

Public policies on the curriculum for the initial education of teachers who teach mathematics: a discussion promoted by Brazilian Society of Mathematics Education GT 07

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Abstract: This text aims to reflect on the discussions held in regional forums and in the national forum on public policies on the curriculum for the initial education of teachers who teach mathematics through a systematization of what was debated. To this end, we chose to present the referrals prepared by the 14 regions of the Brazilian Society of Mathematics Education (SBEM) that included this subject in their forums, organized by the themes: Institutional Program for Teaching Initiation Scholarships and Pedagogical Residency Program, Curricularization of the Extension in Teaching Degree Courses and National Curriculum Guidelines for the Initial Education of Mathematics Teachers. Subsequently, the discussions held at the national forum in Teresina-PI were systematized. From this perspective, based on Gatti's ideas, this work intends to bring the approximations to and distancing from the collective reflections of the authors of this text on what is stated in the resolution DCN-Formação recently approved. The research concluded that studies and discussions carried out by the entities are not very much considered in the documents that govern teacher education.

Keywords: Teacher education. Public policies on the curriculum. Initial education forums for teachers who teach mathematics.

Políticas públicas curriculares para a formação inicial de professores que ensinam matemática: uma discussão promovida pelo GT 07 da Sociedade Brasileira de Educação Matemática

Resumo: Este texto tem por objetivo refletir sobre as discussões realizadas nos fóruns regionais e no fórum nacional sobre a temática *Políticas Públicas curriculares para a formação inicial de professores que ensinam matemática* por meio de uma sistematização do que foi debatido. Para tanto, opta-se por apresentar os encaminhamentos elaborados pelas 14 regionais da Sociedade Brasileira de Educação Matemática que incluíram este assunto em seus fóruns, organizados pelas temáticas: Programa Institucional de Bolsas de Iniciação à Docência e Programa de Residência Pedagógica, curricularização da extensão nos cursos de licenciatura e Diretrizes Curriculares Nacionais para a formação inicial de professores de matemática. Posteriormente, sistematizou-se as discussões realizadas no fórum nacional, realizado em Teresina-PI. Nessa perspectiva, busca-se trazer aproximações e distanciamentos de reflexões

coletivas dos autores deste texto sobre o que está posto na resolução DCN-Formação, recentemente aprovada, e constata-se que estudos e discussões realizadas pelas entidades pouco são consideradas nos documentos que regem a formação de professores.

Palavras-chave: Formação de professores. Políticas públicas curriculares. Fóruns de formação inicial de professores que ensinam matemática.

Políticas públicas curriculares para la formación inicial de profesores que enseñan matemáticas: un debate promovido por el GT 07 de la Sociedad Brasileña de Educación Matemática

Resumen: Este texto reflexiona a cerca de las discusiones realizadas en los foros regionales y en el foro nacional sobre el tema Políticas Curriculares Públicas para la Formación Inicial de Profesores que enseñan Matemática a través de una sistematización de lo que fue discutido. Para ello, se presenta las directrices elaboradas por los 14 capítulos regionales de la Sociedad Brasileña de Educación Matemática que incluyeron este asunto en sus foros, ordenados por temas: Programa Institucional de Becas de Iniciación a la Enseñanza y Programa de Residencia Pedagógica, curricularización de la extensión en los cursos de grado y Directrices Curriculares Nacionales para la formación inicial de profesores de matemáticas. A continuación, se sistematizaron los debates celebrados en el foro nacional de Teresina, Piauí. Desde esta perspectiva, a la luz de las ideas de Gatti, se pretende aproximar y alejar las reflexiones colectivas de los autores de este texto de lo que se establece en la resolución DCN-Formação, recientemente aprobada, y constatar que los estudios y debates realizados por las organizaciones apenas se tienen en cuenta los documentos que rigen la formación del profesorado.

Palabras clave: Formación del profesorado. Políticas curriculares públicas. Foros de formación inicial para profesores que enseñan matemáticas.

1 Introduction

Since 2004, the Brazilian Society of Mathematics Education (Sociedade Brasileira de Educação Matemática - SBEM), under the coordination of the Working Group on Education of Teachers Who Teach Mathematics (Formação de Professores que ensinam Matemática - GT 07), has promoted the National Forum on Initial Education for Teachers Who Teach Mathematics (Fórum Nacional de Formação Inicial de Professores que ensinam Matemática - FPMat). The name of the event was adapted according to the group's demands and understanding of their specificities and social function. In 2023, the theme of the VIII FPMat was "National Policies for the Education of Teachers Who Teach Mathematics: Reflections, Challenges, and Propositions" and sought to highlight:

the political commitment to affirm teaching in basic education as a profession, with its own knowledge and practices, and the challenge to guarantee free, inclusive, secular, and socially referenced public education as a founding principle of democracy. (Moretti, De Marco, & Santana, 2023)

The event seeks to mobilize the different actors who work in undergraduate courses that qualify teachers to teach mathematics. It includes researchers whose area of investigation covers the initial education of teachers who teach mathematics in different modalities, teachers who teach mathematics in higher education and/or basic education, postgraduate students, and

students of teaching degree courses in mathematics, pedagogy, field, Indigenous, and quilombola education, among others.

