

Methodology of scientific research in the Pedagogy course: reflections on the training of teachers and researchers



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Abstract

This article deals with the process of training the Pedagogy course student in scientific research methodology, reflecting on being a research professor. Through the qualitative approach and exploratory and descriptive field research, the study dealt with data referring to 13 semesters of the course from 2015 to 2022. The results showed the need for the engagement of the teaching collective in the articulation of contents between the disciplines of the Pedagogy curriculum, in order to train the researcher teacher beyond the articulation between theory and practice, covering levels of greater criticality and social relevance through the experience of an emancipatory academic culture.

Keywords

student; training; pedagogy; scientific research methodology; being a researcher.

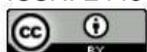
Metodologia da pesquisa científica no curso de Pedagogia: reflexões sobre a formação de professores/as pesquisadores/as

Resumo

Este artigo trata do processo de formação do estudante do curso de Pedagogia em metodologia da pesquisa científica, refletindo sobre o ser professor pesquisador. Por meio da abordagem qualitativa e da pesquisa de campo exploratória e descritiva, o estudo tratou de dados referentes a 13 semestres do curso no período de 2015 a 2022. Os resultados evidenciaram a necessidade de engajamento do coletivo docente na articulação de conteúdos entre as disciplinas do currículo de Pedagogia, no sentido de formar o professor pesquisador para além da articulação entre teoria e prática, abrangendo níveis de maior criticidade e de relevância social pela experiência de uma cultura acadêmica emancipatória.

Palavras-chave

estudante; formação; pedagogia; metodologia da pesquisa científica; ser pesquisador.



Metodología de la investigación científica en el curso de Pedagogía: reflexiones sobre la formación de docentes-investigadores.

Resumen

This article addresses el proceso de formación de los estudiantes del curso de Pedagogía en metodología de la investigación científica, reflecting on el ser docente investigador. Using a cualitative approach and exploratory and descriptive field investigation, el estudio analizó datos de 13 semestres del curso entre 2015 y 2022. Los resultados destacan la necesidad de que el equipo docente se comprometa en la articulación de contenidos entre las asignaturas del currículo de Pedagogía para formam al profesor investigador más allá de la articulación entre teoría y práctica, embracing niveles de mayor criticidad y relevancia social a través de la vivencia de una cultura académica emancipadora.

Palabras clave

student; educación; pedagogía; metodología de la investigación científica; ser un investigador.

1 Introduction

The systematization carried out in this article encompasses the academic debate on the teaching and learning of the Methodology of Scientific Research (MPC), through a teaching practice in the degree course in Pedagogy¹, highlighting the implications of this process in student education.

This theme also covers the challenge of thinking and defining strategies to counterpoint and criticize the conceptions defined by the National Common Curricular Base (BNCC) for teacher training. The BNCC not only guides and reaffirms the formation for the capitalist productive system, but also configures itself as an instrument of the State in the liberal style of education reformers. Such a logic of *entrepreneurship* in education carries the vision of the free market and competition, perpetuating the false idea that “[...] citizens are equally inserted in this logic and their effort (merit) defines their social position” (Freitas, 2018, p. 31). This conception of the world is then granted and designated as the purpose and purpose of education.

Inevitably, it is an educational policy that has deepened social inequalities in Brazil. In fact, Marsiglia *et al.* (2017) present a complaint about the interests of the

1 The study of this theme involves the research methodology disciplines of the Pedagogy curriculum of the State University of Southwest Bahia (UESB), *campus* of Vitória da Conquista, Bahia (BA) between 2012 and 2022. Specifically, the experience with the subject of Research in Education II is presented here, with the locus of observation and apprehension of data being the day and night classes of Pedagogy between the period from 2015 to 2022.

business classes represented by BNCC meanings: while they seek to promote "entrepreneurship", they also aim to empty the public school and adapt students to the labor market, since the intention of this training is to prepare the children of the working class for the world of informal and precarious work, aligned with the new demands of the world market and capital.

