
- Calibrate the device with white (EMBRAPA, 2017).

Phosphorus Determination (P)

- Colorimetric method by ascorbic acid using 0.05 N HCl and 0.025 N H2SO4 extractor solution;
- 10 mL of fine earth was placed in the 125 mL erlenmeyer and 100 mL of the extractor solution was added;
- Shake in a horizontal circular stirrer for 5 minutes;
- The sample was left to rest for one night, taking care to dismantle the mounds of earth that form in the central part of the Erlenmeyer bottom;
- 25 mL of the supernatant part was pipetted without filtering and placed in plastic containers of approximately 30 mL;
- 5 mL pipetted, 125 mL Erlenmeyer was placed to determine phosphorus;
- 10 mL of dilute ammonium molybdate acid solution and a pipette of ascorbic acid powder were added;
- Place in a horizontal circular stirrer and shake for 1 to 2 minutes;
- The sample was left developing the color for 1 h and then read at a wavelength of 660 nm;
- The amount of phosphorus in the sample was calculated (EMBRAPA, 1997).

RESULTS AND DISCUSSION

According to the transects demarcated in the Chapada dos Guimarães Park, the measurements carried out are in which Table 1 follows the measurements of pH and humidity in the dry season, July (2023) and May (2024) and in the rainy season, in February (2024).

Table 1. pH and Humidity for the month of July 2023 and May 2024 (dry season) and February 2024 (rainy season).

Year 2023 - July (dry)			Year 2024 - February (rainy)		Year 2024 - May (dry)	
Samples	**ph**	**% Moisture**	**ph**	**% Moisture**	**pH**	**% Moisture**
A1S1	5,44	1,22	5,88	2,35	4,98	1,55
A2S1	5,33	0,28	5,30	2,51	4,83	1,27
A3S1	4,78	1,69	5,41	1,57	4,29	1,09
B1S1	4,95	1,29	5,51	2,73	4,80	1,14
B2S1	4,61	1,04	5,29	4,62	5,06	2,03
B3S1	4,61	1,96	5,41	4,82	4,90	2,63
C1S1	4,58	0,4	5,61	3,28	4,68	2,68
C2S1	4,53	1,02	5,46	4,11	4,86	2,17
C3S1	4,65	1,29	5,32	3,37	5,09	1,68

It is observed that the pH presented acidity ranging from 4.53 to 5.44 in the dry period in July 2023, that is, the pH of the soils reflects the presence of H+ and Al+3 ions present in the exchange complex that represents the active acidity of the soil (KIEHL, 1979). For the collaborators Ritcher et al. (2011), the low spatial variability of pH is associated with the application of limestone.

According to Neto (2011), it presented a high acidity, because acidity is common in soils in regions where precipitation is high enough to leach appreciable amounts of interchangeable bases such as calcium and magnesium, another cause of acidity is intensive cultivation, because plants remove from the soil the essential nutrients for their development and production, Erosion can also be a cause, as it removes topsoil compared to the soil in the research.

It is observed that the pH presented acidity ranging from 5.29 to 5.88 in February 2024 in the rainy season, that is, the pH did not show changes in the sampled area or in the periods studied, remaining with values that present acidity that is common for the soil conditions of the Cerrado (MALAVOLTA and KLIENMANN, 1985) say that the Latosols, which are the vast majority in the Cerrado, have low fertility, high acidity and low base contents, and have a high degree of weathering, in which the release of H+ in the soil solution is an acidity agent (DA ROS et al., 2005).

According to Farias et al. (2013), the small increase in pH values can be explained by the fact that burning generates oxides and thus neutralizes acidity and adds these nutrients to the soil. And in the year in which the burning takes place or after one year of burning, there may be an increase in the pH due to the increase in the levels of ash produced from the combustible material present in the study area. This increase will be momentary, and thus, the pH will be altered due to the loss of these ashes, considering that burning can reduce acidity, close to the soil surface and this change may be enough to stimulate nitrification and vegetative growth of the area.

For Saggar et al. (2013), pH is an important factor that controls the denitrification process due to the sensitivity of the enzymes involved to soil acidity. Therefore, in this condition, the reduction in nitrous oxide reductase activity will increase in relation to N2O/N2 emitted from the soil. Thus, pH

will also affect the structure of the community and the proportion of groups of microorganisms involved in the production of N2O.

However, for Huang et al. (2014), there is no consensus regarding the effect of pH on the activity of bacteria and archaea in ammonia oxidation. For some collaborators, they have shown greater activity of archaea in acidic soils and in calcareous soils, however responses contrary to these have also been obtained (YING et al., 2010).

According to Gleeson et al. (2011), moisture content should be considered in relation to the abundance of microorganisms involved in nitrification. Archaea appear to be more tolerant to water stress than bacteria and this may be related to O2 availability.

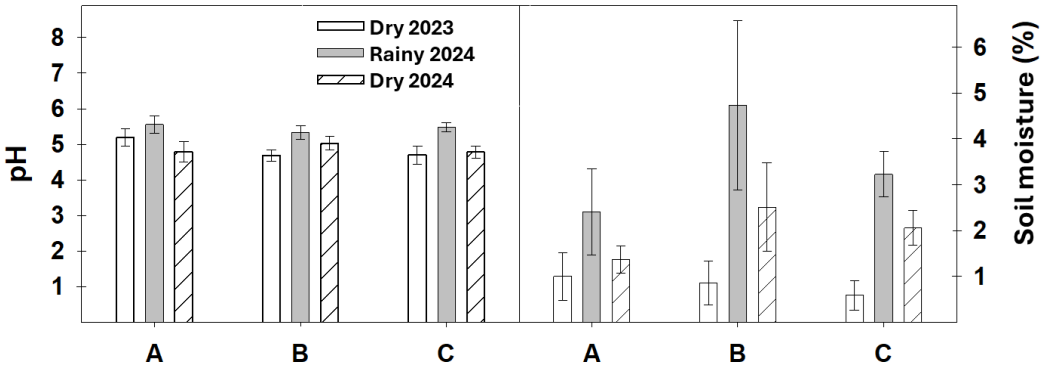
In conditions of an increase in acidity, root growth can be affected, making plants more sensitive to water deficiency compared to the minimum moisture content that was 0.28 and maximum of 1.96, and consequently in the effect of liming that can have the effect in conditions of this deficiency, the greater growth of roots and thus the greater possibility in crop yield. Another effect is the decomposition of organic matter in the production of organic acids of low molecular weight, acting on the decrease of the activity and toxicity of Al+3 in the deep and superficial layers of the soil (SIRTOLI, 2006).

The lowest pH was observed in the dry period of 2023 was 4.53 and in 2024 with a minimum of 4.29, corroborating that pre-burning promotes a reduction in soil pH due to the combustion of organic material. In the dry period, there was no significant variation in soil pH.

The reduction in pH in the native area may be related to the fact that the soil in the region is naturally acidic, and this causes the process of degradation of organic matter and its rapid mineralization that acidifies the soil naturally (SILVA JUNIOR et al., 2012).

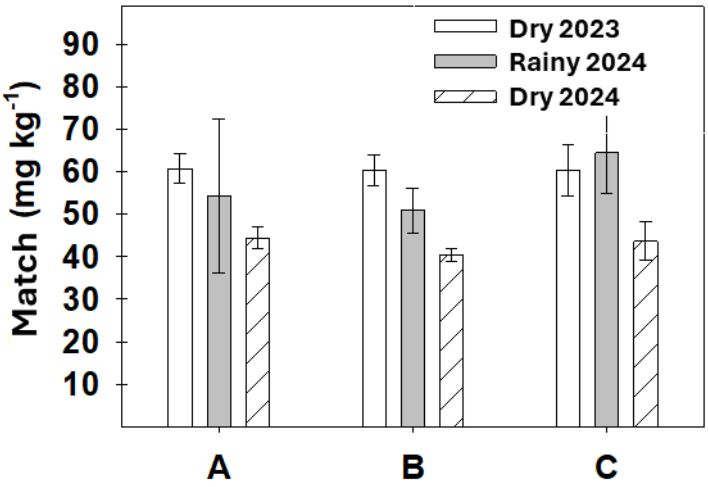
According to Figure 5, the minimum moisture content was 1.09 and the maximum was 2.68, so the low moisture in the soil corresponds to the fixation of N2 in legumes and is highly sensitive to water deficiency in the soil. The response of the symbiotic process to moisture stress depends on the growth stage of the plant. In general, it is more harmful to N2 nodulation and fixation when it occurs during the vegetative growth of the host (GLEESON et al., 2011).

Figure 5. pH and Humidity for the years 2023 and 2024.



According to Figure 6, the phosphorus values in mg kg1 are observed for the dry period of 2023 and 2024 and the rainy season, the P contents in the research were minimum was 40.36 and maximum of 60.78 for the entire period studied in the years 2023 and 2024, when compared to the work of Neto (2011), that the P level was very low, reaching 4.0 $^{mg.kg-1}$, which indicates the absence of use of nutrient sources. Phosphorus is the nutrient that most limits crop production in soils that are little or never fertilized, these limitations at the beginning of the vegetative cycle can result in restrictions in development in which plants do not recover later even if the P supply increases to adequate levels.

Figure 6. Phosphorus in the years 2023 and 2024.



Compared to the collaborators Ritcher et al. (2011), the P content was low, and after several years of adoption the availability of phosphorus tends to be higher in the superficial layers of the soil,

due to the low mobility of the nutrient and the non-disturbance of the soil by repair operations (MUZILLI, 2002).

The P contents were higher in the rainy season of 2024, reaching a maximum of 75.33 mg $^{kg-1}$ and in the dry period the maximum was 60.78 mg $^{kg-1}$, which allows observing the fire event even with high intensity in the dry period decreases the availability of P, that is, the P contents are within the range considered very low, which is consistent with what is observed for soils in the Brazilian Cerrado (SOUSA and LOBATO, 2004). In 2023, there was a reduction, with low values, and according to Meurer (2007), phosphorus is a macronutrient that limits plant growth in most Brazilian soils because it is little available in acidic conditions.

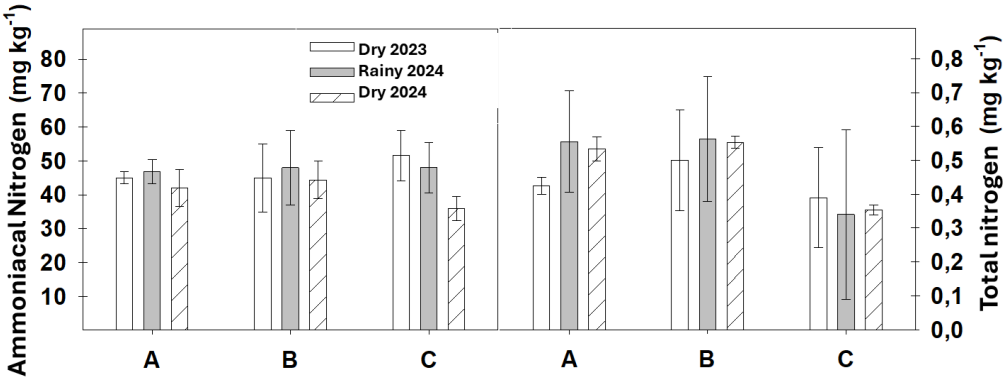
According to Sulieman and Tran (2015), phosphorus is used in several biochemical and molecular processes of the plant, in particular in the storage, acquisition, and use of energy. Insufficient levels in the soil are reflected in the reduction of the number and biomass of nodules, as well as in the decrease in nitrogenase activity.

It is possible to verify that the range of greatest availability of P in the soil occurs within the range of pH 5 to 6, when P is presented in the form of dihydrogen phosphate. At this pH there is a reduction in the precipitation of phosphorus forms linked to aluminum and also by the ion charge that is lower in this form. This contributes to clays, which, due to the variable charge, have a greater amount of negative charges at this pH, producing less energy of attraction of phosphorus by the clay minerals in the soil, resulting in a reduction in the electrostatic potential of the adsorption plane (HAYNES, 1984).

The authors in their studies verify that half of the phosphorus sorption capacity by the soil can be fixed with up to one month of contact after the application of the mineral to the soil. Highlighting the importance of knowing the behavior of phosphorus in different soils in relation to the sorption and desorption capacity of this element, enabling different managements, which promote greater efficiency in its use (NOVAIS and SMYTH, 1999).

According to Figure 7, the total N, minimum of 0.38 and maximum of 0.79, were low, a decrease in N availability is observed, due to the decrease in pH and this may be associated with a decrease in soil microbial activity, with a decrease in the population of bacteria, in which, on the other hand, the activity of fungi and actinomycetes may increase.

Figure 7. Total Nitrogen and Ammonia Contents.



Among the nutrients, nitrogen is the most studied,
and its cycle changes with burning, and thus increases the amount of ammonia N, which is quickly nitrified and can be leached (DEBANO and CONRAD, 1979)

The recovery of plants after burning depends in part on the forms of nitrogen that remain available. Fire can cause small losses of nitrogen by volatilization (MROZ et al., 1980). The burning of dead vegetation enriches the topsoil in most nutrients, by accelerating mineralization, either biological or chemical. When comparing the burned areas, with or without grazing influence, they described a decrease in nitrogen in the superficial layer of the soil and no change to phosphorus (OWENSBY and WYRILL, 1973).

The effect of the fire will depend largely on its intensity. The results corroborate to show the incidence of high temperatures produced an increase in the pH and electrical conductivity of the soil, mainly by the accumulation of ash and release of nutrients. In the same way, the contents of mineral nitrogen and available phosphorus also increased, while organic matter and total nitrogen decreased (ANDRÉA and PETTINELLI, 2000).

According to Stevenson (1986), nitrogen is a widely studied element in relation to soil organic matter, being one of the nutrients with the most pronounced dynamics in the system. More than 90% is in the organic fraction where it is a large reservoir of more readily available forms, such as nitric and ammonia. These mineral forms, despite accounting for a small portion of the total nitrogen, are of fundamental importance from a nutritional point of view, as they are absorbed by plants and microorganisms.

According to Moreira and Siqueira (2002), the mineralization of soil organic matter, which includes the ammonification and nitrification reactions, transforms, on average, 2% to 5% of organic nitrogen per year, the process that influences soil use and management, as well as pasture areas, in which the ammonia form is favored by substances excreted by grass roots. in which they inhibit nitrification, and due to the existence of lower pH values, they occur under these conditions.

FINAL CONSIDERATIONS

Prescribed burning can alter the chemical characteristics of the soil without depending on the depth and the seasonal period that was analyzed, in which it proves that fire is capable of altering them.

The effects are rapid and it can be observed in the period studied after the passage of the fire, the chemical characteristics of the soil may have returned to its natural conditions.

However, prescribed burning is a fundamental and very efficient practice in reducing combustible material, and can be used in conservation units such as the Chapada dos Guimarães National Park, as it affects the chemical characteristics of the soil for a short time.

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A systematic literature review on constructivist teacher education

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ABSTRACT

This article conducts a systematic review of the literature on teacher education under the constructivist paradigm, addressing the contributions and challenges associated with the implementation of these practices in Brazil. Grounded in the theories of Jean Piaget and expanded upon by scholars such as Lev Vygotsky, constructivism is a pedagogical approach that emphasizes the active construction of knowledge by students, with the teacher acting as a facilitator. In view of the context, the following question arises: How has constructivism been integrated and applied in teacher training in Brazil? To answer this question, the objective of this study is to carry out a systematic review of the literature on teacher education within the constructivist paradigm, analyzing empirical and theoretical research published between 2004 and 2014. The methodology consists of a qualitative research that defines inclusion and exclusion criteria, selection of data sources in the CAPES and SciELO journals databases and procedures for the analysis of studies based on content analysis. It is concluded that the training of constructivist teachers goes beyond the simple transmission of theoretical knowledge, requiring the training of educators to transform their pedagogical practices in order to promote deeper and more meaningful learning for students. The adoption of constructivist practices in teacher education, when well implemented, can generate a lasting impact on both pedagogical practices and student learning outcomes.

Keywords: Teacher training, Constructivism, Pedagogical practices, Teacher professional development.

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INTRODUCTION

Teacher education is a vital and ever-evolving field, reflecting changes in pedagogical theories and educational needs. Among the various pedagogical approaches, constructivism, based on the theories of Jean Piaget, has stood out as one of the most influential in the redefinition of teaching practices and in the training of educators.

Constructivism suggests that learning is an active process, where students build knowledge based on their experiences, and teachers act as facilitators of this process (PIAGET, 1977).

Constructivism, based on Jean Piaget's theories of learning and expanded by contributions from other scholars such as Lev Vygotsky, proposes that knowledge is actively constructed by the student, with the teacher playing the role of facilitator of this process.

However, the application of these theories in teacher education faces practical and conceptual challenges, which need to be explored and understood.

The central question of this study is: **How has constructivism been integrated and applied in teacher education in Brazil?** This question unfolds into sub-questions that seek to understand the methodological approaches adopted, the challenges faced by educators and the criticisms of the implementation of constructivism in teaching practice.

The objective of this study was to carry out a systematic review of the literature on teacher education within the constructivist paradigm, analyzing empirical and theoretical research published between 2004 and 2014. This analysis seeks to identify the main contributions and gaps of the literature, offering a comprehensive view of constructivist formative practices and their impact on education.

The relevance of this study lies in the need to understand how constructivism, despite being widely defended, is effectively implemented in teacher education. In addition, by critically analyzing the available evidence, the study seeks to contribute to the improvement of training practices, offering insights that can guide future teacher training programs

METHODOLOGY

The study is a qualitative exploratory research. The methodology used in this review includes the definition of inclusion and exclusion criteria, the selection of data sources, and the procedures for the analysis of studies. A clear definition of these criteria is important to ensure that the selected studies are relevant, adequately reflecting the practices and challenges associated with constructivist teacher education.

The Inclusion and Exclusion Criteria adopted were:

C.I: Studies published in the last 20 years (2004-2024), considering that constructivist teacher training is a field in constant evolution.

C.I: Studies that explicitly address teacher training within the constructivist paradigm, focusing on how these concepts are applied in educational practice.

C.I: Studies of a qualitative, quantitative or mixed nature were included to provide a comprehensive perspective on the different methodological approaches used.

C.E: Articles that, despite mentioning constructivism, do not focus on teacher training or that focus on aspects that are distant from the central theme.

C.I: Only studies carried out in Brazil were considered, in order to maintain contextual relevance for teacher training in the Brazilian educational scenario.

C.E: Studies Articles Research that deals with other educational paradigms or that does not mention constructivism in their analyses.

C.E: Articles that are not in Portuguese.

C.E: Articles that discuss constructivism in general, without relating it to teacher education

The databases used in the search for studies were: CAPES and SciELO journals. The keywords used for the search included terms such as:

- "Teacher Training"
- "Constructivism"
- "constructivist pedagogical practices"
- "Teacher Professional Development"
- "Theories of Learning"

These terms were combined using Boolean operators (AND, OR) to refine the results, for example: "teacher training AND constructivism" or "constructivist pedagogical practices OR teacher professional development".

The systematic review analyzed a total of 14 relevant studies, which after selecting the inclusion and exclusion criteria were listed below in Table 1.

Chart 1 – List of selected studies from the CAPES and SciELO Journals databases:

Title	Authors	Year of Publication	Source
Scientific knowledge, its teaching and learning: the actuality of constructivism	Glória Regina Pessôa Campello Queiroz, Maria da Conceição Almeida Barbosa-Lima	2007	CAPES Journals
A study on the representations and appropriations of a new pedagogical proposal: constructivism in question	Dirce Maria Falcone Garcia	2003	CAPES Journals
Constructivism in the literacy teacher training program	Géssica Priscila Ramos	2010	CAPES Journals
Constructivism, methodological pluralism and teacher training for the teaching of natural sciences	Marcelo de Carvalho	2005	CAPES Journals
Theory and practice in the training of geography teachers in the blended modality	Gláucio José Marafon, Anercilia Martins, Vanilda Teófilo	2018	CAPES Journals
Bachelardian epistemological obstacles: contributions to the continuing education of teachers	Elisângela Regina Selli Melz, Rodrigo Cardoso Costa, F.M.B. Marques	2023	CAPES Journals
Active methodologies in the face of remote teaching: history and theoretical considerations for the early years	Adriano Hidalgo Fernandes, Flávio Rodrigues de Oliveira, Maria Luísa Furlan Costa	2021	CAPES Journals
Policies for the training of literacy teachers: the theoretical frameworks present in the PNAIC	Erika Ramos Januário, Jani Alves da Silva Moreira	2020	CAPES Journals
A reading about the links between the Literacy Teacher Training Program (PROFA)	Fernanda Zanetti Becalli, Cleonara Maria Schwartz	2011	CAPES Journals
Historical-critical pedagogy and historical-cultural psychology: inferences for training and work	Cristhyane Ramos Haddad, Maria de Fátima Rodrigues Pereira	2013	CAPES Journals
Constructivist approaches in the teaching-learning process in the Final Years of Elementary School	Simone de Sousa Moraes, Suzana Maria Loures de Oliveira Marcionilio, Rosenilde Nogueira Paniago	2021	CAPES Journals
General objectives of a teacher professional development program	Anne Louise Scarinci, Jesuína Lopes de Almeida Pacca	2016	SciELO
The resignification of classroom activities	Jesuína Lopes de Almeida Pacca, Anne Louise Scarinci	2011	SciELO
What teachers think about the function of the lecture for meaningful learning	Jesuína Lopes de Almeida Pacca, Anne Louise Scarinci	2010	SciELO

Source: author, 2024

To understand the studies, the content analysis method was used, separating the results into three main categories of emerging themes:

CONSTRUCTIVIST TRAINING STRATEGIES

Constructivism, as a pedagogical approach, has promoted a profound transformation in teacher education in Brazil. In addition to traditional teaching methodologies, the constructivist paradigm emphasizes the importance of critical reflection and collaborative practice, fundamental elements for teacher training.

Ramos (2010) and Queiroz and Barbosa-Lima (2007) highlight that pedagogical workshops and reflective teaching are essential tools to train teachers within the constructivist paradigm. These

strategies not only encourage teachers to adopt a more active stance in the construction of knowledge, but also promote autonomy and creativity in the teaching-learning process.

Pedagogical workshops, as described by Ramos (2010), allow teachers to explore new teaching practices and approaches in a collaborative environment.

In these spaces, educators can experiment with constructivist methodologies, discuss their experiences, and reflect on the effectiveness of the practices adopted. This process of reflection and experimentation is crucial for the evolution of pedagogical practices, as it provides a space for continuous adaptation and innovation. Reflective practice, then, becomes a central pillar in teacher training, as it allows the critical analysis of one's own practices and the implementation of improvements based on real experiences.

In addition, reflective teaching, as indicated by Queiroz and Barbosa-Lima (2007), encourages teachers to question and evaluate their pedagogical approaches, promoting a deeper understanding of students' learning processes. By engaging in reflective activities, teachers are challenged to reconsider their practices and integrate new knowledge more effectively. This process not only enhances pedagogical practice but also contributes to the ongoing professional development of educators.

Collaborative practice, as emphasized by Garcia (2003), plays a vital role in teacher education from a constructivist perspective. By collaborating with colleagues, educators have the opportunity to share experiences, strategies, and challenges faced in the classroom. This exchange of experiences enriches pedagogical practice and promotes a more integrative and innovative approach to teaching. Collaboration also facilitates building a community of practice, where teachers can support each other and work together to address common challenges.

In addition to workshops and reflective teaching, constructivist teacher training should incorporate strategies that value active and student-centered learning. This can include utilizing educational technologies that promote interaction and exploration, as well as implementing projects that engage students in hands-on and investigative activities. By adopting these strategies, teachers can create a more dynamic and engaging learning environment that is aligned with constructivist principles.

CHALLENGES IN IMPLEMENTATION

Despite the advantages of constructivist strategies, implementation faces several challenges. Several studies, such as the one by Carvalho (2005) and Melz et al. (2023), report resistance on the part of teachers, who often feel insecure about adopting new methodologies. This resistance is intensified by a lack of material and human resources, as well as educational policies that are not fully aligned with the principles of constructivism.

Queiroz and Barbosa-Lima (2007) also observe that constructivism, despite being widely defended in theory, often faces difficulties in practice due to the lack of institutional support and the pressure for immediate results.

IMPACT ON PEDAGOGICAL PRACTICES AND STUDENT LEARNING

Despite the advantages of constructivist strategies, implementation faces several challenges. Several studies, such as the one by Carvalho (2005) and Melz et al. (2023), report resistance on the part of teachers, who often feel insecure about adopting new methodologies.

This resistance is intensified by a lack of material and human resources, as well as educational policies that are not fully aligned with the principles of constructivism.

Teachers' resistance can be understood from a psychopedagogical perspective, where the change of paradigms requires not only theoretical understanding, but also the adaptation of daily teaching practices.

According to Carvalho (2005), many educators, especially those with years of experience, find it difficult to abandon traditional methods that they consider effective. This difficulty is exacerbated by the lack of ongoing training and adequate support during the transition to constructivist practices.

Melz et al. (2023) corroborate this view, indicating that teacher insecurity can lead to resistance to change, resulting in a fragmented and ineffective implementation of constructivist strategies.

In addition, the lack of material and human resources is a significant barrier to the effective adoption of constructivism.

Queiroz and Barbosa-Lima (2007) point out that the lack of resources, such as teaching materials and adequate technology, limits the ability of teachers to implement constructivist practices effectively. The absence of robust institutional support to provide these resources can lead to a pedagogical experience that does not meet the expectations of constructivism, resulting in outdated and uncoordinated pedagogical practices.

Another relevant challenge is the disarticulation between educational policies and constructivist principles. Often, educational policies are not fully aligned with constructivist guidelines, creating a mismatch between what is promoted in theory and what is applied in practice.

Queiroz and Barbosa-Lima (2007) point out that, despite the discourse favorable to constructivism, the pressure for immediate results and the emphasis on quantitative evaluations can direct teachers back to traditional teaching methods that promise faster and more measurable results.

The pressure for immediate results also plays a crucial role in the difficulty of implementing constructivism effectively. In an education system that often prioritizes quick results in standardized

assessments, constructivist methods, which require time for development and adaptation, can be seen as impractical.

This is particularly evident in contexts where teachers' workload is high and resources are limited, forcing them to prioritize strategies that offer immediate return, even if these strategies are less effective in terms of deep and lasting student development.

Finally, the lack of ongoing institutional support can seriously compromise the implementation of constructivism. Institutional support is key to ensuring that teachers receive the necessary training and ongoing support to effectively integrate constructivism into their pedagogical practices. Without this support, the shift to constructivist practices can be superficial and unsustainable, leading to a perpetuation of traditional approaches.

EVIDENCE OF THE EFFECTIVENESS OF CONSTRUCTIVISM IN TEACHER EDUCATION

The studies of Ramos (2010) and Carvalho (2005) reveal that constructivist approaches, when properly implemented, have the potential to transform teacher education. The adoption of methodologies that value critical reflection and collaboration allows educators to engage more deeply with their teaching and learning processes.

Reflective practice encourages teachers to question and adjust their pedagogical approaches, promoting a more dynamic learning environment that is responsive to students' needs. In addition, collaborative work between colleagues provides an opportunity for the exchange of experiences and the collective construction of knowledge, which strengthens professional development and pedagogical innovation.

However, Melz et al. (2023) underline that the effectiveness of constructivist approaches is strongly influenced by the level of institutional support received. Successful implementation of these methodologies requires not only teacher buy-in, but also continued support for educational policies that promote and sustain constructivist practice. Without this support, educators may face difficulties in adapting their pedagogical practices, limiting the positive impact of these approaches on teacher education.

The availability of adequate resources is another essential condition for the effective implementation of constructivism. Material resources, such as teaching materials and educational technologies, are essential for teachers to be able to explore and apply constructivist strategies effectively.

The lack of these resources can result in less effective teaching and a compromise in the quality of the training offered. In addition, the scarcity of human resources, such as the absence of continuous training and technical support, can aggravate these challenges, making the adoption of constructivist practices even more complex.

FINAL CONSIDERATIONS

The results of this systematic review provide a comprehensive overview of the most effective approaches in constructivist teacher education, aligning in several respects with the existing literature and offering new perspectives.

It is described that the most effective approaches in constructivist teacher training include practical workshops, reflective teaching, and collaborative practice among teachers.

Hands-on workshops provided educators with the opportunity to experiment and enhance pedagogical practices in controlled settings, while reflective teaching allowed teachers to evaluate and adjust their practices continuously. The collaborative practice stood out for strengthening professional development through the sharing of experiences and the collective construction of pedagogical knowledge.

It was found, however, that the effectiveness of these approaches is influenced by factors such as teachers' resistance to pedagogical changes, scarcity of resources and limited institutional support. In addition, educational policies that are misaligned with the principles of constructivism have emerged as additional barriers to the effective implementation of these practices. It is perceived that, in order to improve the approach to constructivist teacher training, it is essential that these barriers be overcome.

Thus, recommendations were made for training programs to include continuous support in terms of resources and guidance, in addition to suggesting political reforms that align educational guidelines with constructivist principles, creating a more favorable environment for the adoption of these practices.

It is concluded that the training of constructivist teachers goes beyond the simple transmission of theoretical knowledge, requiring the training of educators to transform their pedagogical practices in order to promote deeper and more meaningful learning for students.

Continuing to explore and enhance these formative approaches is essential to improving the quality of education and ensuring that teachers are prepared to meet the challenges of teaching in the twenty-first century.

The adoption of constructivist practices in teacher education, when well implemented, can generate a lasting impact on both pedagogical practices and student learning outcomes.

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Public investment in technological development and infrastructure of the education sector in Lima Provinces period 2014-2023

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ABSTRACT

Public investment in technological development and education sector infrastructure ensures that students and teachers become familiar with emerging technologies and acquire digital skills. The objective of the study was to determine the budget allocation in the education sector of the regional government of Lima Provinces and to analyze the percentage of this investment in the technological development and infrastructure of this sector during the period 2014-2023. The study was developed under a quantitative perspective of descriptive level, within the framework of the Friendly Consultation Platform of the Ministry of Economy and Finance (MEF). While significant advances were observed in technological infrastructure and curriculum adaptability, challenges related to teacher training and equity in access to resources also emerged. This investment period reflects the priority and commitment of the regional government of Lima Provinces to the modernization of the education system, although it also highlights the need for continuous evaluation to optimize future investments.

Keywords: Public investment, Educational quality, Financial resources, Educational services.

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INTRODUCTION

Public investment in technological development and educational infrastructure is essential to guarantee the equity, quality and modernization of the education system. Beyond improving facilities and access to advanced technologies, this investment is a pillar for the development of human capital, essential for sustainable economic growth. However, in many developing countries, resources allocated to these areas are insufficient due to competition with other priority sectors such as health and safety. For example, in Nigeria, investment in education remains limited despite its economic importance (Adetula et al., 2017).

The allocation of funds is often unequal, exacerbating disparities between urban and rural areas, affecting the educational opportunities of students in rural areas (Wang et al., 2019). In addition, poor management and inefficiency in the implementation of projects significantly reduce the impact of investments. Factors such as corruption and lack of transparency contribute to the failure of government projects (Damoah et al., 2018).

In Latin America, one of the most unequal regions in the world, rural and indigenous communities receive a fraction of the investment destined for urban areas, perpetuating inequalities in access to quality education. In Brazil, inequalities in local income have generated a wide financing gap, while in countries such as Chile and Ecuador, progressive spending on education is maintained (Bertoni et al., 2020). However, economic instability and frequent changes in education policies have affected the ability of governments to sustain sustained investment in education infrastructure, a problem exacerbated by falling tax revenues due to lower commodity prices (Kwon et al., 2017).

In Peru, efficiency in the execution of public investment projects in education has been a constant challenge. In Sanagorán, La Libertad, more than 75% of public investment projects were viable, but their impact was limited by the lack of capacity in their management (Muñoa et al., 2019). Likewise, investment in science, technology and innovation in Peru has been insufficient, which has limited the country's technological and scientific development. A recent study noted that the allocation of financial resources was inefficient, with minimal impact on GDP (Quispe Alvarado et al., 2023).

One of the main challenges in the Peruvian education sector is insufficient investment, which remains inadequate to meet the growing and diverse needs of the student population (Inquilla-Mamani & Rodríguez-Limachi, 2019). Although the budget for education has increased, the implementation of these funds is alarmingly low; Between 2016 and 2020, only 40% of the programmed budget was executed. This lack of resources and implementation limits the ability of the education system to provide quality services, adequate infrastructure, up-to-date teaching materials, and fair training and remuneration for teachers. Low budget execution is especially worrying due to the clear correlation between investment and economic growth (Tuesta, 2021). This execution deficit

represents a significant loss of opportunities for the country, particularly in those regional governments that, despite managing considerable budgets, do not make investments commensurate with the size of their population.