The VIII FPMAT took place at the Instituto Federal do Piauí, in Teresina, and was organized into five thematic groups of discussion (GD): (GD1) Teaching degree in mathematics and the specific teaching knowledge; (GD2) Teacher educators' professional and academic profile; (GD3) Public curriculum policies for the initial education of teachers who teach mathematics; (GD4) Initial education in mathematics education in the teaching degree in pedagogy; (GD5) Mathematics teaching in the education of Indigenous, quilombola, and field educators: intercultural practices. According to the proposals of the GDs presented by GT 07, the regional offices could encourage discussions around all or part of the chosen themes and/or choose emerging themes in their regional area.

First and foremost, we emphasize that teacher education has been discussed in Brazil for decades. Research has intended to identify neuralgic issues that hinder the qualitative advancement of this education, and institutional efforts have been undertaken through official programs aimed at qualifying teachers and managers for basic education (Gatti, 2013, 2021; Mindal & Guérios, 2013). However, progress has been timid, and "in practice, there seems [to have been] little impact on education qualitative advancement" (Mindal & Guérios, 2013, p. 22). Reflectively, without losing objectivity, Gatti (2013, p. 64) asks: "Why do profound changes not occur in these courses since for a long time, and through many studies, there has been talk of a crisis in teaching degrees due to their formative weaknesses?" Gatti (2021, p. 01) highlights two main characteristics that enhance this scenario: "The discontinuity in implementations, or successive reformulations, and the fragmentation of actions, with overlaps, between the various government bodies." From the above, the relevance of the topic at issue, *Public curriculum policies for the initial education of teachers who teach mathematics*, discussed within the scope of GD3.

We understand the promotion of forums as a methodology for reflection and professional development and the proposition of alternatives to integrate public policies that value teachers and their education. Given this, the results of these discussions must be widely disseminated and considered for the development and/or improvement of public policies for teacher education, particularly those who teach/will teach mathematics.

2 Methodology

We present a summary of the discussions held in regional forums and in the national forum on the topic *Public curriculum policies for the initial education of teachers who teach mathematics*:

research that discusses the Teaching Initiation Program (Pibid) and the Pedagogical Residency from the perspective of public policies; the National Curriculum Guidelines for the initial education of teachers who will teach mathematics; implementation of public policies in teaching degree courses in mathematics, pedagogy, and field education" (Moretti, March, & Santana, 2023, p. 14).

For the dynamics of the discussions, we summarized the reflections of the 14 regional offices that included the topic above in their forums and which appear in this text. They are: Acre, Bahia, Ceará, Federal District, Goiás, Mato Grosso, Minas Gerais, Paraná, Rio Grande

do Sul, Rondônia, Roraima, Santa Catarina, São Paulo, and Tocantins. We will also include the discussions held in Teresina, at the national forum, by the group composed of Adriano Fonseca (Universidade Federal do Norte do Tocantins, UFNT), Agnaldo Esquincalha (Universidade Federal do Rio de Janeiro, UFRJ), Alayde Ferreira dos Santos (Universidade do Estado da Bahia, Uneb), Fábio Alexandre Borges (Universidade Estadual de Maringá, UEM), Flávia Cristina de Macedo Santana (Universidade Estadual de Feira de Santana, UEFS, and Universidade Federal do Recôncavo da Bahia, UFRB), Francisco Nordman Costa Santos (Instituto Federal do Piauí, IFPI), Lya Raquel Oliveira dos Santos (Universidade Federal do Piauí, UFPI) and Márcia Rodrigues Leal (Universidade de Brasília, UnB, and Instituto Federal de Educação, Ciência e Tecnologia de Goiás, IFG), under the coordination of the authors of this text.

The themes listed by the SBEM regional forums cover different subjects and programs related to public policies for the initial education of teachers who teach mathematics. They are the Institutional Teaching Initiation Scholarship Program (Pibid), Pedagogical Residency Program (PRP), permanence programs for teaching degree courses, curricularization of extension, continuing education of teachers who teach mathematics, practice as a curriculum component, curriculum guidelines for teacher education.

It is worth noting that, amid the discussions in the forums, the Ministry of Education published the Executive Summary of the Proposals of the Working Group for Initial Teacher Education [Sumário Executivo das Propostas do GT de Formação Inicial de Professores] (Brasil, 2023). This document lists issues related to the revocation of CNE/CP Resolutions n. 02/2019 and n. 01/2020; the reformulation in the regulation of teaching degree courses offered in the distance education (EaD) modality; the diagnosis of the challenges of balancing the supply and demand of teachers in the country; the formulation of a national plan for the development of teaching professionals, articulating qualification, career, remuneration, and working conditions; the reaffirmation of Capes' role in induction and promotion of initial and continuing teacher education; the improvement of the National Student Performance Exam [Exame Nacional de Desempenho dos Estudantes – ENADE] for teaching degrees; the institutionalization and expansion of initiatives to strengthen the theoretical-practical education of prospective teachers; the development of proposals focusing on specific degrees (Indigenous, quilombola, and field school education, and inclusive special education and bilingual education for deaf people); and actions aimed at qualifying literacy teachers.

This text considered the interweaving of questions posed in the forums of the different regions and in the Executive Summary of the Proposals of the WG for Initial Teacher Education of the Ministry of Education, as well as our readings and reflections on this topic.

Additionally, we will present the discussions held at the VIII FPMat and considerations based on the DCN-Formação resolution (Brasil, 2024) and the associated review to shed light on the previous discussions, establishing a dialogue with Gatti (2004, 2013, 2017, 2021) to support our reflections about public policies for teacher education.

