

Revealing the Trajectories of Mathematics Teachers at a Campus of the Federal Institute of Northern Minas Gerais

Revelando trajetórias de docentes de Matemática de um campus do Instituto Federal do Norte de Minas Gerais

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Thaiana Martins Marques

ORCID: <https://orcid.org/0000-0002-3294-5098>

Instituto Federal do Norte de Minas Gerais
E-mail: thaianamartinsmarques@gmail.com

Claudinei de Camargo Sant'Ana

ORCID: <https://orcid.org/0000-0003-1429-4559>

Universidade Estadual do Sudoeste da Bahia
E-mail: claudinei@ccsantana.com

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Abstract

This paper addresses the following research question: What can be identified from the components of the life trajectories of Mathematics teachers linked to a campus of the Federal Institute of Northern Minas Gerais? Using a qualitative approach, the study applied a questionnaire and employed content analysis as the methodological procedure. Interrelationships were identified among the components of teachers' life trajectories and their professional development processes. The participants were found to be in a phase of career investment and showed signs of formative needs. We consider it essential to reflect on teacher professional development within the institution, taking into account its specific characteristics and the professional identities that are shaped in this context.

Keywords: Teacher Professional Identity; Teacher Professional Development; Career.

Resumo

Este artigo tem por problemática: o que pode ser identificado a partir dos componentes da trajetória de vida docente de professores de Matemática vinculados a um campus do Instituto Federal do Norte de Minas Gerais? Com abordagem qualitativa, esta pesquisa envolveu aplicação de questionário e uso do método de análise de conteúdo. Foram identificadas as inter-relações entre componentes das trajetórias de vida e o processo de desenvolvimento profissional docente, e que os docentes estão em fase de investimento na carreira, apresentando indícios de necessidades formativas. Consideramos ser importante pensar o desenvolvimento profissional docente na instituição, considerando suas particularidades, e as identidades profissionais docentes que nela se desenvolvem.

Palavras-chave: Identidade Profissional Docente; Desenvolvimento Profissional Docente; Carreira.

1 INTRODUCTION

Our life trajectories bring reflections to our professional performance and our teacher development. For this reason, it is important to consider them when we propose to research with teachers. We, as human beings, do not receive punctual updates like machines and digital technologies. Our updating is processual rather than linear, reminding us that we are unfinished beings (Freire, 2002).

In this incompleteness, as teachers, we can always learn to build knowledge through reflection, adaptation, and to look at our classroom and institutional contexts. After all, teaching work is marked by human interaction, and humans' thoughts bear the marks of subjectivity and socialization as a formative process that extends throughout life (Tardif, 2014).

When reflecting on the life trajectories and knowledge of teachers, Tardif (2014, p. 11, our translation) reinforces that "teachers' knowledge is their knowledge and is related to their person and identity, to their life experience and to their professional history [...]". Thus, in this investigation we consider the importance of looking at the elements that make up the teaching trajectories, beyond the descriptive aspect, in the context of working in a Federal Institute (Instituto Federal in Portuguese).

The Federal Institutes, through their curricular organization, are a different space for the construction of knowledge (2008a). They are defined as "[...] institutions of higher, basic and professional education, multicurricular and multicampus, specialized in the provision of professional and technological education in the different modalities of education [...]" (Brasil, 2008b, p. 1, our translation), encompassing the tripod of teaching, research and extension.

According to Machado (2015), teachers in professional education face new challenges due to the organizational structure and its implications that extend beyond the teaching and learning process.

This paper is based on Tardif (2014) and links with other authors. It comprises a doctoral thesis that addresses the theme of teaching knowledge, so it is important to consider teaching trajectories. Here, we investigate: what can we identify from the components of the teaching life trajectory of Mathematics teachers at a campus of the Federal Institute of Northern Minas Gerais?

Important themes in the context of teacher training are addressed here, such as subjectivity, teaching professional identity, career, and teacher professional development, which are in line with lines investigated within the Study Group in Mathematics Education¹ (GEEM) that provides reflections on teaching performance in their contexts, thus establishing collaboration and cooperation between professionals and institutions (Sant'Ana; Sant'Ana, 2023).

Methodologically, we base our research on qualitative methods, consisting of investigation and interpretation, as outlined in a case study (Fiorentini; Lorenzato,

¹ <https://www.geem.mat.br>.

2012). Data collection was conducted using a mixed-method questionnaire, and the open questions were analyzed using content analysis according to Bardin (2016).

Besides this introduction, this paper presents four sections that cover, respectively: theoretical discussions on life trajectories, teacher subjectivity, teacher professional identity, and teacher professional development, the methodology, the results of the research, establishing reflections based on the trajectories of the teachers involved, and final considerations.

