

The Pedagogical Project of Mathematics course at Unimontes: what is the evidence for teacher training?

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Abstract: This study aims to discuss the process of implementing the references for teacher training in the Mathematics course at Unimontes, identifying the convergences and divergences between the Pedagogical Project of the Course (PPC) and Resolution CNE/CP n° 2/2015. This is a documentary study with a qualitative approach, using the method and techniques of content analysis. The problematization of the process of construction and implementation of the references took place in the light of authors of Historical-Critical Pedagogy. In the project analyzed, there is evidence of a proposal for initial teacher training based on the pedagogy of the reflective teacher, related to the epistemology of professional practice. On the other hand, Resolution CNE/CP n° 2/2015 was characterized from a broader perspective of teacher training, seeking to ensure guiding principles to be taken into account in the degree projects at each institution.

Keywords: Curriculum. Teacher Training. Licentiate Degree in Mathematics. Historical-Critical Pedagogy.

El Proyecto Pedagógico del curso de Matemáticas de Unimontes: ¿qué evidencias hay para la formación de profesores?

Resumen: Este estudio tiene como objetivo discutir el proceso de implementación de las referencias para la formación de profesores en el curso de Matemáticas de la Unimontes, identificando las convergencias y divergencias entre el Proyecto Pedagógico del Curso (PPC) y la Resolución 2/2015 del CNE/CP. Se trata de un estudio documental con abordaje cualitativo, utilizando el método y las técnicas de análisis de contenido. La problematización del proceso de construcción e implementación de los referentes se realizó a la luz de autores de la Pedagogía Histórico-Crítica. En el proyecto analizado, se evidencia una propuesta de formación inicial docente basada en la pedagogía del profesor reflexivo, relacionada con la epistemología de la práctica profesional. Por otro lado, la Resolución CNE/CP 2/2015 se caracterizó desde una perspectiva más amplia de la formación docente, buscando asegurar principios orientadores a ser tenidos en cuenta en los proyectos de grado de cada institución.

Palabras clave: Currículum. Formación del Profesorado. Licenciatura em Matemáticas. Pedagogía Histórico-Crítica.

O Projeto Pedagógico do curso de Matemática da Unimontes: quais indícios para a formação de professores?

Resumo: O presente estudo tem como objetivo debater sobre o processo de implantação dos

referenciais para a formação docente no curso de Matemática da Unimontes, identificando as convergências e divergências entre o Projeto Pedagógico do Curso (PPC) e a Resolução CNE/CP nº 2/2015. Trata-se de uma pesquisa documental, de abordagem qualitativa, com uso do método e das técnicas de análise de conteúdo. A problematização sobre o processo de construção e implementação dos referenciais se deu à luz de autores da Pedagogia Histórico-Crítica. No projeto analisado, há indícios de uma proposta de formação inicial de professores pautada pela pedagogia do professor reflexivo, relacionada à epistemologia da prática profissional. Lado outro, a Resolução CNE/CP nº 2/2015 foi caracterizada a partir de uma perspectiva mais ampla de formação docente, buscando assegurar princípios norteadores a serem levados em conta nos projetos de licenciatura em cada instituição.

Palavras-chave: Currículo. Formação Docente. Licenciatura em Matemática. Pedagogia Histórico-Crítica.

1 Introduction

The field of teacher training has been permeated by countless debates, characterizing it as a space of conflicts and different points of view. According to Dourado (2016), issues such as training projects, locus, training dynamics, the relationship between theory and practice, teacher profile, among others, denote the structural differences that have historically marked the training of teaching professionals in our country.

As an object of public policy and research, teacher training has been altered in recent decades, with the curriculum at the center of these changes. For this reason, we understand the need to understand and consider the treatment given to teacher training based on legal references, without losing sight of the broad political and social scenario.

In this regard, this research focused on the curricular references for teacher training, focusing on the Pedagogical Project of the Course (PPC) for Mathematics degrees at the State University of Montes Claros (Unimontes) and CNE/CP Resolution No. 2/2015, which defines the National Curricular Guidelines (DCNs) for initial training at higher education level. Thus, through documentary research, the aim was to discuss the process of implementing the references for teacher training in the Mathematics course at Unimontes, identifying convergences and divergences between the PPC and CNE/CP Resolution No. 2/2015.

Our study is based on the following problematization: *What can be deduced from the process of implementing the curricular references for teacher training in the Mathematics course at Unimontes, considering the convergences and divergences between the PPC and CNE/CP Resolution No. 2/2015?*

The text is organized into five sections. In the first, the introduction, we provide a legal and historical contextualization of the preparation of the Mathematics PPC at Unimontes for the years 2019 to 2023, as well as the definition of curriculum for a Historical-Critical Pedagogy, a theory that mobilizes concepts pertinent to our discussion. Next, we discuss the research's methodological procedures, followed by the analysis of the Mathematics PPC in the third section. In the fourth section, we address the convergences and divergences between the PPC and CNE/CP Resolution 2/2015. Finally, we comment on the results of our research.

1.1 Legal bases and political context for the production of the Mathematics PPC

With the aim of discussing the process of implementing the references for teacher training in the Mathematics course at Unimontes, identifying the convergences and divergences between the PPC and Resolution CNE/CP No. 2/2015, we carried out a documentary analysis

based on the curricular reference for teacher training in the course focused on in our research.

Thus, we found that the PPC's curricular organization includes, among other legal documents, the National Education Guidelines and Bases Law (LDBEN) No. 9394, of December 20, 1996; the National Curriculum Guidelines for Bachelor's and Licentiate's Degrees in Mathematics (Decree 6. 755/2009 and Opinion 1.302/2001 CNE/CES); and the National Curriculum Guidelines for initial training at higher education level - degree courses, pedagogical training courses for graduates and second degree courses and for continuing training (Resolution CNE/CP No. 2/2015).