3 The leading role of the regional forums as a driver of debate at the VIII FPMat

We will present the guidelines put forward by regional forums when discussing the implementation of research results in mathematics education and the debate in collegiate spaces in their institutions to improve public policies for the initial education of teachers who will teach mathematics. We chose to present excerpts from the summary documents prepared by the

regional offices, organized by themes considered as categories: Institutional Program for Teaching Initiation Scholarships (Pibid) and Pedagogical Residency Program (PRP), which are initiation programs for teaching; extension curriculum in teaching degree courses (Resolution CNE/CP n. 7/2018); and the National Curriculum Guidelines for the initial education of mathematics teachers.

3.1 Institutional Teaching Initiation Scholarship Program (Pibid) and Pedagogical Residency Program (PRP)

Pibid, carried out within the scope of the Coordination for the Improvement of Higher Education Personnel (Capes), was regulated by Decree n. 7219/2010, which states in Art. 1: “It aims to promote initiation into teaching, contributing to the improvement of teacher education at higher education and improving the quality of Brazilian public basic education” (Brasil, 2010). Gatti (2021, p. 7) summarizes Pibid’s objectives by stating the intention to “better qualify prospective teachers for work in schools, favoring, through well-directed and selected projects, their improvement in school practices, creating greater university-school interaction.” Gatti (2021) highlights the struggle and mobilization of the educational community for the continuity of the program from its creation until the present year, 2024, and beyond. This desire is supported by the assessment reported by Gatti and his team (2014), which stated that:

Twenty-one thousand one hundred fifteen testimonies supported the importance of the program for teaching degrees and prospective teachers, highlighting its contributions to the valorization and revitalization of the teaching degrees, to generate questions about the curriculum of courses and practicums, leading to the rethinking of these activities, allowing greater integration between science and educational sciences knowings and favoring direct contact between scholarship holders and public schools in the very initial years of their course, leading to a more consistent approach between theories and practices. (Gatti, 2021, p. 7)

The Pedagogical Residency Program (PRP), also implemented within the scope of Capes, was established by Ordinance Gab N. 38/2018/Capes, in the context of Decree N. 8.977/2017, which states in Art. 1 that it: “aims to support higher education institutions (HEIs) in the implementation of innovative projects that stimulate the connection between theory and practice in teaching degree courses, conducted in partnership with public basic education networks.” It aims to immerse the student in school under the guidance of teachers from institutions that offer teacher education and join the program. Discussions about Pibid and PRP raise questions about the policies for student retention in undergraduate courses and the need for regulations for supervised practicums¹ in the scenario of maintaining programs to promote institutional projects for initiation into teaching and pedagogical residency, aiming to improve initial teacher education and the quality of Brazilian public basic education.

Regional Minas Gerais not only contemplates the contributions of Pibid/PRP to the education of pre-service and in-service teachers but also reflects on the impossibility of integrating all pre-service teachers into those programs and serving more decentralized schools. It begins by stating that teaching-induction programs integrate:

¹We call Practicum the *Mandatory Supervised Teaching Practicum*. We kept the terminology used by the official documents and regional forums. Thus the different terminologies used, such as curriculum practicum, mandatory practicum, supervised practicum, and mandatory supervised practicum.

an innovation that is needed at school; [moreovers] they bring new perspectives to think about the university-school relationship. The exchange between students and teachers is very interesting. The school moves differently, and students bring different knowledge, which motivates teachers-preceptors. [...] These programs can be understood as a teacher training model; they involve thinking about the school, experiencing it, and studying real cases. (Regional Minas Gerais)

Afterward, it indicates some limitations, such as:

Some students cannot attend these programs, which strengthen initial education, but some students cannot join them. Another point is that many students are in private institutions, which can be understood as financing private education (injection of public funds into the private system). (Regional Minas Gerais)

Regional Tocantins, for example, addresses these issues by reflecting on the importance of maintaining Pibid and PRP activities as a permanent educational policy, as we can see in the following excerpt:

PIBID and RP positively force academics to be authors of something, to produce something, so we must guarantee its permanent existence. We must, therefore, see PIBID as a space for teacher education, according to Prof. Freud Romão in his doctoral research. In this context, the direction was for GD3 actions to be based on the attitude of fighting for clearer policies and guidelines for educational programs. (Regional Tocantins)

Regional Ceará presents reports of the benefits of Pibid and PRP for initial teacher education and, like the Regional Tocantins, encourages discussions about the need to rethink the practicum in a formative path that includes activities in teacher education programs:

By raising this issue, however, the discussion about supervised practicum as a mandatory component in teacher education also comes to light. Educational policies such as PIBID and PRP produce excellent results not only because of their pedagogical designs and training projects but also because of the financial investment that enables the mobilization of subjects around their purpose. This investment is not intended for practica, meaning it can lose space in the graduate student's formative path and "compete" with such programs.

We educators should fight for the permanence, maintenance, and expansion of educational policies, especially these programs and policies aimed at all pre-service teachers, not just a percentage that is covered by scholarships. (Regional Ceará)

Academics participating in PIBID can no longer see any point in doing the mandatory supervised practicum. Hence, we must clearly understand the relationship between PIBID, RP, and mandatory practica, from national practica policies to institutional regulations and concepts of practica teachers. (Regional Tocantins)

In this sense, Regional Paraná strengthened the understanding that the PRP, Pibid, supervised practicum, and university extension differ in their purposes; each provides different experiences, all important in the initial education spectrum. Regional Bahia recognizes the educational importance of Pibid and PRP, but considers that the lack of a clear perception of the role of these programs has promoted misunderstandings about their objectives in the

relationship between both and the curriculum components that comprise the curriculum, “and specifically, the relationship established with the Supervised Practicum curriculum component, because there is no clear conception of the role that PIBID/PRP programs play in the initial and continuing teacher education” (Regional Bahia). Another aspect that draws much attention is that many regions cite Pibid and the Pedagogical Residency as fundamental for students’ retention in degree courses, for example, the Roraima, Santa Catarina, and Goiás regional offices.