2 LIFE TRAJECTORIES AND TEACHING: WHAT THEY CONTEMPLATE

Our life trajectory includes different trajectories, such as the personal, the academic, the professional, etc. Each “I” is composed of different dimensions that transform over time, mainly through the socializations we have throughout life. Through socialization, we do not stop being ourselves; rather, we reaffirm ourselves and build our identity. We agree with the idea that

The human being is, at the same time, a manipulator of objective, social and human phenomena; he is a negotiator who argues with his fellow men; it is a being who guides its behaviors by norms and who discovers, in the environment in which it lives, from birth, models of behavior that it tends to reproduce; it is also a being who expresses his subjectivity and who guides his life according to an affective and emotional dimension (Tardif, 2014, p. 174, our translation).

When we think about this human being, here as a teacher, we consider that in the understanding of the trajectory of life and teaching, the understanding of subjectivity, professional identity and professional development is contemplated, because “it is impossible to understand the issue of the identity of teachers without immediately inserting it in the history of the actors themselves, their actions, projects and professional development” (Tardif, 2014, p. 107, our translation).

Thus, we understand that the elements of the life trajectory, professional identity, and teacher professional development are related and involve a continuous, non-linear feedback process.

2.1 SUBJECTIVITY

In our first year of life, we have some milestones called developmental leaps, especially in the domain of consciousness (Maia & Aquino, 2021). This development of consciousness continues throughout life, because “where there is life, there is incompleteness. But only among women and men did the incompleteness become conscious” (Freire, 2002, p. 22, our translation).

In psychology, when approaching the birth of a person, psychological dimensions are considered, such as cognition and consciousness, but also a certain intrapsychic dimension marked by interpretations, emotions, characterizing a realm of subjectivity, which is not a fixed essence, but seen as a lifelong construction that involves social factors, cultural, political, and power (Prado Filho; Martins, 2007).

There are different approaches to discuss subjectivity. Here, we seek elements that allow us to better understand teacher subjectivity, as teaching involves a high degree of subjectivity, including the meanings the teacher attributes to the practice they assume (Gatti, 2014; Tardif, 2014).

Thus, our understanding is that subjectivity is built from birth and that we give meaning to the different relationships we establish throughout life. In the face of the norms to which we are subjected, we act based on our emotions, beliefs, and individual life experiences. No matter how much people go through the same experience, the way each one deals with it is different.

Thus, we consider that teacher subjectivity can be understood as the way that each teacher gives meaning and conducts their practice based on their knowledge, being a complex process that involves: the cognitive process, aware of their practice, the interactive process, which is characteristic of teaching, in which one has to deal with different subjectivities, the historical process that encompasses all life experiences, emotions, affections and desires, personal and professional, as well as the cultural, political, and institutional contexts.

2.2 PROFESSIONAL IDENTITY

When we think about identity, we can refer to our mandatory identification document, which we use to prove who we are in different situations. We are recognized by a number, by affiliation, place and date of birth, registration in the registry book, sex, signature, and photo. This document has a determined validity. These characteristics allow us to initially understand identity as something social and temporal, in which we self-identify and others identify us.

As do Nóvoa (2007), Souza (2020), and Galindo (2004), we understand that identity is constructed. It arises from a process of incompleteness that begins at birth and continues throughout life, encompassing representations of different dimensions and experiences. And time has a great influence on identity, as it is necessary “a time to remake identities, to accommodate innovations, to assimilate changes” (Nóvoa, 2007, p. 17, our translation). Thus, identity reflects the past, is updated by the present context, and contains desires and anxieties for the future (Galindo, 2004).

In the process of appropriating the meaning of one's own life history, the teacher's identity is gradually constructed, developing in the field of the intersubjective, and being marked, for example, by the influences of their previous school experiences, by the awareness of fundamental elements of the profession, and by the process of integration and socialization, where the teacher's identity is also experienced (Nóvoa, 2017, Tardif, 2014, Marcelo, 2009).

Nóvoa (2007, p. 16) sees the professional identity of teachers as “a place of struggles and conflicts, it is a space for the construction of ways of being and being in the profession” (Nóvoa, 2007, p. 16, our translation). Marcelo (2009, p. 11, our translation) sees it as “[...] the way teachers define themselves and others”.

We can then consider the Professional Teaching Identity (IPD in Portuguese) as a process built throughout life, involving resignifications and changes, grounded in experiences lived in intimate relationship with social, family, political, cultural, and religious contexts, among others. This teaching identity involves teachers’ view of themselves, their history and future, and how this is evidenced to others in the process of interaction, both with students and with others in the school community. As teachers, we act with our identity, our subjectivity, in an environment of norms and objectivity, which is the institutional environment that, in turn, also has its identity.