Public investment in educational technology and infrastructure is crucial at the global level, as it drives both the educational and economic development of countries. Various experiences have shown that collaborations between governments and companies in educational technologies (EdTech) are effective in improving access to and quality of education, while promoting economic growth and strengthening international political alliances (Udanoh & Zouria, 2023). In addition, investment in educational infrastructure tends to be concentrated in regions with favorable conditions, influenced by factors such as diplomatic visits and the availability of natural resources (Hu et al., 2023). In India, the construction of new schools and libraries has been shown to improve school enrolment and academic skills, although the impact varies depending on the type of investment (Cunningham et al., 2018).

In Peru, research on public investment in educational infrastructure has revealed that, although these investments have improved school attendance, their impact on educational quality has been limited (Paxson & Schady, 2002). Programs that increased access to computers and the Internet in Peruvian high schools did not show significant effects on student repetition, dropout, or enrollment (Cristia et al., 2017). In addition, the effectiveness of public investment in education has been questioned, since factors such as the quality of school infrastructure and the coverage of basic services have a greater influence on educational attainment (Silva Gil & Tejada Vidal, 2021).

Recent studies indicate that the allocation of financial resources in Peru has been inefficient, with minimal impact on GDP, highlighting the need to improve spending efficiency at the local level (Quispe Alvarado et al., 2023). Investment in infrastructure in Peru has shown a strong relationship with economic development, integrating social, economic, and humanistic components (Romero Escalante, 2023). Scientific production in Peruvian universities has not been significantly influenced by research policies, suggesting the need to strengthen collaboration and training in research (Millones-Gómez et al., 2021). Likewise, the expansion of infrastructure is presented as a potentially effective strategy for economic growth, depending on financing schemes (Montaud et al., 2020).

Public investment is defined as the disbursements made by the government to develop infrastructure and public services in order to stimulate economic growth and improve social welfare. This type of investment is essential for the creation of physical and human capital, and for the provision of essential public goods and services. According to Delitheou et al. (2019), it contributes significantly to economic growth and the quality of life of citizens, but they must be reconciled with new development models and international governance rules to effectively support private investment. Warner (2014) states that public investment encompasses government expenditures that

aim to create infrastructure, provide essential services, and promote economic development, constituting a fundamental pillar for long-term economic growth and stability.

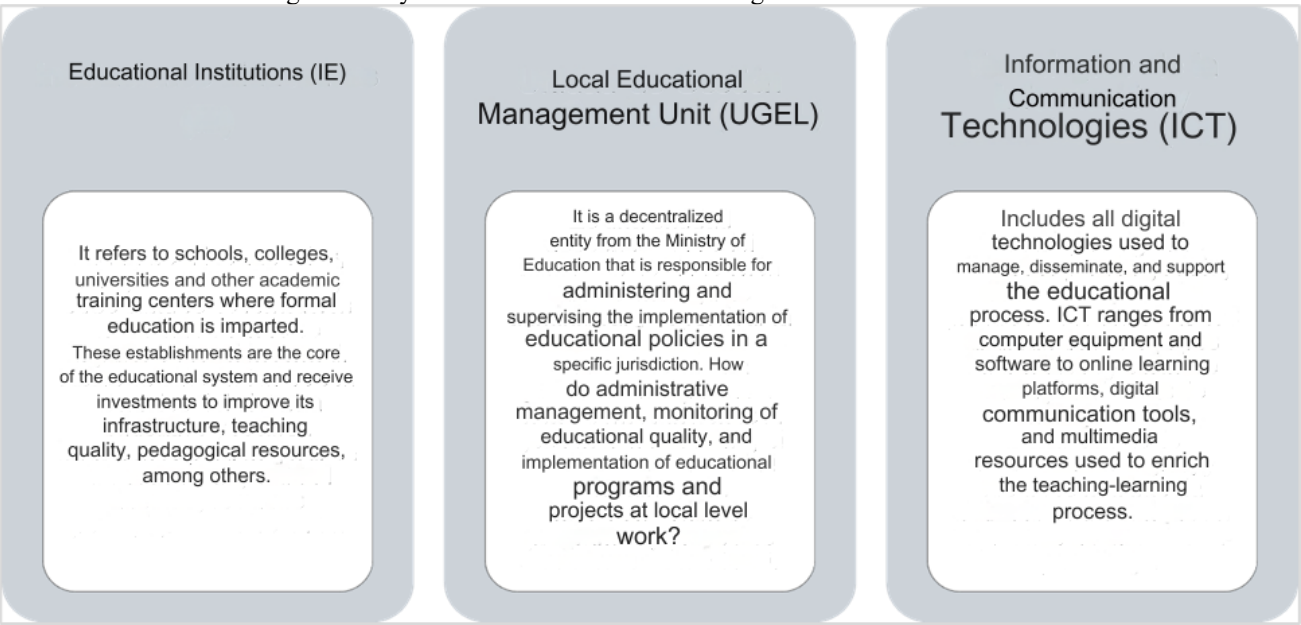
"Investment in the technological development of the education sector" refers to resources allocated by the government or educational institutions for the implementation, improvement, and expansion of technologies that support and enhance teaching and learning. This investment includes the acquisition of technological equipment, development of digital infrastructures, teacher training in technological skills, and the integration of information and communication technologies (ICT) into the educational curriculum (Manjarres Marquez & Salazar Ramos, 2021). New technologies in education improve the quality of teaching and self-learning by providing various virtual tools to strengthen knowledge, share ideas, and encourage critical thinking (Pérez et al., 2023).

Public investment in education sector infrastructure refers to funds earmarked by the government for the construction, maintenance, and improvement of educational facilities, such as schools, universities, laboratories, libraries, and other spaces needed to support teaching and learning. This investment seeks to ensure that educational facilities are safe, accessible, and adequate to provide quality education. Glewwe and Muralidharan (2016) describe public investment in educational infrastructure as "the financial resources allocated by the public sector for the construction and improvement of physical infrastructure in educational institutions, with the aim of creating an environment that favors learning and educational equity.

The "Modified Institutional Budget (MIP) refers to the adjusted budget of a government entity during a fiscal year, after incorporating approved modifications such as extensions, reductions, or redistributions of funds initially allocated. The PIM reflects the final amount available to execute during the year, after considering all changes that affect resource allocation. According to the Ministry of Economy and Finance of Peru (MEF), the PIM is "the result of the Institutional Opening Budget (PIA) adjusted by all the budget modifications authorized during the fiscal year, representing the current budget to which the entity must adhere for its execution."

In the context of public policies and resource allocation, Educational Institutions (EI), the Local Educational Management Unit (UGEL) and Information and Communication Technologies (ICT) are key terms in the management and administration of the education sector (see Figure 1). The effective integration of them is crucial to improve educational management and promote quality education in diverse and decentralized environments (Quimper et al., 2024).

Figure 1: Key terms in education sector management and administration



Source: The authors

This study is based on the theory of human capital, proposed by Gary Becker, which argues that investment in education and human skills is essential for economic growth. Investment in educational infrastructure not only improves productivity, but also drives technological advances and expands employment opportunities, contributing to sustainable and inclusive economic growth (Pal, 2023; Vanhuysse, 2007). In this context, improvements in educational infrastructure are key to increasing the quality of education and, consequently, the country's economic development. Based on this premise, the objective of this study was to determine the budget allocation in the education sector of the regional government of Lima provinces and to analyze the percentage of this investment in the technological development and infrastructure of this sector during the period 2014-2023.

METHODOLOGY

This study was developed under a quantitative approach with a descriptive design, aimed at analyzing the budget allocation of the education sector of the regional government of Lima Provinces and its investment in technological development and infrastructure during the period 2014-2023.

The study population was made up of the public investment budgets allocated to the education sector by the regional government of Lima Provinces during the period 2014-2023. The sample included all records of investment in educational infrastructure, information and communication technologies (ICT), and other relevant subsectors, as detailed in the reports of the Ministry of Economy and Finance (MEF).

The Friendly Consultation Platform of the Ministry of Economy and Finance (MEF) was used as the main tool for data collection. This platform allows access to detailed information on the

allocation and execution of the public budget, which was essential to analyze investment in the education sector.

The procedure followed for data collection included the following steps:

1) Access to the MEF's Friendly Consultation Platform: The platform was accessed to obtain public investment data for the years 2014 to 2023.
2) Selection of Investment Categories: Specific categories related to the education sector were selected, including Educational Institutions, Local Educational Management Unit (UGEL), and Information and Communication Technologies (ICT).
3) Data Extraction and Organization: Data were extracted and organized into tables and graphs for easy analysis. Particular attention was paid to annual changes in budget allocations and investment trends in each category.
4) Data Analysis: A descriptive analysis of the data was carried out to identify investment patterns and evaluate the impact of public policies on the development of educational infrastructure and technology in the region.

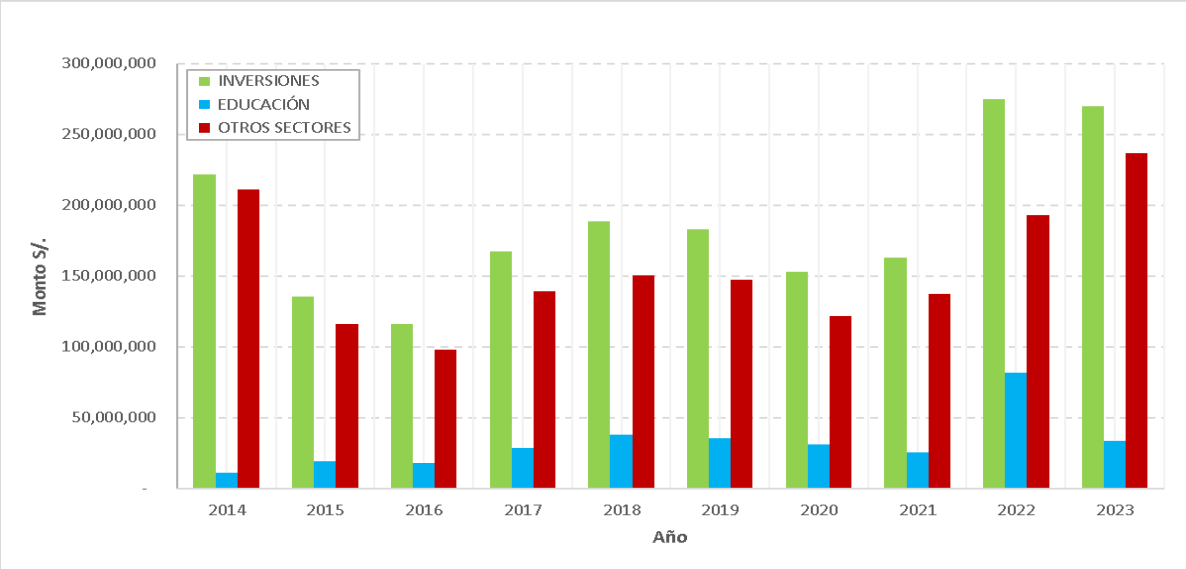
Data analysis was carried out using descriptive statistical techniques, such as percentage and average calculations, to identify trends in budget distribution in the education sector over time. Graphs and tables were used to visually represent the results and facilitate the interpretation of the data.

Good practices in data collection and management were guaranteed, ensuring the integrity and reliability of the information obtained from official sources. In addition, the confidentiality of any sensitive data related to public finances was respected.

RESULTS

ANALYSIS OF THE PIM OF INVESTMENTS OF THE REGIONAL GOVERNMENT OF LIMA PROVINCES

Figure 1: Comparison of investment, education and other sectors categories

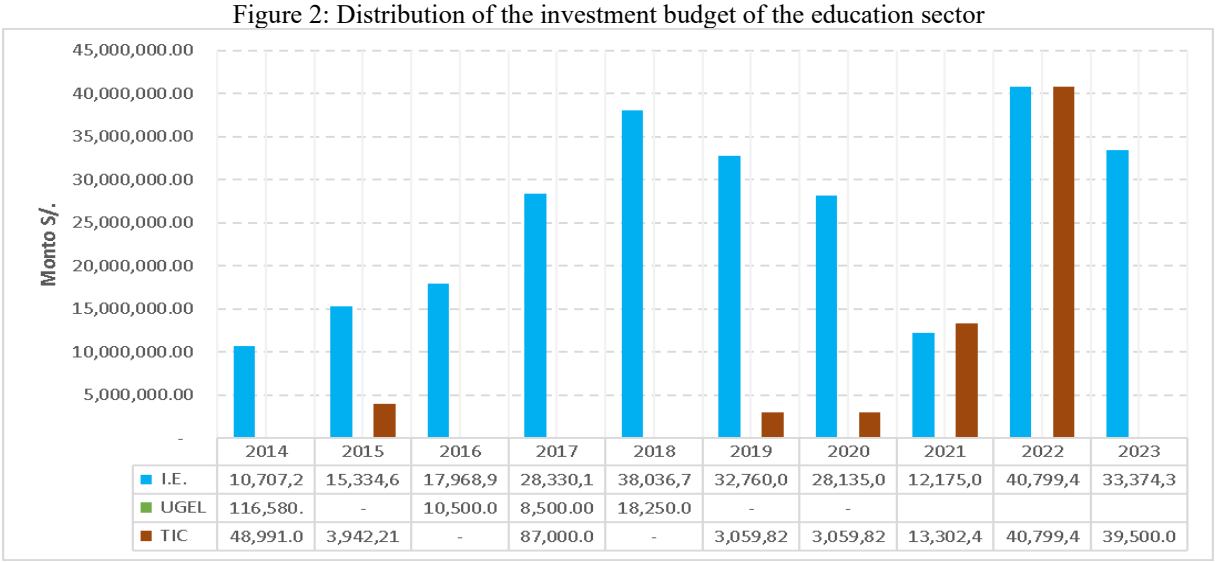


Source: MEF

Figure 1 shows the investments of the regional government of Lima provinces in three categories: Investments, Education and Other Sectors, during the period 2014-2023. The Investments category has consistently been the highest, with a notable increase through 2019, followed by a drop in 2020 and a subsequent recovery through 2023. Investment in Education also fluctuated, reaching its peak in 2019, then declining in 2020 and recovering in the following years. The amounts allocated to Other Sectors were generally lower, although they also showed an increase towards the end of the period. Taken together, these data reflect the regional government's focus on strengthening infrastructure and education, adjusting investments according to regional priorities and needs, and responding to changing economic and social dynamics.

INVESTMENT IN THE EDUCATION SECTOR COMPARED TO OTHER SECTORS

Figure 2: Distribution of the investment budget of the education sector

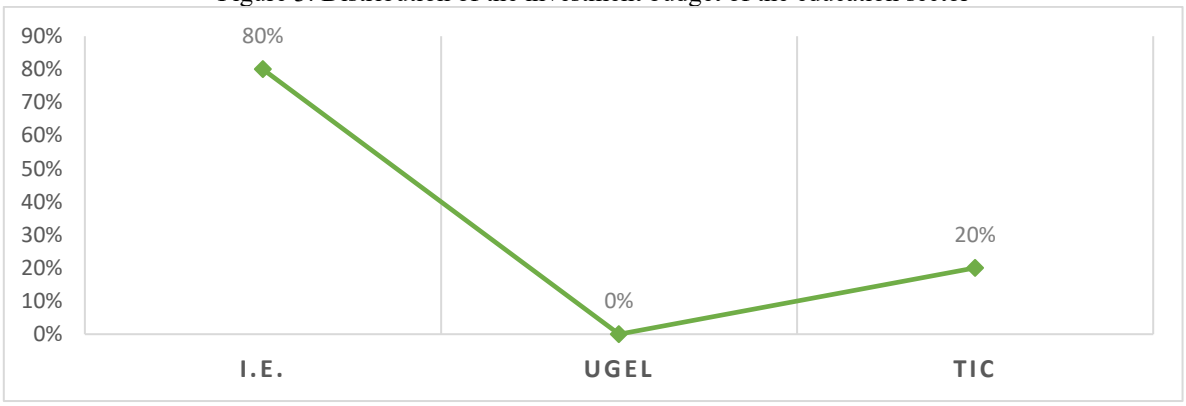


	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
I.E.	10,707,2	15,334,6	17,968,9	28,330,1	38,036,7	32,760,0	28,135,0	12,175,0	40,799,4	33,374,3
UGEL	116,580.	-	10,500.0	8,500.00	18,250.0	-	-			
TIC	48,991.0	3,942,21	-	87,000.0	-	3,059,82	3,059,82	13,302,4	40,799,4	39,500.0

Source: MEF

Figure 2 shows the distribution of the investment budget in the education sector during the decade from 2014 to 2023, focused on three areas: Educational Institutions (EI), Local Educational Management Unit (UGEL) and Information and Communication Technologies (ICT). Investments in Educational Institutions show a growing trend, reflecting a continuous commitment to the improvement of educational infrastructure. Investments in UGEL, although minor and sporadic, seem to respond to specific needs or specific projects. From 2021 onwards, there has been a significant increase in ICT investments, suggesting a strategic focus on the digitalisation of education, possibly accelerated by the COVID-19 pandemic.

Figure 3: Distribution of the investment budget of the education sector



Source: MEF

Figure 3 shows the distribution of the investment budget in the education sector. 80% of the budget is allocated to Educational Institutions (EI), highlighting a strong focus on improving physical infrastructure and school resources, including the construction, renovation and provision of materials and equipment. 20% of the budget is allocated to Information and Communication Technologies (ICT), reflecting a commitment to technological modernization to improve the quality and accessibility of digital learning. No budget is assigned to the Local Educational Management Unit (UGEL), which suggests that these investments were not a priority in this period or were covered with other funds.

DISCUSSIONS AND CONCLUSIONS

The analysis of the modified institutional budget (PIM) of the regional government of Lima Provinces reveals significant trends in the allocation of resources to the education sector during the period 2014-2023. Investment in educational infrastructure, particularly in Educational Institutions (EIs), showed a steady increase, reflecting the commitment to improving physical infrastructure and the provision of educational materials. However, investment in Information and Communication Technologies (ICT) only began to be prioritized from 2021, suggesting a strategic response to the growing need for digitalization driven by the COVID-19 pandemic.

The focus on improving physical infrastructure, with 80% of the budget allocated to EI, contrasts with the limited allocation for ICT, which only accounted for 20% of the total budget. This distribution reflects a traditional vision of educational investment, where physical infrastructure has been a priority. However, the pandemic highlighted the need to strengthen technological infrastructure to guarantee educational continuity in emergency situations, which has led to a change in budget prioritization in recent years, as mentioned by Glewwe and Muralidharan (2016).

A highlight of the results is the absence of investment in the Local Educational Management Units (UGEL) during the period analyzed, which could indicate that these entities were not considered a priority or that their needs were covered by other sources of financing. This lack of investment could have implications for management and supervision capacity at the local level, potentially affecting the effective implementation of educational policies in school institutions, as suggested by Silva Gil and Tejada Vidal (2021).

The study confirms that public investment in the technological development and infrastructure of the education sector in Lima Provinces has been key to the modernization of the regional education system, according to Quispe Alvarado et al. (2023). The strong prioritization of investments in physical infrastructure has allowed significant improvements in the conditions of Educational Institutions, although this has been to the detriment of investment in digital technologies. The COVID-19 pandemic catalyzed a shift in budget allocation towards ICTs, highlighting the importance of a more balanced and adaptive approach to budget planning.

However, the lack of investment in LGUs suggests the need to reevaluate resource allocation strategies, considering the crucial role of these units in the management and continuous improvement of the education system at the local level. Millones-Gómez et al. (2021) suggest that the prioritization of ICT in recent years is a positive step, but its long-term sustainability and effectiveness depend on a coherent integration with existing educational infrastructure and the development of digital competencies among teachers and students.

Among the limitations of this study is the focus on a specific region, Lima Provinces, which may limit the generalization of the findings to other regions of the country with different socioeconomic contexts and educational challenges. In addition, reliance on secondary data from the MEF's Friendly Consultation Platform may have limited the depth of analysis in terms of the quality and accuracy of the information available.

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The importance of reading from the perspective of students at the Filomena Lisboa Municipal School in the Brazilian Amazon

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ABSTRACT

This article aims to understand and analyze the importance of reading from the perspective of 4th grade students at the Filomena Lisboa Municipal School, located in the municipality of Fonte Boa in the state of Amazonas. The theme also raises the factors that hinder the reading and writing process. This is a qualitative research, in which the descriptive method was used, in order to locate some indications to collaborate with the dialogue of the reading teaching process. The results indicated that the lack of appropriate structure in the school and the lack of incentives from parents and guardians of the students are the major impeding factors. Despite the young age of the students involved, everyone already realizes the importance of reading for success in the learning process and in the formation of competent readers. With this, we suggest that teachers pay attention to the individual characteristics of their students, to seek to expand, together with them, the understanding of the importance of reading and writing, on the way to the formation of avid readers and participatory citizens in society.

Keywords: Reading at School, Good Source, Importance of Reading.

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INTRODUCTION

The present research presents an approach of the students to issues directly related to the importance of reading and possibilities to obtain a good use in their learning.

Learning to read is a complex process that involves many skills, we must be in constant practice, because the consequences of not exercising reading cause great deficiencies that can accompany students in each phase of their school life.

According to Dutra (2011), reading is one of the most important skills to be worked on with the student, especially after recent research (READING, 2022; MARTONI; BERTONI; BARCELLOS, 2022) that point out that this is one of the main deficiencies of the Brazilian student. Quality reading represents the opportunity to broaden one's vision of the world. Through the habit of reading, man can become aware of his needs, thus promoting his transformation and that of the world.

Aspects that hinder the practice of reading, although it is seen as an extremely important activity for human beings, its fluent and full exercise comes up against many factors that hinder it and make this an unpleasurable activity. It is also necessary to consider the points related to socioeconomic and cultural factors, which also make up the range of factors that hinder the practice. As Dronet (2002, p.08) states: "learning is gradual, that is, we learn step by step, throughout our lives. Therefore, it is a continuous constant process."

Reading plays an essential role in the life of the student, expands knowledge, enriches vocabulary, contributes to a critical performance in the face of reality, leads to knowledge of the world in which he is inserted and makes it possible with rationality with other people, with the universe. For Freire, (2003, p. 11) "the reading of the world proceeds from the reading of the word". Thus, even if the individual first learns to "read the world", it is after he learns to "read the word" that the chances of achieving a prominent place, socially speaking, increase considerably.

The issue of reading or more specifically the interest in reading is a factor that many educators and schools have focused on, due to the fact that it is a condition for the success or failure of many students.

The ability to read in this understanding is something that permeates the decoding of words, going beyond and entering deeply into the field of understanding of interpretation. It is within this understanding that the research addresses the theme based on the principles of learning development. This, however, has become increasingly difficult, as there are few students who have fluency in reading and many when they do, they are almost always syllable decoders. It is therefore necessary that the approach works within a full understanding of reality, so that the one who reads, is also the one who understands and interprets. According to Soares:

> "It is not enough to know how to read and write, it is also necessary to make use of reading, writing, knowing how to respond to the demands of reading and writing that society continuously makes." (SOARES, 2002, p. 08).

Thinking about the problems presented above, we realized the relevance of conducting studies aimed at collecting data from students about their perspective on the importance of reading. We defined as the general objective of the article: To analyze the importance of reading, from the perspective of 4th grade students, for the learning process at the Filomena Lisboa Municipal School in the municipality of Fonte Boa, in the state of Amazonas.

The specific objectives were defined:

a) To determine the factors that interfere in the process of teaching and learning reading at the Filomena Lisboa Municipal School;

b) To stimulate reflection in students for the habit of reading for the formation of good readers;

c) To awaken the participants to the importance of reading for quality teaching.

THEORETICAL FRAMEWORK

Nowadays, it is not possible to live without knowing how to read. The achievement of reading skills is one of the first steps towards assimilating society's values, considering that modern society is surrounded by all kinds of written reports. The concern, currently, is located in the quality of the reader and writer, which constitutes the basis for the individual to be able to act in a functional way in society.

> [...] It is considered that, through the literary text, thinking, feeling and creating the child has its maximum development. It is in childhood that one acquires a taste for reading and one can well imagine the immense possibilities and the fundamental importance of children's reading in triggering this process, as a reinforcement of the affective, creative and cognitive areas (COSTA 2006, p. 339).

Developing reading comprehension through literature is the most suitable path, but the student must have the required conditions, adequate guidance, with prepared teachers and great enthusiasm for the work, in order to develop their motivation.

One learns to read and write when one understands its context, one's daily life is able to associate classroom practice with one's own day-to-day experiences, in addition to the perception of what writing means and how it represents in relation to spelling rules. "To learn to read and write, it is necessary to think about writing, to think about what writing represents and how it represents graphically" (BRASIL, 1997, p.82). It is up to the teacher to make situations feasible so that students are able to perceive that formal writing is a convention and obeys a standard of norms, in which an idea in writing, communication will be effective.

Oliveira (2007, p. 13) considers that:

> Reading means much more than a simple process by which a person deciphers signs or symbols such as words and letters and reproduces the sound. He reads when he understands what to read, interpreting the written signs. There are children who know the letters, but do not read them (OLIVEIRA, 2007, p.13).

Vygotsky (1993, p.117-124): "the teacher is a competent mediator between the student and knowledge, someone who must create situations for learning, which provoke intellectual challenge". Therefore, the teacher must mediate the teaching of reading, leaving students free to think, act, challenging them to create, give opinions, share ideas, helping them without "imposing" or detracting from their tastes, choices. According to Paulo Freire (2002, p. 69):

> My common sense tells me: knowing that I must respect the autonomy, dignity and identity of the learner and, in his practice, seeks coherence with this knowledge leads me irrevocably to the creation of some virtues or qualities without which that knowledge becomes inauthentic, empty and inoperative verbiage (FREIRE, 2002, P.69)

In other words, the educator must respect the values and knowledge brought by the students, applying them to the daily practice of reading, seeking coherence between "having" and "opening". We must provide students with a dignified and authentic identity, forming a competent and determined reader.

According to Martins (2003), reading can be understood and characterized as the mechanical decoding of linguistic signs, that is, letters, through a previously established means of learning. This definition takes into account only the act of reading, it does not consider interpretation and understanding of what one is reading.

Freire (2005) presents a more in-depth approach to the theme, for the author the practice of reading goes beyond words. It is necessary for the reader to understand what he is reading and not just mechanically decode the graphic symbols, there must be a critical perception, interpretation and "rewriting" of what has been read. Reading must happen as a whole, or look, reality, context and not just words must be read.

In view of this, it is understood that reading is linked to the environment, inserted in society, establishing a link between the reader and the material read. The practice of reading can also happen individually, as the readings are chosen by each reader. An example of collective reading is the one that takes place daily in the school environment, which is governed by the teachers.

In basic education schools, in the early years, the reading work that is developed in Portuguese language classes does not correspond to a practice that aims at the formation of competent readers, who acquire the skills and abilities necessary for the student's education.

Cafiero (2010, p. 16) makes the following statements: "it is important that, in reading classes, the student asks questions, raises hypotheses, confronts interpretations, tells about what he has read and not just makes questionnaires of questions and answers of location and information".

Encouraging students' taste and passion so that they can take personal advantage of reading needs to be the goal of the whole school. It is very important that the school contributes to the preparation of students capable of participating as subjects in the learning development process:

> (...) we understand that the teaching of reading must go beyond the monotonous act that is applied in many schools, in a mechanical and often decontextualized way, but a process that must contribute to the formation of critical and conscious people, capable of interpreting reality, as well as actively participating in society (OLIVEIRA AND QUEIROZ, 2009, P.02).

METHODOLOGY

The research was qualitative, adopting the focus that aimed at understanding the students' perspective for the factors that influence the lack of reading habit. From the data obtained, the inductive method was then developed from the observation with the students for the development of the thesis of this article. Data collection occurred through direct and daily observations, interviews and questionnaires, whose targets were always the students, with the objective of acquiring concrete and accurate data.

This study carried out different phases of research, which began with a bibliographic research, then included a field research where written material and reports on the subject in question were collected, to continue with the analyses and conclusions.

The research involved the participation of a population of 42 students from the 4th year of elementary school I, from the morning shift at the Filomena Lisboa Municipal School. This school serves the public of the municipality of Fonte Boa (602 km from the capital Manaus) in the stages of kindergarten and elementary school, both of regular education.

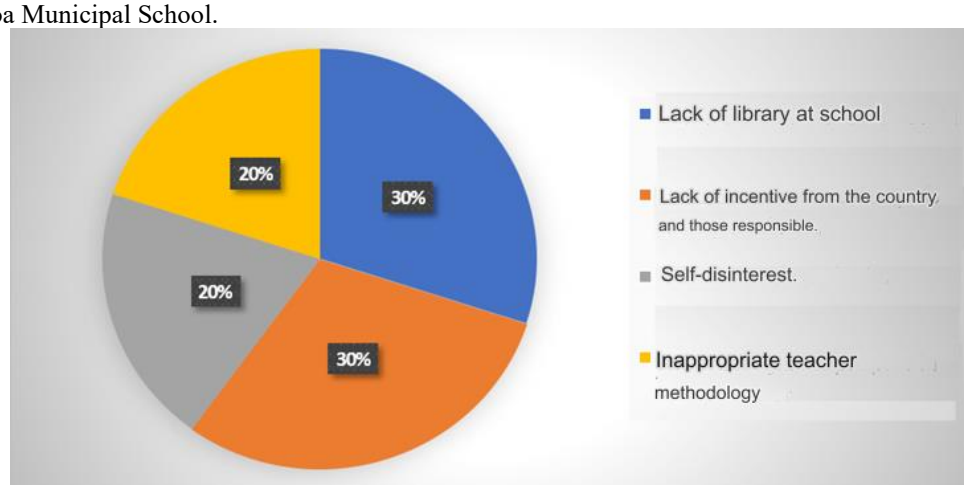
A direct questionnaire was applied, which has the power to bring the researcher, the observation and the problem closer together, in addition to ensuring a broad understanding of the vision of the problem according to the students' perspectives.

Direct observation and interviews ensured the researcher a face-to-face and very in-depth analysis, with this it was possible to verify how the problem is constituted and occurs.

RESULTS AND DISCUSSIONS

There are several factors that interfere in the process of teaching and learning reading in public schools, each one presents a specific reality. For the 42 students of the 4th year of elementary school I of the Filomena Lisboa Municipal School, the main factors directly related as impediments to the development of reading can be observed in figure 01.

Figure 01: Indication of elementary school students about the factors that interfere with the reading process at the Filomena Lisboa Municipal School.



Source: Survey data

For a good part of the students (30%) the lack of a structure in the school, such as a library, represents an impediment to expanding the reading process. Libraries really are symbolic places of study, research and reading. The lack of this structure is really needed in an educational establishment. Today libraries are equipped with computers and usually with internet access. This lack represents not only a structural lack in the school, but also a symbolic issue within a school environment. Which ends up having a negative impact on the reading process. Unfortunately, this is a reality in many municipalities in the Amazon, especially in schools far from large urban centers, as Paiva and Berenblum (2009) point out:

> According to Werthein (Correio Brasiliense, April 10, 2005), former representative of Unesco in Brazil, it is estimated that 73% of the books are concentrated in the hands of 16% of the population and, according to IBGE data, 89% of the municipalities do not have public libraries and 65% do not have bookstores or music stores. Well-equipped libraries are located in urban areas and in city centres. Data obtained from the 2004 School Census, from the National Institute of Educational Studies and Research Anísio Teixeira (Inep), show that, of the 53 thousand school libraries existing throughout the country, 46 thousand (86%) are located in urban areas, and the private network concentrates the largest number of school libraries (39% of the total).
> These alarming statistics show the huge regional inequalities and inequality in the distribution of cultural goods. The investigation carried out portrayed the multiplicity of difficulties faced by principals and teachers in Brazilian schools to establish libraries, to ensure adequate functioning to the needs of teachers and the demands of students and to enable access to books, as well as revealed the state and calamity in which books were found (PAIVA & BERENBLUM, 2009).

Therefore, a poorly structured school leads to a deficiency in the teaching and learning process.

Another 30% of the students indicated that the lack of incentives from parents and guardians represents an impediment to the advancement in the process of reading development. Really to learn to read it is necessary to have support at home, because it is at this moment that the socialization of

the knowledge learned at school occurs. The participation of parents and guardians is of fundamental importance to verify and encourage the advancement of students' cognitive development.