Considering the importance of Pibid and PRP, the Regional Distrito Federal highlights problems identified in the articulation between these programs and teacher education. Among the problems, it highlights the “students’ lack of interest in participating in the programs. To address this obstacle, it is crucial to realize the reasons behind this lack of interest and develop strategies to make programs more attractive and relevant to undergraduates” (Regional Distrito Federal).

Regarding the vacancies available, Regional Bahia raises “the need for better regulation of the provision of Pibid/PRP programs in multidisciplinary centers.” The members emphasize the richness of multidisciplinary experiences for the initial and continuing teacher education; however, they report that some of these nuclei are constituted because of the provision of vacancies to fulfill the Call but do not carry out integrated activities. Going further, they argue that the offer of Pibid and PRP constitute state public policies so as not to depend on government policies and become part of the pedagogical projects of the teaching degree courses in mathematics.

Regional Mato Grosso reports that the PRP and Pibid contribute to promoting changes and advances in the following areas:

- Initial mathematics teacher education for basic school;
- The innovation of the mathematics teaching-learning process in basic education schools, articulation theory, and professional teaching practice;
- The rapprochement between universities and field schools, increasingly fruitful for the initial education of teachers for basic education (Regional Mato Grosso).

Continuously, they mention that the studies address:

- The relationship between theory and practice in the context of the BNCC;
- The relationship between theory and practice in the initial teacher education process;
- Theory and practice in the teaching profession;
- Brazilian basic education from the BNCC. (Regional Mato Grosso)

It is essential to consider the warning from Regional São Paulo about the distortion affecting Pibid regarding its initial objectives, which recognizes the positive results of the program. However, although many educators are involved, “there is fear that it will become even more disfigured, given the lack of licensed teachers in public schools, which may force program participants to be asked to take over classes to fill the gap” (Regional São Paulo).

3.2 Curricularization of extension in teaching degree courses (CNE/CP Resolution n. 7, of December 18, 2018)

CNE/CP Resolution n. 7, of December 18, 2018, establishes the Guidelines for Extension in Brazilian Higher Education and regulates the provisions of Goal 12.7 of Law n. 13.005/14, which approves the National Education Plan 2014-2024.

Art. 2 states that the guidelines:

regulate the academic extension activities of teaching degrees, in the form of curriculum components for the courses, considering them in their aspects that are linked to students' education, as provided for in the Institutional Development Plans [Planos de Desenvolvimento Institucionais - PDIs], and in the Institutional Political Projects [Projetos Políticos Institucionais - PPIs] of educational entities, according to the undergraduate's profile, established in the Course Pedagogical Projects [Projetos Pedagógicos dos Cursos - PPCs] and other specific normative documents.

The expression “curricularization of extension” or “curriculum accreditation” imposes the need to adapt the teaching degree PPCs to guarantee the necessary workload for extension activities and meet the resolution above. The theme “curricularization of extension” was approached by the regional offices of Roraima, São Paulo, and Paraná. Regional Roraima reported that teaching degree courses at public HEIs are already considering the “curricularization of extension” in their PPCs but informed that they have not adhered to Resolution CNE/CP n. 02/2019.

Regional São Paulo considers the “curricularization of extension” a challenge for teacher education and highlights its potential for expanding the university's relations with basic education schools and society in general. Regional São Paulo upholds that “the challenge is to construct significant proposals, which create productive relationships and bring contributions to all parties involved.” Furthermore, it considers that, as it is a relatively recent proposition, the “curricularization of extension” should be the subject of debate and research in different spaces.

In Regional Paraná, the discussion on the “curricularization of extension” began through a group reflection motivated by the question raised by the UFPR professor about the role extension plays in initial teacher education and its concept. We understand that this question demands a debate on the conceptual understanding of “extension” and its relationship with meeting the needs of the community, as there are differences in whether it is conceived as related to time at school, experience in other formative spaces, or meeting the needs of the community. After that, the group debated proposals from universities participating in the GD that contemplate university extension in the context of public policies in the drafting phase and those already being implemented, with the conceptual nature as a generating element.

Given this discussion, UFPR assumes that the PRP differs in its purposes from Pibid, which is distinguished from the supervised practicum, which, in turn, diverges from the curricularization of extension. In other words, each has its own purpose, and we must think about programs and public policies that bring together core normative ideas. However, it is imperative to respect the different learning opportunities of the prospective teacher. Extension, in turn, is defined as potential learning, and its curricularization at the UFPR is the subject of discussions precisely because of the conception (under construction) we have about extension.

From this approach, the group raised questions such as: To what extent do we become aware of the curriculum policies, and how can they be articulated? Can PRP and Pibid be considered curricularization proposals? Regional Paraná consensed that:

given this understanding, the PIBID, pRP, and Mandatory Curriculum Supervised Practicum are formative spaces different from what is characterized as an extension regarding their curricularization. Furthermore, the importance of not confusing and adopting extension (as a facilitator of qualification) with the provision of services (Regional Paraná) was also discussed.