2.3 TEACHER PROFESSIONAL DEVELOPMENT

Teacher professional development (DPD in Portuguese) has different definitions. When analyzing some of them, Marcelo (2009, p. 10) highlights the understanding of TPD as:

[...] a process, which can be individual or collective, but which must be contextualized in the teacher's workplace—the school—and which contributes to the development of their professional skills through experiences of different kinds, both formal and informal (Marcelo, 2009, p. 10, our translation).

Something evident in the discussions of professional development is the idea of the process, the continuum, the permanent (Marcelo, 2009; Fiorentini, Crecci, 2013; Day, 2001; Diniz-Pereira, 2019), which should not be confused with linear. Based on this understanding, we can consider DPD in 3 axes: individual and collective, contextualization of the school, and formal and informal experiences.

In the first axis, the individual and collective in the DPD process, we examine the relationship between IPD and DPD, as we understand that any discussion of development must consider for whom. We are aware that teaching implies the search for development, “but the circumstances, their personal and professional histories and the dispositions of the moment will condition their particular needs and the way in which they can be identified” (Day, 2001, p. 16, our translation).

In view of this, we believe in a DPD as a participatory and collaborative process, which has space and time to contemplate the moments for the individual and isolated reflections of teachers and make these reflections also be taken to the collective, in pairs, for collective discussions and learning, detaching themselves from the idea of transmitter and receiver (Silva, 2020, Marcelo, 2009, Diniz-Pereira, 2015, Nóvoa, 2009)

In the second axis—contextualization of the school—we confirm the need for the conception of DPD to take into account the teachers’ workplace. There is no single,

universal model to be replicated. Still, we have to build a more appropriate model, “schools and teachers must evaluate their own needs, beliefs, and cultural practices to decide which model of professional development seems most beneficial to them” (Marcelo, 2009, p. 11, our translation).

Nóvoa (2009), Tardif (2014), and Day (2001) reinforce the need for a DPD aligned with the projects, policies, and contexts of the school where teachers work, thus enabling them to mobilize and construct teaching knowledge and to feel a sense of belonging to what is in motion.

In the third axis, we have formal and informal experiences that are part of the DPD process. Based on Marcelo (2009), Diniz-Pereira (2015), and Fiorentini and Crecci (2013), the DPD overcomes the division between initial and continuing education and thus contemplates the permanent development of the teacher, emphasizing the learning process through different sources, formal or informal.

The criticism of continuing education in Brazil takes place in the context of it often being centered on isolated, punctual actions and seen as filling gaps in initial training, without considering the school context in which teachers work or its real needs (Ferreira, 2007; Diniz-Pereira, 2019). Thus, “the DPD arises, therefore, to demarcate a differentiation with the idea of teacher training based on courses that do not establish a relationship with daily life and professional practices” (Fiorentini & Crecci, 2013, p. 11, our translation).

We found the theme of DPD to be complex. According to Ferreira (2007, n.p. *e-book*, our translation), it “involves initial and continuing education, as well as personal history as a student and teacher, being influenced by personal, motivational, social, and cognitive-affective factors”. Thus, we approach what Marcelo (2009, p. 11, our translation) assumes regarding DPD: “as a process that is built as teachers gain experience, wisdom, and professional awareness,” elements close to those Tardif (2014) points out in the process of professional teacher identity.

In view of all the reflections, we consider that the DPD involves a process of construction and reconstruction of meanings attributed to teaching throughout personal and professional trajectories, which should include the mobilization of the different teaching knowledge that makes up professional knowledge, aiming at a change in practice that contributes to the entire school context in which it is inserted.

2.4 CAREER

When we talk about teacher professional development, another point to consider is the teaching career, recognizing that development cannot be reduced to a career plan, even when there are relationships between the two (Gatti, 2014). Thus, we understand that the DPD processes and the teaching career are intertwined; the career is “the result of continuous transactions between the interactions of individuals and occupations; these transactions are recurrent, that is, they modify the trajectory of individuals as well as the occupations they assume” (Tardif, 2014, p. 81, our translation). Ferreira (2017, p. 81, our translation) points out that “the career works as

a socialization device of an institutional context composed of norms and prescriptions and the evolution of the career can present setbacks and discontinuities”.