We emphasize here that our study focuses especially on CNE/CP Resolution No. 2/2015 and the PPC, as we understand the need for this delimitation in data analysis. As Ludke and André (1986) advocate, documents not only offer elements for analysis in a contextualized way, but they can also present information from the very context in which they originated.

With this in mind, we justify our interest in studying these documents because we believe that they can provide a basis for discussions about initial teacher training, in a contextualized way, as they are understood within this reality.

It is also important to note that, in the current political and educational climate, teacher training has been undergoing a troubled process of change. According to Ceschini, Ximendes, Chibiaque, Rosa and Mello (2022), this scenario is revealed by the attempt to align education with neoliberal, conservative and performative precepts under the influence of International Organizations, such as the World Bank (WB) and the Organization for Economic Cooperation and Development (OECD).

Thus, after the approval of the National Common Core Curriculum (BNCC) in 2017, which began to guide school curricula covering all basic education in the country, there was a need to reorganize subsequent policies based on its proposal, including, therefore, teacher training policy. As a result, after three versions of proposals for a Common National Base for teacher training¹, the National Education Council (CNE) approved, on December 20, 2019, a new resolution to regulate teacher training, Resolution CNE/CP No. 2/2019 (Pinheiro & Fávero, 2022).

According to the authors cited, CNE/CP Resolution 2/2019 brought with it the proposal to organize the curriculum for teacher training by competencies, focusing on the training of the student to be taught, in line with the BNCC, in the search for professional standardization according to external factors, losing sight of solid teacher training based on *praxis*.

In addition, Pinheiro and Fávero (2022) point out that the approval of Resolution CNE/CP No. 2/2019 disregarded all the curricular adaptation work that was taking place in Higher Education Institutions (HEIs) across the country, in view of the guidelines of Resolution CNE/CP No. 2/2015, whose implementation deadline had not even been exhausted.

For Ceschini *et al.* (2022), the lack of conditions to evaluate the process of implementing Resolution CNE/CP No. 2/2015 also revealed the neoliberal and conservative influence on political decisions, aimed at controlling teaching work. Thus, the policy of reformulating the

¹ After the BNCC was approved, the CNE launched a movement to modify the content of CNE/CP Resolution No. 2/2015, a process that triggered three proposals aimed at establishing National Curriculum Guidelines and a Common National Basis for the Initial and Continuing Training of Basic Education Teachers, in order to incorporate the determinations contained in this document, the third version of which was embodied in the BNC-Formation Opinion of September 18, 2019. This third Opinion preceded the approval of Opinion No. 22, of November 7, 2019, which was ratified by Ordinance No. 2,167, published in the Federal Official Gazette on December 20, 2019. As a result, a new resolution was approved to define guidelines for the initial training of Basic Education teachers, CNE/CP Resolution No. 2, of December 20, 2019 (Pinheiro & Fávero, 2022).

curriculum proposed for teacher training revealed the power that is exercised over what and how to teach, and also how this process should be evaluated taking into account economic interests.

Thus, after demonstrations by representative entities linked to teacher training, on September 19, 2022, the CNE itself published a Communiqué² informing about its mobilization, through its own commission, for changes to Resolution CNE/CP No. 2/2019 in the face of the issues presented by the educational community, which indicates, in the meantime, its suspension.

Based on the above, the Mathematics course at Unimontes, not far from this reality, is covered by CNE/CP Resolution 2/2015, despite the current demand arising from CNE/CP Resolution 2/2019. It is important to note that Resolution CNE/CP No. 2/2015 was widely discussed and well accepted, with the demand for its resumption by the REVOGA BNC-Formação Movement³ (National Movement for the defense of teacher training — Pedagogy course [Monape], 2023). The Resolution was considered an achievement for the area, having been approved in a democratic context of dialog between the government and public educational institutions, expressing a national project for Brazilian education that aimed to meet the peculiarities and educational diversity existing in the country (Ceschini *et al.*, 2022).

We would like to point out that the problematizations highlighted here, which focus on the curricular references for teacher training, especially for the Mathematics course at Unimontes, were carried out in the light of the assumptions of Historical-Critical Pedagogy. Therefore, in the next section, we will try to elaborate on the precepts that involve the curriculum based on this theory.

1.2 Curriculum and Critical-Historical Pedagogy

The word curriculum comes from the Latin word *curriculum* and can be defined as a walk, a run, a journey. As such, curriculum can represent the trajectory of humanity in its process of apprehending the scientific knowledge to be selected by the school. In this schooling project, the curriculum has a social function that refers to the organization of the student's pedagogical reflection so that they begin to think about reality according to a certain logic (Authors' Collective, 2012).

Malanchen (2014) points out that the discussion about the curriculum cannot lose sight of its political aspect because, by guiding the type of education it aims to offer individuals, this instrument can necessarily interfere in the way they will act in society. Thus, the way it is organized and based, and the contents it contains to conduct the educational work, the curriculum reveals a teleological character, as it has purposes and aims that are not apparent, but which are revealed through the unfolding of the educational act. The curriculum therefore has an intentionality through a vision of society to be achieved, presenting a perspective of human formation (Malanchen, 2014).

For Saviani (2020), a precursor of Historical-Critical Pedagogy, the curriculum refers to all the activities within the educational institution which, by mobilizing material and human

² Communiqué on Resolution CNE/CP No. 2/2019. Ministry of Education. National Education Council. Full Council. Brasília, September 19, 2022. Available at: <http://portal.mec.gov.br/conselho-nacional-de-educacao/divulgacao>. Accessed on: May 22, 2023.

³ The "REVOGA BNC-Formação" Movement is a protest led by the National Front for the Repeal of CNE/CP Resolutions No. 02/2019 and No. 01/2020, created on March 30, 2023, bringing together national entities, forums and social movements linked to teacher training and education. These organizations have mobilized on behalf of teacher training by demanding the resumption of the implementation of Resolution CNE/CP No. 02/2015 (Monape, 2023).

resources, seek to serve a purpose, which refers to the education of the individual. In this sense, the curriculum deals with the content of education and its distribution over time and space. It is worth noting that the content of education, according to the author, does not refer to any knowledge, but precisely to systematized knowledge, since common sense knowledge occurs independently of school. In other words, school exists precisely so that there is access to elaborated knowledge.