In the past, the competencies for teaching literacy were centered on specific professionals, however, authors such as Mata (1999) point out the importance of the family, today, for the advancement in the learning of reading and writing.

> There is thus a new vision and a new position on the role of parents and the child himself and on his contribution to the learning process. Traditionally, this was an exclusively professionalized process, since only a technician could know how to initiate and control children's development in the mastery of a technique as complex as reading and writing (Teale & Sulzby, 1989). Parents were practically excluded from the process, or else the valued participation was directly linked to school tasks. Currently, there is a new position regarding what may be the role of parents and the whole family in the process of learning written language. They have come to be considered as important elements, whose participation must be mobilized. Only with parents and family as partners can the learning of written language be more natural and meaningful (MATA, 1999, p. 66).

Therefore, the school, parents and teachers must be prepared to meet all the needs of students and collaborate for the learning of reading and writing.

It is also worth noting that 20% of the students indicated that they themselves are the biggest obstacles to advance in the reading process. This result is worrying, as these are students in the 4th year of elementary school, that is, they are children. Embedding and attributing responsibilities to them as the main responsible for reading difficulties is untrue, since these are the result of a complex reality, composed of social problems, lack of investments, the need for more effective public policies, among other broader issues. But it is also worth paying attention to the self-criticism already present in students. Again, the participation of the family is necessary to develop the self-esteem of these students, as Petronilo (2007) points out:

> In order for the child to increase his self-esteem, the family must praise, encourage and speak well of his qualities and strengths. When you try to do something you find difficult, encourage her not to give up; not to depreciate your successes; reassure and highlight their cleverness and intelligence. It is necessary to involve them so that they can develop their skills (PETRONILO, 2007, p. 31).

Finally, another 20% of the students pointed out that the lack of a methodology more appropriate to the students' reality directly interferes with the processes of learning to read. Because they are children, this result also draws attention because it presents a critical sense of these for the techniques applied in the classroom. But it is revealing because it indicates a certain dissatisfaction of these with the so-called traditional methods used by teachers to teach reading and writing.

In this sense, sometimes the teachers' speeches cause frustration and become an obstacle to learning, as Petronilo (2007) points out.

> The teacher's goal should not be for everyone to learn equally; This is very difficult to achieve. The goal should be for everyone to be able to work reflexively and build thought collectively, without anyone being marginalized or left out. Unfortunately, many teachers are unaware of the causes of children's learning difficulties and label them as failures and laziness. (PETRONILO, 2007, p. 25).

The problems pointed out in this research emerge as the main impeding factors for the process of teaching and learning to read at the Filomena Lisboa Municipal School. This result is far from being an isolated case in Brazil, as there are other surveys, such as those pointed out by Paiva & Beremblum (2009) that already stated problems with the lack of structure in schools and teacher training:

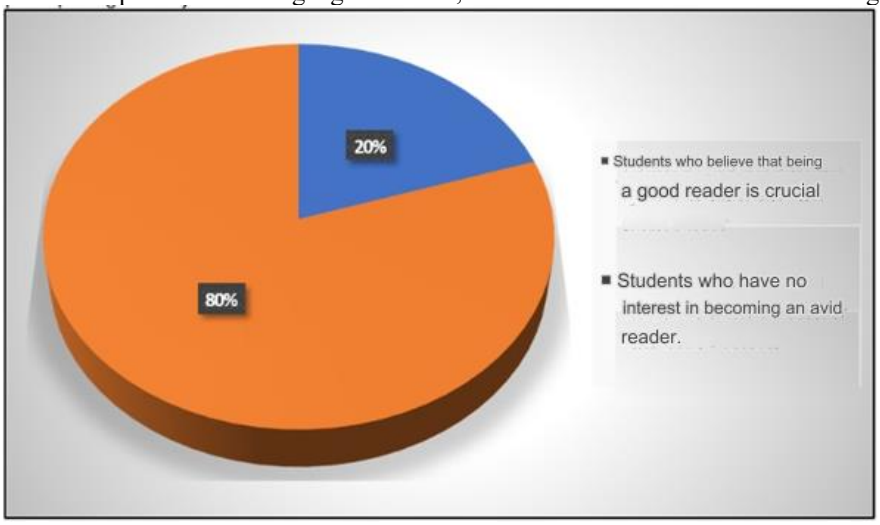
> From the investigation carried out, it was possible to verify the difficulty of teachers to work with the books distributed, the almost total absence of training that would allow them to reflect on their pedagogical practice and discuss different conceptions of language, reading and writing, the limits in the use of the available material and the anguish due to the lack of time to exercise their own reading. With the fundamentals presented, eight categories were highlighted that allowed us to understand, in an evaluative way, the reality of pedagogical actions and practices in their complexity, with regard to the use and meanings of the library and literary works offered. The categories emerging from the fieldwork were the following: 1) reading and social and cultural conditions; 2) conceptions of reading and writing and of readers; 3) reading spaces in schools; 4) children and adolescents who escape us: don't they like to read?; 5) reading and curriculum activities/practices; 6) reading as the foundation of the school's political-pedagogical project (PPP); 7) Are teachers readers?; 8) teacher training to work with books (PAIVA & BERENBLUM, 2009, p. 183).

Students in the 4th year of elementary school were asked if they consider reading as a relevant factor for good learning at school. Despite the young age of the students involved, all the students questioned in the survey already realize the importance of reading for success in the learning process and formation of competent readers. Thus, it is the role of teachers to know the individual characteristics of their students in order to seek to expand their reading and writing comprehension, as Petronilo (2007) points out:

> Children live in contact with various types of writing in their daily lives. So it is up to the teacher, together with the students, to reflect on the possibilities of writing, and to observe that very individual marks restrict the possibility of reading and that, in order to facilitate communication between all people in a society, a code has been established, a drawing for the letters has been conventional. Not all students write from left to right and top to bottom. Thus, the teacher has to be attentive to the entire writing process of his students (PETRONILO, 2007, p. 16).

Another reflection made with the students concerns what they think about the importance of being a good reader, or those who, due to lack of interest, do not want to develop in reading (figure 02).

Figure 02: Distribution of the percentages of the answers of elementary school students from the Filomena Lisboa Municipal School about the importance of being a good reader, or those who show disinterest in being an avid reader.



Source: Survey data

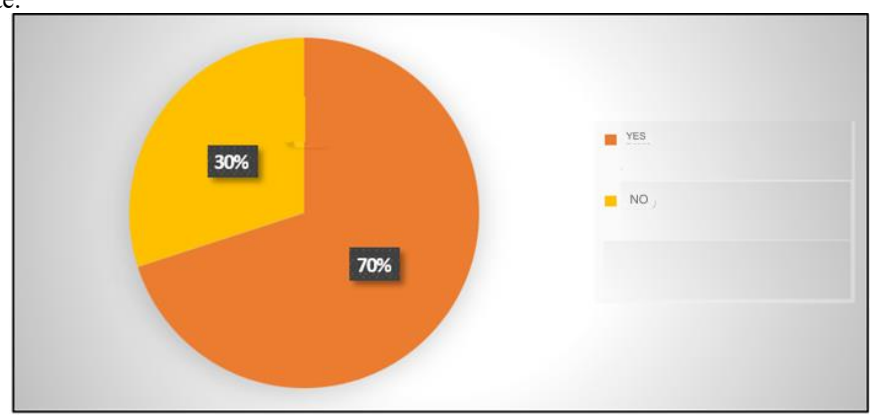
As can be seen, 80% of the students involved in the survey answered that they have no interest in becoming an avid reader. While only 20% of students indicated that they believe it is crucial to be a good reader. This result apparently clashes with the results presented previously, however, it reinforces the results of the problems presented at the beginning of these results, which indicate the difficulties in the reading process at school, such as appropriate physical structure at school and lack of family incentive.

The result indicates the need for a pedagogical strategy that encourages students to practice reading. In this case, the teacher's stimulus is fundamental, as Petronilo (2007) points out.

> The difficulty of learning in reading and writing is a difficulty that some children have and that can be overcome throughout the educational process with the help of a well-qualified teacher interested in working with the child with difficulty. It is important to note that individuals with this difficulty have other skills and facilities to learn, allowing them to compensate for and overcome the initial difficulties. This indicates that these individuals are not "dumb" as many label them, and that they can achieve success in their social and professional lives as long as they receive the necessary attention and guidance (PETRONILO, 2007, p. 11).

Continuing the process of stimulating reflection with the students of the 4th year of E.M. Filomena Lisboa, we asked them if they like to read and write. The distribution of the answers can be seen in Figure 03 below.

Figure 03: Distribution of the percentages of the answers of the students of the E.M. Filomena Lisboa about whether they like to read and write.



Source: Survey data

Of the total number of people involved in the survey, 70% reported that they like to read and write, while 30% answered that they do not like to read or write. This percentage distribution indicates that if they are increasingly stimulated at school for the constant development of reading and writing, they may become avid readers, even the smallest number that reported negatively, because with the advancement of the majority, the rest may feel motivated and driven to develop the practice of reading and writing.

The differences between children as to who like or dislike to read and write may be associated with learning disorders, such as dyslexia, as stated by research such as those by Calafange (2004) and Martins (2003): "the term dyslexia is applicable to a situation in which the child is unable to read with the same ease with which his peers read, despite possessing normal intelligence, intact health and sensory organs, emotional freedom, normal motivation and incentives, as well as adequate instruction."

Thus, it is up to education professionals, such as teachers and pedagogues, to know how to identify and guide the parents of children who have this type of disturbance in learning to read and write regarding the search for support from health professionals. As Fonseca (2009) states:

> It is an unexpected learning difficulty, and not incapacity, and much less a disease, considering the average and higher intelligence of the individual and the educational opportunity in which he is integrated. […]
> Dyslexia is therefore not synonymous with a low IQ, as it can occur at all levels, or with visual and auditory dysfunctions detected by conventional medical means. Nor should the manifest evidence of lack of motivation to learn to read, or of the presence of unfavorable and deviant socioeconomic conditions, be considered in its definition. […]
> By exclusion, the dyslexic child or young person cannot be considered in any defectological category or taxonomy, and should never be confused with mental deficit or dysfunction. By inclusion, dyslexic children and young people reveal disorders and problems: subtle, unusual, multicomplex, sometimes inexplicable, of non-symbolic and, above all, symbolic information processing, which may involve cognitive difficulties in understanding, analysing and using the systems and subsystems of spoken and written language, that is, they may include, alone or systematically, receptive, integrative, elaborative and expressive components.
> Dyslexia can be overcome in a timely manner with multitherapeutic re-education, but its causes remain unchanged. Many predictive signs can be identified as early as preschool, but dyslexia begins with the learning of reading, where problems in sound awareness

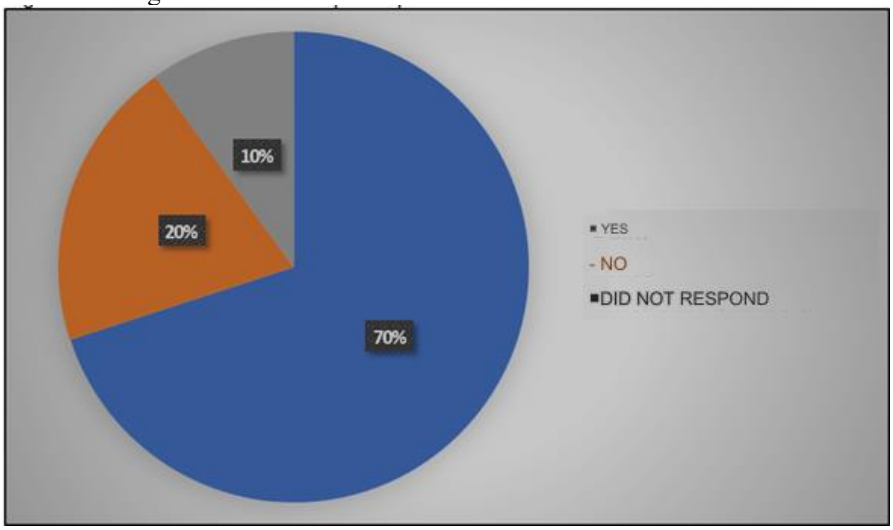
(phonemes), letter recognition (optemas), verbal expression (articulemes), copying (graphemes), etc. (FONSECA, 2009) begin to be detected.

It is necessary to be aware of reading, writing and language disorders, and the exercise of writing and dictation can help teachers with these problems. This learning difficulty is widespread in the world and can occur in any classroom, because as Fonseca (2009) states "dyslexia affects a very wide spectrum of behavioral expressions; some children overcome the difficulty without sequelae, while others do not reach literacy".

The important thing is that children are not targets of prejudice or suffer *school bullying* because of a learning disorder. The school must be welcoming and offer accessibility to literacy and knowledge for all.

Another question to encourage the importance of reading among 4th grade students consisted of asking them if they read regularly and if they are encouraged to practice reading. The answers are distributed in figure 04.

Figure 04: Answers from 4th grade students at E.M. Filomena Lisboa about whether they read regularly and whether they are encouraged to practice reading.



Source: Survey data

Among those surveyed, 70% reported that they read regularly and that they are encouraged to practice reading. Another 20% reported that they do not read and are not encouraged, while 10% did not answer the question. But once the attention should be paid to those who do not like to read and to those who do not read regularly, to improve the relationship of all students with the practice of reading.

Condermarin (1986) listed a series of disturbances that directly interfere in the learning process, namely:

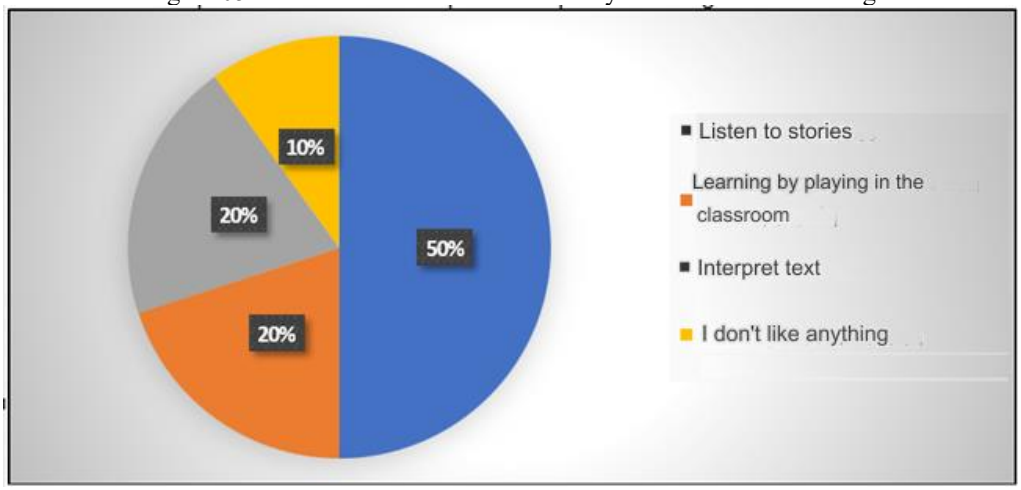
- Memory alterations: some children have difficulties in immediately remembering past facts, cannot remember words or sounds they hear, have difficulty visually memorizing

objects, words or letters.

- Changes in the memory of series and sequences: such as the days of the week, the months of the year, the alphabet and the time.
- Right-left orientations: children are unable to orient themselves properly in space and learn the notion of right and left. They cannot locate the right and the left in their own body or when looking at another person.
- Written language: when the child cannot read easily, he or she is not able to properly use the graphic symbols of written expression. When he writes, he reveals signs of confusion, inversions, additions, omissions, and substitutions.
- Difficulties in mathematics: cannot understand the formulation of the problem. Therefore, it is difficult to read, they invert numbers or their sequence (CONDERMARIN, 1986).

It is necessary for teachers and pedagogues to be aware of these characteristics, as they represent an obstacle to the learning and development of reading. Another means used in the research to awaken the importance of reading, among the participants, was to question them about what they like most about reading. The answers are distributed in figure 05.

Figure 05: Students' answers as to what they like most about reading



Source: Survey data

Among the interviewees, 50% reported that what they like most about reading is listening to stories, it is worth remembering that we are talking about children. This result corroborates Garcia (2005) when he states:

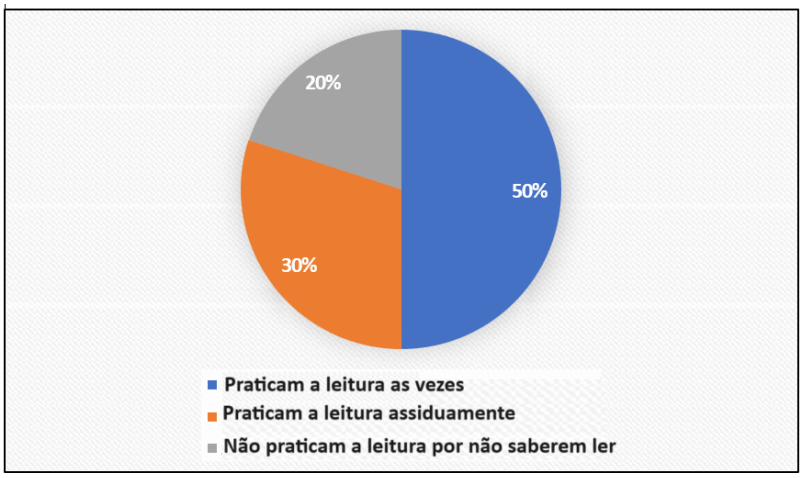
> "For the learning of reading and writing, it is essential that the child has the opportunity to create their stories heard by transforming them, to hear stories told by other people (whether adults or children) and to read and write their stories" (GARCIA, 2005, P. 10).

Another 20% indicated that they like to read to learn by playing in the classroom. This demonstrates the importance of using play in the classroom, how it attracts the attention of students and makes learning pleasurable.

Also 20% of those surveyed reported that they like to interpret texts. At the age of children attending the 4th grade, it is necessary that the didactic material is attractive, that the texts are engaging and that they are completed with pictures and schemes to activate the students' senses, as some children need to visualize drawings between reading to be able to interpret what they are reading, making reading more motivating (OLIVEIRA, 2014).

It is known that reading needs to be practiced daily by students. Therefore, they were asked how often they practice reading (figure 06).

Figure 06: Answers of the students of the E.M. Filomena Lisboa regarding the frequency with which they practice reading.



Source: Survey data

For 50% of the students questioned, they informed that they practice reading sometimes, that is, they need to be more motivated for such practice. While 30% indicated that they practice reading assiduously, thus demonstrating their taste for the practice of reading. Another 20% reported that they do not practice reading, they also justified it by informing that they do not know how to read. The latter are the most serious cases and deserve more attention by teachers, so that they can make a diagnosis and seek to identify why these students still do not know how to read. Perhaps the causes may be those already indicated in this research work.

It is important to make students motivated to practice reading. For this, it is necessary to have a good and accessible methodology, which is available to the teacher didactic support materials and that he uses his creativity to motivate his students more and more to the practice of reading and writing.

It is also worth highlighting the role of information and communication technologies as a means of disseminating the practice of reading. Today, children are exposed from an early age to

computers and smartphones and to the handling of social networks, with reading and writing being the great means of communication. These tools should also be used as means for the development of literacy, because as Chartier (2007) states:

> Unlike those who predict the end of reading and books because of computers, Chartier thinks that the internet can be a powerful ally to maintain written culture. "In addition to assisting in learning, technology circulates texts in an intense, open and universal way and, I believe, will create a new type of literary or historical work. Today we have three forms of production, transcription and transmission of texts: hand, printed and electronic – and they coexist" (CHARTIER, 2007, p. 22).

It is necessary to use various techniques that are capable of awakening in students the interest and pleasure of reading, only then will it be possible to form readers for life, because the habit and interest in reading is a constant process.

FINAL CONSIDERATIONS

The lack of appropriate structure in the school, such as a library or reading room, represent impediments to expanding the reading process. Another important impeding factor is the lack of incentives from parents and guardians of students. Despite the young age of the students involved, a good part of them already realize the importance of reading for success in the learning process and in the formation of competent readers.

The problems for reading difficulty can be associated with learning disorders, so it is up to education professionals, such as teachers and pedagogues, to know how to identify and guide the parents of children who have this type of disorder in the learning of reading and writing regarding the search for support from health professionals. Attention should be paid to those who do not like to read and to those who do not read regularly, in order to improve the relationship of all students with the practice of reading.

We also concluded that among those who like reading the most, their greatest satisfaction is listening to stories, it is worth remembering that we are talking about children. Others indicated that they like reading to learn by playing in the classroom. This demonstrates the importance of using play in the classroom, how it attracts the attention of students and makes learning pleasurable.

With this, he concludes that reading is a social activity, only with the commitment of all can we achieve the formation of avid readers and active citizens in society.

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Understanding of current clinical approaches to gestational hypertensive syndromes

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ABSTRACT

Gestational Hypertensive Syndromes (GHS) are a significant complication in obstetrics, affecting approximately 16% of pregnancies, with preeclampsia (PE) being one of the most prevalent, affecting between 3% and 10% of pregnant women. PE is characterized by hypertension and organ damage after 20 weeks of gestation, and can become even more complicated when superimposed on chronic hypertension, especially in women with preexisting kidney diseases. Eclampsia, marked by tonic-clonic seizures or coma, occurs in pregnant women with no history of other neurological conditions, and is one of the most severe manifestations of PE. This study reviews the current clinical approaches to PE, based on the analysis of 160 articles published between 2015 and 2024, with descriptors such as "Approach", "Clinical", and "Gestational Hypertensive Syndrome". Nulliparity appears as an important risk factor for the development of hypertensive disorders in pregnancy. Although antihypertensive treatment is widely used, it remains controversial, with debates about its effectiveness in preventing serious complications such as placental abruption, second-trimester fetal loss, and preterm birth. In the management of PE, the focus is on preventing maternal and perinatal morbidity and mortality, through tight blood pressure control, prevention of eclampsia, and continuous monitoring of fetal well-being. Early identification of laboratory complications, such as HELLP syndrome, is crucial for adequate management, seeking to balance maternal-fetal risks with the challenges of prematurity. An in-depth understanding of GHS and the adoption of a multidisciplinary approach are essential to mitigate negative impacts on the health of the mother and fetus, ensuring timely and effective intervention.

Keywords: Approach, Clinical and Gestational Hypertensive Syndrome.

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INTRODUCTION

In pre-Hippocratic Greece, the observation of headache accompanied by sleepiness during pregnancy, which occasionally triggered seizures, was already considered a worrisome condition. There is historical evidence of this. For example, the Egyptian papyrus of Kahun, dated to approximately 3,000 years ago, also mentioned the occurrence of seizures during pregnancy. According to Chesley (2004), this possibly represents the oldest historical record of a pregnancy-specific hypertensive disease and one of its most feared and severe manifestations, eclampsia.

Currently, the term Gestational Hypertensive Syndromes (GHS) encompasses several conditions related to high blood pressure during pregnancy. This includes gestational hypertension, preeclampsia, and eclampsia (ZUGAIB, 2019). Each of these conditions has specific characteristics, but all are associated with high blood pressure during pregnancy.

In the context of global and national public health, hypertensive complications in pregnancy stand out as the third leading cause of maternal mortality in the world and the main cause in Brazil. In developed countries, the incidence of this syndrome ranges from two to eight out of every 100 pregnant women, while in Brazil it can be observed in 5-10% of all pregnancies (WATANABE et al., 2020).

Due to the severity associated with this disease, it is considered a significant criterion for hospitalization in Maternal Intensive Care Units (ICUs) and is sometimes included as a cause of severe maternal morbidity (NETO, 2007). Although most pregnancies progress naturally and without complications, a portion that has specific characteristics or is affected by other conditions can result in fatalities, putting the health of both mother and fetus at risk.

Gestational Hypertensive Syndromes, among the various maternal conditions that may arise during this period, stand out as the ones that most cause harmful effects on both the maternal and fetal organisms, in addition to being one of the most prevalent causes of maternal and/or fetal death (CHAIM et al., 2008).

Gestational hypertension is characterized by an increase in blood pressure, reaching or exceeding 140 x 90 mmHg, measured under ideal conditions on at least three occasions, and is diagnosed for the first time during pregnancy, from the 20th week of Gestational Age (GA). At the initial assessment, blood pressure should be recorded in both arms, and in cases of discrepancy, the arm with the higher reading should be considered as a reference for subsequent measurements. The recommended position for measurement is the sitting position (CPPAS, 2018).

In view of the above, it is important that, when diagnosed with hypertensive syndrome during pregnancy, the woman receives special attention, including differentiated prenatal care with specific laboratory tests. In addition, a fetal evaluation should be carried out with greater care, considering the harmful effects that it can cause to the fetus and the pregnant woman (ALMEIDA, 2017).

Protecting the mother and fetus against serious complications from high blood pressure during pregnancy is essential because, if left unchecked, this condition can progress to preeclampsia, eclampsia, or HELLP syndrome (characterized by H = hemolysis, EL = elevated liver enzyme levels, and LP = low platelet count), which are prevalent complications of maternal-fetal mortality (LIMA et al., 2018).

Therefore, this condition represents a significant challenge for maternal and fetal health, and understanding the clinical-epidemiological profile of pregnant women with gestational hypertensive syndrome is essential for its adequate prevention and treatment.

THEORETICAL FRAMEWORK

CONCEPT OF SHG

Hypertension is characterized by the persistence of systolic blood pressure (SBP) equal to or greater than 140 mmHg and/or diastolic blood pressure (DBP) equal to or greater than 90 mmHg, when measured on different occasions and moments in offices. In addition to these values, measurements performed in outpatient clinics or self-measurements should also be considered (MARTINS, 2014).

Its classification can be made based on etiological, pathophysiological, or severity criteria. Etiologically, hypertension can be primary (or essential), when the cause is unknown, or secondary, when it results from other medical conditions. Pathophysiologically, it can be categorized as isolated systolic hypertension (SBP > 140 mmHg and DBP < 90 mmHg), isolated diastolic (as in conditions of bradycardia, fever, anemia, aortic insufficiency, etc.), or a combination of systolic and diastolic hypertension associated with increased cardiac output, peripheral vascular resistance, or both (WU et al., 2009).

In pregnancy, the definition of hypertension is not uniform, but there is consensus on the need for close monitoring. Currently, gestational hypertension is considered when SBP is ≥ 140 mmHg or DBP is ≥ 90 mmHg, measured on several occasions. Close surveillance is crucial due to the additional risks to maternal and fetal health (KAHHALE, 2018).

IMPACTS ON THE HEALTH OF THE MOTHER AND FETUS

Eclampsia is a serious condition that occurs when seizures or coma manifest during a preeclampsia condition. These seizures can be generalized, with muscle contractions throughout the body, or focal, and should not have identifiable causes, such as epilepsy, stroke, intracranial hemorrhage, or be related to the use of drug substances (MURALI; MILLER; MCDERMOTT, 2020).

Failure to terminate pregnancy can lead to progression from preeclampsia to placental insufficiency and maternal organ dysfunction. Eclampsia is one of the main causes of maternal mortality in Brazil, especially when it presents in a severe form, such as in HELLP syndrome (Hemolysis, Elevated Liver Enzymes and Low Platelet Count), which affects 10% to 20% of women with severe preeclampsia (VEGA et al., 2007).

This hypertensive condition is the leading cause of perinatal death, and affected neonates often face problems related to lack of oxygen during delivery, even if they survive (DERHAM et al., 1989).

In addition to the immediate impacts during pregnancy, preeclampsia also poses significant long-term risks to the health of women and their children. Women who have suffered from preeclampsia have an increased risk of developing metabolic syndromes, cardiovascular disease, and hypertension earlier in life (WU et al., 2009).

Several risk factors are associated with preeclampsia, including nulliparity, history of preeclampsia, eclampsia, or HELLP syndrome, family history of the condition, chronic diseases such as hypertension, diabetes, kidney disease, and thrombophilia, obesity, multiple pregnancy, and gestational trophoblastic diseases (KAHHALE; ZUGAIB, 1995).

EPIDEMIOLOGY

Preeclampsia has registered a global increase in its incidence due to factors such as the postponement of motherhood, the growth of obesity, the use of assisted reproduction techniques and the presence of pre-existing medical conditions, such as diabetes, hypertension and kidney diseases (TOWNSEND, 2016). A relevant study conducted in Norway found a significant increase in the risk of preeclampsia in women with multiple pregnancies, but did not find a corresponding increase in the incidence of gestational hypertension compared to singleton pregnancies (LAINE et al., 2019).

According to Kintiraki et al. (2015), preeclampsia can lead to several serious complications, such as Hemorrhagic Strokes (CVA), acute pulmonary edema, central nervous system dysfunctions, liver damage, and disseminated intravascular coagulation (DIC), which can result in maternal death. For fetuses and neonates, risks include Intrauterine Growth Restricted (IUGR), Small for Gestational Age (SGA) fetuses, prematurity, and perinatal death.

In addition, the World Health Organization (WHO), in 2011, highlighted that the early occurrence of preeclampsia (before 32 to 34 weeks of gestation) and complications associated with fetal health are important criteria for classifying preeclampsia as severe in several regions. Globally, preeclampsia affects between 3% and 10% of pregnancies and is one of the main causes of perinatal mortality (MURALI; MILLER; MCDERMOTT, 2020).

According to recent data from the World Health Organization (WHO), in 2010, approximately 287,000 maternal deaths were recorded, with most occurring in low-income countries, especially in sub-Saharan Africa and South Asia, which account for between 83% and 88% of these deaths. To address this alarming situation, goals have been established that prioritize global health, and while there has been some significant progress in the last decade, there is still a need for further improvement (SILVA, 2015).

Hypertension is the second leading cause of direct death among pregnant women, accounting for 14% of deaths. Its global prevalence is highest in Latin America and the Caribbean, while in developed regions, such as Europe, the rate is 12.9% (MARTINS, 2014).

During pregnancy and the puerperium, hypertension is one of the main clinical complications, affecting between 6% and 30% of pregnancies. Of these, 2% to 3% have a high risk of morbidity, and between 15% and 20% are associated with a significant risk of maternal and perinatal mortality (SILVA, 2015; MARTINS, 2014).

With regard to socioeconomic aspects, it is crucial to observe the impact of factors such as geographic location, level of education, occupation, and marital status on the occurrence of hypertensive disorders during pregnancy. Municipalities far from urban centers often face challenges that can compromise the quality of prenatal care. A study conducted in the Netherlands by Silva et al. (2008) revealed a significant association between low educational levels and less skilled occupations with an increased risk of hypertensive disorders in pregnancy. These factors were often correlated with risk behaviors, such as alcohol consumption, smoking, and illicit substance use. These findings highlight the need for an integrated and comprehensive approach in the prenatal monitoring of pregnant women who are at risk of developing gestational hypertensive syndromes.

PATHOPHYSIOLOGY

The etiology of preeclampsia is not yet completely understood. In 1916, Zweifel described the condition as "the disease of theories" due to the multiple hypotheses proposed to explain its cause, many of which have not been confirmed. More than six decades ago, Page suggested that decreased placental perfusion was a relevant factor. It is now widely believed that preeclampsia involves immunological and genetic aspects and failures in placental invasion. The most recent theories indicate that endothelial injury, exacerbated inflammatory response, and stress play significant roles in the occurrence of preeclampsia. The condition is marked by increased vascular reactivity and permeability, coagulation activation, and damage to the vascular endothelium, kidneys, central nervous system, liver, and placenta. This can lead to multiple organ involvement with varying degrees of severity (KAHHALE, 2018).

Although the understanding of the pathophysiology is partial, studies indicate that factors such as abnormalities in placental implantation, genetic predisposition, and immune intolerance between maternal and fetus-placental tissues may play a significant role (KINTIRAKI et al, 2015). In addition, recent research, according to Phoswa (2019), emphasizes endothelial dysfunction as a result of oxidative stress, influenced by the action of endogenous neurotransmitters such as dopamine, and highlights the crucial role of enzymes that convert it into inactive metabolites, such as monoamine oxidase (MAO) and catechol-O-methyltransferase (COMT), in the origin of this set of pathologies.

In the normal process of placentation, the cytotrophoblast migrates to the spiral arteries, causing changes that result in a decrease in vascular resistance, thus providing adequate nutrition for the fetus. However, in cases of placentas destined to develop preeclampsia, cytotrophoblasts fail to effectively perform vascular remodeling, resulting in narrowed vessels and a condition of relative placental ischemia. The ischemic placenta releases inflammatory and prothrombotic factors into the maternal circulation, which contribute to the development of hypertension and changes in the coagulation system, thus supporting the clinical presentation of hypertensive syndrome (RANA et al, 2019).

