The movement of the constitution of the identity of a mathematics teachers' educator: evidence based on two preceptors' role in the Pedagogical Residency Program

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ABSTRACT

Background: In the Pedagogical Residency Program, preceptors are basic education teachers who accompany teaching degree students, known as residents, in activities performed in the school environment. **Objective**: To investigate the performance of preceptors during their insertion in the Pedagogical Residency Program to understand its repercussions on the movement of constituting the identity of mathematics teacher educators. **Design**: This study is characterised by being of a qualitative nature. **Data collection and analysis**: Semi-structured interviews. **Setting and participants**: Two mathematics preceptors from the Pedagogical Residency Program. **Results**: The interviews were transcribed and analysed in light of the characterisation of the professional identity of a teacher who teaches mathematics, as proposed by Cyrino (2017). **Conclusions**: This characterisation was found to be close to that of the identity of the educator of the teacher who teaches mathematics.

Keywords: Pedagogical Residency Program; Mathematics preceptor; Identity of a mathematics teacher's educator; Mathematics education.

O movimento de constituição da identidade de formador de professores de matemática: indícios a partir da atuação de dois preceptores no Programa Residência Pedagógica

RESUMO

Contexto: No Programa Residência Pedagógica, os preceptores são professores da educação básica que acompanham os alunos das licenciaturas, denominados de residentes, nas atividades desenvolvidas no ambiente escolar. **Objetivo**: Investigar a atuação dos preceptores durante sua inserção no Programa Residência Pedagógica para compreender as repercussões dela no movimento de constituição da identidade de formador de professores de matemática. **Design**: Este

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estudo caracteriza-se por ser de natureza qualitativa. **Coleta e análise de dados**: Entrevistas semiestruturadas. **Ambiente e participantes**: Dois preceptores de matemática do Programa Residência Pedagógica. **Resultados**: Após transcrição das entrevistas, elas foram analisadas à luz da caracterização da identidade profissional do professor que ensina matemática, proposta por Cyrino (2017). **Conclusões**: Constatou-se uma aproximação entre essa caracterização e a identidade de formador do professor que ensina matemática.

Palavras-chave: Programa Residência Pedagógica; Preceptor de matemática; Identidade de formador de professores de matemática; Educação matemática.

INTRODUCTION

The Pedagogical Residency Program (PRP) was established within the scope of the Coordination for the Improvement of Higher Education Personnel (CAPES) to collaborate with the education of teaching degree students, encouraging them to actively participate in teaching practice in public schools, establishing relationships between theory and practice, which enables the construction of professional knowledge. Furthermore, the PRP provides for strengthening school institutions and implementing different teaching approaches. Thus, the PRP makes it possible to improve teacher education by relating what the teaching degree students learned at university and the experiences lived during the PRP.

Considering that "the Pedagogical Residency Program (PRP) is a relatively new program and there are still issues to be investigated" (Tinti & Silva, 2020, p. 168), this study focuses on the preceptor, who is the host teacher at the school where the teaching degree student (resident) is going to develop insertion and immersion actions under the guidance of a supervising university professor.

Although the preceptor is considered crucial in the PRP, we must underscore that the documents regulating the program do not address them as teacher educators. However, after all, what does it mean to be a teacher educator? To answer this, we should look at the contexts in which they operate. The educator can work in different social contexts, especially in schools; for example, a coordinator can also be considered a teacher educator due to his/her formation. There is an educator in courses promoted by the Department of Education and an educator in a lecture or workshop. Coura and Passos (2017, p. 9) point out that the educator:

> *[…] is central in teacher education, as, during their classes, they carry*

out work that closely resembles the work the prospective teacher witnessed as a student in basic education and what they can do when they teach. On the other hand, educators are teachers/professors who are also educated while exercising the profession, as they must mobilise their knowledge to undertake practices that meet the demands of their professional context. In this way, they maintain a dual relationship with teacher education: as agents in their own education and of their students —the prospective teachers.

Thus, the term educator can refer to different agents, and the first approach would be to define it as "any person who is professionally dedicated to educating at its different levels and modalities" (Vaillant, 2003, p. 22). In this direction, Mizukami (2006, p. 3) indicates that teacher educators are "all professionals involved in the formative processes of learning to teach prospective teachers or those who are already developing teaching activities."

Defining the role of a teacher educator is a very complex task, as it requires much theoretical and practical knowledge and a lot of creativity and imagination. Vaillant's study (2003) indicates that since practical learning needs were not always presented in the educator's formation, it is necessary to promote conditions that favour their continuous learning, such as maintaining spaces for discussion and reflection among those involved in the learning process. Thus, learning experiences must be encouraged through financing or formative programs that tension and articulate theory and practice.

Thus, we understand the relevance of the Pedagogical Residency Program, understanding it as a formative space (Silva & Tinti, 2020) to educate prospective teachers and teacher educators. Thus, this article aims to investigate two preceptors' performance during their insertion in the Pedagogical Residency Program to understand its repercussions on the movement of constituting the identity of mathematics teachers' educators. Below, we present a theoretical perspective that allows us to look at this movement.

CONSTITUENT ELEMENTS OF THE CONSTRUCTION OF THE PROFESSIONAL IDENTITY OF TEACHERS WHO TEACH MATHEMATICS

According to Cyrino (2017), the teacher is the protagonist of their formative process. In her studies, focused on teachers who teach mathematics (TTMs), she reveals a plurality of theoretical references that investigate the

professional identity (PI). The conclusion is that it is impossible to characterise the TTM's PI, leaving this task to the reader. However, she states that it is fundamental that we take a stand regarding PI to trigger reflections on the matter.