When discussing this career, the life cycles of teachers are considered and divided into stages. When dealing with the first 7 years, Tardif (2014) shows us that the period between 1 and 3 years is considered the exploration phase, while the stabilization and consolidation phase occurs between 3 and 7 years. It is also noteworthy that the foundation of professional knowledge develops between 3 and 5 years, and that there is an intense period of learning the profession between 5 and 7 years, marked by expectations and frustrations. This is a crucial phase in which many decide whether to continue in their careers. This reveals the association between time, professional knowledge, and professional trajectory (Tardif, 2014).

Ferreira (2017) points out that, given the specificities of professional development in Brazil and the gender issue, Huberman’s well-known model does not apply to the teaching career in the country. The author proposes a new model (Figure 1) that distinguishes between women and men in the professional context of basic education.

Figure 01: Phases of the teaching career in Brazil, differentiating between women and men



Source: Ferreira (2017, p. 83).

Ferreira (2017) presents important elements when considering the particularities in the Brazilian context, highlighting that the stages are not linear and some possibly do not even happen, and that

It is necessary to remember that the affirmation of these experiences, traced by stages, is not fixed and varies depending on the life histories of the subjects, personality, pregnancy, birth of the child, marriage, teacher malaise, accidents, family problems, among other perceptible aspects. In this regard, other issues must also be considered, such as gender (male/female), type of school (public/private), teacher's

functional situation (hired permanently/under contract), contextual relationships, and external pressures. All of this must be considered, and these and other experiences have been 'loosening these stages', not fixing them (Ferreira, 2017, p. 84, our translation).

We observe the complexity of conceiving and analyzing the stages of the teaching career in Brazil, and we can also reflect on them, considering the new regulation for retirement by the Own Social Security System. According to it, male teachers can retire at 60 years old and female teachers at 57 years old, as a general rule, considering the requirements of age and performance in basic education (Brasil, 2019).

Still in the Brazilian context, Diniz-Pereira (2019) highlights the need to claim adequate conditions—we can even consider basic conditions—for teaching performance, to avoid teacher deformation instead of teacher development. This is still a delicate point in Brazil, because “the teacher is seen as a threat when dealing with issues that they claim, and is recognized as almost non-existent about their professional improvement” (Galindo, 2004, p. 20, our translation). This highlights the need for public policy support and for society to recognize the importance of promoting conditions for teachers' professional development.

3 METHODOLOGY

We characterize this qualitative research as a case study, in which we study a unique context, with emphasis on interpretation and analysis (Fiorentini & Lorenzato, 2012). This research approach is due to its nature, which seeks to identify aspects based on components of teachers' teaching life trajectories, considering the responses of those involved. Participants in this research include five Mathematics teachers linked to a campus of the Federal Institute of Northern Minas Gerais (IFNMG) at the beginning of the 2024 school year, one of whom is a teacher working under a contract. These teachers will be referred to by code names: Alpha, Beta, Phi, Sigma, and Tau.

For data collection, we used a mixed questionnaire. With the closed questions, we sought to characterize the teacher's profile. With the open questions, to understand the more subjective aspects of the answers. All questions were developed based on Tardif (2014). According to the qualitative analysis of the questions, which uses categories that help to highlight relevant elements (Fiorentini; Lorenzato, 2012), we adopted Bardin's (2016) method of content analysis, which is based on a set of techniques to analyze communications systematically and objectively, allowing us to infer knowledge from them.

The method comprises three stages: pre-analysis, exploration, and treatment of results and interpretations. When performing the second step, we will use the theme registration unit identified by Bardin (2016) as the most commonly used in answers to open questions.

4 TRAJECTORIES OF MATHEMATICS TEACHERS REVEALED

Understanding teachers' trajectories helps clarify their positions, without the intention of judgment. Thus, we present the results obtained, initially characterizing Mathematics teachers in general, providing knowledge of their profile and aligning with a discussion about the teaching career. Then we will discuss the themes of choosing a profession, training elements, and professional identity.

4.1 GENERAL PROFILE AND PROFESSIONAL CAREER

The group is composed of teachers of similar ages, all between 30 and 40 years old, and all with an initial training degree in Mathematics. However, for master's degrees, we offer an academic master's degree in mathematics, two professional master's degrees in mathematics, and an interdisciplinary professional master's degree. As for the doctoral level, there is a PhD in mathematics.

Most of the teachers are male, with one woman. On the family issue, most are married, and only the woman has a child. These questions allow us to reflect on teachers' personal trajectories, recognizing that they influence choices that, in turn, shape each teacher's professional development. When discussing the stages of the professional career, Ferreira (2017) highlighted that factors such as gender, pregnancy, marriage, and the birth of children, among others, and reinforce the idea that there are no fixed stages; everything develops in the context.