Therefore, critically problematizing how students of the Pedagogy course apprehend the MPC and are being trained as research teachers becomes here a point of strategic and relevant reflection to be observed in different dimensions, among them that which refers to a critical professional training and with possibilities of an emancipatory educational process or practices in contrast to the logic already established by the current BNCC.

In order to carry out this dialogue and bring subsidies for the problematization of the proposed theme, the main objective of this article is to address and reveal the learning process in Research Methodology (MP) of Pedagogy students from 2015 to 2022. Thus, we proposed to enunciate reflective-critical elements on the formation of the researcher teacher, of the researcher being, and to point out limitations and possibilities arising from the process of academic formation in that course.

To this end, the article consists of the following topics in addition to this Introduction: "Methodology applied to scientific research", which deals with the approach, foundations and characterization of the research object; "Reflections on the methodology of scientific research in Pedagogy: does the training of the research teacher foster emancipation?"; "The student of Pedagogy and the learning of the methodology of scientific research: results and analyzes"; and, finally, a reflective synthesis of the problem in the form of considerations.

2 Methodology applied to scientific research

In the search for answers to the questions that guide the exposed problem, we find as a possibility of critical analysis the contributions of the dialectical approach, especially due to the importance of its concept of investigative action, which deepens the understanding of the possible mediations between the data triggered, shedding light on its dimensions of form and content, inherent to any and all social contexts, revealing, in a

significant way, its contradictory and determining aspects, which, by the linear and objective view, are invisible.

In dealing with the object and subjects of this study, which corresponds to the subject of PM and the learning process of students in the Pedagogy course, we understand that numerous factors streamline their intertwining. There is a multiplicity of elements acting, driving and determining their states of reality. The dialectical approach considers that phenomena, their representations and relationships do not occur immediately, fixed or independent, propelling us to new perspectives on this reality and promoting an approximation or explanation of the forms and contents that constitute the learning process of the Pedagogy student in the MP discipline. The relationship between subject and object is subjected to an examination of the reified forms of the world, in which objective ideals are diluted, “[...] they lose their fixity, naturalness and alleged originality, to show themselves as derivative and mediate phenomena, as sediments and products of the social praxis of humanity” (Kosik, 2000, p. 21).

Seeking to understand and mediate the results of this study, we researchers aim to enhance the debate and teaching in the formation of the pedagogue, especially in the context of MP. To affirm our purpose, it is pertinent to highlight the reflective aspect of Kosik (2000), who defines dialectics as critical thinking committed to unveiling the “thing in itself”, guiding us to question how it is possible to reach the understanding of reality beyond abstract schemes and/or their simple representations. In the context of this research, understood as a human and social activity (André; Lüdke, 1986), researchers inevitably imprint their values, interests and principles, as well as the assumptions that guide their thinking also underlie the study.

It is, therefore, a qualitative approach, which excels in the understanding of the meaning to be given by individuals or groups in attribution to a social or human problem (Creswell, 2021). Indeed, to this end, we used the type of exploratory and descriptive field research, in accordance with the descriptions of Lakatos and Marconi (2010), when considering its great ability to approach the locus and its potential to reveal significant information about a problem for which an answer is sought, whether to prove or discover new phenomena and their relationships.

In this theoretical-methodological perspective, the definition of the research material was supported by the results obtained by the students of the Pedagogy degree

course at UESB, Vitória da Conquista *campus*, who attended the MP course² in the following periods: 2015.1 and 2; 2016.1 and 2; 2017.2; 2018.1 and 2; 2019.1 and 2; 2020.2.; 2021.2; 2022.1 and 2. This curricular component is called Education Research II (EP II) and is arranged in the curriculum of the third semester of the course, aiming at the teaching-learning process for the construction of a research project.

Considering this context, the investigation was organized into three stages. The first involved the ordering of the Pedagogy students' research projects over 13 semesters, submitted to the final evaluation of the subject. The second included a survey of data from the Sagres System (UESB), observing and detailing the results obtained in three units during the course evaluation process. The third tried to verify and describe the logic of scientific thinking in the form of exposition of the projects and the content addressed by the students.