To this end, we raise some fronts to enable the characterisation of the TTM's PI. One is based on Étienne Wenger's social learning perspective, in which identity is formed in social contexts. Cyrino (2017, p. 703 apud Wenger, 1998, p. 5) states it is "a way of talking about how learning changes who we are and creates personal stories of transformation in the context of our communities." In this way, the assumptions of the community of practice contributed to approaching teacher learning from the perspective of social learning and discussing the TTMs' identity.

In this type of formative action, the teacher stops consuming knowledge produced by others and becomes the producer of their own knowledge; that is, there is nothing better than the teachers' self-problematisation of their own learning. Cyrino (2017) says it is necessary to consider what they know and feel about the need to learn and take responsibility for it, thus playing the leading role in their learning. The teacher defines what and when he/she will learn, and this should not come from other spaces, unlike what is proposed in some courses in which the educators impose strategies.

In this learning process, we continually form our identity. Cyrino (2017) states that learning is an individual and collective process guided by the context of mathematical activity in the teacher's interaction with others (students and teachers, for example) and beyond the classroom. Therefore, the teacher must be open to developing negotiation of meanings with students, mathematics, and the curriculum. "This process of recognition produces negotiation, silent or not, regarding the ways of being of the people involved in the community, that is, it encompasses the negotiation of identities of its members" (Cyrino, 2017, p. 703).

Identity is developed through more or fewer relationships the teacher has in the several groups in which he or she participates or even his/her relationships with other people, for example, school principals, colleagues, students, and parents with whom he/she has contact with (Losano & Cyrino, 2017). According to Cyrino (2017), throughout their lives, teachers create a personal picture of what they believe their teaching profession to be. In this process, "knowledge and representations about their profession are structured and modified, based on reflective and significant interactions between the teacher and the social, cultural, and structural conditions that form the context

of their work" (Cyrino, 2017, p. 704).

Therefore, in the prospective teachers' education, besides specific content knowledge and pedagogical content knowledge necessary for the exercise of the teaching profession, other elements must be considered for the movement of constituting the PI: emotions, beliefs, and conceptions; knowledge; self-knowledge; autonomy (vulnerability and the sense of agency); and political commitment (Cyrino, 2017).

Below, we explore how these elements are evidenced throughout the participation in the PRP and how they can contribute to the educator's identity. These elements are interconnected and are evident when we look at the interactions between the preceptors, or between the preceptor educator and the resident, or between the preceptor educator and the advisor during their participation in the PRP.

When we talk about emotions, we mean feelings. They are functional, physiological, subjective, and expressive phenomena that coordinate how we react to different emotional stimuli, manifested in different forms of feelings we have, such as anxiety, peacefulness, gratitude, and melancholy; that is, they are related to elements or sensations that affect the subject.

Studies such as Hochschild's (1979) highlight that the connection between emotions and identities is complex and can be constructed and interpreted in various ways. Emotions can be approached in two complementary ways: the first focuses on how social factors affect people's feelings, and the second focuses on how social factors affect what people think and do about what they feel.

At a given moment, our emotional state can influence our actions and provoke a pleasant or unpleasant sensation. According to Hargreaves (1998), teachers use their emotions when interacting with adults and children. Therefore, teaching becomes an emotional practice, however, it can be beneficial or harmful. In any case, when talking about emotions and emotionality in identity, the author tends to treat them as a matter of personal and moral choice, commitment and responsibility, that is, at the expense of considering as sociological, political, and institutional the forces that shape and reshape the emotional landscapes of education for good or for bad, in different ways, and under different conditions.

Thus, the ability to use emotions is well-founded not only in competence or emotional intelligence, located not only in the individuals' mind; they are embedded and expressed in human interactions and relationships

(Hargreaves, 1998). Thus, a teacher's ability to use their emotions well in the workplace depends on their emotional competence.

According to Cyrino (2017), emotion is typical of the movement of the constitution of the teacher's identity, which is not neutral; in other words, based on the way a person understands themselves and others, they express their orientations, their quirks, their tastes, and their values regarding themselves and their professional practice. This does not mean these traits are characteristic of their behaviour, but they constitute a fundamental aspect of teaching work. Emotions are essential to educational practice, driven by the teacher's commitment, and this is another aspect that demands investigation" (Cyrino, 2017, p. 709).

These feelings can be evidenced during participation in the PRP, for example, the frustration when, in one of the proposed activities, the resident planned a class and intended to put it into practice, but due to the remote context of that moment, sometimes there was no student participation. This situation can also cause a lack of confidence, anxiety, or frustration in the preceptor, who has planned to receive the student with the resident and is connected to other elements we will see later, such as vulnerability and/or political commitment.

Thus, the way the PRP organises and structures human interactions emotionally affects how those involved act during participation in the program. Emotions are present not only in understanding the other but also in acting regarding what the other feels. Emotions are linked to political commitment. We do for others what we believe they would like to be done for them, and not based on what we think would be best.

Beliefs and conceptions are two other constituent elements of the TTM's PI construction movement. Defining them is quite complex due to a range of epistemic factors involved; however, understanding the characteristics of beliefs to distinguish to what extent they differ from simple opinion is extremely important, but we will not discuss it here.

The big question is to know the impact of the belief system on the movement to form the identity of a TTM's educator because belief is in most of our attitudes. According to Tardif (2002), even if briefly, each person's subjectivity interferes with the learning of new content. There is no point in the teacher explaining theoretically in the classroom that there must be interaction and construction of knowledge if he/she does not believe in it. After initial or continuing education, some teachers, even if implicitly, still carry beliefs constructed throughout their life experiences.

Teacher's actions reflect their individual beliefs and the knowledge that the teacher carries, whether implicit or not. They permeate the relationship between teacher and student (Cyrino, 2017), considering beliefs and conceptions in a process in which the teacher gets to know him/herself.