If we consider the gender issue, for example, we have the social issue, which involves inequality in the academic and scientific environment (Bolzani, 2017) and the presence of deep-rooted machismo. We also have the biological issue, which involves the process of human reproduction; from the age of 35 onward, a pregnancy is considered a late pregnancy, with additional risks (Malavé, 2022). This reflects the conception of differentiated career ranges pointed out by Ferreira (2017). If we consider a female teacher who finishes high school and takes a degree, she would start her career at around 22 years old. When she is in the range of 8-15 experience—the variation phase—which can be positive or negative (Ferreira, 2017), it will coincide with the biological phase, in which the late pregnancy scenario can become an emotional pressure, if it is something she wants.

More generally, the career is “a process of socialization, that is, a process of marking and incorporating individuals into the institutionalized practices and routines of the work teams” (Tardif, 2014, p. 70, our translation), so the teachers in question, in the work in Mathematics teaching, fit into the following situations: one teacher between 2 and 5 years of career, two teachers between 5 and 10 years of career, and two other teachers with more than 10 years of career.

When we return to the phases discussed by Tardif (2014) regarding the first 7 years of career, we see one teacher laying the foundation for their professional knowledge. The other teachers have already gone through the so-called phases of

intense learning in the profession, including exploration, stabilization, and consolidation.

Considering the phases of Ferreira (2017), we do not have any teacher in the serenity or completion phases, which reflects a group in phases that involve investment in the career, the construction of knowledge, and the promotion of learning, thus being in constant professional development.

By understanding that the career is constituted by sequential phases “of integration in an occupation and socialization in the subculture that characterizes it” (Tardif, 2014, p. 79, our translation), we see that the institutional context in which they are inserted shapes their development. The Mathematics teachers in question, considering the career within the Federal Institute, face a new institutional structure, working with diversified professional training, in a verticalized curricular organization, comprising different courses, levels and modalities, in addition to the tripod of teaching, research and extension, in a scenario of lack of training that contemplates the specificities of this institution (Brasil, 2008a; Machado, 2015).

In a study conducted at the IFNMG, we found that there is a teacher reception course for permanent teachers, but it does not include key elements for professional integration, especially in the specific area of Mathematics (Marques; Sant’Ana, 2025). We do not consider it a flaw that it does not include teachers under a contract regime, as it maintains an employment relationship within the institution for up to 2 years. The type of employment relationship is also discussed in the context of the flexibilization of career phases, because, in this situation, the teacher has particularities, such as environmental factors and frequent changes in work environments, that have implications for the professional development process (Ferreira, 2017; Tardif, 2014).

Tardif (2014, p. 94, our translation) reflects that changes in the institutional context of action give the feeling of being “[...] always at the beginning of the ladder”. We understand that joining the IF as a teacher can also promote this feeling. Souza (2020) points out in his dissertation that teachers arrive at the IF, approved in the public exam, and “are soon sent to the classroom, without even knowing what the institute is, what its function is, what mathematics is for, what mathematics is for” (Souza, 2020, p. 91, our translation).

As the IFs arise with the proposal of interiorization, of promoting social justice, considering regionality and thus are often far from large centers, the process of integration and occupation involve different issues, such as the difficulty in adapting to the courses and modalities offered, which change within the same institution, and/or a desire to change workplace, seeking removal or redistribution, among others. If we look at the career within the IFNMG itself of the teachers participating in this research, we can consider the following situation (Table 1) based on what we have discussed and what Tardif (2014) and Ferreira (2017) present.

Table 01: Career phases of the participants within the IFNMG

Period	% of teachers	Phase
Less than or equal to 2 years	40	Setting
Over 2 and less than or equal to 5	40	Stabilization

Over 5 and less than or equal to 10	20	Consolidation
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Source: The authors (2025).

When we put these phases in place, we are not ignoring teachers' careers before joining the IFNMG; we are analyzing them in the context of the IFNMG, which, like other institutes, has 15 years of existence. It is a young institution. When we compare this cut with the general one, we realize that teachers who have the longest career time are in the initial phases, here called adaptation and stabilization. The teacher with 5 to 10 years of career, an intermediate time compared to the others, within the scope of the IFNMG, is the one with the most time, being in the consolidation phase. The teacher hired under contract is limited to the onboarding phase, and there may be flexibility if they return to the institution as a permanent teacher after 2 years without an employment relationship with the institution, or as a permanent teacher, after completing the competitive selection process. This is a situation experienced by the group, in which two teachers worked at IFNMG as substitutes teachers before being hired permanently.