In short, "curriculum is the set of core activities developed by the school" (Saviani, 2020, p. 21). Thus, by using the term "core", the author justifies that this notion can remedy the problem present in the school, which has shifted from essential activities to secondary activities, often distancing itself from its core activity, which is to provide individuals with access to literate culture, in order to guarantee them the acquisition of the instruments to access systematized knowledge. In view of this, the author makes a warning - what is considered secondary or extracurricular can only be worked on if there is no detriment to the essential content (sciences, art and philosophy).

In this sense, the systematized knowledge that will make up the curriculum must be dosed and sequenced, thus promoting the conditions for its transmission and assimilation. What Historical-Critical Pedagogy advocates, therefore, is democratized education, considering that literate culture needs to be available to everyone equally.

In the Brazilian educational context, however, there is a proposal that has predominated not only in official discourse, but also in the very foundations for teacher training, which dates back to the reforms implemented by the Brazilian government in the 1990s, and is aligned with Reflective Theory (Sousa, 2018). According to the author, this current refers to ideas that advocate learning as a process that occurs through the solution of everyday practical issues and that will extend throughout life. In a pragmatic line of knowledge, experiential knowledge is valued on the understanding that its construction only occurs from experience, and it is through experience that reflective thinking arises.

This conception is based on the justification that teacher training courses are too theoretical, and theory has proved to be disconnected from practice. For these reasons, it is alleged that these professionals, in the exercise of their profession, are unable to understand the mental processes of students. In addition, Sousa (2018) warns that Reflective Theory theorists present an attractive discourse, but one that is full of pitfalls. Despite preaching social justice, they devalue classical theory in the academic sphere, and disregard the economic, political and social issues surrounding teaching work.

Despite the theories that emphasize practice in the training process, Historical-Critical Pedagogy identifies itself as a theoretical formulation that proposes unity between theory and practice, understanding education as a mediation within global social practice (Saviani, 2019). On the other hand, the author adds that this theory, in order to articulate education with the interests of the working class, strives to guide educational work from the conception of methods that stimulate the creativity and initiative of students, without dispensing with the teacher's initiative.

Considering the dialectical logic, the educational phenomenon is understood as a process that incorporates the category of mediation, allowing students to move from an "uncritical and unintentional insertion into society to a critical and intentional insertion" (Saviani, 2019, p. 147).

In this sense, Historical-Critical Pedagogy advocates that individuals not only appropriate content, but also learn about the trajectory of its construction, conceiving

knowledge from its historicity in order to improve existing knowledge (Moraes & Galvão, 2021).

In view of this, Saviani (2020) sought to identify the main types of knowledge involved in the educational phenomenon, which must be mastered by teachers and, consequently, make up their training process, thus being able to guide the organization and curriculum for teacher training. This knowledge relates to: attitudes (attitudinal knowledge); understanding of the context (critical-contextual knowledge); specific knowledge corresponding to the curricular disciplines (specific knowledge); educational theories (pedagogical knowledge); and didactic-curricular issues (didactic-curricular knowledge), which offer indications for our analysis.

It should be noted that the way in which this knowledge is constituted and expressed is related to a common axis that manifests itself in the difference between knowledge derived from life experience (*sofia*) and methodical and systematized knowledge (*episteme*), forms that cross categorized knowledge with greater or lesser intensity.

From this perspective, the knowledge to be mastered by teachers is based on the pedagogical objective itself, which is related to the development of students. Along these lines, Duarte (2021) understands that full human development, i.e. omnilateral education in all its dimensions, is not only part of the need to change the current reality, but can only be achieved by overcoming capitalist production relations. And it is in this sense, according to the author, that there will be conditions for individuals to appropriate material and immaterial wealth, so that universality and freedom can be realized in each person's life.

Finally, Historical-Critical Pedagogy advocates humanizing education, considering that the role of education should be to foster the development of each individual, so that they are able to intervene in society in a critical and conscious way. The training process based on this theory can combat the movement that has de-characterized theoretical knowledge, and the consequent emptying of the role of education, which has been dominated with the aim of reproducing capitalist society.

2 Research Methodological Procedures

Given that the aim of our study is to discuss the process of implementing the references for teacher training in the Mathematics course at Unimontes, identifying the convergences and divergences between the PPC and CNE/CP Resolution 2/2015, we focused our attention on the curriculum matrix without neglecting the legal aspects that govern this segment.

To do this, we carried out documentary research, which, according to Sá-Silva, Almeida and Guindani (2009), is a procedure through which methods are applied to understand and analyze different types of documents. According to the authors, this procedure can provide rich information, making it possible to broaden the understanding of the object of study based on historical and socio-cultural contextualization.

Cellard (2012) explains that documents as a source of information articulate the temporal dimension to the apprehension of the social aspect of the phenomenon. In this way, they can represent a totality of traces of human activity in past eras, and are often the only testimony to specific activities that took place at a given time.

Considering these characteristics, we composed the *corpus* of our research, which consisted mainly of the Mathematics PPC and Resolution CNE/CP No. 2/2015. As these are public documents, they are available for consultation on the course page, on the university's website and, in the case of the Resolution, in the Federal Official Gazette (DOU). It should also be noted that we approached the coordinator of the course at the time, making him aware of the

purpose of our investigation. We collected their signatures on the Institution's Agreement to Participate in Research, in order to comply with its ethical precepts. In view of this, we would like to point out that the research project was submitted to the Research Ethics Committee (CEP) at Unimontes, and was approved on May 14, 2022, under Opinion no. 5.408.713.

Once this stage was completed, we proceeded with the analysis itself, which is qualitative in nature. To this end, we used content analysis as a research method. This method can be understood as a set of techniques for analyzing communications which, in a systematic and objective way, aims to extract evidence that makes it possible to infer knowledge related to the conditions of production and reception of these communications (Bardin, 2016).