Teachers bring a set of beliefs and conceptions, such as what it means to be a TTM, the type of teacher they want to be, how they should teach, their role in mathematics teaching and learning processes, and other actions of their teaching practice. According to Cyrino (2017), these beliefs and conceptions are interconnected and influence how teachers deal with their knowledge to practice their profession. The author also emphasises that conceptions encompass beliefs not in synonymy but in a complementary way, based on their experiences as students and teachers, the influences they suffered, the knowledge they produced during their lives, and consequently, this immersion expressed in all of their previous knowledge. Much of teachers' knowledge is rooted in their life stories.

Beliefs and conceptions, which come from their experiences, help us identify, for example, preceptors' knowledge of what it means to be a teacher educator. Throughout their personal life stories and experiences, preceptors-educators internalise beliefs and concepts that align with their identity. These ideas add to preceptors-educators' beliefs about mathematics and its practice. Beliefs also reveal aspects of the PI.

It manifests in different ways, such as their political stances or religious choices and the type of teachers they do not want to be. These aspects must take into account knowledge and self-knowledge, among others. Ultimately, the lack of in-depth reflection and the difficulty in conceptualising these terms, beliefs, and conceptions end up assigned to the reader. Cyrino (2017, p. 701) says that "these connections are not always sufficiently justified" due to their complexity and subjectivity.

Another constituent element of the movement to build the TTM's PI refers to the knowledge inherent to the teaching profession. Cyrino (2017) emphasises that knowledge is structured and modified based on reflective and significant interactions between the teacher and social, cultural, and experiential conditions. Agreeing with Cyrino (2004), Santos (2000) says there is no general knowledge, just as there is no general ignorance. The author also points out that "what we know is always knowledge of a particular form of ignorance. Thus, every act of knowledge is a trajectory from point A of ignorance to point B of knowledge" (Santos, 2000, p. 29). Still, "To know is to recognise and progress in the sense of raising the other from the condition of

an object to the condition of a subject. This knowledge-recognition is what I call solidarity" (Santos, 2000, p. 30). The study by De Paula and Cyrino (2020) presents eight epistemological perspectives that are interconnected and related to the concept of TTM's PI. Among them, we highlight the holistic perspective, which encompasses events from the past, the present, and expectations for the future. In other words, identity is constructed from different social meanings, from the profession in a given context and from the ratification or legitimisation of culturally consecrated practices, constituting a constant process of reviewing these meanings and traditions, driven and motivated by reflection and respect for diversity, making it necessary to develop a more holistic view of knowledge.

This perspective incorporates a critical and holistic discussion, helping us understand these relations of knowledge-recognition solidarity. The subject must be keen on knowing the other. In this process of teacher knowledge, their representations of their profession are structured and modified based on interactions with other teachers and the social, cultural and structural conditions that form the professional context, including experientiality (De Paula & Cyrino, 2020). The view is a reflective and significant result of a dynamic and continuous learning process. In this sense, Coura and Passos (2017, p. 21) highlight that:

> *It is still valid to consider that knowing the content is not enough for the educator; it is necessary to help teachers teach, meaning that they need support to transform their specific content knowledge into knowledge that the group of students can learn. And, in the case of educators, the definition of the knowledge base is complex, as it involves a dual character: the knowledge necessary to teach their students' students, these prospective teachers, and the knowledge related to teacher education.*

Thus, the performance of the preceptor-educator will depend on their sensitivity, solidarity, interpretations of the context in which they operate, in our case, the PRP, and their personal and professional self-knowledge. Despite being heavily imbued with knowledge and reflections on beliefs and concepts, self-knowledge refers to dealing with situations that may occur inside and outside the classroom. Self-knowledge encompasses self-image, self-esteem, motivation for work, perceptions of duties and future perspectives.

Self-knowledge is essential in building professional identity so that teachers in initial/continuing education have full access to their knowledge and are prepared for their vulnerabilities, which will be inherent to their

professional practice. According to Cyrino (2017), teachers' experiences and knowledge, including beliefs, concepts, values, expectations, emotions, and the practical and theoretical knowledge they have built since their initial education course, must be valued.

During participation in the PRP, preceptor-educators must analyse what they know and do not know, to what extent their dissatisfaction with their knowledge and/or teaching practices bothers them, and their desire and dedication to develop and improve them. The PRP has not always been able to keep up with the social and technological changes that have occurred worldwide. It is up to the PRP actors, especially the preceptor-educator, to intervene systematically, promoting interactions that generate reflective processes.

Teachers must adopt a reflective and investigative professional practice and be responsible for their own professional development, in addition to the perspective of Cyrino (2017) that learning changes who we are and that such formation involves a sensitivity to the concepts of vulnerability and agency.

When involving issues in the contexts in which the TTM is inserted (Lasky, 2005), professional vulnerability may be related to questions/situations of frustration/helplessness or to moments/episodes in which particular actions/certainties are debatable/questioned without the teacher becoming vulnerable. However,

> *not the vulnerability that weakens, makes us susceptible and is paralysing [...], but the one that allows us to suspend for a few moments, more or less long, and more or less frequent, our certainties and convictions. The one that makes us question ourselves. Also vulnerability in the sense of exposing ourselves to others and, as such, being able to become 'targets of criticism, of contestation'. (Oliveira & Cyrino, 2011, p. 112, authors' emphasis)*

Teachers cannot always control their vulnerabilities, whether formal or political, such as working conditions, regulations imposed by the control system, or political demands. Ultimately, the results do not depend solely on the teacher's performance in class' This implies that responsibility for students' results is partial. Some vulnerabilities teachers are exposed to are beyond their control. Oliveira and Cyrino (2011) argue that we must be careful when judging teachers who are incapable of reflecting on their difficulties. These authors also report that teachers' inability to reflect on their practices in the context of the

supervised teaching practicum may be related to the fact that this reflection depends on personal conditions, such as confidence and the willingness to take risks (Oliveira & Cyrino, 2011).