The collection of quantitative data of the subjects through the Sagres System (UESB) showed objectively that, during the 13 semesters, a number of 221 enrollments was carried out, with 138 approvals, 62 failures and 21 student withdrawals or dropouts.

Having as object of this research the learning process of students in the discipline of PE II, we explore their practical and reflective experiences, focusing especially on the logic of scientific thinking and its transposition to reflective writing. Thus, the analysis focused on the research themes and their organizational stages, covering the structuring of the research project, which includes the theme, scientific question, justification, objectives, methodological aspects, bibliographic review, schedule and references. We used as parameters for this analysis the research projects written by the students, in addition to other learning assessment activities, such as specific texts on themes, concepts and foundations of education and CPM prepared throughout each semester.

3 Reflections for CPM in Pedagogy: does the training of the researcher teacher foster emancipation?

In order to explain the enunciation of this topic and its help to approach the study, we explain our conception based on the contribution of Tonet (2005), who sensibly warns of the importance of understanding the conceptual difference and practical exercise of a

2 In addition to this subject, the study covers other MP subjects from 2012 to 2022, including: Elaboration of the Monographic Work (ETM), Research Practice (PE) and Research in Education I (PE I).

historical project of society, which is established between forming for citizenship or emancipation. The author states that keeping the objectives of teaching and training focused on citizenship and promoting it in pedagogical practices, both in elementary school and university, contributes to fixing individuals in the condition of reproducing the formal legal-political relations of the State, thus reaffirming the capitalist forms of life and work, assigning limits to the possibilities of changes in the social sphere and in the formation of subjects.

The legal-political sphere of the current society is responsible for dividing it into the private and public dimensions, imperatively having the former as defining the latter. Forming for citizenship, therefore, is a political practice of affirmation of the *status quo*, following the logic of private production that is as soon as reproduced in the public dimension. Thus, we understand why formalized educational policies do not fully favor the working class, that is, those who depend on the sale of their labor power.

The educational public policies of the capitalist state result from bargains between the private and public dimensions and do not represent a true strategy of change and contribution to the emancipation of the popular classes. This explains why undergraduate courses, subjects such as MP and other areas such as Sociology and Philosophy are neglected by teacher training policies. It remains to be questioned what are the consequences of these formal definitions in the training of Pedagogy students and for what purpose they will be teachers. It is evidenced, by Tonet's (2005) conceptualization, that developing skills and enhancing teacher training to also be a researcher expands the ability to problematize social practice and produces greater possibilities for educational practices contrary to citizenship training.

Continuing these reflections, we identified in certain academic literatures subsidies for our questions and discussions that, having been the result of other contexts, educational policy and the teacher training curriculum in the 80s and 90s of the twentieth century, pointed out the necessary articulations to foster the debate on the role of CPM in the Pedagogy course. Among the problematizations, we find the pertinent debate made by Franco (1988, p. 76) on the formation of the researcher in undergraduate courses:

[...] The conceptual fragility of many Methodology courses that do not face a necessary epistemological discussion and provide students with only a list of techniques, thus making it impossible to produce consistent research that, based on a common thread and the discussion of a problem, respects its integration with

relevant theoretical-methodological assumptions and the proper adaptation to the procedures of data collection, analysis and interpretation.

Such questions raised by the author bring several points about the weaknesses and limitations of CPM courses, which are presented as follows: the concepts are not well developed or adequately explored; it is important to discuss the philosophical bases of knowledge (epistemology) to understand how and why certain methodologies are used; many courses are limited to teaching a set of methodological techniques without explaining the reasoning behind them.