It is well established that preeclampsia develops in the presence of placental tissue and is a multifactorial pathological condition influenced by environmental, immunological, and genetic factors of pregnant women. Placental hypoxia results in oxidative stress and release of trophoblastic products, as well as an excess of antiangiogenic factors, such as soluble endoglobin and the soluble receptor Flt-1 (sFlt-1), known as "fms-like tyrosine kinase-1". These factors are detected early in pregnancy. Inadequate trophoblastic invasion leads to the production of toxic substances that damage the endothelium, resulting in the clinical syndrome of preeclampsia. The success of physiological placentation depends on the regulation of angiogenic factors, such as PLGF, and antiangiogenic factors, such as sFlt-1. Recent studies associate the decrease in PLGF and the increase in sFlt-1, as well as the high sFlt-1/PLGF ratio, with the prediction, diagnosis, and prognosis of pregnant women with preeclampsia (KAHHALE, 2018).

CLINICAL SUSPICION AND DIAGNOSIS OF PREECLAMPSIA

To detect preeclampsia early during prenatal visits, especially from the 20th week of gestation, it is crucial that the doctor is aware of the symptoms reported by the pregnant woman, such as general malaise, headaches, body aches, nausea, vomiting, itching and visual changes, among others. It is also important to monitor weight gain, particularly if it exceeds 1 kg per week, and to watch for the appearance of edema, often on the hands and face. If signs or symptoms suggestive of preeclampsia are identified, such as high blood pressure, additional tests should be performed to confirm the diagnosis (Peraçoli et al., 2023).

The diagnostic criteria for preeclampsia have been revised over the years. The 2013 American College of Obstetricians and Gynecologists (ACOG) and the 2014 International Society for the Study of Hypertension in Pregnancy (ISSHP) guidelines no longer require the presence of proteinuria as a mandatory criterion for diagnosis. In 2018, the ISSHP again revised these criteria, which remain in place today (Brown et al., 2018; Magee et al., 2022).

Figure 1 - Dysgnostic criteria for preeclampsia

CRITÉRIOS DIAGNÓSTICOS PARA PRÉ-ECLÂMPSIA - 2023	
HIPERTENSÃO + PROTEINÚRIA	PAS > 140 e/ou PAD > 90 mmHg, Medido em duas ocasiões, com intervalo > 4 hours, after 20 weeks of pregnancy.
	Relação Proteinúria/Creatinúria > 0,3 mg/dL ou > 300 mg/24 horas ou > 1+ no Reagente Tiras
Na ausência de proteinúria	**Hipertensão Associada a pelo menos um dos seguintes:**
trombocitopenia	Contagem de plaquetas < 150.000 mm3
Insuficiência hepática	Elevação de Transaminases (ASL) > 40 U/L
Insuficiência renal	Elevação da creatinina sérica > 1,0 mg/dL
Edema pulmonar	Dispneia, sibilos, palidez, sudorese fria, cianose das extremidades, ansiedade, confusão mental, secreções pulmonares rosadas...
Sinal e/ou sintoma de lesão de órgão-alvo	Dor de cabeça e escotomas e epigastralgia (eclâmpsia iminente)
affected fetal compartment	Placental Insufficiency / Fetal Growth Restriction

Source: Peraçoli JC, Costa ML, Cavalli RC, de Oliveira LG, Korkes HA, Ramos JG, et al. Preeclampsia – Protocol 03. Brazilian Network of Studies on Hypertension in Pregnancy; 2023. Chart 1, Recommended clinical risk factors for the identification of pregnant women in need of prevention; p. 20. Available at: https://rbehg.com.br/wp-content/uploads/2023/04/PROTOCOLO-2023.pdf.

After the diagnosis of preeclampsia, hospitalization of the pregnant woman is recommended to ensure a detailed follow-up of the health of the mother and baby (Peraçoli et al., 2023).

For maternal health monitoring, it is crucial to perform regular examinations to detect possible systemic complications. The PIERS calculator can be useful to assess the risk of maternal adverse events in the following 48 hours. Laboratory tests, such as transaminase dosage, platelet count, and creatinine, are essential to determine the severity of the condition (Von Dadelszen et al., 2011). It is equally important to control blood pressure closely by initiating the administration of antihypertensive medications to keep pressure below 140 x 90 mmHg and to consider the use of magnesium sulfate, especially if there is clinical or laboratory deterioration (Peraçoli et al., 2023).

Regarding fetal care, vitality tests such as cardiotocography, fetal biophysical profile, and Doppler velocimetry should be performed. For pregnancies less than 34 weeks, fetal lung maturation should be assessed and magnesium sulfate should be considered for brain protection in fetuses at risk of preterm birth, especially before 32 weeks.

Expectant management for patients with preeclampsia is recommended, especially in cases of fetal prematurity or when there are limited resources at the point of care. This approach allows for the promotion of fetal lung maturation with the use of corticosteroids and the transfer of the pregnant

woman to a better equipped center. However, the time required for management and transport can delay critical interventions and potentially aggravate the patient's condition, since decisions often involve degrees of subjectivity (Peraçoli, 2020).

To reduce uncertainty in these decisions, a mathematical model with predictive value called PIERS (Preeclampsia Integrated and Estimated Risks) was developed. This tool, available online, assesses the likelihood of adverse outcomes within 48 hours of patient admission. PIERS considers serious adverse events such as eclampsia, coma, central blindness, retinal detachment, stroke, placental abruption, coagulopathy, severe hepatic dysfunction, hepatic hematoma, pulmonary edema, myocardial infarction, acute renal failure, and ascites. Given the severity of these events, utilizing an objective tool like PIERS can help protect both mother and fetus. The final decision should be based on the specific clinical context and the interpretation of clinical and laboratory data. If clinical or laboratory signs of concern, such as platelets < 100,000/mm³ or creatinine ≥ 1.2 mg/dL, indicate acute renal failure, there is no justification for delaying decisions due to instability and the risk of rapid deterioration. It is recommended that the clinical team use the risk calculation to become familiar with the tool and better understand the meaning of percentage risks in daily clinical practice (Peraçoli, 2020).

PREVENTION

First, it is important to clarify that some interventions have not shown efficacy in reducing the risk of preeclampsia and, therefore, should not be recommended in clinical practice. Among these interventions are absolute rest, salt restriction in the diet, the use of antioxidants such as vitamins C and E, vitamin D, omega-3 and enoxaparin. In contrast, interventions that have been shown to be effective in reducing the risk of preeclampsia include the use of acetylsalicylic acid (ASA) and calcium supplementation (Peraçoli, 2020).

Although the protocol establishes risk stratification based on clinical factors and recommends the use of aspirin, recent research indicates that the benefits of low-dose aspirin go beyond the prevention of preeclampsia. Studies show that the use of aspirin in nulliparous women, without comorbidities, is associated with a reduction in prematurity before 34 weeks of gestation. In addition, the administration of aspirin between 6 and 13 weeks and 6 days of gestation in nulliparous women has shown a reduction in both prematurity and perinatal mortality. There is also evidence to support universal prophylaxis for preeclampsia as a beneficial and cost-effective practice. The recommendation is to use ASA at a dose of 100 mg per day for patients identified as at risk, according to the guidelines on the prediction of preeclampsia. In Brazil, the 100 mg formulation is the one available through the public health system and is suitable for this purpose (Peraçoli, 2020).

ASA should be started as early as possible, ideally around 12 weeks of gestation, and given at night. Although it can be maintained until the end of pregnancy, suspension after the 36th week is recommended to allow platelet renewal, ensuring adequate functional capacity for delivery (Peraçoli, 2020).

In addition to prevention measures during prenatal care, it is crucial to also consider the prevention of severe forms of preeclampsia. Magnesium sulfate (MgSO4) plays a key role in the prevention and treatment of eclampsia and should be available in all maternal-fetal care facilities, including primary care. MgSO4 is recommended in cases of imminent eclampsia and should be used freely in patients with severe preeclampsia, or with blood pressure that is difficult to control, even without signs or symptoms of imminent eclampsia, in addition to being indicated for cases of HELLP syndrome. Its administration should be considered whenever clinical perception suggests a high risk of progression to more severe forms or eclampsia (Peraçoli, 2020).

As preventive measures, the importance of early identification and follow-up of pregnant women with hypertension through prenatal care is highlighted. The use of low doses of aspirin is recognized to reduce the risk of preeclampsia by 10 to 20% and decrease the chances of prematurity and intrauterine growth restriction (IUGR). It is recommended to start administration as early as possible, ideally between 12 and 16 weeks of gestation, in women with risk factors. In populations with low serum calcium concentration, intake of 1500 mg to 2000 mg has been shown to reduce the risk of severe preeclampsia, although its effect on overall risk is limited. As for folic acid, its role in the prevention of preeclampsia remains uncertain, but it is recognized as important in the prevention of neural tube defects (SHAH; GUPTA, 2019).

Several agents can be used to lower blood pressure, including hydralazine, calcium channel blockers, methyldopa, diazoxide, prostacyclin, and magnesium sulfate. Among the most common, intravenous hydralazine, intravenous labetalol, and calcium channel blockers stand out. Hydralazine may lose preference due to its adverse effects compared to calcium channel blockers. For cases of non-severe hypertension, the agents of choice are methyldopa, labetalol, and nifedipine. Angiotensin-converting enzyme inhibitors and angiotensin receptor blockers have been contraindicated due to association with oligohydramnios, intrauterine growth restriction (IUGR), and renal anomalies, as well as other congenital malformations when women are exposed during the second or third trimester of pregnancy (BRAUNTHAL; BRATEANU, 2019).

There are disagreements regarding the appropriate time to start therapy. Most guidelines indicate that treatment should be initiated only when blood pressure reaches values greater than 150x100 mmHg, while others recommend intervention only when blood pressure levels exceed 160x110 mmHg (BRAUNTHAL; BRATEANU, 2019).

TREATMENT

It is crucial to make an early diagnosis of preeclampsia during antenatal care. Weight gain should be monitored for the pregnant woman, especially if it occurs quickly and accompanied by edema in the hands and face. Blood pressure should be carefully assessed, as should signs and symptoms related to end-organ involvement, such as epigastric or right hypochondrium pain. It is important to note that diastolic blood pressure usually decreases during pregnancy, and persistent values greater than 80 mmHg should be cause for concern.

After diagnosis of preeclampsia, the goal of clinical management is to prevent maternal and perinatal complications. This includes providing guidance on the signs of worsening disease, referring the pregnant woman to tertiary centers with specialized neonatal support, strictly controlling blood pressure, preventing eclampsia or its recurrence, and early identification of laboratory abnormalities, particularly those associated with HELLP syndrome. In addition, the assessment of fetal well-being is essential. The combination of these strategies aims to manage cases in order to deliver the delivery with the best possible balance between maternal and fetal risks and the impacts of prematurity (Peraçoli, 2020).

In the case of eclampsia, basic management principles include avoiding fall trauma, maintaining airway patency, providing oxygen support, and preventing aspiration in case of vomiting. It is recommended to position the pregnant woman in the left lateral decubitus position or semi-seated, use a Guedel cannula, administer nasal oxygen at 5 L/min, and quickly establish a venous access (Peraçoli, 2020).

It is recommended that the diet be normal, without salt restriction, as there is insufficient evidence to support the effectiveness of this approach to control blood pressure or prevent adverse outcomes. Additionally, maintaining a balanced diet is crucial, especially for patients who may require lengthy hospital stays, as the nutritional quality of the diet contributes to overall well-being. Sodium restriction can, in some cases, reduce intravascular volume, but it is not considered an effective measure for blood pressure control in patients with preeclampsia (Peraçoli, 2020).

Reducing physical activity for women with preeclampsia can help improve uteroplacental blood flow and prevent exacerbation of hypertension, particularly if blood pressure is not well controlled. However, there is insufficient evidence to state that reduced physical activity or absolute rest significantly improves key maternal and perinatal outcomes. Therefore, absolute rest is not recommended as a standard practice for patients with preeclampsia (Peraçoli, 2020).

Antihypertensive treatment in pregnant women with hypertension or preeclampsia is controversial in the literature. In non-pregnant patients, antihypertensive treatment is well established and proven to reduce cardiovascular and renal morbidity and mortality. However, when it comes to pregnant women, the effectiveness and benefits of antihypertensive treatment are less clear.

Some authors advocate the use of antihypertensive drugs during pregnancy to reduce the incidence of severe hypertension and improve fetal prognosis and maternal renal function, although there is no robust evidence demonstrating a significant reduction in severe complications such as placental abruption, fetal loss in the second trimester, or preterm birth. In addition, the treatment can have side effects that affect both the mother and the fetus (Souza, 2010).

During the clinical and laboratory investigation of severe hypertension, associated conditions that increase maternal and perinatal risks, such as chronic diseases and risk factors, are often identified. In these cases, antihypertensive therapy may be necessary to control blood pressure levels and prevent complications. Ideally, patients with severe chronic hypertension should be followed up before pregnancy for adequate control. Antihypertensive therapy should be maintained during pregnancy, except when the drug has contraindications for the fetus (Souza, 2010).

In general, antihypertensive treatment is initiated when systolic blood pressure exceeds 160 mmHg and/or diastolic blood pressure exceeds 110 mmHg. The goal is to maintain systolic pressure between 130 and 149 mmHg and diastolic pressure between 80 and 90 mmHg. In cases of severe preeclampsia, antihypertensive therapy may help control hypertensive peaks and reduce neonatal morbidity, although its ability to alter the course of the disease or significantly improve maternal and fetal prognosis has not been confirmed. Conservative management, which may include antihypertensive therapy for hypertensive peaks, is generally preferred to prevent neonatal complications associated with prematurity (Souza, 2010).

Guidelines such as those of the American College of Obstetricians and Gynecologists (ACOG) and the National High Blood Pressure Education Program recommend antihypertensive treatment only for hypertensive peaks, while the Canadian Hypertension Society suggests starting treatment for all hypertensive syndromes of pregnancy, regardless of blood pressure levels (Souza, 2010).

The treatment of hypertension during pregnancy must balance efficacy and safety for both the mother and the fetus. The main concern is the teratogenic potential of the drugs, as they all cross the placental barrier. Severe hypertension, known as hypertensive emergency, must be treated promptly to prevent serious complications such as maternal stroke and placental abruption. However, the benefit of antihypertensive treatment for lower blood pressure levels during pregnancy is still controversial, especially due to the potential risk of intrauterine growth restriction (IUGR) caused by reduced uteroplacental perfusion.

Among the oral medications used, α-methyldopa is considered one of the safest and most effective options for the treatment of hypertension in pregnancy. The starting dose is 750 mg/day, with a maximum of 3 g/day. Although it is effective in reducing hypertensive peaks, it does not demonstrate a significant reduction in the incidence of IUGR, prematurity, cesarean sections, or

perinatal death. Its main side effects include drowsiness, lethargy, depression, and postural hypotension.

β-blockers, such as propranolol and labetolol, are also used. They reduce the risk of hypertensive peaks and the need for other antihypertensive drugs, but may be associated with increased small-for-gestational-age neonates (PIGs) and neonatal bradycardia. Atenolol, in particular, has shown better results compared to other β-blockers, although it is associated with low birth weight when started in the first trimester.

Calcium channel blockers, such as nifedipine and nicardipine, are considered second-line drugs. Nifedipine is more common, but it may be associated with prematurity and low birth weight. However, no significant perinatal adverse effects were observed in pregnant women who used it.

For hypertensive emergencies, intravenous medications such as hydralazine, labetolol, nitroglycerin, and sodium nitroprusside are used, which are effective for acute treatment.

ACE inhibitors, angiotensin II receptor blockers (ARBs), and direct renin inhibitors (aliskiren) are contraindicated during pregnancy because of the risk of abnormalities in fetal renal development when used from the second trimester onwards. These medications should be replaced with safer alternatives before or in early pregnancy.

In summary, the choice of antihypertensive treatment during pregnancy should be made with caution, taking into account the potential risks and benefits. Careful monitoring and consideration of additional research are essential to determine the need for maintenance therapy in severe preeclampsia and to assess the efficacy and safety of different therapeutic options (Souza, 2010).

CONCLUSION

This review on preeclampsia provided a comprehensive analysis of the factors that may influence the onset of this condition, prevention strategies, existing public policies to combat it, and the challenges associated with this complex condition.

Chronic hypertension is defined by a blood pressure of 140 mmHg × 90 mmHg or more and is associated with hypertension existing before pregnancy or diagnosed by the 20th week of gestation. On the other hand, gestational hypertension refers to hypertension that develops after the 20th week of gestation. Preeclampsia is characterized by hypertension and organ damage after 20 weeks of gestation, while eclampsia is identified by tonic-clonic seizures or coma in a pregnant woman who has no other conditions that explain the seizures. These conditions pose a significant risk to maternal and newborn health, affecting more than 8% of pregnancies globally and causing approximately 40,000 maternal deaths annually.

In the management of preeclampsia, the main goal is to prevent serious complications for both the mother and the baby. This includes guidance on signs of worsening disease, referral to

tertiary centers with specialized neonatal support, tight blood pressure control, prevention of eclampsia or its recurrence, and early monitoring of laboratory abnormalities, especially related to HELLP syndrome. Ongoing assessment of fetal well-being is also crucial. The combination of these strategies aims at the appropriate management of cases, with the objective of delivering at a time that balances maternal and fetal risks with prematurity.

Although antihypertensive therapy was initially proposed to delay delivery and improve maternal and fetal prognosis, this efficacy has not been confirmed. However, the conservative approach can help prevent neonatal complications associated primarily with prematurity. Therefore, the benefits observed in perinatal prognosis seem to be more related to conservative management than to antihypertensive treatment itself. For patients with superimposed preeclampsia or gestational hypertension, antihypertensive treatment should be reserved for those who have significant hypertensive peaks.

The study therefore reiterates the importance of comprehensive, evidence-based strategies to address the challenge of preeclampsia, aiming not only at reducing maternal mortality, but also at promoting equity in access to health care. These measures are essential to achieve the goal of reducing maternal mortality associated with preeclampsia and improving maternal and neonatal outcomes globally.

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Dialogue between Cazuza and cell theory: Analysis of a pedagogical practice built from the music "ideology"

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ABSTRACT

This work presents an approach to the principles of Historical-Critical Pedagogy and Historical-Philosophical Education for the teaching of science and biology. For this, an analysis was made of a pedagogical practice that brought the teaching of cell theory through the song "Ideology", by Cazuza. The objective was to overcome the traditional barriers of teaching, stimulating critical reflection and interconnection between different fields of knowledge. The pedagogical practice involved the in-depth analysis of music and its contextualization in the artist's life, highlighting his fight against AIDS, serving as a starting point to explore the principles of cell theory, demonstrating its relevance to the understanding of health and human conditions. The results revealed that the students not only understood the biological concepts, but also reflected on social issues. The practice stimulated critical thinking, creativity, and dialogue between art and science.

Keywords: Cell theory, Music, Pedagogical practice.

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INTRODUCTION

In classrooms, we usually come across teaching that follows traditional pedagogy standards, where students usually memorize the syllabus, reproducing the information that is issued by the teachers. This is even more evident in science disciplines, since they are disciplines that follow a rigor due to their conceptions. What we realize is that the teaching of science ends up being plastered and taught in a harsh way, which can cause students to lose interest.

Therefore, it is important to look for practices that can break with traditional education, which is focused on the formation of subjects prepared for the job market, becoming just another puppet in the hand of Capital. This type of education is known as banking. According to Paulo Freire (1987) it is an education built by the dominant class and which aims to focus on memorizing the subject to reproduce what the teacher passes on, always being fixed in the textbooks. This is a maneuver of the bourgeois class so that students become labor that meets the needs of the capitalist.

In order for the teaching of science and biology to become interesting, arousing the curiosity of students, it is important to continue with pedagogical practices that stimulate creativity and the active participation of all, especially in the construction of knowledge. This type of approach ends up generating debates and conversations in the classroom, addressing several topics relevant to the construction of a historical-critical and historical-philosophical education in the area of biology. Aiming at a practice that breaks with capitalist ideology and contributes to an emancipated education, it is necessary to follow paths that can dialogue with the sciences and allow the teaching-learning process to be built between students and teachers.

Thus, this work aims to make an analysis of the pedagogical practice carried out in the discipline of Biology Teaching Methodology (MEB) at the Federal University of Lavras, which aimed to bring the dialogue between the song Ideology by the singer Cazuza and the cell theory inserted in the conceptual statute of Biology through a historical-critical philosophical approach. The focus of this practice was to awaken enchantment through song, proposing art as a pedagogical resource, seeking a constructivist approach, providing a more participatory and collaborative educational environment.

HISTORICAL-CRITICAL PEDAGOGY

Historical-Critical Pedagogy is an educational approach that is based on historical-dialectical materialism and historical-cultural psychology. According to Saviani (2003), one of the main authors of this approach, this pedagogy aims to form critical individuals who are aware of the social reality in which they live. Also according to the author, Historical-Critical Pedagogy is based on the assumption that education is a social and historical process, which is directly related to the material conditions of existence of society. In this sense, the school should be seen as a space for political

struggle, where educators must work to overcome social contradictions and build a more just and egalitarian society.

It is worth noting that there is a relationship between theory and practice to be taken into account. Corroborating Saviani (2003), Historical-Critical Pedagogy seeks to overcome the dichotomy between theory and practice, understanding that educational practice must be guided by theory, but that theory can only be built from practice. Another objective highlighted by Saviani (1991) is that Historical-Critical Pedagogy focuses on the formation of critical individuals who are aware of the social reality in which they live. But for this to happen, it is necessary for teachers to work with historically constructed knowledge, seeking to overcome the fragmented and decontextualized view of knowledge.

In summary, Historical-Critical Pedagogy represents an educational approach that aims to develop individuals who are critical and aware of their social reality. She highlights the importance of the interconnection between theory and practice, recognizing that theory is shaped by practice and vice versa. In addition, this approach emphasizes the relevance of using historically constructed knowledge to provide a contextualized and integral education.

It is essential to understand that, according to Saviani (2003), the school is a field of political struggle, where educators play a crucial role in overcoming social contradictions and building a more just and egalitarian society. Therefore, Historical-Critical Pedagogy represents not only an educational philosophy, but also a call to action for educators committed to promoting positive social change.

HISTORICAL-PHILOSOPHICAL EDUCATION

The historical-philosophical perspective is essential for a comprehensive understanding of the construction of scientific knowledge over time. As highlighted by Nascimento Júnior (2010), reality is a product of historical construction and scientific knowledge is an intrinsic part of this process. This perspective reveals that science is not a static domain, but rather a continuous evolutionary process, influenced by social, political, and cultural factors.

Therefore, it is crucial to recognize the importance of the historical and social approach in understanding scientific activity and scientific knowledge. Scientific theories should not be considered absolute truths, but rather provisional explanations that can be improved or replaced by more adequate ones. As pointed out by Nascimento Júnior (2010), intellectual disciplines are in constant development and compete in the search for more precise and comprehensive explanations. Furthermore, the historical-philosophical perspective allows us to understand the different epistemological currents that address the problem of the validity of human knowledge, as also pointed out by Nascimento Júnior (2010).

The historical and social approach to scientific activity recognizes the influence of social, political, and cultural factors on scientific knowledge. This understanding instigates us to reflect on the contextualization of discoveries and to consider how these aspects can shape science over time. In short, the historical-philosophical perspective provides us with a dynamic view of the construction of scientific knowledge, emphasizing its continuous evolution and its close relationship with the social, political, and cultural context in which it is inserted. This critical and reflective approach is crucial for a more contextualized and improved science education.

THE CONCEPTUAL STATUS AND CELL THEORY

The statutes of biology are fundamental to understanding the structure of scientific knowledge. Thus, we can then emphasize that the statutes are: epistemological, ontological, conceptual and social historical. These statutes are fundamental to understanding the organization and evolution of scientific knowledge over time. When we talk about the conceptual status, according to Nascimento Júnior (2010), it is about the concepts that make up theories and laws. Thus, this statute of biology is made up of five main theories: cell theory, homeostasis theory, inheritance theory, evolutionary theory, and ecosystem theory.

These theories organize the knowledge of biology and allow scientists to explain natural phenomena linked to life. As stated by Nascimento Júnior (2010, p. 381), "the conceptual status of biology is fundamental for the understanding of scientific knowledge in this area, as it allows scientists to explain natural phenomena linked to life". In addition, the conceptual status of biology is studied in a contextualized way, to prepare students for their daily lives. This means that biological concepts are presented in an integrated way with the social, cultural and historical reality of the students, allowing them to understand the importance of biology for everyday life.

Highlighting the cell theory, Miranda (2015) reveals that it arose during much speculation regarding the function and structuring of the tissues that make up plants. Cell biology ended up making it possible to explain how living organisms develop, being through tissues composed of cells. With this, we can also see that cell theory is made up of 3 fundamental principles. The first explains that all living beings are composed of cells. This premise states that all forms of life, from single-celled organisms to complex multicellular beings, are made up of cells.

The second principle shows that the cell is the basic unit of life. It is the smallest functional and structural unit of an organism, being responsible for all the vital activities necessary for the survival and proper functioning of the living being. The third principle reveals that reproduction and the continuity of life occur through cell division, where new cells arise from existing cells. These principles form the basis of cell theory, providing an essential framework for understanding the biological processes and functioning of living organisms and cell theory is crucial for several fields

of biology, including genetics, molecular biology, physiology, among others, allowing for an integrated and contextualized approach to the study of life.

MUSIC AND SCIENCE TEACHING

The relationship between music and the teaching of science and biology has been the object of study by several researchers. According to Santos, Gobbi and Marsiglia (2015), music can be used as a pedagogical path, as it can help make the content more accessible and interesting for students. According to the authors, music can be used to teach scientific concepts in a playful and creative way, in addition to helping to understand the content.

As Santos, Gobbi and Marsiglia (2015) point out, music can help explain concepts such as natural selection and adaptation, in addition to stimulating students' critical reflection on these topics. Another important aspect of the relationship between music and science and biology teaching is the possibility of using music as a form of artistic expression.

Through artistic expression, students are encouraged to understand complex concepts in a more intuitive and personal way, facilitating the assimilation of the contents covered. In addition, art promotes the integration of knowledge from different areas of knowledge, enabling students to establish connections between different themes, favoring a more contextualized view of the subject under study (Nascimento Júnior, 2010). In this way, art is a pedagogical resource that stimulates interdisciplinarity and transdisciplinarity in education. Another relevant aspect of the use of art in education is its ability to promote social inclusion and the appreciation of cultural diversity (Nascimento Júnior, 2010).

Through a reflective approach, the careful insertion of art in pedagogical practice enables students to immerse themselves in a diverse universe of artistic expressions, unveiling their own inclinations and interpretations. By appreciating art, students are encouraged to become more sensitive and reflective subjects, capable of valuing and contributing to the enrichment of culture and society. The idea that the appreciation of art can contribute to the integral development of students is widely discussed in the academic literature, being defended by several authors, such as Ana Mae Barbosa, author of the book "Art-education in Brazil", published in 2010, and Marcos Ferreira de Oliveira, author of the article "The importance of art in the formation of the individual", Published in 2012.

By valuing art as an autonomous expression, pedagogical practice recognizes the ability of artworks to stimulate the imagination, evoke emotions, and foster a deeper understanding of the cultural and social aspects of humanity. Instead of using art merely as a vehicle to achieve specific educational goals, it seeks to see it as a vector of personal and intellectual enrichment, thus contributing to the formation of students.

From this perspective, the adoption of art as a resource of enchantment gives the class an enriching educational experience, which stimulates the active participation of students and encourages them to proactively engage in the learning process. The intersection between art and education establishes an environment conducive to the development of intellectual curiosity and the construction of knowledge in a meaningful and stimulating way.

PROCEDURE AND DEVELOPMENT OF PEDAGOGICAL PRACTICE

To make the dialogue between music and the teaching of biology, with the intention of addressing the theme of cell theory considering the socio-historical-cultural reality of the students, a constructivist perspective was adopted that sought the joint construction of the concept of cell theory in the classroom environment. This pedagogical approach valued the participation of students in the learning process, allowing them to become active participants in the construction of knowledge, avoiding the mere passive transmission of information. Thus, the class embarked on an interactive and collaborative path, giving greater meaning and relevance to the content covered.

The constructivist practice fostered the development of critical thinking, analytical capacity and intellectual curiosity of the students, encouraging them to be protagonists in the search for understanding and deepening of the themes presented. The integration of multiple perspectives, anchored in the sociocultural reality of the students, provided a richer and more interesting educational environment, enhancing learning and knowledge retention in a more significant way. Therefore, this pedagogical practice aimed to promote a more engaging and effective educational experience, with positive impacts on the students' learning process.

The present pedagogical approach was based on the use of art, more specifically music, as a path of enchantment for the introduction of the theme, considering the relevance of art in education, which is a subject widely discussed in the educational literature. Art is recognized as a form of human expression that enables the creation of new forms of knowledge and understanding of the world, playing a fundamental role in stimulating students' creativity and imagination, making the learning process more captivating and meaningful (Nascimento Júnior, 2010).

Thus, the song "Ideology", by singer-songwriter Cazuza, was selected as a pedagogical resource to start the construction of thought in the classroom. This song was used as a starting point and aimed to contextualize the theme of cell biology, stimulating student engagement, promoting the connection between art and scientific knowledge. The choice of music was a pedagogical decision that aimed to start a dialogue that aligned with the interdisciplinary approach adopted.

One of the authors who defend the importance of art as a pedagogical tool is Lev Vygotsky. In his sociocultural theory, Vygotsky (1978) highlights the importance of art as a form of language that allows the individual to develop his capacity for communication and his understanding of the world.

He argues that artistic forms can be used as a pedagogical practice to promote the cognitive, emotional and social development of students, especially in collaborative and interactive learning contexts, this also applies to musical compositions.

The use of music as a pedagogical resource offers several advantages, as song lyrics can contain metaphors, messages, and reflections that stimulate critical thinking and analysis. In the case of "Ideology", the singer's approach to social and existential issues can allow a debate on aspects related to cell theory and the essential role of cells in the life of living beings. Through the analysis of the lyrics, it is possible to identify excerpts that address topics such as health, disease, human vulnerability and the importance of the proper functioning of cells for the survival of organisms.

By using music, the class became more dynamic and engaging, encouraging the active participation of students, allowing them to express their opinions and interpretations. Through discussions and reflections guided by the teachers in charge, the students were able to develop critical analysis skills, interpretation of complex content and construction of arguments based on the experiences brought by the students in the classroom. In this context, the song "Ideology" was a path to promote a deeper reflection on the importance of cell theory, as well as its implications for the understanding of life and health.

One of the main concerns underlying the conduct of pedagogical practice was to avoid the excessive instrumentalization of art, recognizing its inherent autonomy and valuing it as a genuine expression of human creativity. This idea is shared by several authors, such as Theodor Adorno (1970) and Walter Benjamin (1936), who emphasize the importance of art as a form of resistance and criticism of the dominant society, and warn of the dangers of the instrumentalization of art as a means of controlling and manipulating the masses.

This pedagogical approach, based on the non-instrumentalization of art, reverberates the importance of providing students with the opportunity to explore their expressiveness, creating an enriching environment, in which students can develop their aesthetic sensitivity and critical thinking, deepening their appreciation for multiple artistic manifestations.

At the beginning of the activity, a sheet of paper containing the transcription of the lyrics of the song in question was made available to the students, accompanied by an image of the singer. Then, the students were asked to perform the task of highlighting the excerpts of the song that most caught their attention.

Then, after everyone listened to the song, the students were given another sheet of paper containing relevant news about Cazuza's life and his fight against AIDS.

After reading the new material, the students were asked to highlight the phrases that caught their attention in the news and try to connect them with the music. During the process of preparing the didactic material, a detailed analysis of the song was made, as well as the pertinent news, with the

purpose of establishing a connection between the musical work and the singer's life, focusing on the theme of AIDS.

This path provided a foundation for the joint construction of knowledge with the students, demonstrating the practical application of biology in a sociocultural context. It should be noted that this approach, in line with a thorough analysis of each textual component, gave relevance and meaning to the discussion about the role of cells in the functioning of living organisms, emphasizing the intrinsic relationship between cellular function and the viability of life.

The intersection between the musical theme and AIDS allowed us to contextualize the effects of this disease on the immune system, highlighting the impacts on cellular defense activity. By adopting this pedagogical practice, we seek to promote an understanding of different fields of knowledge to broaden students' view of the importance of the cell in the constitution and maintenance of life, as well as their vulnerability to certain health conditions, such as AIDS.