One way to break down these vulnerabilities would be to participate in formative spaces (Cyrino, 2017). Vulnerability can be related to questions or situations of frustration or helplessness, not as something that weakens but as an opportunity to recognise their mistakes, limitations, and agency. Agency in the sense of acting on it, such as the actions of/in the PRP. Would the preceptor-educator have a moral commitment to identify their vulnerabilities? What would their actions be? Is this vulnerability connected to the sense of agency, i.e., what are the teacher's actions in the face of public policies, their professional task, their practice? All these spaces are constituents of the sense of agency. The search for a sense of formative agency specifically directed at TTMs is often an exercise in creative insubordination (De Paula, 2018).

In this way, vulnerability can be potentially productive since practised "in interaction with social structures in a mutually constitutive way; it exerts influence, makes choices and decisions that affect their work and reveal their professional and ethical commitment through their ideas, motivations, interests, and objectives" (Cyrino, 2017, p. 706).

Teachers must have autonomy so as not to be held hostage to executing plans thought up outside of school, in the sense of following to the letter everything that is proposed. Of course, this autonomy is not isolated either; the teacher does not decide alone but with the school, and jointly, they think about the school's needs. Autonomy, vulnerability, and a sense of agency are strongly connected to the teacher's political commitment (Cyrino, 2017).

School environments are places where power is exercised. They mix multiple power relations, whether between the teacher and the management, the management and the secretary or between the coordinator and the university. Even public policies are vested with power. According to Cyrino (2017), teaching implies a political commitment to everyone involved in the school, from students, parents, colleagues, the community, and social responsibility. It is a commitment to action and transformation.

All these involvements influence the constitution of the PI. The role played by the teacher or the school comes from a decision loaded with a political commitment, which considers, according to Cyrino (2017), motivation for work, perceptions about work, future perspectives, and responsibility, that is, conditions and standards that affect the profession.

Why be a teacher? How is the PRP structured, and to what conditions is the preceptor-educator subjected? What are the perceptions of tasks, duties, and responsibilities? What should they do to be a good teacher? How does the preceptor-educator perceive mathematics as a path to transformation during their participation in the PRP? How can diversity, interdisciplinarity, and quality of life be used in mathematics? Especially during PRP?

These are just some possible questions. Of course, we do not think that these aspects are unique. Although there are different curricula, some things are affected by the formative process; they are interconnected. For example, we have the public demonstrations in defence of investments in education, held in 2019, since the cut in rights and actions affect university autonomy (De Paula & Cyrino, 2020). This, among other things, makes the teacher assume new perspectives that appear as varied "backgrounds" (Cyrino, 2017).

The reflections presented on these elements make it possible to outline a characterisation for professional identity, which, according to Cyrino (2017, p. 709), "occurs through a set of beliefs and conceptions interconnected with self-knowledge and knowledge about one's profession, associated with autonomy (vulnerability and sense of agency), emotions, and political commitment." Therefore, several conditions can shape the professional identity, including the elements mentioned by the author.

This complex and dynamic process also involves several other perspectives for characterising the PI. Cyrino (2017) clarifies that this proposal is not a solid characterisation; it seeks to encourage reflection in favour of actions that value the teacher as the protagonist of their formative process.

METHODOLOGY

Thus, this article aims to investigate two preceptors' performance during their insertion in the Pedagogical Residency Program to understand its repercussions on the movement of constituting the identity of mathematics teachers' educators. We will use the semi-structured interview perspective (Minayo, 2001), which, although a script previously prepared by the researcher, has flexibility that seeks to leave respondents free to express themselves spontaneously. A significant characteristic of the semi-structured interview is that the interviewer can combine or conduct the interview depending on the most relevant issues.

Therefore, to achieve the objectives set out, the interviews were

conducted with two active basic education teachers (Faria, 2023, Faria, & Tinti, 2023; Faria & Tinti, 2024), who were selected to participate in the Pedagogical Residency Program as preceptors of the mathematics subproject at the Federal University of Ouro Preto. The interviews were carried out individually with each preceptor-educator at an interval of one day. Each of the interviews, with a previously scheduled day and time, lasted an average of 80 minutes and took place virtually only with those who had access to technology and the Internet via the Google Meet platform.

In the interviews, we sought approaches to demonstrate that they indeed act as educators. To maintain anonymity[1], we called the respondents Preceptor A and Preceptor B. The interviews were transcribed and analysed in light of the characterisation proposed by Cyrino (2017, p. 709), in which the PI of the TTM "occurs through a set of beliefs and conceptions interconnected to self-knowledge and knowledge about their profession, associated with autonomy (vulnerability and sense of agency), emotions, and political commitment."

As we saw previously, although the elements Cyrino (2017) put forward are inseparable, interconnected, they will be addressed separately to support the proposed analysis, as we present below. Therefore, we prepared summary tables with excerpts from each interview, illustrating the evidence the preceptors revealed during their work in the PRP, based on the elements proposed by Cyrino (2017).

A LOOK AT THE EVIDENCE REVEALED BY THE INTERVIEWED PRECEPTORS THAT MAY HAVE HAD AN IMPACT ON THE MOVEMENT TO FORM THE IDENTITY OF MATHEMATICS TEACHERS' EDUCATORS

The information presented by the teacher preceptors-educators in the interviews allows us to perceive moments that refer to the teachers' identity when they talk about their basic education students— and others that refer to the educator's identity —when they talk about the residents. The following excerpts highlight the teacher's identity when concerned with developing activities with school students while participating in the PRP.