By not adequately addressing the conceptual and epistemological aspects, Methodology courses (understood here as disciplines) may fail to prepare students to carry out quality research, thus compromising the results of their research. Franco (1988) highlights the importance of having a clear line of reasoning and a deep understanding of the research problem in question, in order to find answers. In addition, it emphasizes the need to align research methods with theories relevant to the field of study. For researchers, this means understanding and applying the theoretical foundations appropriate to their area of research. This premise dialogues with the assertion of Luna (1988, p. 74), for whom “[...] the theoretical framework of a researcher is a filter through which he sees reality, suggesting questions and indicating possibilities”.

The theoretical framework of the research plays an important role both in the content and in the way the researcher conceives and conducts the study. It outlines the way the researcher interprets reality, influencing the questions that are asked, the hypotheses that are formulated, and the approaches that are adopted. In addition, the theoretical framework serves as a guide for the research process, opening new possibilities for investigation and favoring effective results.

Bianchetti and Meksenas (2004) reveal, through their experiences in Higher Education Institutions (IES) in Brazil, teaching in CPM disciplines, how the teaching-learning relationship in research can materialize in the Pedagogy curriculum. They emphasize that pedagogues, in their professional performance, who follow the guidelines and postures acquired during the introductory contact with undergraduate research will contribute to the development of a critical look at the reality with which they deal and in which they act.

The pedagogue guided by the learning of certain research skills, such as access “[...] to the rules of knowledge methods; to empirical methodologies; to the elaboration of projects; to their application in fieldwork and interpretative analyzes of clippings of the real”, can develop new professional positions, reiterate Bianchetti and Meksenas (2004, p. 72). This results in a significant relationship in the pedagogical practice of this teacher, as the authors suggest, for the materialization of a praxis between research and teaching, a professional performance in which theory and practice are dialectically involved.

Under another didactic field of view of learning in research and, at the same time, including the role of intervention of the work with research, Barros and Lehfel (2010) signal the importance of valuing knowledge in this broader scientific and intellectual process in the formation of the researcher. They point out some paths, starting with the search and acquisition of information to solve problems, both experiential and experiential. In addition, they highlight the application of the knowledge obtained to promote the material and spiritual progress of man and society, as well as the creation of technical-scientific inventions that can benefit human life.

We agree with these reflections, which bring interpretations of reality at a critical level and contribute to demonstrate, in our understanding, that undergraduate courses have declined in quality with the implementation of the new orders defined by the neoliberal policy for Education in Brazil. This proves the veracity of the criticisms raised in the 1980s and 1990s on several aspects that would be affecting the undergraduate courses of public universities. Such changes, therefore, brought greater difficulties to the teacher training curricula, in the organization of interdisciplinary and transdisciplinary disciplines and contents, impairing the theoretical-methodological development of an emancipatory nature.

4 The Pedagogy student and MPC learning: results and analysis

Garcia and Santos (2023) observed that students in the Pedagogy course face different levels of difficulty in assimilating and appropriating the contents, as well as in understanding the objectives and in the practical and reflective application of the CPM discipline. The authors raise some questions about the relationship between teacher education, teaching and being a researcher, through the following questions:

Do these weaknesses arise from the social context and school education of these students, influencing the distance from their possibilities of understanding the historical, theoretical and world/society conceptions relations and their implications in the production of scientific knowledge? Or would the university itself, with its dynamics, curriculum and pedagogical organization, in addition to undergraduate policies and teaching and learning processes, contribute to distancing students from scientific research practices and developments for critical professional training? (Garcia; Santos, 2023, p. 2).

In order to reach a deeper understanding of these issues, other analytical contributions are certainly needed that bring comprehensive and contextualized data, involving the educational institution and the academic life of the students. However, they are important issues to be highlighted, as they make a significant interface with the reflections and descriptions of the learning context reported here. Especially to better understand how students can, or cannot, have the autonomy to use knowledge about research methodology in other academic and scientific written activities, or as a research subsidy in the pedagogical practice they will develop in the internships of the course and in the exercise of teaching.