Considering the above, the group reflected that the university's tripod –teaching, research, and extension– allows us to contemplate other spaces and actions involving mathematics teaching, such as prisons and hospitals. “In this way, it is characterized as an extension of experience instead of time” (Regional Paraná).

Other topics covered were compliance with the workload and the organization of extension practices. About the first theme, the announced concern was that mandatory compliance with the workload overlaps with the possibilities of learning through actions, respecting the different rhythms and experiences. Regarding the organization of extension practices, the “possibility of shared planning of such actions was considered, involving, from the planning stage onwards, the collective of students, teachers, community, and other interlocutors in carrying out activities that aim to promote education with and through them” (Regional Paraná). From these themes and others that permeated the discussions and reflections, we realized the need to characterize curriculum policies as a formative space in the participants' institutional contexts.

Within the scope of this discussion, participants from Universidade Tecnológica do Paraná - UTFPR inform that “at UTFPR there is no single institutional extension policy, and each campus is responsible for making decisions about the organization of these proposals within the scope of the courses, in light of the guiding documents” (Regional Paraná). At UTFPR, Cornélio Procopio campus, teachers have consulted other PPCs to be inspired during the construction of their course document, which is currently in its completion phase. In the implementation stage of the new curriculum,

the difficulty in making groups' workload compatible (imposed by Res. 02/2019) [emerged], considering the context of a single teaching degree course amid several engineering areas, as well as the articulation of the practicum and extension activities given the little “space” for the development of activities. (Regional Paraná)

At Universidade Federal do Paraná (UFPR), the “curricularization of extension” is discussed at a collegiate level. There is still no proposal on how it will meet the regulations imposed by the Resolution regarding the pedagogical perspective for its implementation.

This fact commented on during the discussions in Regional Paraná, considering a local characteristic that leads to the possibility of extension action, was that,

As there are degree courses at UTFPR and Universidade Estadual do Norte do Paraná - UENP in a relatively small municipality, professors hardly accept being supervisors

of programs such as PIBID and PRP. In this context, the group has been considering the extension focusing on events. (Regional Paraná)

At UTFPR, Curitiba campus, a report revealed that the institution is concerned with the actual education of prospective teachers and highlights that, since the publication of Resolution n. 02/2019, there have been discussions to adapt the PPC to legislation, such as the following extract:

For example, the articulation of transversal themes pertinent to global education has become a syllabus instead of “transversal” themes, which can distort it, indicating a loss of its potential and, consequently, distinguishing it from a formative proposal that encompasses (in the sense of experiences) these discussions. Thus, they suggest that there is still a conception of qualification destined to comply with legislation; the reflection and formative aspects are subordinated to the need for adaptation. (Regional Paraná)

UTFPR, Toledo campus, in 2023, was in the second year of implementation of the curricularization of extension. It emphasized that “discussions about curriculum policies related to Resolution n. 02/2019 have moved toward insubordination.” Regarding the curricularization of the extension, they initially thought about articulating a workload in subjects that could meet such demand. However, they considered that they would depend on the teachers who taught them. This time, they proposed four subjects that would last five hours per week, in which basic education teachers from the municipal school network of Toledo, Paraná-PR, participated. Graduates can validate the credits as an extension practice. To this information, they added:

These subjects tried to meet the needs imposed by the New Secondary Education (NEM), in which PSS teachers² work in the model of optional subjects with themes that have gained space in debates (computational thinking and financial education, among others). There is also the possibility of experiencing other activities, projects, and many other types of extensions and asking for validation. In this way, they meet the community’s needs; thus, formative spaces are created for academics. (Regional Paraná)

Universidade Estadual do Oeste do Paraná - Unioeste, Cascavel campus, reported that the mathematics teaching degree course was reformulated, with two curriculum components being inserted as extension practices. Other subjects allocate hours for extension activities to complete the minimum number required by the curriculum.

The private sector in this GD outlined the institutional relationship with this theme in terms of implementation, prospective teachers’ reactions to the mandatory workload, and teachers’ relationships with the extension activity.

In the set of debates, the scenario experienced by private sector institutions stands out, whose implementation of the curricularization of extension has been postponed. In the case of UniCesumar, this year, a study was carried out on Res. 02/2019, and institutionally, the course matrices were modified, including gaining synergistic

²PSS is a simplified selection examination carried out by the Department of State of Education of Paraná to hire temporary basic education teachers.

subjects (common for more than one course). Despite the “flexibility” offered by distance education, the course has also faced some difficulties that lead to students dropping out, for example, when they become aware of the workload they must attend. In addition, there are reports of the challenge of monitoring extension activities as a demand in the curriculum. (Regional Paraná)

Compliance with the course load and the retention of graduates at school were thoroughly discussed topics. Participants commented on an emerging reality: a swelling of the school with prospective teachers and little feedback to the school about the actions developed or the consequences of these actions. They consensed that:

When we develop actions at school, there is an understanding that ‘it’ needs formative feedback and that this often does not happen because perhaps we are more concerned with the workload and fulfillment of activities related to the pre-service teacher. (Regional Paraná)