These teachers experienced a strike in 2024, whose agenda, aimed at improving teaching performance, included the restructuring of careers, salary adjustment, and the revocation of rules harmful to professional education, such as increased class hours. These guidelines address conditions for creating a space conducive to professional development. However, the view of this movement is often negative; the teacher is seen as a generator of problems, who hinders planning and harms students, "[...] thus reducing, in the figure of the teacher, a broader social issue, which involves several actors and contexts" (Galindo, 2004, p. 20, our translation).

Something we believe is necessary is greater societal support for teaching work, in a continuous way, especially when we discuss public education, so that the objective is to contribute to an effective teaching process, not to vilify teachers. This situation can be illustrated by the reactions of the school community when the student fails Mathematics.

4.2 CHOICE OF PROFESSION AND TRAINING ELEMENTS

After gaining some understanding of the teachers in the group and the elements of the career, we will know a little more about their trajectories. For this, we will analyze, below, the answers obtained to the questions: *When did you choose to be a teacher and what influenced you?* and *What do you consider that formed/forms you as a teacher?* Based on Bardin (2016), the answers were read to identify thematic units, which were then grouped into categories that best represented them.

As for the first question, we find that the choice of profession generally occurred during basic education. Some teachers mention the choice specifically in the 8th grade—now 9th grade—and the 3rd year of high school. Other teachers mentioned that the choice of profession was made in childhood.

A statement by Beta (2024) draws our attention, given our discussion of subjectivity and professional identity. They say, “I chose in the 8th grade (9th grade) of elementary school. It was a natural choice”. We understand that through their subjectivity, the expression of the natural can be related to the fact that it was not something imposed, but Tardif (2014) is emphatic in discussing that knowing how to teach is not innate, precisely because the personality itself is not either, having influences from life history and socialization. This is evident in the teacher’s own speech: although Beta says it was natural, they themselves note that the decision was made at the end of the elementary school cycle.

As for what influenced becoming a teacher, the responses fall into the following categories (Table 2).

Table 2: Categories regarding influences on the choice of being a teacher

Established Categories	Some Registration Units
Family Context	“Many teachers in my family,” “my paternal grandmother”
Influence of teachers	“Having had great teachers,” “they always motivated me a lot,” “contact with other teachers”
Affinity with the area and/or with Mathematics	“The passion for mathematics, “I have always liked and imagined myself teaching
Playful experiences	“The games we had were at the little school”
Recognition of the profession	“Teaching was recognized”

Source: The Authors (2025).

The family context is marked by the presence of other teachers, where teaching can be a tradition, an inheritance, or a way to develop notions of teaching work, even before entering school. In the category of teachers’ influence, we observed from the registration units that there are indirect and direct influences; indirect because they are based on example, because they have had good teachers, or because they have had contact with other teachers, and direct because of the motivation that the teachers gave to choose the profession. These influences of teachers were mentioned in both basic and higher education, leading us to reflect on the school experience of teachers before graduating professionally, from pre-school through college. These categories include elements that Tardif (2014) also discussed as ones that configure teachers’ life trajectories and contribute to the construction of professional age.

The category of recognition of the profession refers to the statement of the woman member of the group, Tau, who also mentioned the contact with teachers in the family and in early childhood education. We highlight this information because it exemplifies what Tardif (2014) says, that “especially women, they spoke of the family

origin of their career choice, either because they came from a family of teachers, or because this profession was valued in the environment in which they lived” (Tardif, 2014, p. 76, our translation), which is also in line with the discussion about the influence of gender on careers (Ferreira, 2017).

The category of affinity with the area and/or with Mathematics was established from elements that related to the satisfaction of teaching, in general, and by elements that were more specifically directed to the area of Mathematics. This category refers to subjective aspects, as it concerns the meanings attributed to the profession or to Mathematics, which reveals beliefs, desires, feelings, and expectations (Prado Filho; Martins, 2007; Tardif, 2014).

Another category established was that of playful experiences, based on a report of childhood games with classroom simulation. This simulation considers the affinity with teaching because, after all, it meant something pleasurable, and it also considers its realization based on representations of experiences from the school and/or family environment at that stage. This game allows us to observe the link between subjectivity and the construction of identity, since “it is through our identity that we perceive ourselves, we see ourselves, and we want them to see us” (Marcelo, 2009, p.11, our translation).