Thus, through the three investigative stages, exposed in the methodology item, added to observations of the opinions and evaluations of the students' learning process, considering the syllabus and objectives of the PE II discipline³, the following results were partially achieved:

- Students of the third semester of the Pedagogy course, when entering the discipline of PE II, have limited understanding of the process of knowledge production in education, punctually about its scientific aspects and the theoretical foundations of the area;
- They present difficulties in mastering the scientific writing standards of the Brazilian Association of Technical Standards (ABNT) and in structuring academic writing, which directly affects the application of the fundamental rules for the organization of academic texts;

3 The PE II syllabus proposes the teaching-learning work on: "Contemporary trends in educational research. Research methodologies in education. Preparation of preliminary research project ". And the general objective is: "To approximate and relate the Pedagogy student with the logical foundations of the research methodology and its focuses on the production of knowledge in Education and related areas, through interaction with educational research, its historical and/or current production on consolidated and emerging themes (research demands in the area), identifying its main theoretical and methodological trends, in order to build subsidies for the elaboration of a research proposal".

- The students of the third semester report that they studied works and classical thinkers in the areas of Sociology, Philosophy and Education, reflecting on their theoretical approaches in the curricular components of the previous semesters. However, they demonstrate a limited apprehension and little familiarity with these thinkers, apart from an uncertain understanding of their historical origins and conceptions of society and human formation. This situation may explain the students' difficulties in understanding how these works and thinkers influence the foundations of scientific methods, especially those applied in the area of Education to support their research.
- In the writing of the projects, it was noted the absence of references to these classical thinkers and, consequently, the lack of exploration of their theories and concepts.

Another aspect that deserves attention is the need to understand the logical-scientific structure for the production of knowledge. Students, at first, are not clear about the dimensions and theoretical-philosophical relationships, which contributes to the lack of understanding of the epistemological, ontological and gnosiological dimensions that support the variety of theoretical approaches in the themes of research in Education. This need becomes evident when students are challenged to perform more systematic and conceptual readings for bibliographic reviews of their research themes.

Several additional elements may influence the aforementioned difficulties, such as the varied socioeconomic conditions of Pedagogy students, which affect the learning process and the quality of scientific production during their professional training. We refer, as a priority, to the period of coexistence, experience and interaction of the students with the subjects of the course and the knowledge that they can or cannot assimilate throughout the training. Specifically, we refer to the first three semesters, a period in which students take, on average, 12 to 18 subjects of the Pedagogy curriculum, and the results that could be obtained in the MP subjects.

In the Pedagogy course, two PE II subjects are offered, each with a workload of 60 hours and capacity for 20 enrollments per semester⁴, typically one in the morning and one in the evening, with a teacher responsible for each class. Thus, the total enrollment

4 It is important to note that there were semesters in which only a 60-hour PE II course was offered, occasionally absorbing a larger number of students.

in a PE II subject is, on average, 20 students per semester. As previously reported, in the period from 2015 to 2022, a total of 221 enrollments were registered in the corresponding 13 semesters, with 138 approvals, 62 failures and 21 cases of suspension or withdrawal from the course.

The main reasons for the failures and dropouts of the subject include: a) difficulties in understanding the logical aspects of research and in applying these concepts to the research project through academic writing, aggravated by insufficient reading, study and assimilation of content related to their specific themes, such as works, authors and research; b) students often cite the scarcity of time for the necessary readings, in addition to an unsatisfactory historical and conceptual understanding of the topics of interest for the development of their research.

Another explicit element is the impossibility of mediating theory and practice for the elaboration of a scientific or problematic question, which reduces the reflective and interpretative possibilities of students in the scope of other dimensions of the research project. This includes the construction of reflective arguments for the justification, the organization of objectives (general and specific), the writing of the methodological aspects necessary for the indication of how to subsequently develop the research, taking into account the research approach, type and procedures. This fragility is manifested by multiple factors, such as the limitation of specific readings, as has already been verified, of access to research already elaborated in graduate programs, the non-participation in study groups of the research professors of the course and, consequently, the lack of approximation with different themes that are part of the range of investigative possibilities in the area of Human and Social Sciences.