Added to this understanding was that the school, besides welcoming graduates, is a space for continuing education, as recommended by the National Common Curriculum Base (BNCC), which expands the discussion on extension activity beyond the normative service of the workload of the prospective teachers. From this discussion, the following question emerged: To what extent are the actions that guarantee compliance with the workload –which is standardized by curriculum policies– formative? Concluding the discussion, although we know that the implementation of the curricularization of extension is triggered by a long struggle by extension teachers, including the historical demand for the valorization of extension in the prospective teachers’ education carried out by the Forum of Pro-Rectors of Extension of Brazilian Public Higher Education Institutions [Fórum de Pró-Reitores de Extensão das Instituições Públicas de Educação Superior Brasileiras – Forproex],

it is a consensus that both discussions and the implementation of curriculum extension actions focused on the formative aspects of mathematics teachers are still progressing. In other words, this path refers to conceptual understandings and the feasibility of actions that enhance formative experiences and contribute to teachers’ professional development. (Regional Paraná)

In short, the curricularization of extension is under discussion in institutions in the regional offices of Roraima, São Paulo, and Paraná, according to reports from teachers who participated in these forums. Implementation attempts and experiences have been developed, such as creating specific curriculum components and validating credits in subjects as extension practice. What emerges is the need for an understanding of “extension” that defines it as an extension of experience, a formative extension, of course, and not just of time in the development of activities. The absence of this discussion in the other 11 regions is a factor to ponder, considering that adopting extension from a curriculum perspective requires an understanding of its concept so that extension actions are, in fact, formative.

3.3 National Curriculum Guidelines for the initial education of mathematics teachers

National Curriculum Guidelines for the initial education of mathematics teachers was addressed by numerous regional offices, such as Paraná, São Paulo, Acre, and Mato Grosso. Regional São Paulo discussed, among other points,

the challenge of being a teacher educator in the face of current curriculum documents, such as the National Curriculum Guidelines for Initial Teacher Education [Diretrizes Curriculares Nacionais para a Formação Inicial de Professores] (Brasil, 2019), the Resolution for the curricularization of extension (Brasil, 2018), the National Common Curriculum Base [Base Nacional Comum Curricular] (Brasil, 2018) and the new Pedagogical Projects for Courses in force from 2023. (Regional São Paulo)

These aspects were the topics of our discussion at the National Forum for the Education of Teachers who teach Mathematics [Fórum Nacional de Formação de Professores que ensinam Matemática], regarding intercultural teaching degrees in the field and Indigenous education, as suggested by the Regional Distrito Federal. Regional Paraná raised points that somehow impact teacher education:

- Understanding that the teaching degree course does not form a mere executor of the BNCC (do as prescribed), but a professional constituted by dimensions (development of professional identity).
- Transposition of the normative dimension of the BNCC through critical reflection and articulated to each reality, toward guidance on “how” it can be developed in curriculum proposals.
- Presence of transversal themes in the curriculum organization aimed at teacher education. (Regional Paraná)

From the perspective of Regional Rondônia, the National Curriculum Guidelines for Initial Education, through Resolutions n. 1/2002, n. 2/2015 and n. 2/2019 (BNC-Formação), point to “the strengthening of professional practice in the performance space.” There is an emphasis on the concern with Brazil’s diversity, which involves Indigenous communities, quilombolas, and field education, among other instances. Regional Acre states that public policies are still exclusionary.

We agree with Regional Santa Catarina, which considers that field education has not been consolidated as a State policy and that the funding cuts contributed to the ineffectiveness of its implementation. Additionally, Regional Santa Catarina lists some problems faced, namely: “The closure of courses due to a lack of enrolled students; the difficulty of inserting those professionals into the teaching field; the implementation of the pedagogy of alternation restricted to a methodology (school time and community time).” Moreover, it adds, in a more general way, that

there is a mismatch between current formative policies and the real needs of in-service teachers. Therefore, we defend the creation/implementation of organic policies to value the teaching profession that encompasses initial and continuing education, remuneration, career, working conditions, and health. Furthermore, public teacher education policies should seek broader qualifications that encompass historically produced scientific knowledge and the foundations of education as a way of resisting the pedagogy of skills. (Regional Santa Catarina)

We understand that there is consonance with the idea of a mismatch between public education policies and the needs of in-service teachers. We highlight the demand presented by Regional Minas Gerais addressing “education for special services”:

There was a discussion about: teacher education time for an urgent demand, namely, education for special services; a growing number of students with special needs; demand from education networks so that teachers are prepared for this demand, but initial education does not prepare them; teachers rarely have the opportunity to qualify; students being included due to being in the same place as others, but not in the sense of a learning opportunities. (Regional Minas Gerais)

Some regions have addressed the guidelines from the specific aspect of curriculum organization and course identity. Regional Tocantins addresses the research-based characteristic of the mathematics course, emphasizing that this occurs

despite the efforts to configure a curriculum proposal that meets the demand for a qualified professional, i.e., initial education that contributes significantly to the production of basic, essential knowledge that forms a more confident teacher when starting their teaching practice. We realized that we still must be aware that the course must prepare mathematics teachers *for basic education*. Wanting to prepare for careers as researchers in the specific area and for teaching at EB does not work. We must define clear principles, objectives, and goals to guide a curriculum that meets social, educational, and technological demands built by several hands. (Regional Tocantins)

Regional Acre agrees with that point and suggests: “thinking about all subjects in the context of the teaching degree and their role in the education of those who will work in basic education.”

The revocation of Resolution CNE/CP n. 02/2019 and the resumption of Resolution CNE/CP n. 02/2015 were on the agenda of some regional offices. We present the following excerpts as an example of the movement that occurred in the regional forums.