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[1] Project approved by CEP/UFOP. Processo CAE: 46687421.0.0000.5150.

[...] We develop activities focusing on elementary and high school classes. (Preceptor A - interview conducted in March 2022)

[...] The gap among students is huge. So, in the 8th grade, we have students who attended the 5th grade in person and returned to in-person attendance in the 8th grade; the 6th and 7th grades were remote. So there was a huge gap, and we tried to think a lot about it all. (Preceptor A - interview conducted in March 2022)

As our focus is to reflect on the identity of the educator of the teacher who teaches mathematics, we can base our analysis on the elements proposed by Cyrino (2017) –emotions, beliefs, and conceptions; knowledge; self-knowledge; autonomy (vulnerability and sense of agency) and political commitment– which help us achieve the objective.

The excerpts presented above highlight the vulnerabilities related to student development gaps and, as a consequence, a sense of agency when thinking about activities that would provide basic education students with quality education. Furthermore, we can say that emotions are constituents of the TTMs' PI, which is expected from Cyrino's (2017) perspective.

Establishing TTM's PI is a continuous, complex, dynamic, temporal, and experiential process (Cyrino, 2017; Cyrino, 2018; De Paula & Cyrino, 2020). Both interviewed preceptors revealed evidence of their teaching practice and role as preceptors-educators. From this, we conclude that both professional identities –teacher and educator– are present.

In this research, we seek to highlight evidence that may reveal a movement towards the constitution of teacher educators' identity and how they recognise themselves as mathematics teacher educators. To validate our perception, Table 1 shows traces of the interviewed preceptors' emotions.

Table 1

Evidence that reveals the emotions of the interviewed preceptors.

Emotions		
A feeling of incapacity in the face of the curriculum	*Joy in having someone with whom to share their experiences and professional challenges*	*A feeling of inexperience as a recent graduate*

"I knew I didn't have a good resume. But, during the interview, I opened my heart and spoke about my good intentions for the project and for helping the course [...] I confess that when the interview ended, I thought: it won't work out" (Preceptor A)	*"Participating in the PRP allowed me to collaborate in the education of new teachers. I was able to share my experiences. It ended up doing me good because I had someone to share my anxieties with" (Preceptor A)*	*"[...] I thought it wouldn't work because I had practically just graduated, and the teachers who were participating in the process all had high-level postgraduate degrees and experience [...]" (Preceptor A)* *"Through the PRP, I was able to relive, but now from a different perspective. This whole interaction was really cool. Being able to experience this during my undergraduate studies and now being a residency supervisor. It was very gratifying for me when I was chosen, I didn't expect I would be." (Preceptor B)*
Solidarity with residents due to lack of grants	**Gratitude for free public initial education**	**Concerns about conducting activities during the pandemic**
"I was very worried about the scholarship holders since they are students and do not have a fixed monthly income, and most of them depend on this scholarship to cover their personal expenses" (Preceptor B)	*"[...] I was very happy, because during my undergraduate course, I participated in PIBID for four years [...], and I saw how much these programs contribute to forming both undergraduates and students". (Preceptor B)*	*"With the pandemic, the PRP had to be developed virtually, and no one knew anything about remote teaching. At first, I was very apprehensive because when I participate in projects, anything I do in my life, I try to do very well and with a lot of dedication and love." (Preceptor A)*

We realised that the feeling of incapacity in the face of the curriculum described by Preceptor A describes how he understands himself and others.

This is associated with his self-knowledge when thinking about his professional development and that of his residents, and given this feeling, his behaviour was influenced by the context in which he was inserted, which brings us back to Hochschild's idea (1979): after this feeling, Preceptor A acted based on his beliefs and conceptions, attributing meanings based on his life experiences. In this excerpt, his speech denotes a connection between emotions and self-knowledge.

Based on the premise that an educator is any professional who is concerned with the development and learning process of prospective teachers (Mizukami, 2006), that is, all the engagement that the preceptor-educator seeks for the development of residents, even if the lack of a scholarship does not directly affect him, the concern for the residents manifested by Preceptor B shows his solidarity. We can infer a formative stance here, as he was concerned about residents' social context.

Furthermore, the preceptors' speeches clearly demonstrate the challenge faced by the pandemic when they say that they had to seek alternatives that would favour a closer relationship with the school context for residents and even the motivations they demonstrated for having the possibility of collaborating with residents' formation, recalling their own experiences. Thus, these emotions become evident during the participation of the preceptors-educators, who, when included in the Pedagogical Residency Program, reveal signs of an educator's identity.

Table 2 brings some excerpts of beliefs and conceptions that can contribute to recognising their learning and influence residents regarding expectations related to the profession.

Table 2

Evidence that reveals the beliefs and conceptions of the interviewed preceptors

Beliefs and conceptions		
The belief that to be a preceptor, one must be a teacher with a notable résumé	**Conception of the distance between the university and the school**	**Conception of the preceptor's role in the PRP**
"I thought my participation in the PRP wouldn't work out. I had practically	*"The university is very far from students' (at school) reality in Ouro Preto. Ever since I*	*"I think the preceptor is the main actor because he is the one who is there at the*