Among the factors that contribute to this gap in the training of Pedagogy students, many point to the limitation of time dedicated to academic activities in favor of paid work. This need, which most claim to have for their own support or to meet family and care obligations, is one of the main obstacles faced by students.

Based on this summary of results and the questions presented, the primary intention is to foster spaces for debate and dialogue in the training of Pedagogy students. The objective is to develop an awareness of the crucial role of scientific research in the academic training process, anticipating the repercussions of this process on the pedagogue's professional practice. Thus, we seek to contribute to the training process,

both in the short and medium term, considering the future implications of this learning in teaching practice.

As suggestions, we present some initiatives that, although they need to be considered and adopted as goals or parameters for the training of students by the course faculty and the institution, can enrich the curriculum. The first suggestion is the inclusion of a discipline dedicated to the paradigms of science and its relationship with classical and contemporary thinkers, promoting interactions with the production of knowledge in education. The second suggestion is for the curricular components of the first semesters, in which a more effective alignment of the contents is sought, through a collaborative pedagogical organization among teachers, keeping some didactic materials in common. This would serve as a basis for studies and readings, allowing students to identify the connections between these materials, their currents of thought and pedagogical theories and the foundations that guide visions of society, education and teaching. Such a strategy would stimulate the development of understanding about the historical construction of knowledge, its conceptions and the consolidation of pedagogical and research practices in the scientific field of Education.

The suggestions presented refer, in particular, to the finding, through the students' learning experience, that they have little or no knowledge about the conceptions that underlie the theoretical-philosophical currents of thought in Pedagogy⁵. This observation justifies a more detailed investigation, with emphasis on the curriculum and theoretical foundations of the Pedagogy course. The objective is to deeply understand why Pedagogy students are oblivious to these contents, considered essential in their training. In addition, it is crucial to examine how this gap affects students' education and their ability to develop critical awareness, especially in relation to their political role as pedagogues.

We saw this debate as a rethinking of Freire's expression (1979, p. 35): "[...] the alienated being does not look at reality with personal criteria, but with the eyes of others. Therefore, it lives an imaginary reality" and, consequently, it does not live its own objective reality, but that which is imprinted by the hegemonic power of society. By the logic of this thought, the pedagogue's performance will not reach levels of emancipation

5 As examples for this appropriation of knowledge, we suggest the following works: *História das ideias pedagógicas no Brasil*, by Dermeval Saviani (2007), and *História das ideias pedagógicas*, by Moacir Gadotti (1995).

if, during his training, concrete elements that serve as a bridge between social practice and academic training are not incorporated. This includes the connection between basic and university education, based on critical conceptions that reflect theories and approaches capable of highlighting the contradictions present in the relations of capitalist society, analyzing its interactions with social totality and its political and economic influences.

The emphasis on research on the singularities and particularities of social and educational phenomena is important in the formation of the pedagogue, but, by themselves, these researches or knowledge productions may not be sufficient to transform the hegemonic purposes established by the educational policies of the capitalist state. It is necessary to review other aspects of the pedagogue's training, adopting a reflective approach that considers assumptions of the totality. This would allow a deeper understanding of the origins and influences of the predominant models of thought, action and life in the work context, marked by the historical methods of domination exercised by the classes and groups that hold economic power and control over the workforce.

Implications of this training model have been observed in several researches that deal with the theme, as reaffirmed by Gusmão and Garcia (2022) and Medeiros *et al.* (2023) in their studies, pointing out numerous situations of professional performance immersed in processes of reproduction of hegemonic logics, which, by defining the social function of the school, push it to the place of reproduction of market conceptions.

We highlight, from the results obtained, the need for greater clarification and understanding of Pedagogy students about the dimensions and conceptions of science, including its epistemological dimensions. This would allow students to incorporate in their training a theoretical-conceptual basis that would offer them conditions to understand and identify the differences between scientific methods, enabling them to defend, refute and decide on the most appropriate method to carry out the investigation. These understanding demands knowledge based on theoretical-philosophical fields delimited by classical and contemporary thinkers, as well as by relevant works and authors in the area of Education. Such contents should compose the curriculum of the course in its entirety, not limited only to MP subjects.