For the second question, to complement the previous discussion, we will deal with the considerations of the teachers regarding what formed/forms them as teachers, establishing the following categories:

Table 3: Categories regarding teacher training

Established Categories	Some Registration Units
Influence of teachers	“Experiences I’ve had”
Socialization among peers	“Exchange of experiences” “contact with my colleagues”
Personal aspects	“Ease of adaptation” “dealing with people” “interest/curiosity in learning and teaching Mathematics”
Social aspect	“Be part of/be important in other people’s lives”
Institutional aspect	“Pedagogical guidelines” “School culture”
Practice	“Classroom Experiences”
Training	“Undergraduate course”, “PIBID”, “master’s degree”

Source: The authors (2025).

Once again, we perceive the influence of teachers during school and the academic trajectory in the professional training of teachers. For example, this is presented by Alpha (2024), who considers the experiences obtained with some excellent teachers as trainers. Silva (2020) presents that when they started their practice, based on the traditional model, they pedagogically and didactically equipped themselves with the practices of the teachers they had, using their “[...] trial of a former student to decide which of these class drawings should be replicated or rejected [...]” (Silva, 2020, p. 4, our translation). We observed that both negative and positive student experiences, which are subjective, are often used to shape professional teaching practice.

Socialization among peers is highlighted as a way of training in teaching, and we believe this is a continuous form of training because, in socialization, there is sharing, arguments, reflections, and learning, in a way that can be lighter and more horizontal. Tardif (2014, p. 52, our translation) points out that “it is through relationships with peers and, therefore, through the confrontation between the knowledge produced by the collective experience of teachers, that experiential knowledge acquires a certain objectivity”.

And the Practice category is related to this issue, as classroom activity is linked to different knowledge, particularly experiential knowledge that arises and is validated through experience (Sant’Ana and Sant’Ana, 2023; Tardif, 2014), contributing to training.

The category of personal aspects reinforces what we have pointed out earlier, so that, when looking at teaching, the teacher turns their gaze on themselves. And it also points out, from one of the registration units, the reciprocity between the processes of learning and teaching Mathematics and the teacher’s openness to professional development through experiences in these processes (Ferreira, 2007).

The social aspect is a category that aligns with Phi’s (2024) statement, who says that what forms/formed them as a teacher is “the desire to be part of/be important in the lives of other people, contributing to their development” (Phi, 2024, our translation). This confirms that the teacher “plays the role of an agent of change, at the same time that they bear emancipatory values in relation to the various logics of power that structure both the social space and the school space” (Tardif, 2014, p. 303, our translation).

The institutional aspect category emphasizes the importance of knowledge of the elements of the institutional/school context in which the teacher develops their work, as this is formative. School culture “is characterized by the way values, beliefs, prejudices, and behaviors are operationalized in the micropolitical processes of school life” (Day, 2001, p. 127, our translation). Through school culture, we also identify elements of institutional identity, thereby creating reciprocal influences between professional and institutional identity.

This reinforces the need to think about the professional development of teachers that contemplates the context, the culture in which teachers are inserted, to generate identification and that the results benefit all (Marcelo, 2009; Nóvoa, 2009; Tardif, 2014; Day, 2001). This is what leads us to defend that it is necessary to think about this professional development of teachers in the collective, in an institutionalized way, as we point out in Marques and Sant’Ana (2025), considering IFNMG’s or even each campus’ context.

The category of training presents elements present in initial training, which were highlighted as formative, such as the internship and the PIBID—the Institutional Program of Scholarships for Initiation to Teaching—which allows an approximation of future teachers, academics of the licenciates, with students of public basic education, allowing teachers in training experiences different from those acquired as students. Actions like this bring institutions at different levels closer together, providing learning and links across different institutions and spheres.

A fact that we consider interesting is that postgraduate courses were not directly mentioned as formative elements. This underscores the need to consider the DPD appropriate to each institutional context, which cannot be determined solely at the individual level. The teacher will choose their graduate courses based on their identity, desires, and future expectations, and this does contribute to their practice, as it constitutes their knowledge. Still, it may often not be directly aligned with the context in which they work. Besides, there are gaps, especially when we discuss here with teachers of an institution of a network, such as professional and technological education, which has its specificities and is recognized, according to Brasil (2008a), the historical flaw regarding training for this context.

In general, through the categories found, we noticed that “[...] teachers learn and develop professionally through participation in different practices, processes and contexts, intentional or not, that promote training or improvement of teaching practice” (Fiorentini & Crecci, 2013, p. 13, our translation) and reflect on the construction of the teacher’s professional identity.

4.3 THE TRAJECTORIES AND COMPOSITION OF PROFESSIONAL IDENTITY

When we consider, together with Marcelo (2009, p. 11, our translation), that “Professional identity is the way teachers define themselves and others”, we present, below, in Table 4, the categories derived from the teachers’ responses to the question “How do you characterize your professional identity?”

