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Research on the Mathematics Teacher Education in the Interface with the

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Editorial

The Pedagogical Residency Program (PRP) was established by Ordinance N. 38, of February 28, 2018, by the Coordination for the Improvement of Higher Education Personnel - Capes, with the central purpose of supporting training institutions in the development of proposals that encourage the relationship between theory and practice in the education of prospective teachers enrolled from the second half of the degree course.

The first edition of the PRP was launched in Notice 06/2018/CAPES, with the main objective of implementing institutional projects with perspectives of innovation, connecting theory and practice in the degree courses involved. The second edition was launched in Notice 01/2019/CAPES aiming to strengthen the supervised practices. The third began with the proposition of Notice 24/2022, offering 30,840 resident scholarships distributed among the 250 selected institutional projects that were prepared by different higher education institutions across the country.

In compliance with the public notices, the participating HEIs submit institutional projects (Figure 1), which bring together subprojects from different areas of knowledge, with mathematics being one of those areas defined therein.

It is a nationwide program that has driven investigations into the education of mathematics teachers and mathematics teaching and learning processes.

In this sense, like what happened with the Institutional Program for Teaching Initiation Scholarships (PIBID), the PRP has been considered an object and/or investigative context of several studies on mathematics teacher education in mathematics education. This fact motivated us to propose this thematic issue, with the objective of highlighting the contributions of this program to the research agendas in our area.

In this way, after the editorial flow, the board approved eighteen articles that present different investigative focuses and reflections on how mathematics teacher education has been

carried out in interface with the Pedagogical Residency Program. In the following, we will briefly introduce each of them.

The first article, entitled “The Pedagogical Residency Program in teacher education: perspectives of resident students in an interdisciplinary biology and mathematics subproject” by André Pereira da Costa and Clívio Pimentel Júnior, aimed to develop an analysis of the implications of resident students’ participation in an interdisciplinary biology and mathematics subproject of the Pedagogical Residency Program in the constitution of their teaching professionalities and identities. The analysis showed that, due to the practices undertaken, the PRP makes it possible for the stakeholders to reflect on the complexity of teaching.

Emilly Gonzales Jolandek and Lilian Akemi Kato, in the article “Mathematical literacy competencies that emerge in the development of mathematical modeling activities from the perspective of graduates of the Pedagogical Residency Program”, discuss literacy in the context of planning activities involving mathematical modeling.

In the article “The Pedagogical Residency Program: a reflection based on the French experience”, Vladimir Lira Vêras Xavier de Andrade and Jean-Claude Régner discuss the pedagogical residency in Brazil, comparing it with the French experiences of mathematics teacher education. The main results show that the development time of PRP activities in Brazil could be increased, as well as the value of the scholarship, accompanied by an enhancement of the teachers’ careers.

Ailton Paulo de Oliveira Júnior, Carla Alves de Souza, and Maria do Carmo Pereira Servidoni, in the article “The construction of the professional identity of residents of the interdisciplinary core of the pedagogical residency”, reveal that the participants’ experiences, even in remote teaching implemented due to the pandemic of Covid-19, contributed to the development of a professional identity. They also point out that by allowing direct contact with

the reality of basic education schools, the PRP allows prospective teachers to reflect on their education.

Analyzing the proposition and implementation of a sequence of activities on fractions with 6th-grade elementary school classes was the main objective of the article “The use of applications in teaching fractions: reflections within the scope of initiation to teaching” by Karen Luana Viana Braga, Michelly da Silva Fernandes, Leonardo Carlos Rodrigues Pantoja, and Valéria Risuenho Marques. The investigation, conducted during the remote teaching period, highlights the importance of using applications that can encourage mathematics learning in all teaching modalities.

In “The Pedagogical Residency Program in the pandemic context: the experiences of residents of the mathematics subproject at the Federal University of Alfenas”, it is possible to understand the experiences of residents of a mathematics subproject during the pandemic. Rejane Siqueira Julio and Helena Maria dos Santos Felício point out that, for remote teaching, they needed more than just reorganizing the pedagogical activities from face-to-face to virtual ones. In addition, the authors report that the lack of contact with basic education students and the school was a limiting factor in the teacher education process.

Seeking to identify the previous perceptions of mathematics teachers in initial and continuing education on the topic of teacher education from a significant and critical perspective, Simone Regina dos Reis, Maria Cecília Pereira Santarosa, and Carmen Vieira Mathias contribute with the article “Analysis of Pre-Service and In-Service Mathematics Teachers’ Perceptions of Meaningful and Critical Learning”. According to the authors, it is necessary to encourage and expand reflection on practice to develop teachers’ awareness of the role of educating.

Focusing on “The (re)constitution of the professional identity of prospective mathematics teachers in the context of pedagogical residency”, Ana Cláudia Gouveia de Sousa,

Carlos Ian Bezerra de Melo, Luiza Santos Pontello, and Maria de Lourdes da Silva Neta discuss the relationship between the PRP and the constitution of the teaching professional identity (TPI), observing the mobilizations in the residents' TPI experienced in the context of a mathematics center. The results show that the formative experiences teachers live can mobilize the TPI configured and reconfigured dialectically.