Regarding the topic “National Curriculum Guidelines for the initial education of teachers who will teach mathematics,” the GD follows the position set out in the “Manifesto da Frente Revoga BNC-Formação Pela retomada da Res. 02/2015” (http://www.sbembrasil.org.br/files/manifesto_revoga_bnc_formacao.pdf). (Regional Santa Catarina)

Finally, as a guide, the group proposes that:

- a) Resolution CNE/CP n. 2/19 be revoked, for not corresponding to the teacher education project desired by SBEM;
- b) discussions on pedagogical education proposals for non-licensed graduates are expanded, especially considering the term in Resolution CNE/CP n. 2/15: “Emergency and provisional.” (Regional Distrito Federal)

Legal and constitutional mechanisms that guarantee HEIs the time necessary for implementation, development of teacher education, and evaluation of formative actions, as well as the performance of newly-graduated teachers, aiming to understand which points of the current teacher education policy were positive and which ones need to be improved, excluded, and included. Even if emergency changes are

necessary throughout this process, which does not mean the total repeal of the teacher education policy, as long as it is constructed democratically by all agents involved in education, from the MEC to basic education teachers nationwide, as well as the community in general, interested and concerned about the quality of education for all. (Regional Tocantins)

We saw here what the groups scored about the DCNs. In the following section, we address other topics that came up in the discussions.

3.4 Other emerging themes

Themes addressed by the regional offices that emerged from the discussions, such as bureaucratization of education, evasion, teacher appreciation, public policies for the implementation of technologies in schools (reflection motivated by the pandemic), continuing education, and demands for professional practice. Although it is not the agenda of this GD, they are noted for their importance.

Regarding continuing education and the demands for professional practice, Regional Rio Grande do Sul is highlighted with eight participants in the forum, most of them basic education teachers, which is why the approaches were related to reports of their experiences in schools and obstacles or limitations to continuing education. Based on the approaches, some propositions were developed to be evaluated by SBEM:

- there should be a workload for [continuing] education, separate from the activity-hour workload;
- the third of the teaching workload allocated to activity hours should be weekly (this is respected in some school networks and not in others);
- the legal formulation regarding the third part allocated to activity hours must be precise, guaranteeing teachers' rights, since in some cases, continuing education occurs within the workload of activity hours, harming planning;
- training via livestreams should be complemented by at least one discussion within the school, with the sending of a reflection to the training organizers;
- studies of mathematics concepts that are object/taught in the classroom can be pursued by teachers independently or in specific courses;
- need to open more master's courses in public institutions to offer qualifications in mathematics education to more students due to mobility;
- there must be an appreciation of master's-type education in the teaching career and continuing education also, as it is inherent to the profession. (Regional Rio Grande do Sul)

In addition to these items, participants discussed specific education in mathematics through the following questions: "Must schools offer mathematics education? Or should the master's degree be the 'place' for this mathematics education?" (Regional Rio Grande do Sul).

The New High School was considered in the Regional Paraná regarding possible implications for mathematics teaching degree courses. This fact deserves attention due to the consequences it can generate given the formative characteristics that shape its formative agenda.

We reiterate the importance of these themes and recognize their intertwining with the GD theme, since one cannot think about initial teacher education policies without considering the close relationship between continuing education and basic education.

4 Discussions and referrals from the GD03 group of the National Forum (DCN-Formação)

Based on the above, in this forum, we suggested expanding the discussion on Pibid and PRP as spaces that favor the integration of initial and continuing education, as recommended by CNE/CP n. 02/2015 and defended by a collective of educators and mathematicians. Regarding issues related to the roles of Pibid, PRP, and practicum, the group understands that it is necessary to form a working group linked to SBEM to deal with the specific objectives of each of the programs, to not confuse them with those defined and regulated for the practicum and collaborate to establish these programs as State policy, including the Teaching Residency, which should be implemented soon. Hence, we understand the PRP as a critical formative space conquered with much struggle and cannot replace the time and space of practicum nor be subtracted by it.

Another topic that generated in-depth debate was the “curricularization of extension” and its implementation. Socializing understandings about both “curricularization of extension” and how different institutions included it in their CPPs contributed to reflecting on the role of extension in teacher education. The extension in the context of distance learning courses was considered in terms of the feasibility of carrying it out from a formative perspective.

After discussions about the idea of extension, provoked by the expression “extension as the provision of services,” there was a consensus that extension in teaching degree courses should be an action linked to teaching and research, built collectively based on a permanent relationship between the university and the external community, focusing on formal, non-formal, and informal educational contexts. It is worth remembering that Gatti (2004, p. 24) warned that “extension programs cannot be a mere provision of services,” an alert conducive to the formative purpose expressed in section I of Art. 6 of Resolution CNE/CP n. 7/2018, regarding “contribution to students’ comprehensive education, encouraging their formation as critical and responsible citizens.” This contribution is subsidized by Art. 5, which deals with the structure, conception, and practice of the Extension Guidelines in Higher Education:

- I - the dialogical interaction of the academic community with society through the exchange of knowledge, participation, and contact with contemporary complex issues present in the social context;
- II - students’ citizenship education, marked and constituted by the experience of their knowledge, which, in an interprofessional and interdisciplinary way, is valued and integrated into the curricular matrix;
- III - the production of changes in the higher institution itself and other sectors of society, based on the construction and application of knowledge, as well as through other academic and social activities;
- IV - the articulation between teaching/extension/research, anchored in a unique, interdisciplinary, educational, political, cultural, scientific, and technological pedagogical process (Brasil, 2018).