Gomes (2007) observes that content analysis is also a research technique that makes it possible to discover what lies behind the manifest content, going beyond the appearances of the message that is emitted. The author highlights the procedures of categorization, inference, description and interpretation used in this type of analysis, stressing that the moment of interpretation, as the final stage of the process, represents the synthesis between the research problem, the results obtained, the inferences made and the theoretical perspective adopted.

In this sense, we proceeded to read the material, breaking down and distributing the parts into categories that were formed during the study. We went on to describe, systematize and analyze the results of this categorization and, finally, considering the research question, *what can be inferred from the process of implementing the curricular references for teacher training in the Mathematics course at Unimontes, considering the convergences and divergences between the PPC and CNE/CP Resolution 2/2015?* Based on the theoretical foundation, we interpreted the data, considering the meanings they give to our objective of debating the process of implementing the references for teacher training in the Mathematics course at Unimontes, identifying the convergences and divergences between the PPC and Resolution CNE/CP No. 2/2015.

3 Analysis of the Mathematics PPC

LDBEN 9394/1996 stipulates that, in exercising their autonomy, universities organize the curricula of their courses and programs, observing the relevant general guidelines. From this observation, it can be considered that the PPCs of undergraduate courses, as pointed out by the Forum of Undergraduate Pro-Rectors of Brazilian Universities [ForGRAD] (2000), consist of a set of indispensable guidelines for academic policy, including the inseparability of teaching, research and extension, curricular flexibility, comprehensive training, interdisciplinarity and the articulation between theory and practice, defining it as a "guiding instrument for university practice and, consequently, it should express the pedagogical practice of the course(s), giving direction to the actions of teachers, students and managers" (ForGRAD, 2000, p. 2). 2).

That said, we set out to characterize and contextualize the PPC of the Mathematics degree course at Unimontes, which was approved by Resolution No. 150 - CEPEX/2019. After identifying and contextualizing the Course, as well as the PPC, we intend to develop our analysis based on this document as a way of discussing the process of implementing the references for teacher training in the Course. In this way, we will proceed with the categorization for the synthesis of the study, and the analysis was carried out in the light of Historical-Critical Pedagogy.

The Mathematics degree course at Unimontes trains teachers to work in Basic Education and is offered in the classroom. It lasts four years and is taught on a semester basis. It takes place during the day and evening shifts in the city of Montes Claros and at night in São Francisco and Joáima. In the case of Joáima, it should be noted that no new places will be

offered due to the low demand in the area. However, it is expected to be implemented on the Janaúba *campus*, following approval by Unimontes, with a semester course.

The Mathematics course in Brazil began with the creation of the Faculty of Philosophy, Sciences and Letters at the University of São Paulo (USP) in 1934, and was characterized by training focused on specific Mathematics and Physics content. At that time, the 3+1 model of teacher training emerged, in which bachelors in Mathematics were trained for the first three years, based on specific content, followed by didactic training for another year.

In Montes Claros, the Mathematics degree course was launched in 1968 with the creation of the Faculty of Philosophy, Sciences and Letters. Since then, it has sought to keep up with advances in society, especially in terms of theoretical and technological advances as a field of innovation. Currently, this course offered by Unimontes contributes, in particular, to meeting the demand in the North, Northeast and Jequitinhonha Valley regions of the state of Minas Gerais for professionals in the field of Mathematics (Unimontes, 2019).

The Mathematics PPC recognizes the need to adapt the project in line with public policies and national curriculum guidelines. Therefore, the reformulations presented in the document suggest the changes coming from the laws, decrees and resolutions that anchor the curricular guidelines. It should also be noted that the decision-making process that led to its structuring was the result of meetings of the Course Teaching Coordination Board and the Structuring Teaching Nucleus (NDE), as well as discussions with the participation of student representatives, and was characterized by democratic construction. It should also be noted that a committee was elected to work on drafting and consolidating the final version of the PPC (Unimontes, 2019), which was approved and sent for institutionalization.

Thus, following our discussions, we will deal with the analysis of the data and possible conclusions based on the categories listed, namely, the perspective of teacher training in the PPC, teaching knowledge and the theory-practice relationship, structure and curricular organization.

3.1 Teacher training perspective

In its justification, the Mathematics PPC (Unimontes, 2019) presents the intention to train teachers according to the demands of the technological society attributed to the current conjuncture, marked by constant and dizzying changes. The document presupposes the definition of basic minimum Mathematics content, so that students become capable of acting in this society. In other words, the idea is to define school content, in basic education, which students must appropriate in order to become "truly emancipated citizens" (Unimontes, 2019, p. 15). In this sense, the math teacher curriculum should outline the teacher's professional profile so that they can act in this basic education.

When it comes to the *National Council of Supervisors of Mathematics* (NCSM), the mathematics curriculum matrix discusses skills related to mathematical knowledge, which are associated with expectations regarding the basic skills that students will need in adult life, both in terms of employment and further education (Unimontes, 2019).

In addition, according to the references presented, the curriculum advocates a constructivist perspective for the development of mathematical knowledge, aiming for professional quality so that it reflects on the improvement of mathematical learning for students in basic education. As stated, "teacher training programs should provide undergraduates with experiences that help them create a specific theoretical-conceptual and pedagogical foundation at the same time" (Unimontes, 2019, p. 16).

This idea is also present in the general objective of the course, which states that the aim is to provide more adequate and better quality initial training for mathematics teachers to work in primary and secondary education. It goes on to reiterate that academic training should develop the skills and abilities needed to teach in primary education, a process which should result in a new professional profile.

When presenting its Course concept, the Mathematics curriculum cites the National Common Curriculum Base (BNCC) as a reference document for the construction of the project, thus seeking to comply with its proposal. The core of the BNCC is the development of competences by basic education students. In this way, it encompasses ten general competences that make up a set of knowledge, skills, values and attitudes to be developed by the student. In this sense, the PPC (Unimontes, 2019) highlights the alignment between the proposals set out in the teacher training curriculum and the BNCC proposals, based on three dimensions: knowledge, practice and professional engagement.