In Garcia and Santos (2023), some strategic readings are indicated that present relevant content for students to acquire a theoretical-philosophical understanding of the methods. Among the suggestions are: *Introduction to research in Social Sciences: qualitative research in Education*, by Triviños (1987), recognized as a classic of scientific methodology, which details the application of positivist, phenomenological and Marxist methods in the production of knowledge in Social Sciences and Humanities, including details of qualitative and quantitative approaches in research. Of equal relevance, the following books are also cited: *The dialectic as logic and theory of knowledge*, by Kopnin (1978), which addresses the philosophical aspects of science, the theory of scientific knowledge and the relationship between formal logic and Marxist dialectics, and *To understand science: a historical perspective*, by Andery *et al.* (2001), an important reference for understanding the genesis and evolution of scientific thought. Garcia and Santos (2023, p. 7) consider:

The indicated works, in addition to subsidizing the student in their academic research with theoretical and philosophical coherence, will contribute to recognize and expand in their formation new themes in the area of Education, academic reflections and interpretations and new or revised social practices, from a critical scientific construction and with theoretical-practical relevance.

Therefore, it is up to Pedagogy teachers and those responsible for the CPM discipline to lead students to recognize research as an act of scientific creation, validated and authenticated by a continuous improvement of studies. This reaffirms the importance in academic training for students to develop a solid epistemological basis and intellectual attributes to support their theoretical positions as researchers. Considering this prerogative, Gomide and Jacomeli (2016, p. 73-74) affirm the need for the acquisition of logical principles by the researcher, by drawing attention to the fact that:

[...] there is no way to investigate a given reality without a theoretical stance from the beginning of the investigation that makes it possible to clearly grasp the multiple dimensions of the problem that is intended to be unveiled. The researcher's little familiarity with the treatment of theory, philosophical reflection and the epistemology of science compromises the quality of research. [...] Rigorous accuracy with theoretical sloppiness is essential, even with regard to criticism of sources.

In order to emphasize the emancipatory aspects in the training of Pedagogy students, it is crucial to recognize the need for a transformation in academic culture. This involves changes in several institutional factors, such as university policy, curriculum and

teaching practice, as well as an increase in students' interest, engagement and critical view of their studies and professional future. Students must take active responsibility in their training processes, seeking and creating spaces for action and socio-political organization at the university, focusing on the quality of their education. After all, the quality of the training offered is what strengthens the social role of the university and justifies its existence.

Circumstantially, the MP subjects are offered in the second and third semesters of the Pedagogy course, with a total workload of 60 hours. This configuration proves insufficient to adequately address the essential theories, concepts and foundations of education and science. It is evident that such fundamental knowledge should be guaranteed through compulsory subjects, dedicated exclusively to the learning of this content. Thus, MP disciplines could focus on their specific objectives: the teaching of scientific methods and their applications in education, in addition to encouraging the identification and development of research problems, organization and elaboration of research projects, based on a solid logical-scientific basis.

We strongly defend that one of the primary objectives of the research methodology in initial training in Pedagogy should be to contribute to the qualification and expansion of the training of the researcher teacher. This involves enabling him to address new research themes in the field of Education and strengthen his academic reflections and interpretations. Such a process must occur through the adoption of innovative or revised social practices, based on a critical scientific approach aimed at interventions and transformations in school social practices. The focus should shift progressively from education to citizenship, seeking to eliminate obsolete practices, towards the establishment of increasingly emancipatory practices.

We understand that the process of training the pedagogue in research, evidenced by the experience with the disciplines investigated, requires the incorporation of a collective of teaching work engaged in the perspective of content mediation between the disciplines of the Pedagogy curriculum, integrating into this professional training a clear objective with regard to their skills in being a research teacher.