FINAL CONSIDERATIONS

Considering the nuances explored in the pedagogical practice of the discipline of Biology Teaching Methodology (MEB) at the Federal University of Lavras, a deep reflection on traditional teaching methods and the imperative need for educational innovation emerges. The intersection between Cazuza's song "Ideology" and academic content proved to be a transformative pedagogical strategy, provoking not only the intellectual interest of the students, but also their imagination and sensitivity. In this pedagogical approach, cell theory, a fundamental pillar of biology, has gone beyond the confines of the classroom, deftly intertwining with the artist's life story.

This encounter between scientific knowledge and artistic expression not only allowed for a deeper understanding of cellular principles, but also highlighted the relevance of biology in understanding human health and conditions, as evidenced by Cazuza's fight against AIDS. The practice adopted, based on the historical-critical and historical-philosophical pillars, breaking with the mere transmission of information, provided students with an educational experience that resonated in their personal and social experiences.

The thorough analysis of music and its historical context has not only illuminated the complexities of cell theory but has also instigated deep reflections on social and existential issues, thereby enriching students' understanding of the world around them. In addition, the non-instrumentalized approach to art as a pedagogical resource emphasized not only the importance of music as a vehicle of knowledge, but also its intrinsic autonomy as a form of human expression. This not only respected artistic integrity, but also encouraged students to embrace music as a language through which they could explore and understand complex scientific concepts.

Thus, by breaking through the conventional barriers of teaching, this pedagogical practice stimulated meaningful and lasting learning, challenging students to think critically, to explore the interconnection between disciplines, and to appreciate the richness of artistic expression.

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Pedagogical practices and teaching in rural education: Historical and contextualized reflections

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ABSTRACT

This article is part of the research developed within the scope of the Graduate Program in Education - PPGEdu of UNEMAT and is part of the theme of pedagogical practices aimed at rural education. The present study had a problem question: what are the pedagogical practices and the necessary teaching for an educational practice contextualized to rural education? To answer the question of the study, we established as a general objective to analyze the pedagogical and teaching practices proposed for a contextualized educational practice in rural education. As for the methodological aspects, the research is qualitative and used the techniques of bibliographic research and field observation. Among the main results achieved, we can highlight that the studies of the authors who founded the present research guide so that the educational practices and teaching experienced in rural education are contextualized to the reality of the countryside and the people who live and resist it, in order to guarantee not only educational rights, but also the land and to live on it, staying in the field.

Keywords: Teaching, Rural Education, Initial Training, Pedagogical Practices.

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INTRODUCTION

This article is part of the dissertation elaborated throughout the academic trajectory experienced in the Master's Degree in Education, at the State University of Mato Grosso Carlos Alberto Reys Maldonado. During the course we developed studies on pedagogical practices in rural education, considering that for a contextualized performance, it is necessary that teachers experience in their training processes, experiences that enable them to work in rural education, thinking that it is a modality of education permeated with specificities, which requires both initial training, and the continued one aiming to encompass all the needs and particularities about teaching and learning.

We mentioned the initial teacher training, the graduation, it is the reference space for the initial learning of the profession. On this issue, Gatti (2010) shows that initial training, by itself, does not encompass all the knowledge necessary in teacher training, and is intended to apply this knowledge in the classrooms. Thus, based on a technicist model, some higher education institutions have their work focused on disciplines that sometimes distance themselves from the reality and practice of academics, which can have negative effects on professional life.

Pedagogical practices refer to the actions thought and developed by educators, within the scope of educational spaces, with a view to mediating the construction of students' knowledge. For us, these practices should guarantee the construction and reconstruction of knowledge in a contextualized way with the place and with the knowing subjects. They should serve to value and strengthen the identities of these subjects, aiming at social transformation and quality of life.

Having the specific pedagogical practices for rural education as the object of this article, the problematizing question that we sought to answer with the elaboration of the study was: what are the pedagogical practices and which are the necessary teaching for an educational practice contextualized to rural education?

The present study contributed to the reflection on the pedagogical practices and teaching that have been oriented towards the realization of the educational processes experienced by the subjects in the context of rural education. Thus, through a bibliographic review and field observation, we will bring the conceptions and ideas about rural education, based on authors such as: Caldart (2012), Arroyo (2009), Zart (2014), Carvalho (2020) and others, who from Freire's pedagogy have been developing studies that have greatly contributed to the appreciation of pedagogical practices and teaching that have the field and the people who live in it as the centrality of the process, what we can call rural education. In other words, an education made for and with the people who live in it.

PEDAGOGICAL PRACTICES AND TEACHING IN RURAL EDUCATION

According to Veiga (2012), training should be in line with the social, economic and political context, aiming at strengthening and building proposals that are committed to the inclusion of plural

subjects. In this sense, we enter the universe of possibilities of Rural Education[3] that is permeated by pedagogical practices, which should aim at the transformation of social conditions. In the view of Peripoli and Zoia (2019), the countryside is formed in many spaces by adverse situations of work structures, transportation, road maintenance in rural areas, distances between school and home, and expanded reproduction of life. The adversities of the materiality of existence imply the organization of school spaces, the attitudes of fathers and mothers towards their children, the desires to remain or abandon the countryside, the positions of educators in relation to teaching-learning and the multiple challenges for the development of rural education.

From the assumptions of rural education and the observation of materialities, we investigate and reflect on the conditions and theoretical bases on which it is necessary to think about the educational system that we experience in this context, which comes from fragments of urban education, which ends up becoming an imposition on the peasant environment, a decontextualized and subordinate education, And on top of everything, as mentioned, several structural problems are faced, connected to the low salaries that contribute to the lack of teachers to meet the real needs of school spaces in the countryside.

It is in the midst of these and many other challenges that rural education has been resisting, seeking to conquer a space worthy of survival. A scenario that resists through the claims of social movements that fight for an education that meets the specificities in favor of an education that contributes to the formation of men/women in the countryside. As Zart, Bitencourt and Gitahy (2019) demonstrate, the struggles in defense and the construction of spaces and pedagogical experiences are continuous, of an emancipatory education based on the principles of social organizations, work and the experiences of peasants, from social movements focused on the creation of public policies that deal with better living conditions in the countryside.

One of the movements that marked the struggle for quality education was organized by rural workers in resistance to the expropriation of land, the so-called Landless Rural Workers Movement (MST). Constituted as the largest social movement in the countryside in the country, it began in 1979, consolidating itself in 1990, as the greatest symbol of resistance in the social struggle for agrarian reform in defense of political, economic and educational rights, building the pedagogical educational paradigm beyond the organizational and physical structures of rural schools, since the MST itself, By involving the subjects in the movement, it conceives the opportunity for training in the non-formal educational context, enhancing the claims of cultural reality, work relations and socialization.

[3] Rural Education came to be so named after discussions at the National Seminar held in Brasília in November 2002, approved by the opinion of the National Council of Education (CNE) No. 36/2001, regarding the Operational Guidelines for Basic Education in Rural Schools and with the imprint and expansion of the peasant and union movements involved in this struggle (Caldart, 2012, p. 258).

Teaching practice is built in spaces/times where encounters, disagreements and conflicts occur, weaving relationships that enable the construction of new knowledge of multiple singularities in the formation of plural subjects. When we mention the space of formation of plural rural subjects, we refer to an education that takes place in all spaces of the community, in cultural expressions, in labor relations, as well as in the struggles for public policies that meet their needs for the integral formation of rural subjects.

The school acts as a sphere for the synthesis of knowledge in a decentralized way, so that all the environments and situations that make up the space contribute to human formation in a dialectical way between school, community and society.

The educator acts as a mediator in the process of production and reproduction of knowledge, thus, this must occur from the undergraduate course, as explained by the LDB, when it describes that it is in the initial training that the construction of identity begins, with public policies being primordial to the valorization of teacher training.

When thinking about rural education, initial teacher training and the constitution of the educator's identity to work in the field, we are reminded of the conceptions of Caldart (2012, p. 259), who explains:

> The reality that produces Rural Education is not new, but it inaugurates a way of confronting it. By affirming the struggle for public policies that guarantee rural workers the right to education, especially school, an education that is in/of the countryside.

From the above, we are challenged to think about the importance of initial teacher training that deals with aspects related to rural education, as well as the need for subjects who live in the countryside to have the opportunity to train teachers to work in their communities, as a way of strengthening the identities of subjects who live in the countryside, as well as a form of resistance to the impositions of the curricula and the characteristics of urban education education in/of the countryside.

Arroyo (2009, p. 74) states that "rural workers need to be respected, as they are subjects of rights". In this way, he reiterates that "as subjects of history, of struggles and of intervention as someone who builds, who is participating in a social project". From these reflections, we perceive the need for an education that seeks to understand the reality of the subjects, aiming to meet their specificities.

> The movement for rural education links the struggle for education with the set of struggles for the transformation of the social conditions of life in the countryside; That is why in our meetings we are always concerned with making and helping educators to make a historical reading of the broader reality; and that is why we argue that one of the tasks is to help organize the people so that they participate in this struggle (Caldart, 2011, p. 152-153).

In the pedagogical proposition for a rural education, we start from the proposal about an education beyond the teaching-learning processes based on ready-made content booklets coming from traditional education (banking and capitalist). Our proposal is based on Zart who conceives:

> The field is interpreted by the subjects as a space that is constituted by multiple social configurations. a) Living space, in the sense of *oikos*, constitutes a territory of multiple dimensions and forms a totality that relates the conditions for human diversity to human existence. b) cultural diversity that integrates the tradition, values, beliefs and social practices that configure the territories of rural peoples. c) education that develops the intellectual, technological and organizational perspectives and needs of peasants (2014, p. 128, 129).

From the author's conception, we understand that Rural Education has been resisting, articulating historical experiences in favor of the development of an education focused on its specificities, aiming at an organized work based on the reality of the subjects, scientific knowledge and popular knowledge of accumulated knowledge, in a dialogical and organized way between the field and the school, which must be constituted from the place and the subjects, who are educated in it from the context in which they are inserted.

In this sense, we can mention Freire's pedagogy, which developed in the light of socialist pedagogy, where Paulo Freire materialized it as a reference for rural education. Freire's pedagogy presents as its main proposal the formation of subjects from materiality and unveiling a new look at the relationship between educator and student.

According to Carvalho, "Paulo Freire's theory of education contributes in a relevant way to the development of human thought and praxis in the sense that men and women assume the role of subjects in the relationship of the unveiling of the world-consciousness" (2020, p. 19). For the author, this thought is linked to the position that the educator needs to adopt in relation to the importance of the experiences lived in the daily life of the student as a source of reflection for the construction of knowledge. We seek to understand this proposition, beyond the construction of knowledge, also understanding it in the construction of the school institution in the countryside, in which this knowledge is built.

For Freire, emancipatory education needs to go against the capitalist pattern in the process of human interrelation. In his book "*The Pedagogy of the Oppressed*" the author brings deep reflections on the social relations of power and authoritarianism that are developed in capitalist society, which are projected into the school environment causing damage to the teaching/learning process.

> The violence of the oppressors, which also makes them dehumanized, does not establish another vocation - that of being less. As a distortion of being more, being less leads the oppressed, sooner or later, to fight against those who have made them less. And this struggle only makes sense when the oppressed, when seeking to recover their humanity, which is a way of creating it, do not feel idealistically oppressors, nor do they become, in fact, oppressors of the oppressors, but restorers of humanity in both (Freire, 2005, p. 32).

According to Freire, for education to be consolidated in the principles of a liberating education, it is necessary to break with the barriers of the capitalist pattern, otherwise this formation of oppressive and oppressed subjects will continue, where the educator acts as the holder of knowledge and the learner as a mere passive receiver.

In the process of formation of knowing subjects, according to Freire's pedagogy, the life experience, the empirical knowledge of the learner cannot be rendered useless, so that it will also be part of the process of knowledge construction.

According to Gadotti (1995), based mainly on socialist pedagogy, as well as on the pedagogy of the oppressed, rural education has been consolidating itself as a space for the production of knowledge for transformations based on praxis in a dialogical way.

For Carvalho (2020), the encounter with the elaborated knowledge that the educator and student subjects is challenged to be amazed, admired and asked about themselves and reality, and consequently, to develop the ability to think reflectively.

> If it is true that education alone cannot bring about social transformation, it also means that its struggle must extend beyond the walls of the school, it must not be limited to its campus [...] if tomorrow a transformative education is possible, it is only because, today, within a conservative education, the elements of a new education, of another, liberating education, they were formed within this education (Gadotti, 1995, p. 76, 77).

In this way, we understand the school as a space for problematizing the reality experienced by the rural subject. For Zart, "the social subjects of the countryside must have adequate skills of understanding and action in the reality of the countryside, enabling sustainable development. The question is to know whether the education that is in the countryside affirms or denies the possibilities of adequate practical-intellectual formation of the subjects of the countryside" (2014, p. 135).

Based on Zart's (2014) statement, we are provoked to reflect on the formation of the subject in the field, and we agree that it needs to enable these subjects to think critically, and from the reflection on their own reality to be able to intervene in the social environment in which they live, seeking to transform and transform themselves. However, we cannot fail to mention that the school is a fundamental element in the mediation process in the formation of the knowing subject, a means that enables paths for the appropriation of systematized knowledge.

Bringing important arguments about our previous expositions, Caldart (2005) exposes that the school has a specific place in rural education, and for it:

> To understand the place of the school in rural education is to be clear about what human being it needs to help form and how it can contribute to the formation of the new social subjects that are constituted in the countryside, today the school needs to assume its universal vocation of helping in the process of humanization with the specific tasks that it can assume in this perspective (Caldart, 2005, p. 30).

From the author, it is understood that the school has the social function of promoting the insertion of social subjects in the articulation of necessary knowledge, aiming at the transformation of space as a space for the production of knowledge occupied by workers, seeking the realization of basic social rights, in the sense of human emancipation. For us, this is the great challenge to be faced in the teaching process. In this regard, Zart (2014) states:

> The countryside as a space of education: "of the need for the education of the man and woman of the countryside, to keep them in the countryside as a socially viable life", not the education that alienates them, that takes the worldview of the city to the countryside and that promotes the departure of men and women, especially young people from the countryside, but rural education, which affirms the culture, symbology, and language of the countryside, and translates peasant culture into a project of integral development of the countryside, which associates rural education with peasant ecology and economy (Zart, 2014, p. 131-132).

From the author's idea, it is understood that rural education is the result of interventional actions, thought by rural subjects, based on the reality of the place in which they live and are constituted. From these reflections we understand the need for an articulated planning between theory and practice, in which the teaching-learning process must be planned seeking theoretical understanding, approaching pedagogical practice aiming at social transformation.

We cannot fail to mention the importance of the Pedagogical Political Project (PPP) and the construction of the curriculum, in the training process, so that it is in line with the paradigm[4] of rural education, since its development is carried out collectively, of local culture and knowledge, in the reflection carried out by Ribeiro, Silva, Biano and Zart (2023) the collective of educators build action plans based on local identities, in customs, in the values of the community, in the forms of organization of work, in the relationship with nature. The complexity of the themes elevates the pedagogical organization to the needs of interdisciplinary epistemological training, because, as we have already mentioned, the process of formation based on the materiality of the subject provides opportunities for reflection-action in numerous spaces and is not restricted only to the school context. The open, democratic and participatory rural school enables reflections on overcoming the exploited work for the construction of organizational and formative processes of associated work.

Rural education must contemplate this context of multiple singularities with the main focus on the formation of the subject based on his/her needs in an integral way, on this, Severino (1944) mentions that the rural school presents its pedagogical matrix from a perspective of work as a trainer in the human dimension, so that the student is able to produce and transform the environment in which he/she is inserted.

[4] The paradigm of rural education is a construction carried out from the social movements, which took place at the end of the twentieth century, bringing a new look to the education of peasants, inserting this reality in the political agenda, instructing the government to create programs as well as educational policies.

From this perspective, Molina and Sá (2012) address that one of the great challenges in favor of the transformation of the rural school is the resignification of scientific knowledge so that it becomes pertinent to the reality of the students based on the development of potentialities aiming at critical autonomy in the face of their reality.

This resignification reveals itself as a strategy of incorporation of the teaching-learning processes, based on the social reality of insertion, aiming to overcome fragmented knowledge, enabling the construction of knowledge from the perspective of organic intellectual formation.

> The intentionality of a project for the formation of subjects who critically perceive the socially accepted choices and premises, and who are capable of formulating alternatives for a political project, attributes to the rural school an important contribution to the broader process of social transformation. It poses the challenge of conceiving and developing a counter-hegemonic education, that is, of formulating and executing an education project integrated with a political project of social transformation led by the working class, which requires the integral training of rural workers, to simultaneously promote the transformation of the world and human self-transformation (Molina and Sá 2012, p 327).

Thus, to speak of rural education from the perspective of the emancipation of the subject is to be faced with a range of possibilities with regard to the planning of pedagogical practices, so that each people/community/school has its specificities, which demand different problematizations. Thus, planning will be in constant mutation because knowledge will never be ready, it will be resignified according to the training needs of the subjects themselves. About this dynamic, Caldart states that:

> On the level of pedagogical praxis, Rural Education projects a future when it recovers the essential link between human formation and the material production of existence, when it conceives educational intentionality in the direction of new patterns of social relations, through the links with new forms of production, with free associated work, with other values and political commitments to social struggles that confront the contradictions involved in this process (Caldart, 2012, p. 263).

The author also addresses the importance of fostering training based on practices pedagogically woven into the modes of production, organization and subsistence; peasant agriculture, agroecology, collective work, in the reform of agricultural cooperation, in areas of agrarian reform, social inequalities, etc. For her, this education proposes a heterogeneous education, marked by "human life mixed with land, with sovereign production of healthy food, with a relationship of respect with nature of non-exploitation between generations, between men and women, between ethnicities" (Caldart, 2012, p. 263). In this sense, Franco (2015) addresses pedagogical practices as an instrument for the realization of educational intentionality:

> Pedagogical practices are those practices that are organized to fulfill certain educational expectations. These are practices loaded with intentionality and this occurs because the very meaning of praxis is configured through the establishment of an intentionality, which directs and gives meaning to the action, requesting a planned and scientific intervention on the object, with a view to transforming social reality (Franco, 2015, p. 4).

The propositions of rural education presuppose a critical analysis of political hegemony and the constitution of the collective of subjects, so that the dialogical exercise is ensured. Freire defends the dialogical pedagogy, therefore, of the "use of the word, of the dialogue mediated by nature as opposed to the pedagogy of silence of banking education" (1987, p. 58). Frigotto argues that:

> The school, therefore, will have a revolutionary role to the extent that it builds by a dialectical historical materialist method, starting from the concrete subjects, with their culture, knowledge and common sense, critically dialoguing with the existing heritage of knowledge - the scientific bases that allow us to understand how the phenomena of nature and social relations are produced (Frigotto, 2012, p. 270).

Rural education is constituted from the concrete subjects, from the conjunction of forces between communities, social movements and higher education institutions committed to the process. It is worth emphasizing the important role of educators in the school/educational/social environment in this process of social transformation, based on a collective effort.

> In order for the rural school to contribute to the strengthening of the resistance struggles of the peasants, it is essential to guarantee the political-pedagogical articulation between the school and the community, based on the democratization of access to scientific knowledge. The appropriate strategies for the cultivation of this participation should promote the construction of collective spaces for decision-making on the work to be carried out and on the priorities of the communities in which the school may have contributions (Molina; Freitas, 2011, p. 26).

The strengthening generated from the democratization of scientific knowledge enables the teaching-learning process on solidified bases, providing systematized knowledge from the interrelationship between school and community.

To this end, it is necessary that educator and student understand each other, build themselves as subjects in the composition of this process of liberation, co-creating the conditions of learning based on social and political emancipation. An education committed and carried out in a dialogical way, makes it possible to break the paradigm of an education that liberates, breaking with the armor of banking education based on technicality that collaborates with the structure of social class inequalities.

For Carvalho (2020), from the perspective of Freire's thought, the educator is a historical being who remakes himself in the search to be more.

> The educational practice of the educator is a pedagogical act that is rooted in the commitment to the world and to life in the perspective of transforming it into an environment of full coexistence for all. As a historical being who makes and remakes himself or herself socially, the teacher in his or her social experience is what constitutes the condition of being more in the movement of the historical process (Carvalho, 2020, p. 20).

The author also brings, in line with Freire's thought, the reflection of the subject as an unfinished being that permeates the permanently indeterminate and constantly moving world. When

we reflect on the incompleteness, we are referring to the constant change in teaching/learning, where there will always be room for growth and change, considering the historicity in the training process; From this perspective, the educator positions himself or herself as a mediator of the knowledge of the knowing subjects. According to Carvalho (2020), "in historical experience, they become aware that they are responsible subjects capable of inventing the world of existence".

> Education is a requirement of the awareness that the human being is being and constituting himself in the world of life. It is through awareness, an act of reflection, a unique dialectical process that connects consciousness and action, that human beings problematize the world and seek answers to the questions that arise in consciousness (Carvalho, 2020, p. 20, 21).

Problematization is a determining factor for the development of critical and constructive awareness, gnosiological education is built by the subjects involved in the teaching/learning process in a participatory way, so that learning happens in a dialogical way, for Freire:

> Problematizing education, which is not reactionary fixism, is revolutionary futurity. Hence it is prophetic and, as such, hopeful. Hence it corresponds to the condition of men as historical beings and to their historicity. Hence they are identified as beings beyond themselves — as "projects", as beings who walk forward, who look forward; as beings to whom immobility threatens death; for whom looking back should not be a nostalgic way of wanting to return, but a way of better knowing what they are being, to better build the future (Freire, 2013, p. 102).

When we reflect on education as revolutionary in the process of formation of historical subjects, we cannot help but question ourselves about the pedagogical theories and practices in the teaching-learning process. According to Carvalho, "theoretical-methodological training is a fundamental instrument for the educator to understand the foundation of the organization of pedagogical work capable of reinventing educational practice" (2020, p. 37).

Freire brings us in his approach to the pedagogy of autonomy, the importance of narrowing the relationship between teacher and student with a focus on the formation of the individual as a being who thinks about his own existence and problematizes the world in order to seek to modify it, this entire context of formation is based on dialogue. This way of thinking and doing education is contrasting with banking education where teachers transmit knowledge and students only receive and reproduce the content without reflection.

Emancipatory education deals with the formation of the student in an integral way and the educator acts as a mediator in the construction of knowledge where theory and practice dialogue, enabling conscious actions aimed at individual and collective growth, in favor of liberating actions generated from reflection-action, promoting conditions and skills for daily experiences. For Freire:

> When we try to enter into dialogue as a human phenomenon, something is revealed to us that we can already say is itself: the *word.* But, when we find the word, in the analysis of

> dialogue, as something more than a means for it to take place, we are also required to seek its constitutive elements (Freire, 2013, p. 108).

The word based on dialogue is about the constitution of knowledge pertinent to the emancipatory practice and for there to be something to do in the sense of transformation, this walk needs to be complacent with the needs of transformation of the subjects.

> The teacher's behavior as a facilitator, encourager, or mediator of learning, understood as pedagogical mediation, is what will make a difference in the student life of the whole society, no matter the teaching segment in which this professional is working, it is he who will make a difference in the formation of the critical, participative, and transforming student (Sacramento and Rodrigues, 2024, p.4).

We reflect on this process of formation in which theory and practice develop in a linear way, inseparable, thus becoming praxis of reflection on action in a dialectical way, disposing educators and educating them to a context of transformation, with capacities to intervene in the world. "This search leads us to surprise, in it, two dimensions: action and reflection, in such a solidary way, in an interaction so radical that, sacrificed, even in part one of them, the other is immediately resented. There is no true word that is not praxis" (Freire, 2013, p. 109).

Thus, with regard to the incorporation of theory and practice, we refer to the image of the pedagogical practices carried out in the school context and, simultaneously, this image is linked to the other resources used to assist the development of methodologies, such as; blackboard, chalk, books, notebooks, pencils, erasers, media, etc. The school becomes the place of reference, being the disciplinary space for the acquisition of experiential knowledge or practice.

> The pedagogical practice is configured in a dialogical space. The first determination of mediation to teach is to sit down, placing oneself in the condition of equality so that dialogue with the other occurs. To connect to dialogue, it is important to develop the ability to listen, so that one can apprehend and understand the meaning of the content that mediates the act of teaching (Carvalho, 2020, p. 22).

In addition to the classrooms, we discuss pedagogical practices, seeking to understand this concept. According to Franco "it is only possible to judge a concept for pedagogical practices when the conception of pedagogy, of teaching practice, fundamentally, the epistemological relationship between pedagogy and teaching practice is defined a priori" (2016, p. 7). According to the author "there are pedagogically constructed teaching practices and there are teaching practices constructed without the pedagogical perspective, in a mechanical action that disregards the construction of the human" (Franco, 2016, p. 2).

The teaching practice built on a mechanical action, disregards the subject's history, and can be disconnected from his reality, leading to the submission of technicism; An example of this is the

textbooks offered by the government, which are inserted in the rural school, completely out of the reality of the subjects.

By dialoguing about pedagogical practices, we enter a universe of possibilities for reflection-action, which aim at the transformation of the subject and social contexts; We are not referring only to the school context, in view of the above, when the author refers to teaching, she uses the terms "educational class and/or meeting", and the second may refer to a space beyond the school environment.

> It will become a pedagogical practice when it is organized around intentionalities, as well as in the construction of practices that give meaning to intentionalities. It will be pedagogical practice when it incorporates continuous and collective reflection, in order to ensure that the proposed intentionality is made available to all; it will be pedagogical as it seeks the construction of practices that ensure that the referrals proposed by the intentionalities can be carried out (Franco, 2016, p. 2).

Thus, pedagogical practice, as an educational praxis, is configured as a participatory and conscious action in its multidimensional sense of teaching and learning. In the ontological sense, pedagogical practice "is a set of social practices that act and influence the lives of the subjects, in a broad, diffuse, and unpredictable way. In turn, Pedagogy can be considered a social practice that seeks to organize/understand/transform the educational social practices that give meaning and direction to educational practices" (Franco, 2016, p. 3).

We can see that the concept of practice studied here is followed by praxis, but it is of paramount importance to discuss such concepts in order to show that it is not the same thing, but an interrelation in which one gives a broad meaning to the other; the practice followed by praxis "is configured through the establishment of intentionality, which directs and gives meaning to the action, requesting a planned and scientific intervention on the object, with a view to transforming social reality" (Franco, 2015, p. 5). Thus, we understand that praxis is a reflexive action, which makes the pedagogically woven practice permeated by intentionalities and continuous reflection with liberating action.

> Human nature is not given to man, but is produced by him on the basis of biophysical nature. Consequently, educational work is the act of producing, directly and intentionally, in each singular individual, the humanity that is historically and collectively produced by the group of men (Saviani, 1994, p. 6).

For Saviani, the act of producing comes from a historical process, that is, objective knowledge is historically produced in a collective way. We follow our understanding of pedagogical practices, based on what we understand about the pedagogical term, know-how and enabling the production of knowledge for emancipation from practice. According to Franco (2016, p. 16), "Pedagogy as a social

practice, which offers/imposes/proposes/indicates a direction of meaning to the practices that occur in society, highlighting its eminently political character". For Saviani:

> This know-how cannot be a moment that precedes the political horizon, on the contrary, it is already a concretion of a certain political line. All know-how contains a certain vision of the world and is a political act in which certain general social intentions are concretized (Saviani, 1991, p. 41).

In this sense, pedagogy is understood as a process of organization/enhancement and interpretation of the intentions of an educational project. We are dealing with an approach to critical-emancipatory epistemological pedagogy, which Franco "considers to be Pedagogy as a social practice conducted by a reflective thought about what happens in educational practices, as well as by a critical thinking of what educational practice can be" (2016, p. 4). In the sense of dialectical praxis:

> Pedagogical practices are carried out as supports for teaching practice, in a continuous dialogue between subjects and their circumstances, and not as reinforcements for practice, which would cause it to lose its ability to construct subjects (Franco, 2016, p. 4).

We understand pedagogical practices as a process that is organized in an intentional way in order to meet certain necessary educational demands, for a certain space of formation, considering the social reality in a dialectical way, in a space of contradictions aiming at its transformation. According to Zart:

> Change is not only manifested in the practical action of everyday life, but is registered in the gestures, words and concepts applied. The comprehension of language is fundamental to understand the relationship of adaptability or contestation of the socioeconomic structure and the pedagogical practice exercised by the cultures that are established in society (Zart, 2008, p. 4).

From the perspective of training for social transformation, the author reflects on the importance of understanding space and culture, so that this adaptability refers to a process of change accompanied by a corresponding educational praxis. Zart also ponders on the importance of not "deluding oneself with the rhetoric that desires social transformations, imagining that these are transformative just because the words "transformation" and "change" appear, so that for there to be change/transformation it is necessary to take into account the contexts full of signifiers that make explicit the contradiction, the relations and the historical movements where the subject is not detached from the praxis. For Kosik

> Praxis is active, it is an activity that is produced historically - that is, that is continuously renewed and practically constituted - the unity of man and the world, of matter and spirit, of subject and object, of product and productivity. As human-social reality is created by praxis, history presents itself as a practical process in the course of which the human is distinguished from the non-human (Kosik, 1969, p. 205).

According to Franco (2015, p. 5), "in praxis, intentionality governs the processes. For Marxist philosophy, praxis is understood as the dialectical relationship between man and nature, in which man, by transforming nature with his work, transforms himself."

> It should be emphasized, therefore, that praxis allows man to conform his conditions of existence, transcend them and reorganize them. Only the dialectic of the movement itself transforms the future and this dialectic carries the essentiality of the educational act: collectively organized intentionality and in continuous adjustment of paths and practices (Franco, 2015, p. 6).

Pedagogical practices are the guiding thread of training/transformation, so that teaching-learning in a dialogical process, as opposed to the antidialogical, requires reflection and action from the educator. Thus, it is necessary to describe a few lines in this regard, according to Freire "the antidialogical, dominant, in his relations with his opposite, what he intends is to conquer him, more and more, through a thousand forms" (2013, p.191).

We can understand that this process of conquest is revealed from an objective of domination and oppression, contradictory to the dialogic that aims at liberation. For Freire, "one is not antidialogical or dialogical in the "air", but in the world. One is not antidialogical first and oppressive later, but simultaneously" (Freire, 2013, p. 191). Anti-dialogicity imposes itself in an oppressive way, oppresses not only in the economic sense, but also in the cultural sense, stealing the essence by removing the capacity of expression of the word and culture.

When we mention the dialogic, we are reflecting on the formation of the subject in his/her potential for communication, interaction and sharing of knowledge, as well as his/her decision-making skills, aiming at his/her humanization through the practice of dialogue, thus exercising respect for the other in a democratic way.

> For the educator-learner, dialogical, problematized, the programmatic content of education is not a donation or an imposition – a set of reports to be deposited in the students – but the organized, systematized and added return to the people of those elements that they have delivered to them in an unstructured way (Freire, 2013, p. 116).

For Franco, "the absence of reflection, exaggerated technicality, disregard for the processes of contradiction and dialogue can result in spaces for the stifling of the capacities to discuss/propose/mediate didactic conceptions" (2015, p. 7). The awareness of the importance of developing a praxis resulting from a dialectical movement in the relationship of knowledge, structures the teaching-learning process, as Franco (2015, p. 5) considers:

> I believe that pedagogical practices should be structured as critical instances of educational practices, in the perspective of collective transformation of the senses and meanings of learning. The teacher, in the exercise of his teaching practice, may or may not exercise pedagogically. In other words, their teaching practice, in order to become a pedagogical practice, requires at least two movements: that of critical reflection of their practice and that of awareness of the intentionalities that preside over their practices (Franco, 2015, p. 5).

In this way, we understand that knowledge makes a movement between teaching practice and pedagogical practice that translates into a challenge for educational action based on reflection. To discuss the construction of an intentional, critical and reflective practice is to enter into a multiple and provocative field, since it enters into the issue of the subjectivity of the individual, as a knowing being, as a human and social being.

We agree with Kosik when he states that " man's praxis is not a practical activity opposed to theory; it is the determination of human existence as the elaboration of reality" (1969, p. 205). Thus, the pedagogical practice is so diffuse as to establish relationships with other sources of knowledge to support the teaching knowledge, enabling them to be made aware, rethought and reconstituted before it, and in a dialectical condition, to modify it. Saviani (1991) understands "the nature of education as a necessary element for the formation of humanity in each singular subject".