In relation to the proposal recorded in the project, we mention the movement that characterized the educational field in Brazil, with initial milestones in the 1990s, linked to the educational reforms implemented by the public authorities and which, as we have pointed out, presents a certain conception of the subject and professionalism.

In this context, Silva and Cruz (2021) highlight a process of professional devaluation characterized by managerialism, which is identified as an ideology whose purpose is to insert a business management model into the public sector. This model is characterized by administrative flexibility, decentralization, both in terms of individual decisions and funding, and centralization through evaluation of results. The authors explain that these measures, combined with the discourse of competence and productivity, present a new model of work organization, with a functionalist orientation. Professionalism, along these lines, must adapt to the new demands associated with the "sociometabolism" of capital.

Thus, skills and competencies are associated with the development of the potential required of the worker, with the aim of producing an efficient professional capable of adapting to changes in the labor market. The new patterns of production and the technological revolution require a new type of professional with general communication skills, abstraction and a high level of general knowledge. According to the authors, these are skills that should be developed in a school environment, as it is not possible to learn everything necessary as an adult, on the factory floor. This is a new pattern of exploitation that results in the creation of new forms of work organization, reflected in the school curriculum.

Silva and Cruz (2021) add that the changes in work, the effect of the strategies of the capitalist mode of production, require adjustments at various levels of society, bringing consequences such as the crisis of abstract labor, expressing structural unemployment and the precariousness of work.

The level of human formation is shaped by the new type of worker demanded by capital, and at this point it is possible to identify a hegemonic framework of educational proposals aimed at the technical and ideological conformation of the new worker to the perspectives of the pedagogy of competencies, based on the notions of employability and entrepreneurship. (Silva & Cruz, 2021, p. 6)

According to the authors, the human training project is geared towards the technical and ideological formation of the new worker through the presuppositions of the pedagogy of competencies. This concept has strong relations with constructivism, among other learning-to-

learn pedagogies, a trend that is closely linked to studies related to tacit knowledge and the epistemology of reflective practice, which link the notion of competence to the mobilization of knowledge, tending towards satisfactory and immediate performance according to experiential situations (Lavoura, Alves & Júnior, 2020).

As can be seen, changes in the social relations of capitalist production are incorporated into training processes, bringing competence associated with the neoliberal model as the basis for organizing the curriculum. In this sense, the curriculum implies training processes with a pragmatic view of knowledge, limited to the value of its applicability in everyday practical situations.

In view of this, we point out that, although the document analyzed states in its justification the purpose of training truly emancipated citizens, it contradicts our understanding of the meaning of training for emancipation. In fact, the Mathematics PPC (Unimontes, 2019) uses the term "emancipated" only once throughout its 168 pages, associating it with the appropriation of basic minimum Mathematics content by students so that they can better act in society. On the other hand, we agree with Silva and Cruz (2021) that a truly emancipatory education requires individuals to be aware of social reality so that they become active subjects of history.

For Ferreira (2020), the BNCC establishes a subordinate relationship between curricular content and the competences and skills required of students, since they become the axis of the educational process. Thus, the relativization of content can reveal that knowledge is necessarily used to achieve new means that enable individuals to adapt better to society.

By outlining the curriculum through formative dimensions presented as knowledge, practice and professional engagement, we also understand that the Mathematics PPC (Unimontes, 2019) can also reflect the emptying of the political and pedagogical formation of undergraduates, since, as Lavoura, Alves and Júnior (2020) state, such an outline can lead to the formation of a submissive and uncritical professional, since the historical, social, political and economic determinants of social reality are neglected.

In this sense, the development of skills and competences as a training principle ends up taking second place to curricular knowledge, given that the curriculum aims to train a practical professional, adaptable to the constant changes in society. In other words, the aim is to shape the future worker to meet the demands of the uncertain and unpredictable job market, and their success or failure depends above all on their ability to handle knowledge on a contingency basis.

3.2 Teaching knowledge and the theory-practice relationship

In the curriculum analyzed, it is pointed out that teaching mathematics presupposes not only knowledge of the specific content, but it is also necessary for the teacher to master didactic-mathematical knowledge. In this sense, the teacher's knowledge is organized on the basis of the Didactic-Mathematical Knowledge model, encompassing three dimensions: the mathematical dimension, which refers to common and applied knowledge of mathematics; the didactic dimension, related to knowledge emanating from the teaching and learning process; and the meta-didactic-mathematical dimension, comprising knowledge about criteria of didactic suitability, such as assessment methods and knowledge about standards and meta-standards, associated with promoting reflection on the best potential of practice.

These criteria for organizing teaching knowledge are closely related to the concept of the reflective teacher, since it links knowledge to the process of reflection-in-action. Furthermore, if we take Saviani's (2020) categorization of the knowledge that should be part of

the training process for undergraduates as a reference, we can see that both pedagogical knowledge, relating to educational theories, and critical-contextual knowledge, relating to the socio-historical conditions that determine the educational task, are neglected in this model.

We agree with what is recorded in the Mathematics PPC (Unimontes, 2019a), insofar as it highlights teacher-student interaction and the appropriate choice of teaching material as essential elements in teaching. However, we understand that the concern to meet the diversity of professionals working in the area, according to vocational knowledge, can lead to the trivialization of knowledge. As proposed in the curriculum, the aim is to guide the training process based on the affinities of each student in relation to each area of mathematics. Thus, the aim is to provide training that is "engaged with the plurality of knowledge that emerges from each person's natural vocations" (Unimontes, 2019, p. 20). In this sense, the proposal aims to train different profiles of subjects, seeking to promote progress in line with the needs of today's society.