just graduated, and the teachers who were participating all had high-level postgraduate degrees, but I was selected and was able to get to know the program better.” (Preceptor A)	*started teaching at this school, which is very close to the university, I have noticed that many of our students have no contact with UFOP. And I had already noticed this in my end-of-course practica.” (Preceptor A)*	*school and in direct contact with the residents and the school routine.” (Preceptor A)* *“So the work of the preceptor's residency was very similar to that of the PIBID supervisor [...]” (Preceptor B)*
Conception of the differentiation between the PRP and the Supervised Teaching Practicum	**Conception about the role of the supervising professor in the preceptors' education**	**Recognition of the PRP as a differentiated space for initial teacher education**
“Our weekly meetings for me, and I believe for them (residents) too, were very positive. Because, unlike a practicum experience - depending on who you do your practicum with, sometimes you don't even talk that much with your practicum professor- this experience of weekly meetings brought the residents and the preceptor much closer together.” (Preceptor A) *“[...] Unlike PIBID, we had a very trusting*	*“[...] It added a lot because of all the experience the supervising professors have of study and baggage. It made our discussions enriching.” (Preceptor A)*	*“None of the residents had developed a workshop during their undergraduate studies. They acquired that experience (in the PRP). Some of them even managed to publish papers at scientific events. Participation in the PRP was of great value to both preceptors and residents.” (Preceptor A)* *“[...] I saw how much these programs contribute to the formation of the undergraduates and*

work; I didn't really monitor what the boys were doing." (Preceptor B)		*the students."* (Preceptor B)

By inferring the preceptor's leading role, Preceptor A implicitly seeks recognition of his participation in the PRP. This conception derives from his participation in the program. Recognising factors that contribute to residents' learning shows us evidence of the idea of an educator, as reported by Preceptor B when considering the PRP a differentiated formative space.

The dynamism (De Paula, 2018) of beliefs can be influenced as this preceptor-educator is inserted into different institutional projects. We perceive this conception in the report of Preceptor A when he distinguishes the PRP and the Supervised Teaching Practicum, mentioning the importance of dialogue between in-service and pre-service teachers.

Preceptor B's experiences as a scholarship holder at PIBID reveal his beliefs (Cyrino, 2017) about the possible differentiation of the programs, which are interconnected with his emotions, as we saw when he felt his peers' trust. Furthermore, it reinforces the idea that the HEI influences participants' performance.

Another highlight is Preceptor A's conception (Cyrino, 2017) of the distance between the university and the school. We realise that this comes from his experience as a pre-service teacher, which implicitly reveals his concern for residents.

We noticed that the reports of the preceptors during their participation reveal some of their beliefs and conceptions; even if we think that a few aspects could negatively influence their performance as preceptors-educators, their statements reveal a rupture in some of them when participating in the PRP, i.e., the mobilisation of knowledge and self-knowledge experienced in the program demonstrates a gain in their identity as an educator.

Aware of the uniqueness that each person brings and the difficulties of epistemologically inferring the forms of knowledge production (Cyrino & D'Ambrósio, 2003), Table 3 shows excerpts with evidence of their knowledge (Cyrino, 2017) in the sense of valuing their experiences.

Table 3
Evidence that reveals the knowledge of the interviewed preceptors

Knowledge		
Joint activities	**Knowledge inherent to their vulnerabilities**	
"Although it was remote, and that may have limited us, we could achieve a lot together." (Preceptor B)	*"Despite the difficulties due to the COVID-19 pandemic, the PRP enabled me to acquire new professional experiences, which brings me great satisfaction, as I was able to achieve my goals, which is precisely to collaborate with the residents' formation. The experience of educating other teachers is very satisfying.*" (Preceptor B)	
Before starting work in the PRP: the role of the preceptor is similar to that of the supervisor in PIBID	**After working in the PRP: the role of the preceptor differs from the role of the supervisor in the PIBID**	**The importance of dialogue**
"[...] When I started studying and understanding how it worked (the PRP), it was all similar to the PIBID [...]" (Preceptor A)	*"I have always enjoyed working with teacher education. And the PRP is of great value for the formation of prospective teachers. So, this really motivated me to participate in the project and to collaborate in the education of these prospective teachers."* (Preceptor B)	*[...] They let us very free, very calm. There was no hierarchy between coordinators, preceptors, and residents; I think this contributed a lot to the project, you know. It seemed like we were all on the same level and had enormous freedom to work."* (Preceptor A)

The knowledge under discussion is related to all the elements that share the conceptions presented by Cyrino; when expressing their knowledge, preceptors-educators carry influences from their life stories and experiences. "In this perspective, the teacher ceases to be seen as an implementer of knowledge produced by others and becomes a producer of knowledge" (2018, p. 4).

Thinking from this perspective can be complex due to the "various knowledge backgrounds" (Cyrino, 2017, p. 707). Given this, we infer some possibilities of interpreting the interviews that refer to their knowledge, seeking to identify aspects that reveal the educator's identity.

The opportunity to reflect about/discuss their performance in the PRP

is an element that allows preceptors-educators to learn about their practices. As stated before, thinking about knowledge (Cyrino, 2017) shows us how all the elements are interconnected.

The important dialogues above demonstrate how teachers developed discussions of pedagogical practices. "Nobody educates anyone, just as nobody educates themselves: people educate one another in communion, with the mediation of the world" (Freire, 1983, p. 79). As a result, we perceive the autonomy of preceptors in terms of planning, which, in turn, recognises the difficulties faced in public schools, referring us to aspects of vulnerability.

Preceptor B's report highlight the knowledge inherent to his vulnerabilities. In this excerpt, we can observe self-knowledge, as he recognises that his participation allowed him to develop learning; at the same time, he demonstrates his emotions by showing satisfaction in achieving his goals.

Furthermore, we see preceptors' political commitment when they talk about the residents' formation, their beliefs and conceptions about the difficulties of the pandemic context, associated with their autonomy of not being held hostage by the inherent vulnerabilities of the social context. Thus, his concern with educating residents highlights his identity as an educator.