> The understanding of the nature of education as a non-material work, whose product is not separated from the act of production, allows us to situate the specificity of education as referring to knowledge, ideas, concepts, values, attitudes, habits, symbols under the aspect of elements necessary for the formation of humanity in each singular individual, in the form of a second nature, which is produced, deliberately and intentionally, through historically determined pedagogical relations that are established between men (Saviani, 1991, p. 38).

We understand that the historically determined pedagogical relationships permeate the practice of the educator to mediate the teaching-learning process, considering the knowledge, experiences and previous knowledge of the students. The pedagogical practice indissociated from the reality of the context of insertion of the subjects enables the development of knowledge aimed at social transformation.

By taking a position on emancipation based on Freire, we are willing to reflect on the relationship between political education and emancipation. For Freire, this triad is necessary in the elevation of the educational potential articulated through practice as an engagement of social issues that deal with the formation of subjects as knowing beings. It should be noted that this formation/transformation does not occur only through the educational practice that comprises this or that objective material need through collective praxis, this scenario encompasses essential factors in the intrinsic relationship between politics and education, this time, there is no empty political practice of educational practice, nor neutral education. Thus, from Freire's point of view, the role of the critical educator is to teach and challenge, problematizing the concrete existential situation for the learner, emancipation is a process of human, cultural, political and social liberation of those to whom they dedicate teaching-learning in a dialogical and committed way.

FINAL CONSIDERATIONS

Based on the study that aimed to analyze the pedagogical practices and teaching proposed for an educational practice contextualized to rural education, from a bibliographic study and field observation, it was possible to understand that rural education is a modality of education aimed at people who live in the countryside and that its realization must be contextualized to the reality of the countryside and the people who live in it and resist, in order to guarantee not only educational rights, but also rights to the land and to live on it, remaining in the countryside as a space for living, working and culture, because in recent decades there have been many dominant forces, which aimed to remove the subjects from the countryside and force them to reside and constitute themselves in urban environments.

This education has been thought of over the last few years, based on paradigms that need to be overcome, such as the attempt to adapt urban education to rural areas, the search for overcoming the challenges found in the context of rural schools, both in terms of material and human resources.

It was also possible to understand that this thinking of an education contextualized to the countryside and the people of the countryside is rooted in the perspective of the participation of social movements such as the MST and Agrarian Reform, in the struggles woven for an education that contemplates the particularities of the countryside and the people, which is capable of strengthening the identities of these subjects, enabling them to be active in the construction of their own education and the practices designed and carried out for them and with them.

Thinking specifically about the pedagogical practices and teaching guided by the authors who brought theoretical arguments to our study, it is possible to conclude that they are based on Freire's pedagogy, which emphasizes the need to value what is significant for the subjects of educational practice, with a view to contributing to the valorization of autonomy and the overcoming of oppression. having as a perspective that education can be liberating or oppressive, and that breaking with oppression should be a daily and constant search, without, however, transforming the oppressed into an oppressor, but in a relationship that actually allows breaking the cycle of violence.

However, for this, among other necessary changes, that the training institutions are located beyond theory, evidencing the complexity of the school routine, guiding in a critical and reflective way, enabling the future teacher to have a training that helps him or her to deal with the various modalities of education, as well as the multiplicity of students, and their countless ways of learning, seeking not to detach them from the contexts in which they are inserted.

In this perspective, an initial training that contemplates in a broader way the construction of knowledge focused on education in/from the countryside is a pressing need, in addition to the importance of providing people who live in the countryside with theoretical training, academic and

professional practice, aiming at professional educational performance in rural areas, as a way of valuing the identity of rural subjects, strengthening the much-needed education for rural subjects.

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Crisis management: A priority on the school board's agenda

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ABSTRACT

This article addresses the importance of crisis management in educational institutions, highlighting it as a crucial priority on the agenda of school management. Throughout the study, practices and strategies for preparedness, response, and recovery in the face of adverse situations, such as natural disasters, incidents of violence, and pandemics, are explored. The analysis underscores the relevance of effective communication, competent leadership, and emotional support in building the resilience of the school community. The overall objective of this work is to critically examine crisis management approaches and provide recommendations for the implementation of effective plans that ensure the safety, educational continuity, and well-being of students and staff. By integrating these practices into the school board's agenda, institutions will be better prepared to face unforeseen challenges, strengthening their responsiveness and adaptability in the face of emerging crises. This study highlights the need for a proactive and integrated approach to crisis management, which includes staff training, transparent communication, empowered leadership, and emotional support. By adopting preventive measures and long-term strategies, schools can build a culture of preparedness and resilience that benefits the entire school community. Thus, investment in crisis management not only protects the lives and well-being of those involved, but also strengthens the foundations for quality and sustainable education in an ever-changing world.

Keywords: Crisis management, Educational institutions, Preparation, School resilience, Educational leadership.

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INTRODUCTION

Crisis management in educational institutions has become an increasingly relevant topic in the contemporary educational scenario. With the increasing complexity of the challenges faced by schools, from safety issues to pandemic management, the ability to respond effectively to adverse situations is crucial. According to Silva (2021), "crisis preparedness is essential to minimize negative impacts and ensure the continuity of educational activities". In addition, Fernandes (2020) highlights that "school leadership needs to be prepared to make quick and informed decisions in times of crisis, which requires adequate planning and training".

The general objective of this article is to analyze the importance of crisis management in educational institutions and to highlight the need to incorporate it as a priority in the agenda of school management. This study seeks to identify best practices and strategies for preparedness, response, and recovery in crisis situations, as well as to explore the impact of effective communication, competent leadership, and emotional support on the resilience of the school community. In addition, the article aims to provide recommendations for the implementation of effective crisis management plans that ensure the safety, educational continuity, and well-being of students and staff.

The importance of crisis management in school management cannot be underestimated. As Oliveira (2019) states, "schools that have a well-structured crisis management plan are better equipped to protect their students, staff, and the school community as a whole." Thus, incorporating crisis management into the school board's agenda is an imperative necessity, aiming not only at safety, but also at the resilience and sustainability of the institution.

Crisis management in educational institutions goes beyond a simple response to emergencies; It involves preparedness, risk mitigation, effective communication, and recovery. In recent years, events such as natural disasters, incidents of school violence, and the COVID-19 pandemic have highlighted the need for schools to be ready to address a wide range of crises. According to Menezes (2022), "the resilience of schools depends on their ability to anticipate and plan for crises, as well as their ability to respond in a coordinated and efficient manner". The integration of crisis management into the school board's agenda is not only a matter of safety, but also of social responsibility and educational leadership. Lima (2021) states that "proactive leadership in times of crisis reflects the school's ability to maintain a safe and learning environment, even in the face of adversity". This involves creating clear protocols, continuously training teachers and staff, and establishing transparent and effective communication channels with parents and the community.

In addition, crisis management should be seen as an essential component of the professional development of school managers. According to Costa and Almeida (2020), "the training of school leaders must include crisis management skills so that they can lead their schools with confidence and

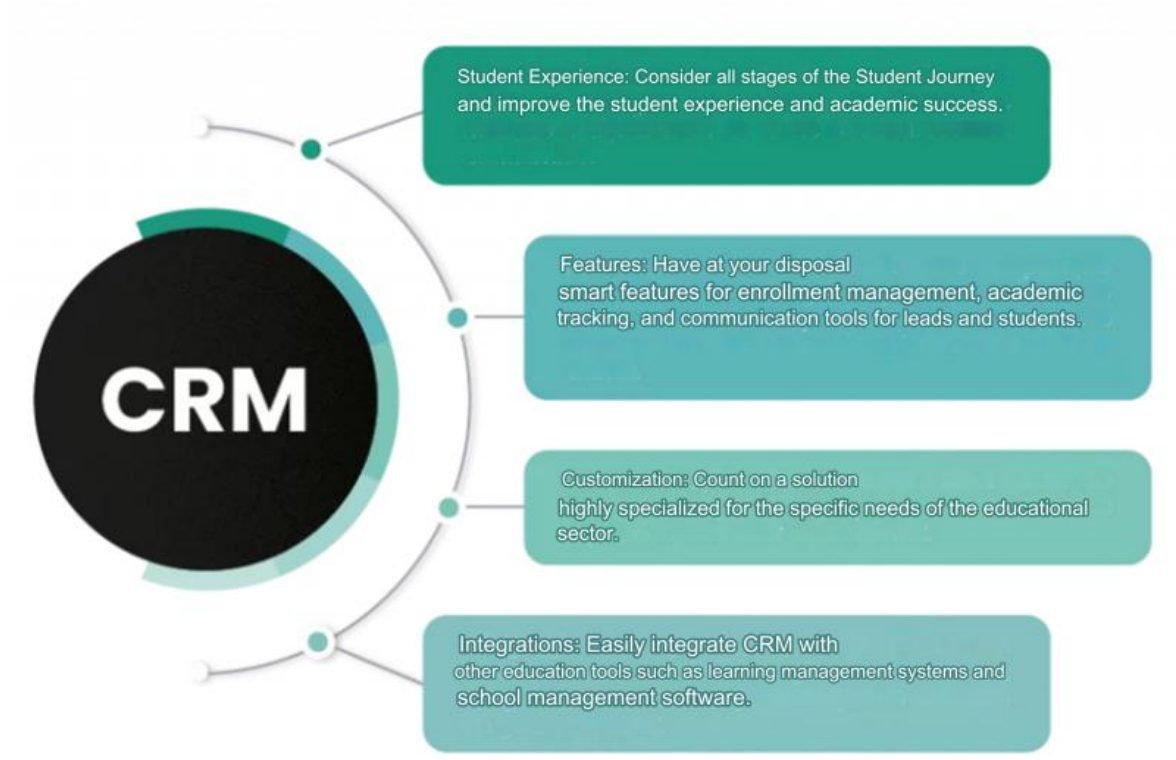
clarity during critical situations". The implementation of well-defined crisis management practices also contributes to building a more resilient and collaborative school culture.

In short, incorporating crisis management into the school board's agenda is critical to ensuring not only the physical safety but also the emotional and psychological well-being of the entire school community. As Pereira (2021) points out, "adequate crisis preparedness strengthens the community's trust in the school and demonstrates a commitment to educational protection and continuity". Therefore, crisis management should be a central priority in school administration, reflecting a strategic and holistic approach to addressing the challenges of the contemporary world.

USE OF DATA ANALYSIS TOOLS TO MONITOR STUDENT PROGRESS AND IDENTIFY PATTERNS OF BEHAVIOR

By identifying the signs described above, educational institutions should intervene and provide the necessary support to students at risk of dropping out. An effective approach to student identification and monitoring involves the use of data analysis tools, such as a good educational CRM.

In short, an educational CRM (Customer Relationship Management) is a powerful tool to combat student dropout. It is a management system that allows educational institutions to collect, organize, and analyze data about students, providing a more complete picture of their academic progress and behavior.



Explanatory image

WHY DO EDUCATIONAL INSTITUTIONS NEED TO ACT (WELL) IN TIMES OF CRISIS?

Educational institutions need to perform well in times of crisis for several fundamental reasons that impact safety, educational continuity, community trust, and school resilience. Below are some detailed reasons:

Safety and Security of Students and Staff

A school's primary responsibility is to ensure the safety of its students and staff. In times of crisis, such as natural disasters, incidents of violence, or pandemics, the ability to respond quickly and effectively can save lives and minimize damage. According to a study by Silva and Andrade (2021), "an adequate response to crises can significantly reduce risks and protect members of the school community".

Educational continuity

Crises can interrupt the educational process, affecting students' learning and development. Effective action in times of crisis allows schools to maintain the continuity of educational activities, whether through face-to-face or remote classes. According to Oliveira (2020), "a well-designed crisis management plan helps to ensure that education is not interrupted, even in adverse situations".

Community trust

The way a school deals with crises directly affects the trust that parents, students, and the community at large place in the institution. Effective crisis management demonstrates competence, responsibility and care, strengthening the relationship between the school and its community. Lima (2019) highlights that "trust in school management is crucial for cooperation and the continuous support of families and the community".

Resilience and Resilience

Schools that are well prepared to face crises demonstrate a greater capacity for recovery after the event. This involves not only resolving the crisis immediately, but also implementing long-term strategies to deal with the consequences and prevent future occurrences. Costa and Silva (2022) state that "institutional resilience is built through constant preparedness and effective crisis response".

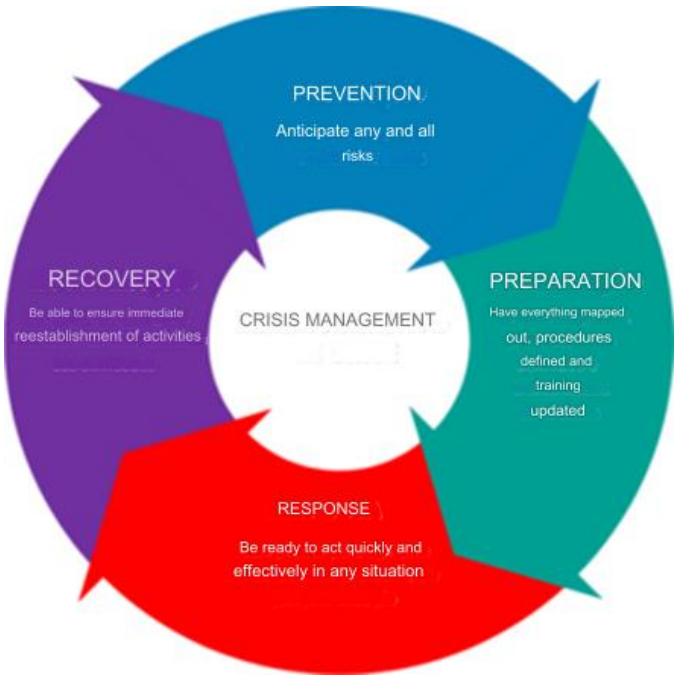
Development of Leadership Competencies

Facing crises effectively also contributes to the development of leadership skills among school managers. The ability to make quick and informed decisions, communicate efficiently, and coordinate response actions are essential competencies for leadership in times of crisis. According to Pereira (2021), "school managers who are well prepared for crises are better able to lead their teams and ensure the well-being of the school community".

Compliance with Regulations and Regulations

Often, educational institutions are required to comply with specific regulations and regulations related to crisis management and security. Acting well in times of crisis ensures that the school complies with these legal requirements, avoiding penalties and ensuring a safe and regulated environment for all.

The effective performance of educational institutions in times of crisis is crucial to protect the lives and well-being of students and employees, ensure educational continuity, strengthen community trust, develop institutional resilience, improve managers' leadership skills, and ensure compliance with legal regulations. Proper crisis preparedness and management are therefore indispensable for the sustainability and success of schools in an increasingly uncertain and challenging world.



SOURCE: Bdone

The first notion that is usually had of crisis management is that it is about acting to combat negative coverage in the media. Yes, it fulfills this function, but we could say that it is the tip of the iceberg, because crisis management involves a deep approach. It is a process that permeates the entire organization to prevent or reduce the damage that a crisis can cause, with the main objective of protecting and preserving reputation.

METHODOLOGY

The methodology used for the production of this study was bibliographic research, carried out in a virtual environment, with articles available and e-books on reliable websites, with scientific content.

Bibliographic research, or secondary sources, covers all bibliography already made public in relation to the subject of study, from individual publications, bulletins, newspapers, magazines, books, researches, monographs, theses, cartographic material, etc. [...] In this way, bibliographic research is not a mere repetition of what has already been said or written about a certain subject, but provides the examination of a theme under a new focus or approach, reaching innovative conclusions (Lakatos, Marconi, 2010, p.166).

Articles that did not correlate with the descriptors were excluded. After the exclusion, an analytical reading was carried out that resulted in the theoretical foundation of this study, presented in results and discussions and subdivided into titles.

The conclusions, including some proposals and the authors' impressions, can be found in the final considerations.

RESULTS AND DISCUSSION

The analysis of crisis management practices in educational institutions revealed several trends and critical points that highlight the importance of adequate preparation and an efficient response to adverse situations. The research indicated that schools with well-established crisis management plans and regular training for staff were able to respond more effectively to emergencies, minimizing negative impacts and resuming educational activities more quickly. For example, a study conducted by Silva and Andrade (2021) showed that "schools with clear and well-communicated safety protocols had a 30% reduction in serious incidents during crises, compared to those without such measures". In addition, Lima (2019) found that "the trust of the school community has increased significantly in institutions that have demonstrated competence in crisis management, reflected in greater participation and support from parents".

Another relevant finding was the relationship between the training of school leaders and effectiveness in crisis management. Pereira (2021) highlighted that "managers who received specific training in crisis management were better able to make quick and informed decisions, in addition to efficiently coordinating response actions". This corroborates the importance of including crisis management as a central component in the training of educational leaders. The results of this research confirm the premise that crisis management should be a priority on the agenda of the school board. Evidence suggests that well-prepared schools are more resilient and able to protect their students and staff, as well as ensure the continuity of educational activities in adverse situations.

The positive relationship between the presence of crisis management plans and the reduction of negative impacts highlights the importance of clear protocols and regular training. According to Silva and Andrade (2021), "continuous preparation and the existence of structured plans are crucial for risk mitigation and effective response to crises". This finding reinforces the need for investments in training and development of crisis management strategies.

In addition, the trust of the school community is a critical aspect that should not be underestimated. As Lima (2019) pointed out, "the demonstration of competence in crisis management strengthens the relationship between the school and its community, essential for mutual support in times of crisis". This point suggests that transparency and effective communication are key components of crisis management, which can help build and maintain trust in the school community.

The training and development of school leaders also proved to be decisive in the effectiveness of crisis management. Pereira (2021) emphasizes that "leadership capacity in times of crisis is a crucial differential, and it is necessary for managers to be prepared to deal with complex situations and make decisions under pressure". This implies that professional development programs for school

leaders should include specific modules on crisis management, so that they can be better prepared to face unforeseen challenges.

The results of this study underline the importance of crisis management as a strategic priority for educational institutions. Proper preparation, training leaders, and building trust with the community are key elements that enable schools to not only survive, but thrive in times of crisis. Therefore, the inclusion of robust crisis management practices in the school board's agenda is an essential measure to ensure the resilience and security of educational institutions in an increasingly uncertain world.

The data collected also highlighted the importance of collaboration between different stakeholders in the school community during crises. According to Costa and Almeida (2020), "effective coordination between principals, teachers, parents, and local authorities is crucial for a successful response to emergencies". Schools that cultivated strong relationships with emergency services and other community organizations showed greater effectiveness in crisis management, due to the readiness and additional support received.

Another relevant point observed was the positive impact of clear and continuous communication during crises. According to Fernandes (2020), "transparent and frequent communication with parents and students during a crisis helps to maintain calm and trust, in addition to reducing the spread of incorrect information". Schools that implemented robust communication systems, such as digital platforms and messaging apps, were able to provide real-time updates, which was highly valued by the school community.

Technology infrastructure has also played a significant role in crisis management, especially during the COVID-19 pandemic. Studies such as that of Menezes (2022) indicated that "schools that already had adequate digital infrastructure were able to migrate to remote learning more quickly and efficiently". This highlights the need for continued investments in educational technology, not only to improve learning in normal times, but also to ensure educational continuity during crises.

SOURCE: blog.hotelb

Analysis of the results points to the need for an integrated approach to crisis management, involving continuous preparation, communication and collaboration. The research by Costa and

Almeida (2020) reaffirms that "prior preparation, including regular training and crisis simulations, is essential to ensure that everyone knows how to act in emergency situations". This suggests that schools should invest in training programs and conducting practical exercises to test and refine their crisis response plans.

In addition, the importance of effective leadership in times of crisis was a recurring theme. Pereira (2021) highlights that "well-prepared leaders not only make better decisions, but also inspire confidence and calm among members of the school community". This reinforces the idea that the training of school managers should include specific training for crisis management, allowing them to respond effectively and ensure the continuity of school operations. Another crucial aspect is the emotional resilience of students and staff during and after the crisis. Lima (2019) emphasizes that "psychological and emotional support is essential for the recovery and well-being of the school community". Schools that offered emotional support services, such as counseling and wellness activities, were able to help their community recover more quickly from the adverse effects of crises. This suggests that crisis management should include not only immediate response but also long-term strategies to support mental and emotional health. The results of the study highlight that effective crisis management in educational institutions is a vital need to ensure the safety, educational continuity, and well-being of the school community. Proper preparation, effective communication, competent leadership, and emotional support are essential elements that must be integrated into school management strategies.

Silva and Andrade (2021) suggest that "continuous investments in technological infrastructure and staff training are essential to strengthen schools' capacity to face future crises". This point is corroborated by Menezes (2022), who emphasizes the need for a proactive and well-planned approach to crisis management, integrating technology and modern communication practices.

Therefore, incorporating crisis management into the school board's agenda is not just a reactive measure, but a preventative and proactive strategy that can transform the way schools face challenges. The research points out that well-prepared schools not only mitigate the negative impacts of crises, but also build a solid foundation of resilience that benefits the entire school community.

Finally, creating a culture of preparedness and resilience within schools is essential. As highlighted by Fernandes (2020), "the culture of resilience begins with the awareness and engagement of all members of the school community in crisis preparedness and response". This collective engagement ensures that the school is ready to face any challenge with effectiveness and unity, ensuring the safety and well-being of all involved.

CONCLUSION

Effective crisis management in educational institutions emerges as an indispensable component for the safety, educational continuity, and well-being of the school community. This study underlined the importance of an integrated approach that involves preparation, effective communication, competent leadership, and emotional support. Evidence shows that well-prepared schools are more resilient and able to mitigate the negative impacts of crises, providing a safe and continuous learning environment for their students.

Proper preparedness is the cornerstone of effective crisis management. As Silva and Andrade (2021) have shown, schools with structured crisis management plans and regular training were able to respond more efficiently to emergencies. This highlights the need for continued investments in staff training and conducting hands-on simulations. Preparedness not only minimizes risk, but also ensures that all members of the school community know how to act during a crisis.

Effective communication is another crucial element. Fernandes' (2020) research indicated that transparency and frequency in communication during crises help maintain calm and trust among parents, students, and employees. The use of communication technologies, such as digital platforms and messaging apps, has proven essential to provide real-time updates and prevent the spread of misinformation.

Competent leadership in times of crisis has also proved to be fundamental. Pereira (2021) emphasized that well-prepared school leaders are able to make quick and informed decisions, as well as inspire confidence and calm. The training of school managers should therefore include specific training in crisis management, enabling them to respond effectively and ensure the continuity of school operations. In addition, emotional support is essential for the recovery of the school community after a crisis, as psychological and emotional support helps students and staff recover more quickly from the adverse effects of crises. This suggests that crisis management should include long-term strategies to support mental and emotional health, ensuring the ongoing well-being of the school community.

Considering these points, it is clear that crisis management should be a central priority on the school board's agenda. Implementing robust crisis management practices not only protects the lives and well-being of students and staff but also strengthens institutional resilience and trust in the school community.

In short, incorporating crisis management into the school board's agenda is a proactive strategy that transforms the way schools face challenges. Creating a culture of preparedness and resilience, involving all members of the school community, ensures that the school is ready to face any adversity with effectiveness and unity. This holistic approach not only mitigates the impacts of

crises, but also builds a strong foundation of resilience that benefits the entire school community in the long run.

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Living with Autism Spectrum Disorder: Diagnosis, therapeutic approaches, and impact on families

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ABSTRACT

During the last few decades, there has been a significant increase in the number of cases of Autism Spectrum Disorder (ASD). Children diagnosed with autism have unique needs and patterns of behavior, including difficulties in communication, limitations in social interaction, disinterest in social activities, and often an unstable temperament. This demands understanding and continuous dedication from those who live with them. The objective of this study is to investigate the essential elements related to diagnosis, treatment and the impact of ASD on family dynamics. This research is descriptive, with qualitative analysis and data collected through a questionnaire answered by 11 family members. The results indicate that many families initially deny the symptoms presented by their children, which delays the search for medical help. In addition, the acceptance of the diagnosis is often a challenging process, affecting various feelings and the family structure. However, the knowledge gained about the disorder allows families to engage in therapies that contribute to the child's development. In this sense, there is a movement in which families seek support and society mobilizes to improve the quality of life of people with ASD.

Keywords: Autism, Diagnosis, Treatment, Family support.

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INTRODUCTION

Autism spectrum disorder (ASD) is a complex neurological condition that affects an individual's social, behavioral, and communication development. According to Lopez-Pison, et al. (2014, p. 403), autism or ASD, is a behavioral syndrome that compromises motor and psychoneurological development, hindering the child's cognition, language and social interaction. Its cause and origin is still unknown, and it is therefore considered a syndrome that involves neurological, social and genetic factors of the child (Volkmar; McPartland, 2014).

It is estimated that 70 million people in the world live with this condition, 2 million of them in Brazil. Over the years, the classification of autism has changed. Today, Autism Spectrum Disorder, or ASD, encompasses a series of levels, mild, moderate or severe, being more frequent in boys (Brasil, 2023).

The child with autism has very unique needs and behavior patterns, capable of being recognized by those with whom they live, such as parents, families, among others. The difficulty in communication, the lack of social interaction and lack of interest in social activities are noticeable, in addition to an unstable temperament that requires understanding and constant dedication from those who are in his life. Therefore, it is a condition that causes changes in the family routine due to the need to monitor the child's development. In this sense, this article aims to investigate the essential elements related to diagnosis, treatment and the impact of ASD on family dynamics.

METHODOLOGY

The research is descriptive and according to Matias-Pereira (2010, p.72) this type of research describes the characteristics of a certain population or phenomenon, or the establishment of relationships between the populations. As for the approach to the problem, the research is qualitative and does not require the use of statistical methods or techniques, with the natural environment being the direct source for data collection (Matias-Pereira, 2010, p. 71). The data were collected through a questionnaire with eight open questions, applied to 11 mothers of autistic children from November 3 to December 3, 2023 at the service center for people with disabilities in the city of Buritis - Ro, with the purpose of knowing the impacts that caring for an autistic child can cause in the family routine. Thus, this study addresses three dimensions: the diagnosis, treatment, and family impact of ASD.

THEORETICAL FRAMEWORK

DEFINITION, CLASSIFICATION AND DIAGNOSIS OF THE PERSON WITH AUTISM SPECTRUM DISORDER

According to the National Policy for the Protection of the Rights of Persons with Autism Spectrum Disorder, autism is considered to be a person with "persistent and clinically significant

impairment of social communication and interaction, manifested by marked impairment of verbal and non-verbal communication used for social interaction; absence of social reciprocity; failure to develop and maintain relationships appropriate to their level of development" (Brasil, 2012).

Eugene Bleuler used the expression "autism" for the first time in 1911, to define the indifference to reality and the difficulty or impossibility of communicating in some schizophrenic patients (Assumpção Jr. & Kuczynski, 2018, p. 21).

Around 1943, Kanner, observing eleven children, concluded that they had a unique disease that was characterized by extreme isolation, repetitive behavior, stereotypies and echolalia. Kanner immediately used the term Bleuler for a diagnosis of schizophrenia, but noted that the disease encompassed a set of signs of its own, intending it to be a new disease.

The following year, Hans Aspeger (1944), after observing the behavior of 4 boys, realized that they had a recognizable pathology. They exhibited a vital disturbance in expressive functions and marked behaviors, and did not present differentiated physical characteristics. Asperger (1944) noted that the disorder caused great difficulties in social interaction, causing social problems to hinder the child's development process. He also realized that simple social problems were less severe, and was compensated by a high degree of originality of thought.

Asperger proposed in his research a definition of the disorder that he called autism mental disorder. It is marked by severe loss in social interaction. Conversa used the report of certain clinical cases, indicating the family history, physical and behavioral aspects, performance in intelligence tests, also highlighting the concern with the educational issue of these individuals (Sella; Ribeiro, 2018).

From 1981 onwards, the term Asperger's Syndrome was frequently used by Wing, and since then, many studies have focused on the discovery and knowledge of the criteria for diagnosing the syndrome. Its properties are related to qualitative changes in the area of reciprocal social interaction, in the development of restricted and repetitive patterns of behavior, activities and interests, as well as stereotyped behaviors and echolalic speech (ICD 10 F84).

The World Health Organization – WHO presented the 11th revision of the ICD in June 2018, which was approved in May 2019. In the new document, ASD encompasses what was conceptualized as Pervasive Developmental Disorder in the ICD-10. According to the latest determinations of the Diagnostic Manual of Mental Disorders (DSM), ICD 11 gathered and unified all conditions with autism characteristics (Almeida, et al., 2020).

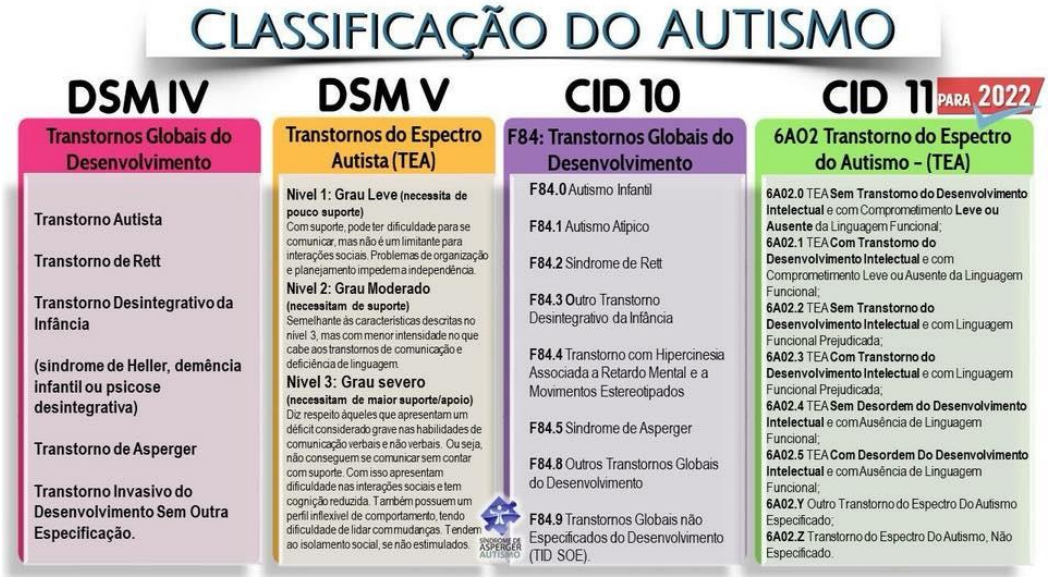
The International Statistical Classification of Diseases and Related Health Problems (ICD-11) is a broad, current, and important version of diseases, disorders, and health conditions. The new document is based on up-to-date scientific evidence and encompasses the progress of medical

conditions. It is a document consulted worldwide because it sets standards for research, statistics or epidemiological situations.

It started operating in January 2022 and from the first day it started using the terminology Autism Spectrum Disorder to cover all diagnoses, which were previously classified in the ICD-10 as Pervasive Developmental Disorder (PDD). For example: childhood autism, atypical autism, Asperger's syndrome, childhood disintegrative disorder, hyperkinesia disorder associated with mental retardation and stereotyped movements [...] (WHO, 2018).

Chart 1 shows the association of these disorders by comparing the ICD-10 with the ICD-11.

Figure - 1 Classification of Autism



Source: Autimates Brasil (2018)

Autism Spectrum Disorder, code 6A02 in ICD-11, replaces ICD-10 code F84.0. Regarding the subdivisions, they are listed according to the existence or absence of Intellectual Disability and/or functional language impairment. Figure 1 shows this configuration.

According to Fernandes (2020, p.1), in ICD-11 - TEA (6A02) the following are listed:

6A02.0 – Autism Spectrum Disorder without Intellectual Developmental Disorder and with mild or no functional language impairment.

6A02.1– Autism Spectrum Disorder with Autism Disorder Intellectual development and with mild or no impairment of the functional language. (Fernandes, 2020, p.1)

Intellectual development and functional language are included in the new subdivisions, namely:

6A02.2 – Autism Spectrum Disorder without Intellectual Developmental Disorder and with impaired functional language.

6A02.3 – Autism Spectrum Disorder with Intellectual Developmental Disorder and impaired functional language.

6A02.5 – Autism Spectrum Disorder with Intellectual Developmental Disorder and absence of functional language.

6A02.Y – Other specified Autism Spectrum Disorder.

6A02. Z – Autism Spectrum Disorder, unspecified.

It is important to highlight that the code "6A02.4 – Autism Spectrum Disorder without intellectual disability (ID) and with absence of functional language" was left out of the final version of the ICD-11. (Fernandes, 2020, p.1).