Table 4: Categories in the face of the characterization of professional identity.

Established Categories	Some Registration Units
Personal and Professional Qualities	“Patient and satisfied teacher” “malleability”
Teaching	“Associating the contents with everyday themes,” “mastery of the contents,” “search for qualification,” “planning, organization, and preparation”
Relationship with students	“Helpful with the difficulties presented,” “establishing dialogue” “affection in the classroom”

Source: The authors (2025).

In the first category, Personal and Professional Qualities, we observe what Nóvoa (2007, p. 17, our translation) discusses, “the way each one of us teaches is directly dependent on who we are as a person when we teach”. Who we are as people involves our subjectivity, which constitutes our identity. In addition to understanding oneself, the characteristics demonstrated satisfaction with being a teacher and the malleability to perform the role, which means that, although the teacher has a routine, what actually happens in the classroom is unpredictable (Tardif, 2014).

Sigma's (2024) statement, which is included in this category, characterize his teaching professional identity as follows: "Demanding, persistent and competent (modesty part.)". We observed that when they characterize themselves, they adopt an expression that distances them from the field of vanity. When they talk about themselves, they evidence a focus based on their practice.

The category of Teaching Activity is established when teachers bring elements of their practice into their professional identity, which is grounded in different knowledge, such as disciplinary and curricular knowledge, knowledge acquired in professional training, and knowledge developed in practice (Tardif, 2014). In addition, there is also the issue of professional qualification, which highlights the relationship between IPD and DPD.

The last category, Relationship with students, presents discourses on the bonds established between teachers and students. With this, we highlight that the process of professional identity "[...] it is the journey of life stories that go through the universe through the "I", the "Other", and the "We" [...]" (Souza, 2020, p. 92, our translation). Teacher Tau presented affectivity, which is present in this category, leading us to Tardif (2014), who argues that women, more than men, tend to transform affectivity into an important component of their work.

The categories show that the professional identity of teachers, the recognition of oneself as a teacher, involves, in a complex way, histories, teaching knowledge, pedagogical issues, relationships with students, professional qualification, personal characteristics, and subjectivities (Galindo, 2004; Tardif, 2014; Marcelo, 2009, Nóvoa, 2009).

Regarding professional qualification, what Pena (2018) points out regarding the need to consider teacher training in the context of federal institutes, in different formats, valuing "didactic-pedagogical issues; that considers the reality of the institution, characterized by the verticalization of teaching, which brings with it challenges related to the organization of the curriculum and the profile of students" (Pena, 2018, p. 15, our translation), among others.

The answers obtained, and at the trajectories known from them, reveal that the teacher "thinks from their life history not only intellectual, in the strict sense of the term, but also emotional, affective, personal and interpersonal" (Tardif, 2014, p. 103, our translation) and therefore should always be considered when discussing teaching.

5 FINAL CONSIDERATIONS

In this paper, we were faced with the problem: what can be identified from the components of the teaching life trajectory of Mathematics teachers linked to a campus of the Federal Institute of Northern Minas Gerais? In this context of teaching life trajectories, we can consider several elements, including subjectivity, teaching professional identity, teaching professional development, and the phases of the teaching career. All these elements notably influence each other and share the fact

that they are continuous processes. Besides, to discuss them, different dimensions, such as social, political, cultural, and institutional must be considered.

Through the data analyzed, we identified how the composition of the professional identity of the teachers involved unfolds, including different experiences, personal and professional characteristics, motivations, tastes, performance profiles, the establishment of relationships, and the mobilization of knowledge. It allowed us to look at the cognitive, the procedural, the norms, and the subjective, which for us involves the meaning the teacher gives to their practice and how they conduct it.

As we analyzed, they are teachers of similar ages and are generally in the phase of investing in their careers, as we do not have anyone close to finishing their teaching careers, given the retirement age. For those at the beginning of their careers, we can consider stability, since most are teachers who passed a civil servant selection process (or exam).

Another point also identified when looking at the elements of the representative categories and the career at the Federal Institute was the indications of anxieties and training needs. This is fundamental to consider, especially in the context of the Federal Institutes, because, as we have seen, there are gaps in training to work in the Professional and Technological Education network.

Thus, we emphasize the importance and need to consider proposals for the professional development of teachers for this context, contemplating the professional identity that is developed in the institution, as professionals are trained in it who can return to the institution as servants, instituting a cycle that may have negative elements, and, as we have seen, the experiences with teachers are formative and influence the choice and professional practice.

This investigation provides us with elements for future approaches in the ongoing doctoral research and raises other possible matters for deepening, such as gender and professional development and career phases within the Federal Institutes, among others.

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