Concerning society, expressed by GD members as an “external community” involved in the university’s extension actions, we refer to Gatti (2004), considering the relevance of his understanding for the current moment of “curricularization of extension”, which cannot be seen as composed of

abstract beings or as essentially rational, but as being essentially social beings, with their identities, immersed in a group life in which they share a culture, deriving their knowledge, values, and attitudes from these relationships, based on the representations and languages constituted in this process that is at the same time social and intersubjective. (p. 25)

Inspired by Gatti (2004), we consider that results from the curricularization of extension in initial teacher education will not be obtained in its implementation immediately by data that can be metrically quantified in pragmatic terms, but rather in distant relationships, which, recursively, the graduates will establish professionally, resulting from the articulation between curriculum knowledge and teaching action.

Regarding the lack of investment in public teacher education policies and, in particular, the education of Indigenous, quilombola, and field educators, the group took a stand in favor of organic policies that permeate initial and continuing education, career plan, and working conditions to value the teaching profession. We agreed on the need to promote spaces for educators’ education to discuss cross-cutting themes, such as “human rights, ethnic-racial, gender, sexual, religious, generational diversity, Brazilian Sign Language (Libras), special education and educational rights of adolescents and young people in compliance with socio-educational measures” (Brasil, 2015).

Finally, on this occasion, we reaffirm our position pro the revocation of Resolution CNE/CP n. 02/2019 and, consequently, of CNE/CP n. 01/2020, given the possibility of teacher education courses becoming spaces for the instrumentalization of techniques to the detriment of reflective, civic education. Because of this, we believe it is essential not to dissociate the fight for repealing these resolutions from the battle for the annulment of the New Secondary Education.

5 Some considerations

Based on the discussions held in the regional forums and the VIII FPMat, we read the DCN-Formação and the associated review to analyze how the document addressed the issues raised in those spaces. Considering that many studies indicate the need for profound changes in teaching degrees to remedy educational weaknesses (Gatti, 2013), we repeatedly observe that the studies and discussions carried out by entities are rarely considered in the documents that govern teacher education.

For example, the document points out that

practicum must offer numerous opportunities so that the student can progressively connect the theoretical aspects of their education with their practical applications, initially through observation and progressively through their performance directly in the classroom. (Brasil, 2024, p. 33)

However, it disregards the academic debate, defended by the entities, in which

forms of resistance are linked to the rejection and restriction of the continuity of the triad of observation, participation, and management, which, at times, disregard the concepts of practicum as a field of research and collaboration. (Santana & Barbosa, 2020, p. 11)

On the other hand, the document emphasizes that the practicum is not a work activity and should be thought of as an experience for learning and initial socialization in the profession, never being assumed as the main responsible for conducting, always being accompanied by the class teacher, under guidance from a university professor (Brasil, 2024). These questions bring us to the concern of Regional São Paulo when it exposes its fear about the possible distortion of Pibid, which we can extend to the practicum regarding the deviation of the role of teaching degree students when taking classes to fill gaps, given the lack of licensed teachers in public schools. Therefore, we believe that the emphasis given in the document on the non-work nature of practicum activities is important.

Another aspect that draws our attention regarding the practicum is that the DCN-Formação links to teaching practice, and the need to offer diversified and structured opportunities is highlighted. The aim is to learn specific practices for teaching and conducting educational processes (Brasil, 2024). However, despite the opinion indicating that there is a differentiation between teaching practice, practice as a curricular component, and practicum, the concepts for using these terms are not presented. In addition, the hours of practice as a curriculum component provided for in the CNE/CP Resolution n. 02/2019 are extinguished.

Unlike previous resolutions, DCN-Formação receives 320 hours of extension activity, which is equivalent to 10% of the minimum time stipulated for the workload of a teaching degree course. However, as proposed in our forum, only basic education institutions can carry out these activities, disregarding non-formal or informal educational spaces. We agree with Gatti (2017, p. 723) when he states that

In the complex intertwining of these conditions, questions arise regarding the education of teachers for basic education: about its relationship with the social and educational needs of new generations, its relationship with political-philosophical perspectives regarding the role of school education, about its relationships and contributions with visions of the future, and even on their relationships with the knowledge to be addressed at this level of education. There are questions about how to qualify these teachers, which institutional and curriculum bases are most compatible with the challenges that new generations and new knowledge pose, and new and conflicting social relationships that challenge our understandings.

From this perspective, we understand the importance of broad and socially committed education in strengthening relationships between what is discussed at the university and the role of the mathematics educator, who may be inserted in different educational spaces. Contrary to this understanding, the disarticulation of initial and continuing education and extension reduced to a single context means discontinuity, reformulations, and fragmentation of programs and institutional projects that act as impeding vectors for the improvement of teacher education, as pointed out by Gatti (2013, 2021) and Mindal and Guérios (2013), among other researchers.

The new text maintained advances achieved in Resolution CNE/CP n. 2/2015, such as the minimum course load of 3,200 hours, the articulation between theory and practice, and the inseparability between teaching, research, and extension. However, the practice as a curriculum component was extinguished, even though “basic education institutions are recognized as formative institutions indispensable for the education of prospective teachers and school professionals as fundamental agents in the process of professional socialization” (Brasil, 2024, p. 25). Thus, in the document, the articulation between initial and continuing education and between the formative institution and the school space is not seen as essential for the education of prospective teachers, basic education teachers, and teacher educators.

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