It is, therefore, a new space for dialogue to be built in the Pedagogy course, as Freire (1996) had already expressed that educational practice requires research involving teaching, verifying, intervening and educating, and the teacher who educates must also

be part of the process of being educated. In this sense, we, teachers who train pedagogues, are being challenged to create spaces, contexts, dialogues and teaching practices that have the character of endorsing critical training and, from that place, also being trained to overcome this *status quo* of social reproduction that began to define Pedagogy curricula, by having to respond to the legal basis of neoliberal educational policies consolidated in the 1990s, in the last century.

It is essential that research in the formation of the pedagogue goes beyond the mere articulation between theory and practice. Although this dimension is fundamental for the realization of knowledge production, it must be complemented by ethical principles and by a social and educational relevance that meets the needs of the popular classes. This includes the teaching practice that forms the pedagogue, as well as the commitment to the sphere of the State where this practice will be exercised.

5 Final Considerations

Given the objective of addressing and revealing the learning process in PM of Pedagogy students, the path taken in this study contributed to emphasize the relevance of improving the researcher's training in academic training. This includes not only an understanding of the application of scientific methods, but also a theoretical-conceptual stance focused on transformative teaching.

In this sense, Teixeira (2011) states that, in the process of academic training, MP contributes to students learning to interact with knowledge, introducing them to the stage of organization and construction of scientific logic through the exercise of thought and its manifestation in writing. This process involves the mediation of theories, concepts, philosophical foundations and reflective stimulation by social practice, promoting in students the understanding of ontological, gnosiological and epistemological aspects inherent to research methods.

To achieve a solid training and develop a critical awareness in their practice, the Pedagogy student seems to have a unique path: to be fed by a curriculum articulated by theoretical objectives and statutes that value pedagogical research practices of an emancipatory character. This curriculum must correspond to the emancipatory interests of the working class, recognizing its historical demands. In addition, it should be plausible

for intervention and sociability change through the access and application of critical scientific knowledge. This knowledge is enhanced from university education, providing the student with the necessary tools to become an effective change agent.

The production of knowledge in the Pedagogy course must be coherently integrated into the interdisciplinary and multidisciplinary dimensions, as proposed by Gevehr, Fetter and Karpinski (2019). They highlight these dimensions as essential tools for the development of undergraduate research. In some realities, the monograph or the scientific article are the only research requirements that the undergraduate develops in his academic path. However, it is necessary to transcend this condition. Possibilities of scientific studies and research practice should be sought throughout the course, covering different areas of knowledge and disciplines of the Pedagogy course. In addition, the resumption of the use of the printed book as a minimum reading exercise criterion for students is a relevant factor to be considered.

Having found that the vast majority of students present weaknesses in scientific writing, in the understanding of theoretical concepts and in historical contextualization (factors necessary for the construction of a critical text and its unfolding in scientific production), we propose to open the discussion of these issues with the academic community, especially with the students of the Pedagogy course, their teachers and advisors, for the production of places of reflection and academic action in favor of critical scientific research and the future research professor.

The results presented indicate the significant impact of educational and teacher training policies on the curriculum of the Pedagogy course. This impact is mainly characterized by academic silencing in the debate on the production of scientific knowledge, including theory, research and undergraduate MP. Despite being essential elements in teacher education, the data in this article reveal that CPM teaching and learning occurs through a fragmented curriculum, especially in its political content. In addition, there is a lack of common objectives among the collective of teachers for the training of the researcher pedagogue. It is essential, therefore, to address these issues to improve the quality of teacher education and the effectiveness of the Pedagogy course curriculum.

Although we are convinced that undergraduate research practice is a fundamental activity in teacher education, it will only contribute to changes in their

workplaces if it is directed to overcome scientific pragmatism, fragmentation and reproduction of knowledge. The issue is broad and has varying degrees of complexity. Given the evidence that the critical and emancipatory teaching and learning process has limited spaces in the training of Pedagogy students, the contexts of lightened teacher training in distance education (EaD) and the gradual predominance of ChatGPT and artificial intelligence (AI) are added to these challenges for teaching scientific research and academic writing.

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