CHARACTERISTICS, DIAGNOSES AND NEEDS OF PEOPLE WITH AUTISM SPECTRUM DISORDER - ASD

The diagnosis of ASD is based on criteria established by the DSM-5, which include persistent deficits in communication and social interaction, as well as restricted and repetitive patterns of behavior, interests, or activities. The diagnostic process is multidisciplinary, involving mental health professionals, pediatricians, psychologists, and occupational therapists. Observation of the individual's behavior, along with specific tests and interviews with parents or guardians, is crucial for an accurate diagnosis.

The ASD subdivisions in ICD 11 enable a greater understanding of the functionality of the individual with ASD, an advance when we think about the need to carry out early and assertive diagnoses and interventions in Autism Spectrum Disorder (Almeida, et al. 2020).

The different degrees of autism allow us to reflect on the characterization of the disorder since there are different degrees of awareness and cognition of the person with ASD, which are determined by the care given to them throughout their growth. Considering that there are different individuals with different needs and growth, disability becomes much more complex, as it introduces diversity into an already unequal social issue that, in essence, needs greater understanding (Moreira, 2020).

Regardless of the level of autism, whether mild, medium, or severe, they all have difficulties in social interactions and need support for their autonomy (Costa et al., 2023).

According to Schechter & Grether (2008), cases of autism have grown worldwide, as a consequence of the earlier identification of these cases. In Brazil, despite the advances related to the early identification and diagnosis of autism, many children still remain without a diagnosis or with wrong diagnoses for a long time, a fact that is increasingly common in Brazilian schools where practically all of them have children with the characteristics, but without the autism diagnosis report, which is established based on a list of behavioral criteria (Silva; Mulick, 2009).

Figure 2- Criteria for diagnosing ASD

Source: Asperger - ASD (2015).

According to the Diagnostic and Statistical Manual of Mental Disorders - DSM-V (2014), the diagnosis of Autism Spectrum Disorder (ASD) has to consider three criteria, observing their particularities. It is common for children with autism to often present very high behavioral difficulties such as: "hyperactivity, difficulty in providing and/or maintaining attention, hyperselective attention and impulsivity, as well as aggressive, self-destructive, disturbing and destructive behaviors" (Silva; Mulick, 2009, p.3).

Orrú (2010, p.3) when listing the characteristics that most highlight the individual with Asperger's Syndrome cites:

- ✓ Appearance of symptoms - Hardly recognized before 3 years of age, in general the diagnosis occurs around 5 or 6 years of age and often with suspicion of giftedness;
- ✓ Motor skills - Normal motor development, but with some psychomotor disabilities, giving an aspect of clumsiness;
- ✓ Perceptual processes - Perception always directed to the whole/excellent associated memory;
- ✓ Eye contact - Shallow, but always present;
- ✓ Social development – Communicates socially spontaneously, but memorizes the rules of the social game;
- ✓ Game patterns/interests - Explores objects properly from the beginning of development. It has specific, restricted and unusual interests;

- ✓ Speech/language - There is usually no delay in the appearance of speech, which is usually pedantic and unusual for age. There is grammatically structured speech, but with pragmatic changes
- ✓ Development of reading and writing - Spontaneous development at an early age (hyperlexia) in most cases. They are people who require constant care and attention, as they cannot express themselves or communicate with the world around them.

The severity levels of the different degrees of ASD are characterized in figure 3. Analyzing it, it is evident that at the three levels, whether the lowest or the highest, the person with autism needs support to have a comfortable life. Thus, the legal mechanism created to recognize and guarantee the rights of persons with disabilities, such as the United Nations Convention, the Statute of Persons with Disabilities and new provisions of the Civil Code of 2002, were important initiatives to guarantee the dignity and the fight against the historical discrimination of these people. People with ASD need to be met in their needs and society needs to see and respect them in their singularities. To this end, the government must have instruments that can guarantee their rights (Orrú, 2010, p.3).

The National Policy for the Protection of the Rights of Persons with Autism Spectrum Disorder, Law No. 12,764 of December 27, 2012, determines that "the person with autism spectrum disorder is considered a person with a disability, for all legal purposes" (Brasil, 2012).

Figure 3 - ASD severity levels (DSM; APA, 2013)

Gravidade do TEA	Comunicação Social	Comportamentos repetitivos e interesses restritos
Nível 3 - Requer suporte intenso	Graves déficits em comunicação verbal e não verbal ocasionando graves prejuízos no funcionamento social; interações sociais muito limitadas e mínima resposta social ao contato com outras pessoas.	Preocupações, rituais imutáveis e comportamentos repetitivos que interferem muito com o funcionamento em todas as esferas. Intenso desconforto quando rituais ou rotinas são interrompidas, com grande dificuldade no redirecionamento dos interesses ou de se dirigir para outros rapidamente.
Nível 2 - Requer suporte grande	Graves déficits em comunicação social verbal e não verbal que aparecem sempre, mesmo com suportes, em locais limitados. Observam-se respostas reduzidas ou anormais ao contato social com outras pessoas.	Preocupações ou interesses fixos frequentes, óbvios a um observador casual, e que interferem em vários contextos. Desconforto e frustração visíveis quando rotinas são interrompidas, o que dificulta o redirecionamento dos interesses restritos.
Nível 1 - Requer suporte	Sem suporte local o déficit social ocasiona prejuízos. Dificuldades em iniciar relações sociais e claros exemplos de respostas atípicas e sem sucesso no relacionamento social. Observa-se interesse diminuído pelas relações sociais.	Rituais e comportamentos repetitivos interferem, significativamente, no funcionamento em vários contextos. Resiste às tentativas de interrupção dos rituais e ao redirecionamento de seus interesses fixos.

Source: Sella, Ribeiro (2018).

In this sense, the person with ASD must be attended to and according to the criteria of the person with disabilities so that they can overcome their limitations and gain autonomy.

Until the middle of the last century, people with ASD were inmates in their homes or psychiatric institutions. With the development of medicine, several possibilities for integrating these individuals into society have emerged. New psychotherapeutic methods favor the coexistence of autistic people with their family and the environment that surrounds them. Therapeutic approaches for ASD are diverse and depend on the individual needs of each person. Behavioral therapies, such as Applied Behavior Analysis (ABA), are widely used to promote social skills, language, and reduce problem behaviors. In addition, occupational and speech therapies can be implemented to improve functionality and communication. In this bias, professional support and family care is important for the integration of the person with ASD. It is important to note that there is no cure for ASD, but early and continuous interventions have shown positive results in improving the quality of life and developing the individual's skills.

IMPACT ON FAMILY DYNAMICS WITH ASD

The family that has a child with a disability goes through many emotional stages that begin with denial, then with the acceptance of the diagnosis and finally treatment. Many families resist the diagnosis and delay treatment, thus making it difficult to recover from symptoms.

Creating actions for the integration and inclusion of people with ASD should be an attribution not only of the family, but also of society and the State, as already established in the Inclusion Law. However, the responsibility of parents is essential and determinant for the success of inclusion. The autistic individual needs to immediately count on the help and support of his family. This support is indispensable and fundamental for the development of children with ASD.

When parents are aware of their role and present in the execution of activities that favor the growth of their children, they seek help and fight for the inclusion process. In this way, they seek in the laws the legal support that attests to their rights and gives them the conditions to continue helping the autistic person more efficiently.

In this context, Luiz Felipe Gomide (2020) from Jusbrasil lists some benefits that autistic families can use to offer them better living conditions:

- ✓ According to the Brazilian Law of Inclusion (LBI), access to school for children and adolescents cannot be denied under any circumstances, whether in the public or private network.
- ✓ In case of need, the student with ASD may have access to a school support professional, such as a support teacher, to assist in the learning process in the classroom. No additional amount can be charged in the monthly fees due to the Inconvenience.

- ✓ The health insurance law provides for mandatory coverage for the diseases listed in ICD 10, which includes all types of developmental disorders (Gomide, 2023).

It is essential that the family knows its rights so that it can claim them. In this sense, the National Civil Aviation Agency - ANAC, created Resolution No. 280/2013 that grants discounts on air tickets.

On the procedures related to the accessibility of passengers in need of special assistance to air transport, determining that companies are required to guarantee an 80% discount on air tickets for companions of passengers with disabilities who cannot travel alone (ANAC, 2023).

Actions like this is a thermometer that society is mobilizing and recognizing the difficulties faced by people with ASD and their families.

LEGAL RIGHTS AND GUARANTEES OF THE PERSON WITH ASD

The Federal Constitution of 1988 already deals with people with disabilities without limiting the distinction of species of this genus due to the programmatic character of these constitutional provisions (Moraes et al., 2022).

Article 227 of the Federal Constitution of 1988 states that it is the duty of the family, society and the State to ensure that children and adolescents with disabilities can fully exercise their fundamental rights (Sella; Ribeiro, 2018).

Article 4 of Law No. 12,764/12 establishes that a person with ASD will not be subjected to inhuman or degrading treatment, will not be deprived of their liberty or family life, and will not suffer discrimination based on disability. It is observed that the law guarantees that autistic people are treated with respect and dignity (Costa et al., 2023).

The Ministry of Health (2015) also reinforces that people with Autism Spectrum Disorder (ASD) have rights, according to the Federal Constitution of 1988 and other specific laws and regulations, to provide comprehensive care.

Another advance in the sense of guaranteeing the right of people with ASD came through Law No. 13,977 of January 9, 2020, which instituted the Identification Card for Persons with Autism Spectrum Disorder (CIPTEA), and provides other measures. Popularly known as the Romeo Mion Law, this Law clarifies that "the public and private establishments referred to in Law No. 10,048, of November 8, 2000, may use the puzzle tape, a worldwide symbol of awareness of autism spectrum disorder, to identify the priority due to people with autism spectrum disorder." (Brazil, 2020)

Figure 4 - Preferential care for Autistic People

Source:Autismolegal.com

As established in Law 14.626/23, autistic people now have "the right to priority care for people with autism spectrum disorder or reduced mobility and for blood donors.

Placing autistic people on the list of preferential care is recognizing that the person with ASD faces uncomfortable situations, arising from the environment, which can cause an uncomfortable reaction for themselves and their families.

RESULTS

Fear, insecurity, guilt are feelings that affect those who are about to hear news for which they are not prepared. In the case of a child patient, parents are much more apprehensive since their children are often placed in their hopes and dreams. Receiving a diagnosis of a chronic disease is to break plans, it is to lead the family to walk an unknown and tortuous path. Having a child with a behavior different from the concept of normal causes changes in family dynamics.

Thus, when asking the parents when they noticed a difference in their children's behavior and the age at which they took them to the doctor, they answered as shown in Table 1.

Table 1. Difference between the child's behavior and the age of the first consultation

1. Have you noticed anything in the child's behavior? How old was when you took it to the doctor?	
E1	*Yes, the way to play - 4 years old*
E2	*Yes, 10 years old*
E3	*Yes. Physical behavior and language. 8 years*
E4	*Inadequate body posture - 5 years old*
E5	*Yes - 11 years old*
E6	*Not interacting with people - 8 years*
E7	*Yes. He liked to play with pencils. 5 years I took to the speech therapist*
E8	*Yes, instability in socialization - 5 years*
E9	*Since she was 6 months old, she has been accompanied by a neuropediatrician*
E10	*Yes, in their behavior. They are Gemini. It's been 4 years*
E11	*Yes, in the difficulty of interacting - 12 years old*

It is observed that most parents took their children to high school late for evaluation and diagnosis. It is common for parents to procrastinate this decision for fear of an unfavorable diagnosis,

so they usually justify that it is the child's way, that he will later improve. Another reason to make the first appointment difficult is to get a place with a specialist. Although there is an increase in the supply of these services, we still have a deficit of specialized professionals.

Table 2. Impact of the diagnosis disclosure for the family

2. The impact of the disclosure of the autism diagnosis for the family?	
E1	*It was very bad. I felt unable to cope with the situation*
E2	*The revelation was horrible, we didn't want to accept it*
E3	*Impact of low self-esteem, panic, and disability*
E4	*Set of diverse sensations and feelings, such as frustration, guilt and others*
E5	*It was hard, but everyone understood*
E6	*It was difficult because we didn't know anything about it, so we had a lot of work*
E7	*It was devastating because we didn't have much guidance on the subject*
E8	*It was well accepted*
E9	*No one is prepared to receive this news*
E10	*low self-esteem, the two have autism. 1 mild and one moderate.*
E11	*In the clinic with the professionals. Guide to the group of experts*

It is observed that all families felt stunned by the diagnosis. For them it was difficult to know that their children had a disease that for most was unknown, that they had no information and did not know how to deal with. They experienced a mix of emotions such as guilt, frustration, insecurity, low self-esteem and the attitude of denial. Facing reality and preparing for the diagnosis requires strength and a change in the family. Knowing that their child is different gives mothers a feeling of protection, and fear of rejection. However, despite the whirlwind of feelings and emotions, all the family members interviewed answered that they received the diagnosis in the office, by the specialized team that advised them to start treatment. The care and respect of the professionals with the children was clear. Support at this time is essential because families feel fragile and lost, not knowing what direction to take to help their children, as shown in table 3.

Table 3. Receiving the child's diagnosis and treatment guidance

3. How was your diagnosis given? Did you receive any guidance?	
E1	*It was the experts in the area. They advised him to do the treatment.*
E2	*In the clinic for therapeutic follow-up as soon as possible*
E3	*In the office. Yes, we would have to start treatment*
E4	*In the doctor's office - look for a specialist*
E5	*Therapy together with psychologist, speech therapist, physical educator, etc*
E6	*By the medical report. He guided us a lot but you have to study all the concepts*
E7	*I had a lot of support and guidance on how to proceed with the treatment*
E8	*Inside the consultation. Be accompanied by a team of professionals*
E9	*Late, with 9 years old, but he has since 1 year PC report*
E10	*By specialists through diagnosis. Group therapy.*
E11	*In a clinic with specialized professionals*

It is evident that for many families ASD is something unknown and for others, they had already heard about it, however, it was something distant, since it did not exist in the family, it did not arouse much interest. Having this revelation causes a change in attitude and the family starts to

seek information and knowledge to be able to better understand and serve their children. Gradually, the feeling of denial disappears and the search for treatment begins to occupy the center of family concerns, as shown in tables 4 and 5.

Table 4. Knowledge about ASD

4. Have you ever heard about autism?	
E1	*yes, sometimes*
E2	*yes*
E3	*Yes, but knowing that your child has it is something of great emotional impact*
E4	*Yes, but I didn't imagine having one in my family*
E5	*Yes*
E6	*No. We were very laymen in this, we had to study a lot and go deeper*
E7	*Yes, but I didn't imagine it could happen to my son*
E8	*yes*
E9	*Sim, on phonodiólogo*
E10	*Yes I heard but it's hard to deal with reality*
E11	*Yes, many times but we don't want to believe that our son has*

By analyzing the place where the treatment is carried out, it was found that there is a variety of institutions, offering the therapies that the child with ASD needs and that the families need to take him so that the treatment is satisfactory and develops the child. This variety of therapies requires availability from families, so to provide this service, families need time, hence, some benefits have already been achieved in this regard, such as the reduction of work hours. See table 5.

Table 5. Place where the treatment is carried out

5. Where do you do the treatment?	
E1	*In a clinic with the specialists*
E2	*With a specialized team*
E3	*Unified Health System, with a specialized team*
E4	*In a clinic with specialized professionals*
E5	*APAE, Health Center*
E6	*At the Health Center and at the CAPS*
E7	*CAPS, APC, Health Center*
E8	*With neurologist, psychopedagogue, APAE*
E9	*Private clinic, rosy house in PVM*
E10	*In a clinic, with a specialized team*
E11	*In a clinic, with a specialized team*

Meeting the needs of the child with ASD requires a joint family effort, so the family relationship is important. When asking how this relationship occurred in their families, the respondents claimed that they had a good relationship, but children with ASD did not like to interact. There were no testimonies regarding the relationship with other family members, such as uncles, cousins, among others. They also did not indicate exclusion of the family with ASD. However, the fact that the child does not like to interact, by itself, already moves away from movements that are not comfortable for him, characterizing an exclusion. It is necessary for families to take a close look so that this isolation is less and less. See table 6.

Table 6. Relationship with family

6. How is the child's relationship with the family (parents, siblings, uncles, cousins, etc.)	
E1	*Doesn't like to interact*
E2	*Doesn't like to interact*
E3	*Doesn't like to interact*
E4	*Relationship is good*
E5	*Have a good relationship*
E6	*It's very good, very respectful*
E7	*Relationship is good*
E8	*Doesn't like to interact*
E9	*No Response*
E10	*Doesn't like to interact*
E11	*Doesn't like to interact*

Regarding the care of children, the participants answered that they follow the treatment indicated by the doctor and other normal care pertinent to a child.

Table 7. Routine of children with ASD and family care

7. What is the childcare routine like?	
E1	*He has difficulty interacting. Normal care*
E2	*He doesn't like to interact. Necessary care indicated by the doctor*
E3	*He likes to be isolated. Structured routine for his well-being*
E4	*He doesn't even interact with his family. Normal routine with special attention.*
E5	*The routine is very busy because there are several therapies*
E6	*Very good. Of great respect. Take it to therapies and to school and speech therapy.*
E7	*Normal*
E8	*With attention recommended by the experts*
E9	*23h of care because he is 19 years old, does not speak, wears a diaper and cannot do anything without the help of another person.*
E10	*They like to be isolated*
E11	*They like to be isolated, they don't interact*

It is verified that the routine indicated for treatment has a schedule of visits to specialists such as speech therapist, neurologist, psychologist, going to school, among others. There are cases where ASD is more severe, and autistic people require care to perform basic activities, such as the E9 testimony. See Table 7.

Caring for a person with ASD is not a simple or one-off task, it is a constant dedication. Autistic people have unpredictable reactions and a particular way of living life, and it is up to everyone around them to contribute to making them feel as comfortable as possible.

Recognizing the particularities of individuals with ASD is to guarantee their rights already established by law. As studies advance in favor of knowledge about the diagnosis and treatment of ASD, society also advances in the implementation of inclusion actions and in the availability of resources and services that favor the well-being and quality of life of autistic people and their families or caregivers. In this bias, family members know their rights and use the benefits already conquered that contribute to a more dignified life for individuals with ASD.

Table 8. Knowledge about the benefits for people with ASD and family

8. There are several rights and benefits of autistic people and families, can you name any?	
E1	*Reduction of workload, school inclusion, priority attendance, and others.*
E2	*Yes, school inclusion, health care and others*
E3	*Identification card, school inclusion, priority service and others.*
E4	*Identification card, school inclusion, priority service and others.*
E5	*Yes, one of the LOAS benefits*
E6	*Assistant Professor and vacancies in the job market*
E7	*Reduction of workload, benefit of the federal government*
E8	*Right to benefits, classroom monitoring, among others.*
E9	*INSS aid, priority in queues, treatment by SUS, enrollment in schools*
E10	*School inclusion, treatment by the SUS, priority care, among others*
E11	*Treatment by SUS, cheaper transportation, school inclusion*

It was observed that from school inclusion, individual monitoring at school, financial help by the government, reduction of workload, free care by the SUS, priority in care, among others, were benefits achieved by autistic people and their families (Vasconcelos, 2023). It is evident that these achievements do not solve all the difficulties that autistic people and their families face in their daily lives, but it is already an advance in the recognition of the disorder.

CONCLUSION

The impact of ASD on families is significant and multifaceted. Family members face emotional, financial, and social challenges when dealing with the special needs of the member with ASD. Searching for appropriate therapies and treatments can be costly, in addition to the time and energy invested in providing support and care. However, the family impact is not exclusively negative. Many families find strength in unity, adopt resilience strategies and promote mutually supportive environments. Learning about ASD can bring family members closer together, create empathy, and raise awareness of the special needs, not only of individuals with ASD, but all family members.

ASD is a complex condition that requires understanding, support, and adequate resources to improve the quality of life of affected individuals. Early diagnosis, followed by personalized interventions and family support, plays a crucial role in the development and well-being of individuals with ASD. In this context, it is vital that society promotes inclusion, awareness and support for families, recognizing the abilities and potential of each person with ASD. The journey with ASD can be challenging, but with support and understanding, families can face and overcome these challenges, strengthening family bonds and the community as a whole.

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Inclusion of people with hearing impairment in the school environment

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ABSTRACT

The main objective of this work is to address the inclusion of people with hearing impairment (PCDA) in the school environment, dimensioning its legal and practical aspects, from the perspective of the Theory of Social Representations. Based on this theory, it is possible to conclude that the changes that occurred in the Brazilian legislation, with the purpose of including them in schools on equal terms with other students, constitute changes that occur in the legal sphere, without altering the stability of the nucleus of formation of the social representations referred to, shared in the interactive and communicational processes of daily life and over time, which continue to be based on incapacity, inability and disqualification to occupy collective spaces. This is a qualitative research, of bibliographic and documentary nature. In the development of the study, the school is pointed out as a dynamic, plural space that welcomes differences. Then, these subjects and the school inclusion movement are characterized, as well as the representations that permeate this process, concluding that, despite the change in legal status, they continue to be represented in the same way, from the perspective of disability, in the school environment.

Keywords: Social Representations, School Environment, Inclusion.

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INTRODUCTION

The school inclusion of students with disabilities in regular schools is a right guaranteed by the Law of Guidelines and Bases of National Education (LDB), the Brazilian Law of Inclusion, the Statute of Persons with Disabilities, and the Constitution of the Federative Republic of Brazil, which establish Special Education as a duty of the State. Thus, the reception of individuals with hearing impairment in the school environment is carried out as a form of social inclusion to provide them with physical, cognitive and affective development. However, the processes of inclusion and social exclusion of people with disabilities in the regular school system are complex and transcend merely legal aspects or simple physical adaptations to provide accessibility.

The interactive and communicational processes constituted in the school environment are fundamental for social life, because, on this relational basis, the mobilization of signifiers, senses and meanings enables individuals to interpret and reinterpret ideas, images and attitudes, based on the recognition of similarities and differences, which can strengthen or weaken bonds of sociability, influencing the construction of individual and collective identities (JODELET, 2009), whose reflections can also be projected in the classification, hierarchization and identity deterioration of individuals, through stigmatizing relationships (GOFFMAN, 1980).

Despite legislative advances, the creation of the National Institute for the Education of the Deaf (INES) and social inclusion campaigns, deafness still causes strangeness and is perceived as a disease, while people with hearing impairment (PCDA) [5]are often represented as "strangers", "different" or "incapable", whose individual and social experience varies according to the capacity and development of family strategies to promote their autonomy. These representations of the deaf person, socially shared in the interactive and communicational processes constituted in the various social spaces, including the school environment, produce various forms of physical and symbolic violence, reinforce attitudinal barriers, even reaching cases of segregation in special schools, because inclusive legislation, by itself, does not transform social, cultural and institutional structures. On a daily basis, the sharing of derogatory expressions of the Brazilian Sign Language (LIBRAS) is evidenced in the physical or virtual environment, through mime and gestures that cannot be understood as a "simple joke", but as a form of violence that has social and individual dimensions.

The relationship between mimics and derogatory gestures is not immediate; it involves processes of subjectivation, intersubjectivation and transubjectivation (JODELET, 2009), embodied in the social representation of the PCDA. Thus, cognition, language and communication are integrated into social relations to categorize individuals, confirm and maintain collective identities capable of organizing daily practices and legitimizing, among certain groups, mockery, laughter or

[5] In this study, the term person with hearing impairment, recognized by law, and the terms deaf, deaf person, person with deafness, based on social representations, are used.

other discriminatory behaviors, based on the hierarchy of individuals, between deaf and non-deaf. In this dynamic of school inclusion or exclusion, really including a person with disabilities is not as simple as listing it in legal provisions, as it is essential to first create relational bases that make inclusion comfortable and satisfactory. This is because the school is a living, dynamic field that contributes to human development, beyond the formal content. It is in this space that subjects learn to relate to others, to respect diversity, to establish communications, and learn the meaning of socialization with respect to differences. Thus, the school, more than a physical place for learning, must be constituted as a plural, welcoming, humanized environment, in which subjectivities, ideas, symbols that express the experience of the agents that compose it transit (SUDARIO, MORENO, 2022).

Based on these assumptions, this article aims to analyze the social representations of the deaf and their right to school inclusion. This is a qualitative research, of bibliographic and documentary nature. The qualitative method is applied to the study of history, relationships, representations, beliefs, perceptions and opinions, produced and socially reproduced, in interactive and communicational processes about a given social context (MINAYO, 2010). According to the author, through the qualitative method, it is possible to understand the social processes, still little known, referring to particular groups, such as the PCDA. In the course of this study, the social representations of the deaf will also be addressed, concluding that, despite the change in legal *status*, they continue to be represented as disabled, incapable in social spaces, including the school environment.

DEAF SUBJECTS: CULTURE AND SUBJECTIVITIES

The deaf person is an individual with a personal and social history, inscribed in a well-defined social and cultural context. In this way, the social representations elaborated about it and the way it is incorporated into interactive and communicational processes are expressed as a socially elaborated tendency, related to the social group to which it belongs. These representations guide individual and collective actions in a context of production of meanings in which the interface of socially shared discursive content takes place, with the interactive and affective processes that influence the definition and conformation of collective identities (Moscovici, 2015), in social spaces, including the school.

Thus, the deaf are considered a population that includes diverse identities, organized communities and their own cultural elements, in addition to the language used for communication between peers. However, the majority of those who listen, that is, the listeners, perceive these subjects from the perspective of hearing impairment, which incapacitates them to lead a life according to established social standards. This means that the social representations of the deaf are

elaborated in a context crossed by the intertextuality of the social constructions that feed common sense and the constituent discourses of interindividual and intergroup relations established within the city. It should also be noted that the meanings referring to the deaf, socially shared, originate both in more remote cultural productions and conformed in the social imaginary, such as the ideative image that transforms him into an incapable individual, unfit for public interaction and action, and in local and current productions, such as the meanings produced legally. Therefore, the context in which the social representations of the deaf are produced transcends the new legislation of social inclusion, as it incorporates not only new meanings, but also historically constructed meanings.

Since ancient times, the deaf have been excluded from the public life of the cities, given the different way of communication, based on sign language. Such a form of expression causes strangeness in the majority of the hearing population. The difficulties pointed out express the numerous barriers that exist in the collective environment that prevent people from this segment from exercising basic rights and tasks independently. These limitations make their interests and expectations in achieving life projects unfeasible.

In the last three decades, the special protection system has been created with the purpose of promoting a change in the *legal status* of people with disabilities and including them socially (BRASIL, 1988; BRAZIL, 2001; BRAZIL, 2009; BRAZIL, 2015). In this context, special legislation was created aimed particularly at the deaf. However, when considering the individual-society relationship, based on interactional and communicative processes, it is questioned whether the core of formation of social representations (Moscovici, 2015) of the deaf was re-signified with the introduction of the new legal support.

Deafness causes strangeness and is represented as a disease that needs to be cured. In the daily lives of these people, games and speeches shared socially, whether in the physical or virtual environment, are common, which depreciate the particularities and the Brazilian sign language, perceived as mime, gestures and not as an officially recognized language (BRASIL, 2002; 2005). Such normative determinations intend to promote adequate communication between the deaf and the hearing, ensuring the participation of the former in the public sphere. The north of this legal framework is the valorization of deaf particularities, highlighted by sign language. However, although instituted more than fifteen years ago, it still needs to be widely incorporated in the most distinct social spaces, in order to ensure the participation of the deaf in the plural environment.

Knowing the world of the deaf is a significant posture for changing the scenario of exclusion. In this sense, deaf culture is the identities, habits and experiences of deaf people who are not necessarily inserted in the same space or region, but who mutually identify each other by their origin (STROBEL, 2018). Furthermore, in a different way, in the hearing culture, signs are spoken, which makes it difficult to understand the deaf culture and the necessarily visual artifacts (PERLIN, 2010).

An example is the social awakening to the learning of Libras. Deaf cultural artifacts manifest the meanings, symbols, experiences and narratives that form the knowledge of this group. In addition, visual resources are essential for these people to succeed in their usual activities, in the exercise of their rights and in the realization of independent life, since they fix their senses in the visual impressions constituted around them. Thus, the absence of these stimuli, such as signals, adapted telephones and luminous devices, prevents full access to individual and social environments (STROBEL, 2018).

Deaf art, theater and literature represent the construction and appreciation of deaf identities. Literature explores narratives and drawings, painting, illustrations, as well as facial and body expressions, materializing the feelings, ideas and representations of people with deafness in relation to the reality in which they live. Notably, accessibility resources or material artifacts ensure that these subjects can carry out their daily activities. Among the most used elements are the *internet* and the interpreter. (STROBEL, 2018). Furthermore, deaf communities are not only made up of deaf subjects, but of all those who participate and share interests about the deaf people in a given location, such as hearing people, teachers and members of society.

One of the current measures for the inclusion of these subjects is the adoption of bilingual education, through sign language, as a first language and the use of Portuguese in writing. In this way, it intends the incorporation of deaf identities in the process of collective participation. In a continuous act, bilingualism to ensure the performance and psychosocial development of deaf students in special and regular schools. It aims to make the learning of both languages accessible, respecting plural identities (GUARINELLO, 2007). In this context, the focus is on teaching through the consideration of sign language, in all school contents, including the writing of the Portuguese language. These mechanisms are combined with the emphasis of the two cultures, strengthening the social and affective progress of these children, since the experience within the deaf community allows a better entry into the hearing social environment (QUADROS, 1997).

However, the history of the schooling of the deaf (JANUZZI, 2012; MARTINS, 2015; SACKS, 2010; STROBEL, 2008) demonstrates the dominance of popular beliefs that these subjects, in order to live in society, should adapt to the reality of that environment, whether in special schools, rehabilitation services, medical treatments, or in the idea of learning through speech. The change only came to happen, from the sixties onwards, with the movement of integration of these people into society and later to the current model, inclusion, in which all individuals must coexist and learn in the same territory.

THE INCLUSION OF DEAF PEOPLE IN SCHOOL

Inclusion is an international movement of the nineties that has as its main objective the insertion of historically excluded groups in society, contemplating individual and social spaces. Advocated by the main foreign and national protection agencies, it is a non-negotiable measure in which no person can be prevented from exercising rights and freedom independently, due to their particular, economic or political conditions. In the case of the deaf, what we have is a sensory impediment that distinguishes them from the majority of the population considered to be hearing, that is, who communicates through the oral-auditory canal.

Prior to the mobilization for the inclusion of deaf people, what we had was the incorporation of people into the community in an inappropriate way; the different conditions of each subject were not considered, nor the need to change spaces, structures and behaviors (SASSAKI, 1997; MANTOAN, 2015). The deaf, for example, in order to have access to education, attended special schools, that is, exclusive for people with sensory and educational needs, such as the deaf and blind. In this sense, integration considered that it was up to the differentiated groups to adapt to the existing environments, even if this devalued their identities and cultures.

Traditionally, the school has guided its objectives in order to train students for the world of work, through technical learning, categorized, in which the best are rewarded, perceived as superior to the others. In this type of teaching, there is no room for differences, new knowledge, active methodologies and diverse groups, as is the case today. However, the international agenda in favor of education seeks to change this thinking and the behaviors of school agents. Inclusion in school aims to change this scenario, through the permanence of each and every subject in this territory, that is, in heterogeneous spaces and no longer in separate classrooms, as occurred in special classes, which were the majority at the time of the integration process. This term, used in the plural environment that is the school, goes far beyond theory, as it enables the development of skills and creativity, the establishment of interpersonal and affective relationships, as well as communication and the formation of identities.

In this way, inclusion intends to break with exclusionary teaching models (MANTOAN, 2015), but it needs to be designed to welcome differences and go beyond theoretical teaching. For this reason, it is not the duty of these students to adapt, as occurred in integration, but rather of the schools, together with civil society and competent bodies, to raise the necessary resources for the quality training of their employees and the improvement of physical spaces aimed at changing the architectural barriers that exist in the environments.

It also proposes to professionals the knowledge of new knowledge and practices that provide opportunities for learning and overcoming discriminatory practices against these students. Schools, educators and all those who work in this area are called upon to favor a welcoming, accessible and

inclusive environment for students who have limitations, whether in terms of learning, behavior or severe disabilities. The act of educating, especially in elementary school, has to add values, moving away from the mere reproduction of content (FÁVERO, 2013). Education consists of human and social formation for life.

An inclusive education of excellence demands the commitment of the entire school territory, both through attitudes beneficial to deaf students and investments in accessible places that provide maximum apprehension of the knowledge and development of the student subject, respected, above all, the particularities, in the development of curricula and other activities. Thus, the demand for more resources and consequently the capture of these means, reverberates in the improvement of the enclosures and especially in the commitment of the professionals to include the students not only in a formal way, but aiming at the emancipation of these subjects.