In the theory-practice relationship, the document advocates training that aims to overcome the "theoretical gaps" resulting from conceptual weaknesses in training processes whose forms of materialization have been exhausted by technique and conceptual formalities. Taking this criticism as a starting point, it emphasizes that quality training requires a balance both in terms of these formalities and the applicability of knowledge.

We understand that the dynamics of the ever-changing technological world mean that no course can be limited by specific knowledge that may soon no longer meet your needs. In this way, the training of professionals in the area of mathematics teaching must provide a more comprehensive view of the world we live in and the theoretical, practical and investigative foundation necessary for teachers to know the meaning of their choices and commit to them, both in theory and in practice; to know the epistemological dimension of what they are teaching, as well as reflecting on the relationship between students and knowledge and the function of knowledge, articulating theory, practice and research in the process of training mathematics teachers. (Unimontes, 2019, p. 54)

The document then goes on to reflect on the socio-cultural dimension in the context of educational institutions, and mentions the need to develop students' skills in accordance with the four pillars of education for the 21st century - learning to know, to be, to live together and to do. With regard to the pillars considered to be the foundations of education today, Duarte (2001) explains the hegemonic interests in bringing moral principles of acceptance into education, especially with regard to the "learning to live together" pillar. According to him, these principles only reinforce the conformation of subjects to the unequal, exploitative and exclusionary reality.

In addition, the project envisages situations that advocate the articulation of theory and practice through Practice as a Curricular Component. In this way, it proposes practical activities, such as tutoring and mentoring, practice as a curricular component, laboratory practice and supervised internships, as a means of contemplating the theory-practice relationship in the training of future teachers, promoting the necessary elements to develop the knowledge and skills required to exercise the profession.

Thus, as we have seen in our analysis, the concern expressed in the document lies in promoting the competencies and skills required of math teachers in order to ensure the results expected by primary school students. In this context, the knowledge is valid, given that it is directly related to professional practice, understanding that the technological world and its constant changes require professionals to be trained according to these demands.

Therefore, we understand that the curricular approach can have repercussions on the relativization of knowledge in teacher training, since it advocates an emphasis on practice through the search for professional preparation whose focus is on social efficiency.

3.3 Curriculum structure and organization

With regard to the structure and organization of the Mathematics degree course, the PPC (Unimontes, 2019) distributes a total workload of 3200 hours, in line with CNE/CP Resolution 2/2015, plus 360 hours of curricular credit in extension, over the eight semesters of the course (Unimontes, 2019).

The curricular components are distributed along four axes: 1) Specific Mathematical Knowledge; 2) Didactic-Mathematical Knowledge; 3) General Teacher Training; and 4) Experiential and Professional Knowledge. These axes seek to cover different categories of knowledge in the training of mathematics teachers, are related to each other and are not linked to specific curricular components. In this way, they cover theoretical and practical activities, as well as cross-cutting themes, namely: Inclusive Education, Environmental Education, Human Rights Education, Education for Ethnic-Racial Relations and Afro-Brazilian and Indigenous History and Culture, and Education in Digital Culture.

In addition, there is concern about this form of organization, which distributes the content in increasing order of difficulty according to the course's objectives, attributing this to a humanistic education. Table 1 below shows the distribution of the course's workload by core subjects, as defined in CNE/CP Resolution 2/2015.

Table 1: Curricular organization by training core/workload

Nucleus/Approval Resolution	Knowledge and Content	Working hours
Training Nucleus I	Nucleus of studies of general education, specific and interdisciplinary areas, and the educational field, its foundations and methodologies, and the various educational realities	960h
Training Nucleus II	Nucleus of studies to deepen and diversify areas of professional activity, including specific and pedagogical content, prioritized by the pedagogical project of the institutions, in line with the teaching systems.	1990h
Training Nucleus III	Nucleus of studies for curricular enrichment	620h

Source: Authors' elaboration (2023)

Table 1 shows that the course's workload is distributed over three nuclei, with the predominant workload corresponding to the nucleus of studies in the areas of professional activity. Table 2 below illustrates the distribution of the workload per curricular component and its corresponding cores.

Table 2: Workload per curricular component/distribution throughout the course

Curricular component	Working hours	Distribution	Corresponding nuclei
Theoretical classes	1830 h	Throughout the eight terms.	Nuclei I and II
Practical teaching/laboratory classes	320 h	Throughout the eight terms.	Nucleus I

Curricular component	Working hours	Distribution	Corresponding nuclei
Practice as a Curricular Component	400 h	Inserted within the areas or disciplines, from the beginning of the course.	Nucleus I
Supervised Curricular Internship	400 h	Developed in the last four terms of the course, corresponding to Internships I, II, III and IV.	Nucleus II
Academic-Scientific-Cultural Activities (AACC)	260 h	Throughout the eight terms.	Nucleus III
Accreditation of extension activities	360 h	Throughout the eight terms.	Nucleus III

Source: Authors' elaboration (2023)

An analysis of Table 2 shows that 1,830 hours are allocated to theoretical activities; 400 hours to the Supervised Curricular Internship; 400 hours to Practice as a Curricular Component; and a total of 620 hours to the nucleus of studies for curricular enrichment. Practical laboratory classes are also offered, which account for 320 hours of the total course.

In the Mathematics course, theoretical activities are conceived as the part of the curriculum related to the development of concepts, propositions, of each of the contents present in the course, with regard to the area of mathematics, as well as with regard to the pedagogical and diversified part of the training. In addition, practical activities, such as Practice as a Curricular Component, Laboratory Practices and Supervised Curricular Internships, are presented as the main way of mediating the understanding of mathematical objects with the aim of providing the student with the construction of knowledge within a context. These activities will be linked to the theoretical activities within the subjects and should be included in all periods of the course.

Academic-Scientific-Cultural Activities (AACC) and extension activities are also curricular components, corresponding to various activities to be developed by students throughout the course. The project also provides for students to take elective courses from the 6th period onwards, so that they can choose one of the four areas of Mathematics - Statistics, Mathematics Education, Pure Mathematics and Applied Mathematics - in order to direct their training. There is also the possibility of taking elective subjects as a way of meeting the university's goals for curricular flexibility.