To investigate the didactic-mathematical knowledge (DMK) of prospective teachers participating in the PRP for teaching financial education, Ygor Bruno Fernandes da Silva, Paloma Ferreira Santos, and José Fernandes da Silva, in their article “Didactic-Mathematical Knowledge of Prospective Teachers Participating in the Pedagogical Residency Program for Financial Education Teaching” show the importance of bringing them closer to basic education and have them reflect on their practice. According to the authors, this becomes an opportunity to (re)evaluate the knowledge necessary for teaching, especially financial education, in the school context.

“Becoming a mathematics teacher in a Pedagogical Residency Program”, by Bertrand Luiz Corrêa Lima and Reginaldo Fernando Carneiro, points out that professional teaching induction is complex, that is, it is made up of challenges, both of institutional and personal nature. Thus, the authors reinforce the need for public policies aimed at these beginning teachers, giving them attention, assistance, and support in their first years of professional practice, to enable them to overcome, discover, and survive the professional initiation in the field of mathematics teaching.

The article “Mathematics Pedagogical Residency, Inclusion, and Remote Teaching: Developments for Initial and Continuing Education and Teacher Professional Identity” presents the pedagogical residency of the mathematics nucleus of the Federal Rural University of Rio de Janeiro. In their investigation, Amália Bichara Guimarães, and Gisela Maria da Fonseca Pinto reveal that the PRP has a considerable impact on the constitution and

consolidation of the teacher identity of all those involved and understand that this program must permanently integrate the degree courses.

Amanda Cristina Martins, Iara Maria Soares de Assis Frade, and Douglas da Silva Tinti analyze the criteria of ecological suitability assumed by mathematics residents in developing a lesson plan involving gamification. Their analysis in their article “The Pedagogical Residency Program and the Mobilization of Didactic-Mathematical Knowledge: An Analysis Focusing on Ecological Suitability” reveals that in the residents’ planning, the high level was considered for two components of ecological suitability (openness to didactic innovation and intra and interdisciplinary connections), the medium level for two other components (adaptation to the curriculum and socio-professional adaptation and cultural) and the low level for one component (education and values).

In “Knowledge of Prospective Mathematics Teachers in the Contexts of the Supervised Teaching Practice and the Pedagogical Residency”, Larissa Rafaela Silva Lima and Eliane Matesco Cristovão establish a dialogue between the PRP and the supervised teaching practice, revealing their similarities and differences. As for the similarities, the authors point out the mobilization of knowledge for their conduction. Regarding differences, they show that the systematization of the PRP is an important element for immersion in the basic education school.

Flávia Cristina de Macêdo Santana and Tailane de Jesus Santana, in the article “The Interface between Mathematics Teacher Education and Pedagogical Residency: Experiences and Resistance during the Pandemic”, present the experiences lived by mathematics degree students in the interface with the formative device of the PRP during the pandemic and reveal that the stakeholders, within the scope of this public policy, transform themselves and become mathematics teachers.

The article “Praxeology for Teaching Geometric Solids: The Case of a Scholarship Holder from the PR-Mathematics Program at the Federal University of Sergipe” by Nailys

Melo Sena Santos, Denize da Silva Souza, Maria Cristina Rosa, and Saddo Ag Almouloud, demonstrates that the praxeologies used by a resident carry much of the National Common Core Curriculum (BNCC), the most recent guiding document of basic education, read and discussed in the weekly meetings of the PRP.

Deise Rôos and Rute Cristina Domingos da Palma, in “Pedagogical Residency in Times of Pandemic: Pedagogy Students’ Reports on Mathematics Education”, reflect on the pedagogy course residents’ narratives about learning for teaching mathematics experienced with the PRP during the Covid-19 pandemic. The results show the residents’ significant effort to teach quality mathematics, overcoming the barriers imposed by emergency remote teaching.

In the article titled “Building new Understandings of Mathematics Teaching with the Pedagogical Residency Program”, analyzing how the mobilized learning environments influence prospective teachers’ education, Larissa de Queiroz Oliveira, Daniel Borges de Oliveira, and Jaqueline de Souza Pereira Grilo show that environments mobilized by the teacher impact the residents’ education, highlighting the importance of continuing formation, mastering of the content translated into different teaching strategies, execution of educational actions in which the student is the protagonist, and reflection on practice.

The dossier concludes with the research by Línlya Sachs and Henrique Rizek Elias, presented in the article “Difference as a Constituent of the Professional Identity in the Pedagogical Residency Program”, where the authors highlight the importance that the initial teacher education foresees the immersion of future professionals in the school environment combined with an orientation that favors reflection on experiences, questioning practices and truths about being a teacher.

With these eighteen articles, we hope that other reflections can be raised in favor of valuing teacher education in contemporary times.

We wish you a good reading and thank you for your interest!