Table 4

Evidence that reveals the self-knowledge of the interviewed preceptors

Self-knowledge		
They recognise themselves as inexperienced with the use of technology	**The need to share experiences**	**They recognise the importance of his experience and professional trajectory**
"[...] *I could share some of my little experience* [...] *then it motivated me even more to contribute.* [...] *Mainly because it was a project carried out virtually during the pandemic, I tried to bring the students as close to the school as possible, despite all the difficulties, and share my experience*	*"The fact that I can pass on some of my experiences to the residents. It only reinforced one of my passions, which is talking to in-service and pre-service, and especially UFOP. students."* (Preceptor A)	*"I think the pedagogical residency reinforced my opinion that I had to enjoy working with teacher education and being able to discuss, even during remote teaching, the practice that I was developing with pre-service teachers added much to my personal development.*" (Preceptor A)

with them during the meetings." (Preceptor A) *"There were weekly meetings via digital platforms or the sending of meeting reports to the coordination, but there was harm due to the lack of adequate equipment to carry out the activities."* (Preceptor B)		*"I was their main reference within the school."* (Preceptor B)

Given Table 4, as well as knowledge, self-knowledge is a theme that presents a singularity of the interviewees and that we will understand by returning to De Paula's (2018, p. 139) studies, for whom "discussing the singularities of the formative processes of TTMs is associated with the movements of being, seeing oneself, and being recognised as a teacher who teaches mathematics." Through this idea, we can discuss the approaches made.

In previous discussions about self-knowledge (Cyrino, 2017), we considered that some of their actions are related to their individual beliefs and knowledge that the teacher carries throughout their trajectory. Preceptors-educators should analyse what they know and what they do not know. This study shows this movement in the relationship between professor and resident.

This self-knowledge directly influences how preceptors teach and develop as preceptors. This element is the preceptor-educator's understanding of himself as a teacher, with self-knowledge (Cyrino, 2018) being a continuous aspect as it involves their own experiences.

We noticed Preceptor A's self-knowledge when he recognises the need and motivation to share experiences with residents. This relationship is directly linked to the educator's identity. It also highlights a social vulnerability due to the lack of equipment, which was overcome by autonomy and a sense of agency when explaining their experiences to residents.

Although Preceptor B recognises the lack of adequate equipment in his report, we can think that he implicitly has no experience with technologies. Another relevant point is Preceptor B's report, where he sees himself as an essential formative figure for the residents at the school. There is a contribution to the professional development of residents, including political commitment,

which allowed preceptors to see their practice with different eyes.

Thus, Table 4 shows that preceptors' participation in the program contributed both to the professional development of residents and their own development, i.e., their *self-knowledge* along with their *political commitment* allowed them to look at their own practice, consequently, there was a gain in their development.

Table 5 reveals how the protagonism of everyone involved, especially that of the preceptor-educator in the context of the pandemic, was essential for the progress and development of the program. It also highlighted how collaborative actions were central for residents' development.

Table 5

Evidence that reveals the autonomy (vulnerability and sense of agency) of the interviewed preceptors

Autonomy (vulnerability and sense of agency)		
Protagonism in the face of the pandemic context	**Joint actions that seek to educate residents**	**Action in the face of few interactions**
"There were issues. The coordination together with the organisers took care that it did not affect the program too much. I had some difficulties, but they were resolved throughout the process." (Preceptor A)	*"Ideas emerged for developing activities in the PRP, such as debates and seminars, where professional experiences were shared with residents, which was very productive."* (Preceptor A)	*"We saw that the strategy of using videos was getting few hits, so we started with interactions via* Google Meet.*"* (Preceptor B)
"[...] There was a lack of dialogue and when the meeting took place we had already defined what task I was going to do, what the other would do. Everyone agreed." (Preceptor B)	*"[...] Many students didn't know how to access their email, so with this issue of the application and them having to use the institutional email to send the activities, it made it easier for both us teachers and the residents to carry out this work via* Google Meet.*"* (Preceptor B)	*"[...] We even had a challenge just through WhatsApp. So, the group was full of students responding, which made it possible to achieve efficiency in the process."* (Preceptor B)

The concept of autonomy is mainly related to political commitment (Cyrino, 2017). Care must be taken when judging teachers for their decision-making, as this involves a whole set of needs, all of the school's needs, including our focus on this study on residents.

Considering the autonomy and decisions of the preceptor-educator, it is important to reflect on some aspects: what kind of influences does autonomy carry? Even if we think creatively and insubordinately, is it possible to exercise autonomy? Given this, one possibility for future research is to reflect on this "autonomy with mediation."

For our study, the perspective we present is the mediated agency (Oliveira & Cyrino, 2011), as the PRP preceptors-educators need to meet some requirements, being subject to some quality control. Of course, even though they are subjected to an educational system, residents' learning is not entirely determined by the preceptor's teaching. The autonomy of the preceptor-educator during his/her participation in the PRP is important for the residents' development, but it does not happen alone; there is a whole group involved.

Thus, regarding analyses and approaches, the protagonism of Preceptor B in relation to the lack of dialogue in one of the PRP activities can be considered an element of autonomy (Cyrino, 2017), as it denotes a sense of agency when seeking an environment for dialogue.

Preceptor A reported that some joint activities with the residents were productive, and some strategies were changed, aiming at the residents' participation, as reported by Preceptor B. In addition to encompassing emotions, this is associated with the educator's identity.

Despite their professional autonomy, during the interviews, the preceptors-educators demonstrated that they work very closely with the potential of public policies and their concerns about residents' teaching and learning process, for example, by organising collective meetings and establishing a work dynamic that involves studying texts, providing support as if it were reinforcement, in addition to developing workshops and recording video classes.