When we look at the issues pertaining to the structure and organization of the Mathematics curriculum, we understand that the proposal seeks to articulate theoretical and practical activities as a way of fostering the development of competences and skills so that teachers can work effectively in Basic Education. The curricular components are distributed by training core, with their respective workloads. In addition, this distribution emphasizes the study of knowledge in specific areas, with curricular components related to this knowledge prevailing.

In addition, the PPC presents other aspects of equal relevance to the composition of the curriculum. These can be briefly explained by means of internationalization, in compliance with Resolution 041 – CEPEX/2018; the possibility of offering subjects and content in distance learning mode, without exceeding the limit of 20% of the total course workload; the minimum attendance required for the student to pass each subject, which corresponds to 75% of the

workload; and special treatment for students in special conditions, in accordance with Resolution CEPEX – 051/2006. The assessment of learning, the course and the respective project is also addressed. While the assessment of learning is focused on student performance, the assessment of the course is characterized in a systematic and periodic way, and is carried out through joint action by the NDE in agreement with the departments and the collegiate body.

4 Convergences and divergences between the Mathematics PPC and CNE/CP Resolution No. 2/2015

It is well known that one of the conditions for drawing up a PPC is alignment with the general guidelines and standards issued by the educational institution. This alignment depends on the collective work of various agents, who are inserted in a specific context, conditioned by historical, social and political factors. As such, the movement that results from the process of implementing guidelines in undergraduate curricula can generate various implications in terms of the meanings produced in such proposals.

In light of the above, in this section we seek to present a discussion on the convergences and divergences identified between the PPC and CNE/CP Resolution 2/2015, which defines the National Curriculum Guidelines for initial training at higher education level - degree courses, pedagogical training courses for graduates and second degree courses and for continuing training.

When referring to Resolution CNE/CP No. 2/2015, we turn to the contributions of Pinheiro and Fávero (2022), who discuss the pedagogical concept and the subject present in their narrative, with indications of the teacher training perspective it perpetrates. Thus, we agree with the ideas of these authors when they point out that the aforementioned Resolution presents elements that form the basis of a human formation that goes beyond orientation towards the world of work.

In this sense, the document presents an important characteristic in ensuring the Common National Base for teacher training in line with the idea of education as an emancipatory process.

The training of teaching professionals must ensure a common national base, based on the concept of education as an emancipatory and permanent process, as well as recognizing the specificity of teaching work, which leads to praxis as an expression of the articulation between theory and practice and the requirement to take into account the reality of the environments of basic education educational institutions and the profession. (Brasil, 2015, p. 5-6)

Thus, Resolution CNE/CP No. 2/2015 treats teacher training as a commitment to a social, political and ethical project aimed at contributing to the construction of a just and democratic society, and promoting the emancipation of individuals. It also presents the concept of teaching as an educational action and an intentional and methodical pedagogical process. And, as a conception of curriculum, a set of values conducive to the production and socialization of meanings in the social space (Brasil, 2015).

In addition, CNE/CP Resolution No. 2/2015 is proposed as an instrument that aims to guarantee the valorization of teaching professionals, the articulation between initial and continuing training, prioritizing the organic nature between institutions and federated entities, and overcoming the fragmentation of educational policies.

On the other hand, we can see that the Mathematics PPC is aligned with the BNCC, given that the curricular proposal for training future teachers focuses on developing the skills

and competencies set out in this document. From this, we can see the perspective of training centered on preparing subjects with characteristics that the job market demands. We understand that, in this conception, human formation in its complexity is neglected. Competency-based training denotes a pragmatic type of training, resulting in the impoverishment of scientific, academic and school knowledge, since the interest lies in ensuring the development of students' ability to "learn how to learn". The social function of teachers has been de-characterized, making them committed to maintaining the current order.

Therefore, we must not lose sight of the ideas proposed by Historical-Critical Pedagogy, when it explains that the curriculum needs to be related to the essential activities to be developed in the school environment, so that it does not lose its specificity. From this perspective, the selection of knowledge is not random, but must be based on what is necessary for the individual to understand reality. By being appropriated by the working class, knowledge can be converted into material force, enabling full awareness of the social relations of production, as well as the feasibility of change (Gama & Duarte, 2017).

In this vein, the analysis and discussion focuses on teaching knowledge and the theory-practice relationship addressed in the documents we analyzed. Thus, we found that CNE/CP Resolution 2/2015 states that educational action involves technical, political, ethical and aesthetic dimensions and, for this reason, emphasizes that the solid training of teaching professionals includes the mastery and handling of content and methodologies, various languages, technologies and innovations, helping to broaden both the vision and the performance of these professionals.

Resolution CNE/CP No. 2/2015 also states that initial and continuing training should include a plurality of theoretical and practical knowledge, based on principles of interdisciplinarity, contextualization, democratization, social relevance, ethics and affective and aesthetic sensitivity. The effective and concomitant relationship between theory and practice is defined as an indispensable aspect for the development of knowledge relevant to teaching (Brasil, 2015).

Based on the conceptions of what it means to be a teacher and the theoretical and practical knowledge needed to carry out one's job, recorded in the guidelines, without neglecting the theory-practice relationship as an expression of *praxis*, we understand a curricular perspective that seeks to broaden training horizons, overcoming attempts at standardization via notions of competences.

Despite these findings, we can see that the Mathematics PPC is influenced by the "reflective practice" perspective, a condition that can lead to training processes that emphasize practice to the detriment of theory. Thus, teacher training is attributed the need to develop mathematical skills in order to meet the demands of technological society and its constant transformations.

For the structure and organization of the curriculum, CNE/CP Resolution No. 2/2015 establishes the Common National Base and its guiding principles, which are: solid theoretical and interdisciplinary training; theory-practice unity; collective and interdisciplinary work; social commitment and appreciation of education professionals; democratic management; evaluation and regulation of training courses. These principles, as Dourado (2016) points out, are not characterized as a minimum curriculum, but as a way of indicating training axes that should be taken into account in the training projects at each institution.