In the case of the deaf, society understands that the language barrier compromises access to education in regular schools. Thus, deaf people, teachers, those responsible for these subjects, as well as assistance entities and the community, in general, are resistant to school inclusion. One of the main fundamentals is necessarily related to the limitations in communication between the individuals who make up this territory, since most of them use verbal communication to socialize and the deaf use the signs of their own language.

The communication barrier constitutes a significant challenge to the exercise of rights by deaf subjects, especially social participation, since most people are hearing and do not know Brazilian sign language. Even after years of the creation of the aforementioned standards, the need to increasingly disseminate and stimulate the teaching of Libras, in the most distinct means (physical and virtual), in order to modify this scenario of exclusion, especially when it comes to occupying places and acting in the most diverse services and participatory processes that cities offer to their citizens, as the inclusive, participatory and welcoming school.

Thus, sign language is fundamental in the construction of identities, culture and in the elaboration of deaf experiences. These artifacts help in the knowledge and recognition of the history of the deaf, as they are narrated by the deaf themselves. They are means that enable new perceptions, especially of the listeners, about this group, its forms of organization and experience in deaf communities (STROBEL, 2018). As soon as inclusion is disseminated, the fundamental intention is to modify the dominant representations about deafness and the deaf subject, their forms of organization and experience in deaf communities, to bring these people to plural environments and in which they can live in these spaces effectively, without discrimination and barriers.

THE SOCIAL REPRESENTATIONS OF DEAF SUBJECTS IN THE SCHOOL TERRITORY: THE CHALLENGES OF INCLUSION

Here is a melancholic fragment of the externalization of feelings of a person with deafness and that leads to great reflections: "[..] a boy wanting to hear and thinking how distressing it is that we want to hear and not have that noise... He is in this situation. Everyone talking to him: 'Hi! Hello!'. And he couldn't hear. (SILVEIRA AND OLIVEIRA, 2013). This excerpt from an interview conducted with a regular school teacher highlights how the inclusion of the deaf in school, respecting the unique characteristics and special educational needs of each one, is a challenge for the agents who move in the school environment, since they share ideas, beliefs, habits and meanings that project images, according to which the deaf subjects are incapable of being and remaining in that place, as evidenced by the studies developed by Machado and Albuquerque (2010); Paganotti, (2017); Silveira and Oliveira (2013); Vasconcellos; Santos, Almeida, (2011).

Thus, every legal framework built to promote educational inclusion is frustrated in its real effectiveness, given the maintenance of the stability of the nucleus of formation of socially elaborated and shared representations about deaf subjects. In addition, the lack of resources, support from the school administrative sectors and adequate training in universities generate feelings of insecurity, anguish, fear, failure in teachers to deal with differences (ALMEIDA AND NAIFF, 2012; MACHADO AND ALBUQUERQUE, 2010; OLIVEIRA, 2017; PEREIRA, 2016).

The inclusion norms aim to overcome attitudinal barriers (RAIOL, 2008), including those of a physical, communicational, behavioral and accessibility nature. The attitudinal barrier is one of the greatest challenges to the inclusion of the deaf in the social environment. It is not by chance that this group and their families prefer special schools to regular education institutions (GONÇALVES, 2016; MOREIRA AND TAVARES, 2009), indicating that these, among others, are the obstacles that prevent the realization of the rights of the deaf to social participation, reinforcing their representation as disabled, incapable, incapable of learning and productive work and the exercise of rights in daily life, being isolated, apart from the "normal" world.

Social representations are a form of practical knowledge, built on a set of ideas, images and worldviews, which individuals build in their daily lives, in order to understand and organize their relationships and the surrounding social reality. This means, then, that it is produced in the simplest activities of psychological and social elaboration of reality, articulated with the dynamics of interactive and cognitive processes that enable communication between individuals, groups and the environment (MOSCOVICI, 1978, 2015). Thus, they constitute one of the pillars on which an evaluative system is built that sustains the specific configuration of social relations that involve cognitive and affective relations between subjects in a social context.

The objectification of the meanings built around the social representations of the deaf is still anchored in expressions, whose derogatory meaning is embodied in words such as "inapt" and incapable". It should be noted, then, that the social representations of the deaf permeate the linguistic sphere, responsible for naming, representing and gauging the meaning of reality, constructed from the individual-society relationship. This means that these meanings, expressed through the language of common sense or legal sense, are constructed through the formation of individual and social concepts, which are reflected in the conformation of the subject's identity, defining his role and social position (DUBAR, 2009).

By way of illustration, in antiquity the belief in human perfection prevailed, especially in the physical aspect. It was believed that deafness hindered integral development and action in the community. Because of this, many lived on the streets and were subject to forced labor and begging (SACKS, 2012). Thus, they were represented as incapable, useless to work and unfit for social life considered "normal" (FRANÇA, 2014). These beliefs persist to the present day in the school territory, as evidenced in the speech of a Portuguese teacher when describing a deaf student inside a regular class: "I am basing myself here on the case of the classroom, the students smiling, listening, screaming, the teacher talking... And the deaf student is in his isolation, calm because he is not hearing anything, (SILVEIRA E OLIVEIRA, 2017, p.7).

For Moscovici (2015), the elaboration of social representations permeates language and presupposes the articulation of two cognitive processes related to each other and constituted by social and cultural factors developed in everyday interactive and communicational processes, which are anchoring and objectification. These processes are closely associated with cultural conditions, normative criteria, as well as social experiences, enabling the formation of a figurative nucleus (structuring schematization), which constitutes a conceptual structure, capable of providing a logically objectified image of the represented object.

In this sense, social representations operate as an interpretative set of reality that organizes individual relationships in a given social context, determining individual and collective behavioral patterns. In this way, the meanings attributed to the expression "deaf" constitute the objectification of a given reality, constructed and socially shared, evidencing the dynamics of social representations, closely related to language. The Theory of Social Representations makes it possible to approach socially constructed knowledge in its dynamics and diversity, considering its different forms of elaboration. It is configured as a way that aims to understand and explain the construction of knowledge established by the group, such as that of the deaf, through a spontaneous theory, embodied in common sense.

Based on the Theory of Social Representations (MOSCOVICI, 1978, 2015), it is possible to conclude that the changes that occurred in Brazilian legislation, with the purpose of including the

deaf in schools on equal terms with other students, constitute modifications only in the legal sphere, which does not alter the stability of the nucleus of formation of the social representations of the deaf, based on incapacity, inability and disqualification to occupy collective spaces. This means that, despite all the legal advances and the creation of a special legal protection system, the deaf continue to be excluded, represented as abnormal, useless, weak, incapable or special, since the formally constituted changes are not enough to alter the cognitive elements stabilized in the training nucleus, shared in the interactive and communicational processes of daily life and over time. Such representations define deaf people as individuals incapable of acting in public life. Deafness is perceived, then, as a disability, a disqualification to achieve rights and spaces.

And when it comes to the school environment, these representations focus on the choices and life projects of these subjects, which prevent them from advancing in the inclusion process, as it is understood that everyone should have the possibility of conquering rights, freedom and autonomy, in the most diverse fields, especially the social and professional. In this sense, it is essential to make society aware of who the aforementioned subjects are and what needs to be done to change the perceptions that affect their lives. It is necessary to go forward, strengthening and anchoring the peripheral representations, which portray the capacity of the deaf, their diverse way of life and the contribution of their experiences to the dynamics of a plural society which must cease to be guided only by sensory experiences and start to experience the diverse, dynamic and dialogical reality.

FINAL CONSIDERATIONS

Although the legislation has advanced significantly in the sense of promoting changes in the social representations of people with disabilities, particularly the deaf, the studies carried out on the subject, the empirical observations and the informal dialogues carried out with teachers, principals and employees of public schools have shown that the substantive changes occur fundamentally in the legal sphere, without altering the nucleus of formation of the social representations shared in the space scholastic. This means that the training nucleus remains stable. The aforementioned nucleus is filled with elements, namely, myths and images taken from common sense by anchoring.

Therefore, inclusion is substantially realized at the formal level, thus establishing a mismatch between formal inclusion and the real exclusion of the deaf in the school space. Deaf people continue to be represented as incapable, in their modes of communication, from the perspective of disability. On a daily basis, Brazilian sign language becomes familiar through an image that represents it as something unusual, strange and abnormal. Instead, the whole of society, and particularly in the school environment, should adopt the Brazilian sign language as the same receptivity through which it uses the Portuguese language, without distinction, in daily practice, from the use of both languages.

The right to social inclusion of deaf individuals is guaranteed in the national and international guarantee systems. However, they continue to have their right to social participation restricted, due to the representations of disability shared in the collective environment, which perceive these subjects as incapable of exercising their rights and not deserving to be provided with services, especially when it comes to those considered public, notably education. This is because the modifications were implemented only in the abstract legal plane, lacking in effectiveness. Thus, despite all the legal advances and the creation of a special legal protection system, the deaf continue to be represented as incapable of being, acting in collective spaces, that is, of access and enjoyment of everything that cities can provide, such as education, health, work and leisure.

These representations are more resistant to change, because they are present in the nucleus of formation of representations, unlike those predominant in the legal system, subject to transformations, according to the conditions and environment in force. Normalization propagates that people with disabilities, including the deaf, because they do not have the same conditions (physical, sensory and psychic) as the rest of the population, need to adjust to the standards required to have access to goods and services. In the past, there was little or no scientific understanding about disability and, for this reason, the classifications were based on popular knowledge, which was widely disseminated among the peoples of that time until the present day.

The representations of deafness circulating in the public sphere are equivalent to the idea of the inability of the deaf to develop their life projects and exercise rights. Such mistaken perceptions limit the potentialities and possibilities of the aforementioned citizens, since the creation of specialized spaces favored segregation, thus society was not obliged to get to know this group better, which, as a result, continues to be invisible and kept away from the public life of the cities. Therefore, as well as the structural and architectural barriers, associated with the modification of places and services, human behaviors are obstacles to the guarantee of basic rights, freedoms and life plans of the deaf.

In this sense, the representations of deafness and the deaf subject can be transformed, through a long path of diffusion of differences and the promotion of human rights, in the social environment, especially with regard to the elimination of discriminatory and stigmatizing actions and attitudes to the detriment of this segment. Thus, it is not enough just to ensure accessibility rights in law, but, as a priority, to create a favorable environment for interaction between deaf and hearing people. In this logic, the expansion of the use of Brazilian sign language, through courses offered, both physical and virtual, and the attention to the use of visual elements in everyday life, such as the insertion of subtitles in the videos transmitted in the media and digital platforms, help the participation and autonomy of deaf subjects. Such needs favor the achievement of the right to social participation, as well as the construction of an inclusive city, within its limits located the school, where people with

deafness can be welcomed, with all the dignity that is inherent to them, because they are human beings.

Therefore, debating the representations of the inclusion of deaf subjects is essential, given that the scenario, especially international, moves towards overcoming attitudinal barriers, evidenced by human beliefs, actions and behaviors, which hinder the social participation of vulnerable groups, as well as their rights and freedoms, in addition to contributing to the fight against the real exclusion of deaf people, when, in fact, there is a fight for inclusion in the most diverse places, individual or collective, especially at school, as one of the first places of development of the human being in its cognitive and affective dimensions.

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Innovation in educational management: Challenges and opportunities

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ABSTRACT

This article aims to investigate the challenges and opportunities related to innovation in educational management, focusing on the practices and strategies that can be implemented to promote a more effective, inclusive and adaptable education. The rationale for this study lies in the growing need to modernize educational practices in response to the social, technological, and economic changes of the twenty-first century. The methodology adopted was bibliographic research, with a comprehensive review of the existing literature on the subject, exploring the state of the art and identifying the main trends and challenges. The results highlight that innovation in educational management requires a holistic approach, which considers not only the introduction of new technologies, but also changes in organizational culture, leadership development, and the formulation of aligned public policies. The personalization of teaching, the continuous training of managers and the sustainability of innovative practices emerge as key elements. It is concluded that, for innovation to be effective and sustainable, it is necessary to have a collective commitment, support from public policies and a school culture that values experimentation and inclusion. Innovation, when well conducted, has the potential to transform education, making it more relevant and equitable.

Keywords: Educational Innovation, Educational Management, Personalization of Teaching, Public Policies, Inclusion.

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INTRODUCTION

In recent decades, educational management has been challenged to rethink and restructure its practices, driven by a constantly changing global scenario. Education, as a fundamental pillar for social and economic development, requires a management model that not only manages resources, but also promotes innovation and continuous improvement of educational processes. According to Gatti (2014), "educational management needs to be seen as a dynamic process, which involves planning, organization, direction and control, aimed at the effectiveness and efficiency of the educational process". This vision expands the role of the educational manager, who becomes an agent of change, fundamental for the implementation of innovations in the school context.

Innovation in educational management is an imperative need in the face of rapid technological, social and economic changes that directly impact the school environment. As Moran (2015) points out, "the incorporation of new technologies and methodologies requires managers prepared to lead transformation processes, ensuring that innovations are effectively integrated into the school routine". In this way, the capacity for innovation becomes a crucial criterion for the quality and relevance of education in the twenty-first century. However, innovation in the educational context is not limited to the adoption of new technologies. It also involves the reformulation of pedagogical practices, the restructuring of physical spaces and the redefinition of the roles of the various actors in the school environment. As Lima (2017) points out, "innovating in education means profoundly rethinking the teaching and learning processes, seeking alternatives that meet the needs of a society in constant evolution". This perspective highlights the complexity of the innovation process, which requires an integrated and multidisciplinary approach.

The challenges associated with innovation in educational management are many and varied. One of the main obstacles is resistance to change, which can arise both from teachers and from managers themselves. According to Fullan (2016), "educational change faces resistance when those involved do not understand or are not convinced of the benefits of new practices". In addition, the lack of adequate financial and human resources can hinder the implementation of innovations, limiting the scope and effectiveness of proposed changes. On the other hand, the opportunities offered by innovation in educational management are significant. The adoption of innovative practices can result in substantial improvements in the quality of teaching, promoting a more dynamic and inclusive learning environment. According to Oliveira (2018), "innovation in educational management has the potential to transform the school into a space for experimentation and creativity, where students are protagonists of their own learning". This view reinforces the idea that innovation can be a powerful instrument for building a more equitable and democratic education.

Globalization and the growing demand for 21st century skills also pose new challenges for educational management. The need to prepare students for an increasingly competitive and complex

job market requires schools to adopt innovative approaches in their management. According to Santos (2019), "educational management needs to adapt to the demands of a globalized economy, incorporating practices that promote creativity, collaboration, and critical thinking". These competencies, essential for success in the contemporary world, can only be developed in an educational environment that values and encourages innovation. In addition, innovation in educational management can contribute to the reduction of educational inequalities, by promoting practices that meet the diverse needs of students. As Freire (2020) points out, "innovative educational management is one that recognizes diversity and promotes inclusion, ensuring that all students have access to quality education". In this sense, innovation becomes an essential tool for building a fairer and more equitable school.

The training and professional development of educational managers also play a crucial role in promoting innovation. According to Lück (2015), "managers need to be prepared to deal with the complexities of the contemporary educational environment, which requires continuous training focused on innovation". The training of managers is, therefore, a fundamental element for the success of any innovative initiative in education.

Innovation in educational management also involves developing an organizational culture that supports and values continuous learning and experimentation. Creating an environment where mistakes are seen as learning opportunities and where new ideas are encouraged is critical for innovations to be successful and sustainable. In this sense, leadership plays a crucial role. According to Drucker (2017), "educational leaders must be facilitators of change, promoting an organizational climate that stimulates innovation, teamwork and commitment to the educational mission". This approach requires leaders who are willing to challenge the status quo and promote a shared vision of continuous improvement.

For innovation to occur effectively, it is essential that educational managers adopt a proactive posture in identifying and overcoming obstacles that may arise. This includes the ability to anticipate changes in the external environment and to adapt educational strategies according to new demands. As Demo (2018) observes, "educational innovation is not a linear process; it requires flexibility and adaptability, since it involves the constant reformulation of practices and concepts in response to new realities". Thus, managers need to be aware of external trends and innovations that can be integrated into the school context, always looking for ways to enhance the available resources. One of the main opportunities for innovation in educational management lies in the personalization of teaching, which aims to meet the individual needs of students and promote more meaningful learning. Personalization allows students to learn at their own pace and according to their interests, which can result in increased engagement and better academic results. In a study on innovation and personalization in education, Christensen, Horn, and Johnson (2016) state:

> The personalization of education, made possible by technological and pedagogical innovations, offers an extraordinary promise: to enable each student to learn according to their individual needs and interests. This approach transforms education from a one-size-fits-all experience into a personalized journey where learning is shaped by the characteristics and needs of each student. Educational management, in adopting this perspective, needs to reevaluate its traditional practices and make room for experimentation and continuous adaptation, ensuring that each student has the best opportunities for success." (CHRISTENSEN; HORN; JOHNSON, 2016, p. 45).

It is crucial that innovation in educational management is accompanied by a constant evaluation of its impacts and results. The implementation of new practices should be closely monitored, so that it is possible to identify what is working and what needs to be adjusted. As Luckesi (2018) points out, "evaluation is an essential component of innovation, as it allows educational managers to make informed decisions and adjust their strategies in real time". Continuous evaluation ensures that innovations are sustainable and effective, contributing to the construction of an education that truly makes a difference in students' lives

Finally, it is important to recognize that innovation in educational management is not an end in itself, but a means to achieve quality education. As Costa (2016) states, "innovating in educational management means constantly seeking new ways to improve the educational process, always with the objective of providing an education that prepares students for the challenges of the future". Therefore, innovation should be seen as a continuous and participatory process, which involves all members of the school community. In short, innovation in educational management poses both challenges and opportunities. While the obstacles can be significant, the rewards of innovative management are substantial, both for students and for society as a whole. In this article, we will discuss the main challenges and opportunities associated with innovation in educational management, exploring how managers can prepare to lead transformation processes in schools.

METHODOLOGY

This study is characterized as a bibliographic research of qualitative nature, which aims to understand and analyze the state of the art about innovation in educational management, identifying the main challenges and opportunities evidenced in the academic literature. Bibliographic research allows a broad understanding of the topic, through the critical analysis of works already published, contributing to theoretical deepening and to the identification of gaps and current trends in the field of study (GIL, 2019).

Data collection was carried out through a systematic survey of scientific articles, books, theses, and dissertations published between 2015 and 2023, in order to ensure the timeliness and relevance of the information collected. The databases used included Scielo, Google Scholar, CAPES Periódicos and ERIC, recognized for the scope and quality of their academic collections. Keywords

in Portuguese and English were used, such as: "educational innovation", "educational management", "innovative practices in education", "educational innovation" and "educational management". The process of selecting the materials followed previously established inclusion and exclusion criteria. The inclusion criteria included works that directly addressed the theme of innovation in educational management, empirical and theoretical studies that presented critical analyses on the subject, and publications in journals recognized by the academic community. On the other hand, articles that did not have a direct relationship with the object of study, duplicate publications, and studies that did not meet the methodological quality criteria defined for this research were excluded.

The data analysis followed an interpretative approach, based on the content analysis technique proposed by Bardin (2016). Initially, an exploratory reading of the selected materials was carried out, aiming at familiarization with the content and the identification of recurring themes. Then, the data were coded, categorizing the information into thematic axes relevant to the objective of the study, such as: innovative approaches in educational management, impacts of innovation on the quality of teaching, challenges in the implementation of innovative practices and emerging opportunities in the contemporary educational context. To ensure the validity and reliability of the analysis, strategies such as source triangulation and peer review were adopted, allowing for a more robust and consistent interpretation of the data collected. In addition, it sought to relate the findings of the literature with practical contexts and documented experiences, expanding the understanding of how innovation in educational management materializes in different realities and what are the factors that influence its success or failure.

STATE OF THE ART

From the analysis carried out, it was possible to map the state of the art regarding innovation in educational management, evidencing a growing concern of the academic community and educational managers with the need to rethink and reinvent management practices in the face of the demands of the twenty-first century. The reviewed studies point to a diversity of innovative initiatives and models, which seek to align educational management with the ongoing social, technological, and cultural transformations (MORAN, 2020; LÜCK, 2018). It was observed that the integration of digital technologies, the adoption of collaborative and participatory practices, and the focus on the development of socio-emotional skills are some of the main trends identified in the current literature. However, the studies also highlight numerous challenges inherent in the implementation of innovations in educational management, including cultural resistance, resource limitations, and the need for continuous training and training of managers and other education professionals (FULLAN, 2019).

Concomitantly, significant opportunities were identified for the advancement of innovation in educational management, such as the potential of collaboration networks, the strategic use of data for decision-making, and the growing appreciation of inclusive and sustainable practices in the educational environment. These findings reinforce the importance of a systematic and contextualized approach to the promotion of innovation, which considers the specificities of each educational reality and involves the active participation of all stakeholders involved in the educational process.

RESULTS AND DISCUSSION

The analysis of the data collected in the bibliographic research reveals a complex and multifaceted panorama of innovation in educational management. One of the first aspects highlighted is the widely shared perception that innovation, despite being a pressing need in the contemporary educational context, faces significant resistance. These resistances are largely due to an institutional culture that, historically, has shown itself to be averse to abrupt and disruptive changes. According to Hargreaves and Fullan (2015), "resistance to change is a natural phenomenon in educational institutions, where traditional practices are deeply rooted and where the actors involved often find it difficult to visualize and implement new approaches". This data suggests that any effort to promote innovation must include strategies to mitigate such resistance. Another important result of the analysis is the finding that innovation in educational management is not limited to the simple introduction of new technologies or methodologies. While technology is often seen as a driver of innovation, studies indicate that its effectiveness depends fundamentally on the context and the way it is integrated into the educational environment. Moran (2015) points out that "technology, by itself, is not enough to transform education; it needs to be accompanied by a change in school culture and pedagogical practice." Thus, effective innovation in educational management requires a holistic approach, which considers not only the technological aspects, but also the pedagogical, organizational and cultural aspects.

The results also reveal a strong correlation between innovation and educational leadership. Leadership is often cited as a critical factor in the success of innovative initiatives in education. Educational leaders who take a proactive stance and encourage a culture of experimentation and continuous learning tend to create environments that are more conducive to innovation. As Kouzes and Posner (2017) point out, "leaders who inspire a shared vision and empower their colleagues to take action are more effective in driving meaningful and lasting change." This data reinforces the importance of developing leadership skills among educational managers, enabling them to conduct innovation processes effectively.

Personalization of teaching emerges as one of the most significant and promising trends in educational innovation. Several studies reviewed point out that practices that aim to adapt teaching to

the individual needs and interests of students have shown positive results in both engagement and academic performance. Christensen, Horn, and Johnson (2016) state that "the personalization of teaching allows students to advance at their own pace, which can lead to deeper and more lasting learning." However, implementing this type of approach requires substantial changes in school structure and management, as well as investments in technology and teacher training. Despite the promises associated with the personalization of teaching, the literature also warns of the challenges related to this approach. One of the main challenges identified is the issue of equity. There is a risk that personalization, if not carefully implemented, could exacerbate existing inequalities, benefiting only those students who already have greater cultural and technological capital. To avoid this problem, it is essential that personalization policies are accompanied by measures that ensure equitable access to resources and opportunities. According to Freire (2020), "the personalization of education should be seen as a right of all students, and not as a privilege of a few". This point underscores the need for inclusive policies that ensure that innovation in education benefits everyone.

With regard to the training and professional development of educational managers, the analysis indicates that there is an urgent need for training programs that are aligned with the demands of innovation. The literature points out that many managers still do not have the necessary skills to lead processes of change and innovation in schools. As Lück (2018) observes, "the training of educational managers must be continuous and practice-oriented, in order to prepare them to face the complex challenges of the contemporary educational environment". This need for continuous capacity building reflects the dynamic and ever-evolving nature of educational innovation.

Another relevant aspect identified in the results is the importance of collaboration networks and partnerships for the success of innovation in educational management. Studies show that schools that participate in collaborative networks or that establish partnerships with other institutions tend to be more innovative and effective in implementing change. According to Hargreaves and O'Connor (2018), "collaboration networks allow schools to share experiences, resources, and knowledge, creating a more favorable environment for innovation." This collaboration can occur at different levels, from local partnerships to international networks, broadening the horizon of possibilities for innovation.

The use of data and evidence in decision-making is another recurring theme in the studies analyzed. Data-driven management is seen as an innovative practice that can significantly improve the effectiveness of educational decisions. However, the literature also highlights that simple data collection is not enough; It is crucial that this data is interpreted correctly and used strategically. As Earl and Timperley (2015) point out, "data should be used to guide practice and support informed decision-making, but this requires a culture of data use and the ability to critically analyze and

interpret information." This point underlines the need to develop analytical skills among managers and educators, so that data can be transformed into concrete actions that improve education. The analysis of the challenges faced by educational managers in the implementation of innovations reveals the presence of significant structural barriers, such as the lack of financial and human resources. Schools often do not have sufficient funds to invest in technologies or in continuous training for their teachers and managers. Additionally, a shortage of qualified personnel can limit the ability of schools to implement new practices effectively. As Silva (2017) argues, "innovation in education cannot occur without adequate investment in resources, both material and human". This data emphasizes the need for public policies that financially support innovative initiatives and ensure that schools have the necessary resources to implement them.

An interesting point observed in the literature is the issue of the sustainability of educational innovations. Often, innovations are introduced with great enthusiasm, but cannot be sustained in the long term due to a lack of planning and ongoing support. Fullan (2016) discusses the importance of creating conditions for the sustainability of innovation, stating that "for educational innovations to be sustainable, a continuous commitment to professional development, the appropriate allocation of resources and the support of the entire school community is necessary". This commitment must be reflected both in educational policies and in the daily practice of schools. Another critical aspect is the need for alignment between educational innovation and public policies. The literature suggests that, for innovation to be effective, it is essential that educational policies are aligned with the innovative practices promoted in schools. According to Santos (2019), "the mismatch between public policies and school practices can create significant obstacles to the implementation of innovations". This highlights the importance of an integrated approach, where education policies are formulated in a way that supports and encourages innovation in schools.

In addition, the literature highlights the importance of an inclusive approach in educational innovation. Innovation should be seen as a tool to promote equity and inclusion, ensuring that all students have access to quality education. Freire (2020) argues that "innovation in education must be at the service of inclusion, ensuring that differences are respected and that all students have the same opportunities for success". This data reinforces the need for innovative practices to be developed with a clear focus on inclusion and social justice. In addition to recognizing the opportunities offered by innovation in educational management, it is essential to address the conditions necessary for these innovations to be effective and sustainable. The literature highlights that, for innovation to be successful, a school environment that promotes autonomy, creativity and the spirit of collaboration is necessary. Such conditions allow educators to experiment with new pedagogical approaches without the fear of failure, creating a cycle of continuous learning and improvement. As Elmore and Burney (2016) point out:

> Innovation in education cannot be seen as an isolated event or as a set of practices to be applied in a linear manner. It should be understood as a dynamic and collective process, where organizational learning and critical reflection play central roles. It is essential that schools create a supportive culture where dialogue, collaboration and experimentation are encouraged and where mistakes are seen as opportunities for growth and continuous improvement." (ELMORE; BURNEY, 2016, p. 67)

Another crucial factor for the success of educational innovation is the support of public policies. The literature suggests that innovations in educational management are more likely to succeed when they are aligned with policies that encourage and sustain innovative practices. Policies should provide the necessary resources, such as adequate funding, training for the professionals involved, and ongoing support during the implementation of innovations. As Lima (2017) argues:

> For innovation in educational management to be viable, it is essential that public policies play a facilitating role. This involves the creation of legal frameworks that encourage innovation, the allocation of resources for the continuing education of managers and teachers, and the promotion of a culture of evaluation and continuous adjustment of educational practices. Without this support, innovations tend to run out before they even reach their full potential. (LIMA, 2017, p. 89)

In summary, the analysis of the results points to the complexity and challenges of innovation in educational management, but also to the vast opportunities it offers. For these innovations to be sustainable and effective, it is essential that educational managers have structural support, continuous training, and a school culture that values experimentation and continuous learning. Only with the integration of these conditions will it be possible to transform educational practices in a significant and lasting way, contributing to an education that responds to the needs and challenges of the twenty-first century.

Finally, the analysis of the results indicates that, although the challenges are numerous, the opportunities offered by innovation in educational management are vast and promising. The reviewed literature suggests that with the right support and a strategic approach, innovation can significantly transform education, making it more relevant, inclusive, and effective. As Moran (2020) concludes, "innovation in education is a necessary path to respond to the challenges of the contemporary world, but it requires commitment, planning, and a clear vision of the future we want to build". This point summarizes the importance of a careful and well-planned approach to innovation, which involves all stakeholders and is aligned with a shared vision of continuous improvement.

CONCLUSION

The conclusion of this study on innovation in educational management reflects the complexity and multiplicity of factors involved in the process of transforming educational practices.

Throughout the analysis, it became evident that innovation, while essential for modernizing and improving the quality of education, faces a number of significant challenges, from cultural resistances to resource constraints. However, these challenges should not be seen as insurmountable barriers, but as opportunities to rethink and reshape traditional approaches, adopting strategies that promote a more dynamic and adaptable educational environment to change.

Innovation in educational management is not limited to the simple introduction of new technologies or methodologies. It requires a broad and integrated view that considers the interactions between the various elements that make up the school environment, including organizational culture, pedagogical practices, and public policies. For innovation to be effective, a collective commitment is needed that involves all education stakeholders, from managers to teachers, students, and the community in general. This commitment must be supported by strong and inspiring leadership, capable of leading change processes with clarity and determination.

One of the central points highlighted throughout this study was the importance of a holistic approach to innovation. This means that efforts to innovate must consider not only the technical aspects, but also the human and social factors that influence the success of the changes. Creating a culture of innovation within schools is key to developing practices that are sustainable and can truly transform the educational experience of students. This culture must value creativity, collaboration, and a willingness to learn from mistakes, essential elements for continuous innovation. Personalization of teaching has been identified as one of the most promising approaches in educational innovation. However, for this personalization to be implemented effectively, it is necessary to overcome challenges related to equity and accessibility. Ensuring that all students have the same opportunities to participate in personalized education is crucial to avoid widening existing inequalities. This requires careful development of policies and practices that take into account the diverse realities of learners and that are able to tailor personalization to the specific needs of each school context.

Another crucial aspect highlighted was the need for training and continuous development of educational managers. Given the complexity of the challenges associated with innovation, it is essential that managers are prepared to deal with the demands of an ever-changing educational environment. This implies the creation of training programs that are not only theoretical, but also offer practical experiences that allow managers to develop the skills necessary to lead innovation processes. In addition, continuous training should be seen as a permanent strategy, which accompanies managers throughout their careers. The sustainability of educational innovations is another issue that deserves attention. For innovative practices to be maintained and generate long-term impacts, there needs to be careful planning and continuous support from both public policies and the school community. Innovations need to be constantly evaluated and adjusted, based on data

and evidence, to ensure that they are meeting their objectives and contributing to the improvement of education. Without this monitoring, there is a risk that innovations will become just passing fads, without leaving a lasting legacy.

The alignment between innovation and public policies was identified as a critical factor for the success of educational changes. For innovations to flourish, it is necessary that educational policies are designed in a way that supports and encourages innovative practices. This includes the provision of adequate resources, the creation of regulatory frameworks that favor innovation, and the establishment of clear goals that guide the efforts of managers and educators. Effective alignment between school practices and public policy can create a more innovation-friendly environment and ensure that efforts are supported to be successful. Inclusion should also be a guiding principle in the implementation of educational innovations. Innovative practices need to be accessible to all students, regardless of their social, economic, or cultural conditions. Innovation should serve as a tool to promote equity and ensure that everyone has access to quality education. This requires that innovative practices be designed with an inclusive approach, which takes into account the diversities present in the school environment and seeks to reduce existing disparities.

Finally, this study concludes that, despite the challenges, innovation in educational management represents a unique opportunity to transform education and prepare it to face the challenges of the twenty-first century. With the right support, a clear vision, and a strategic approach, it is possible to create more inclusive, dynamic, and adaptable educational environments. Innovation should not be seen as an end in itself, but as a means to achieve a fairer, more equitable, and more effective education that meets the needs of all students and contributes to building a more developed and egalitarian society. In summary, the future of educational management is intrinsically linked to the ability to innovate in a sustainable and inclusive way. Educational managers, supported by public policies and the school community, have the challenge and opportunity to lead transformations that can make a significant difference in the lives of students and in society as a whole. Innovation in education, when conducted in a responsible and well-planned manner, has the potential to be one of the main drivers of social progress and human development in the coming decades.

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