Table 6

Evidence that reveals the political commitment of the interviewed preceptors

Political commitment		
Commitment as a	**Personal commitment**	**Commitment to the**

graduate of the HEI	as a teacher	Notice
"Now, the main novelty (during participation in the PRP) *was the issue of working remotely, the question of guiding, leading a team which I thought was very good for me too, you know, in addition to my practice as a teacher, I was also able to lead the work of the residents, right. "I was their main reference within the school*." (Preceptor B).	"[...] *We are not concerned with just providing content... we try to reach at least a good portion of the students and make sure they are interested in learning."* (Preceptor B)	"[...] *During the pandemic, there were weekly meetings via digital platforms or the sending of meeting reports to the coordination, but there was harm due to the lack of adequate equipment to carry out the activities*." (Preceptor B).
Commitment to educate	**Solidarity with residents regarding the delay in receiving grants.**	
"We analysed what type of difficulty they (residents) *thought it was getting harder in this context of the pandemic so that we can think of strategies to help them."* (Preceptor B)	*"I was very concerned about the residents' situation* [...] *Some depended on more than 50% of their income to stay here in Ouro Preto, to pay the bills, as they counted on this grant. So my concern when there was this delay was more due to the residents than to my own situation, which was calmer*." (Preceptor A)	

As Cyrino (2017) points out, the teaching profession implies a political commitment to everyone involved; in this analysis, we focus on the commitment to the resident. This commitment is linked to both social and professional responsibility, as shown in Table 6.

We noticed in Preceptor B's report that the commitment as a teacher to achieve significant learning for basic education students goes far beyond passing on content. This concern for students implicitly influences residents' identity and, consequently, their learning.

Furthermore, we noticed a feeling (emotions) of satisfaction from Preceptor B and his self-knowledge in guiding the residents. As reported, they

gained in their learning by participating in the PRP. That said, it also reveals that this is associated with vulnerabilities when considering the difficulties that residents face.

Of course, this commitment (Cyrino, 2017) involves compliance with the notice. As reported by Preceptor B, in addition to this, a social, cultural, and political commitment, according to De Paula (2018, p. 175), "is a political commitment that all of us, Brazilian mathematics educators, need to assume, since we defend that the formation of TTMs occurs in a field of ideological and political struggles."

Thus, when analysing the difficulties residents face and thinking of strategies to help them, as pointed out by Preceptor B, it is a commitment close to the identity of an educator, given the care and solidarity with residents.

Therefore, it is clear that the role of the preceptor-educator in the PRP reveals his political commitment and his identity as an educator. Thus, we reiterate that preceptors, when exercising their role in the basic school, constitute a teacher identity, and when participating in the PRP, present aspects related to the educator's identity.

FINAL CONSIDERATIONS

The PRP structure promotes interactions between participants regarding their practices and performances. This research also sought to demonstrate that the preceptor-educator is relevant in residents' education during the PRP development period. The preceptor-educator seeks to contribute significantly to the residents' education, demonstrating the daily practices of the school environment and those aimed at basic school students' education. Furthermore, exchanges of experiences and pedagogical experiences in the program can positively influence the construction of the resident's professional identity.

Preceptors provide spaces for reflection and practice, in which it is possible to create possibilities for residents' formative process, including influencing the constitution of their professional identity, producing and mediating experiences that generate knowledge and help to understand being a teacher and establishing a relationship between theory and practice.

Throughout the development of the program with the preceptors, the commitment to the development of the proposed tasks and the comprehensive formation of the residents was evident, in line with what was pointed out by

Cyrino (2017): the constitution of an educator involves sharing information and professional experiences.

Data analysis allowed us to understand that a subtle aspect can help investigate this identity and may be related to the engagement and commitment that these professionals manifest. While preceptors, as teachers, reveal their concern and commitment to the teaching and learning processes of their basic school students, their participation in the program impacts their engagement and commitment to the teaching and learning of the residents under their supervision.

The data showed that the teacher educators contributed significantly to the residents' education. Without intending to exhaust the discussion in light of the data obtained, we observed that the PRP enabled the school teachers to take on a new role (as preceptors) that mobilised a shift towards the constitution of their identity: their role in the PRP revealed signs of the constitution of the teacher educator's identity. Thus, in this process of knowledge, teachers' representations of their profession, based on the elements proposed by our main theoretical framework, reveal signs of a movement towards the constitution of an identity of educators of teachers who teach mathematics.

It was possible to understand how much the PRP provides preceptors-educators with the opportunity to develop tasks that allow residents to immerse themselves in the locus of future professional practice. Furthermore, it allows them to reflect on their performance as teachers and teacher educators. Thus, through the interviews, we could demonstrate that even with some vulnerabilities imposed due to the pandemic and each preceptor's singularities, the PRP provided them with a promising formative space.

Another point that deserves to be highlighted is the public policies for teacher education. The notices do not clearly state the critical role of preceptors. Article 9 of Ordinance GAB No. 82 (Brasil, 2022), which regulates the PRP, defines the preceptor as a "basic education school teacher responsible for monitoring and guiding residents in activities carried out at the target school." The article above also defines the supervising professor as the "HEI professor responsible for planning and guiding the activities of residents in their pedagogical residency centre." A limiting definition of the scope of the preceptors' work is evident since they monitor and guide and, above all, develop broader actions typical of a teacher educator.

Therefore, considering the research data, we strongly recommend that Capes rethink the definition of preceptors, as it guides the planning of

institutional projects and their implementation. We therefore defend the recognition in the official documents of the PRP –and other programs developed with schools– of the school teacher as a teacher educator. Furthermore, we reinforce that public policies for teacher education and teacher educators require continuity and more significant public investment to consolidate an adequate, inclusive, quality, and socially referenced policy.

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