It should be noted that Resolution CNE/CP No. 2/2015 considers teacher training, respecting national diversity and the pedagogical autonomy of institutions. To this end, it

defines three training nuclei, which include:

I — a nucleus of studies in general training, specific and interdisciplinary areas, and the educational field, its foundations and methodologies, and the various educational realities [...];

II — a nucleus of studies to deepen and diversify the areas of professional activity, including specific and pedagogical content, prioritized by the pedagogical project of the institutions, in harmony with the teaching systems [...];

III — a nucleus of studies to enrich the curriculum (Brasil, 2015).

According to CNE/CP Resolution 2/2015, the distribution of the course's total workload, to be included in the curriculum development, must include at least 2,200 hours dedicated to activities related to nucleus I and II.

In addition, a minimum of 3,200h of effective academic work, in courses lasting at least eight semesters or four years, also including 400h of Practice as a Curricular Component, distributed throughout the course; 400h for supervised internship, in the area of training and work in basic education, also considering other specific areas, if applicable, according to the institution's course project; and 200h of in-depth theoretical-practical activities in specific areas of interest to students, according to core III defined in Resolution CNE/CP nº 2/2015, in item III, of art. 12 (Brasil, 2015).

The minimum of 2,200h, established for the development of activities related to Training Nucleus I and II, are met in the Mathematics PPC, which provides for a total of 2,950h to be dedicated to these activities, as seen in the previous section.

In addition, the PPC also provides a workload for Practice as a Curricular Component, Supervised Curricular Internship and AACC, which is compatible with what is established in the guidelines. The minimum workload required is also met, and exceeded, a point that we understand positively, given the possibilities for increasing the content through an increased workload.

Another relevant point concerns the provision regarding the time dedicated to pedagogical dimensions in undergraduate courses, which is included in Resolution CNE/CP No. 2/2015. According to this Resolution, the time dedicated to building knowledge about teaching objects should be predominant in the Pedagogy course, while in the other degrees, it should not be less than the fifth part of the total workload. Thus, based on this determination, we identified that the Mathematics PPC, which should dedicate at least 640 hours, as stipulated in the legislation, proposes 660 hours of workload for curricular components related to pedagogical dimensions, if we consider the workload provided for practice in this sum.

If we take as a basis the workload planned for the course according to the PPC/Mathematics, which corresponds to 3,570h, this amount would be slightly higher, corresponding to a minimum of 714h, i.e. the fifth part of the total workload to be dedicated to building up knowledge about teaching objects. To arrive at this result, we considered the so-called "pedagogical" subjects that make up the syllabuses of the compulsory subjects, counting both the theoretical and practical workload.

Given this finding, we believe that the time dedicated to the systematic study of pedagogical subjects in this degree course could be put to better use, since we understand, as Saviani (2020) points out, that this type of knowledge is what provides the basis for the construction of educational conception, making it possible to define the identity of teachers as

professionals distinct from others.

5 Final considerations

In view of the analyses that have been established throughout the text, we have now come to our final considerations on aspects of basic education teacher training identified in the course matrix and the National Curriculum Guidelines that guide it.

Therefore, and considering our objective of "debating the process of implementing the references for teacher training in the Mathematics course at Unimontes, identifying the convergences and divergences between the PPC and CNE/CP Resolution 2/2015", we highlight the following considerations.

The Mathematics PPC (Unimontes, 2019) is based on a constructivist perspective for the development of mathematical knowledge, with the aim of qualifying future teachers who will work in basic education. It is also aligned with the BNCC, whose central proposal is the development of general competencies by students, which, in our view, signals a managerial model for training. As a result, training is aligned with the precepts of the market, seeking to train a flexible, adaptable and competitive professional (Unimontes, 2019).

It can be seen from this that the curricular dynamic makes an immediate association with professional performance, eschewing the formation of the individual from a broader perspective. In addition, the focus on developing skills and competencies in line with the BNCC advocates instrumentalist and prescriptive training, based on practical rationality.

We understand that the proposal for training based above all on the precepts of the job market alienates individuals, making them conform to the current state of affairs. For this reason, we advocate that the teacher training curriculum needs to be linked to the educational problem, since it is the educational objectives that are related to the development of the individual and their consequent humanization.

CNE/CP Resolution 2/2015, in turn, advocates training beyond the world of work, from a humanizing perspective. This document aims to ensure a Common National Base for curricular guidelines, respecting educational diversity and the pedagogical autonomy of institutions. The basis is based on the concept of education as an emancipatory and permanent process.

In this sense, we argue that it is necessary to break with pedagogical proposals based on the concept of "learning to learn", sidelining theory in the name of reflective practice. On the other hand, Historical-Critical Pedagogy presupposes that pedagogical work is based on the union between theory and practice, consolidating praxis. Practice, while operating as the foundation, purpose and criterion of truth for theory, depends on theory in order to become consistent and coherent: "without theory, practice is blind, groping, losing its specific characteristic of human activity. In fact, human action is an activity suited to purposes, that is, guided by an objective that is sought to be achieved" (Saviani, 2007, p. 108).

This conscious action, based on the articulation of theory and practice, sets pedagogical activity in motion, understanding education as mediation within social practice. From this perspective, training processes enable access to historically accumulated knowledge, making individuals active agents in the construction of a new society. This from a revolutionary perspective of overcoming capitalism. Therefore, this complex understanding, based on dialectical logic, aims to articulate pedagogical work with the transformation of reality.

Furthermore, it is worth considering that training based on Historical-Critical Pedagogy,

whose commitment involves the transformation of society, does not in itself guarantee effective change. However, this training model, by proposing a process based on teachers' theoretical and practical knowledge, can train professionals who are committed to challenging the current state of affairs and, in this way, sharpening the contradictions that exist in society in order to change it.

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