

Some Movements to Become a Mathematics Teacher: a look from training memorials

Translated from portuguese: Alguns Movimentos para Tornar-se Professor/a de Matemática: um olhar a partir de memoriais de formação

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ABSTRACT

This work aims to analyze training memorials written by seniors in Mathematics to think about how they notice their being as teachers. The memorials were produced in a Mathematics college at a university in the suburbs of Goiás state, in 2018. Fifteen senior students were invited to reflect, individually, through writing, on the paths taken until the option for teaching. After reading the memorials, five were selected and analyzed for the production of this text. In the analysis of the material, a qualitative research methodology is adopted, using Content Analysis as an interpretative instrument of information. The reading and re-reading of the material were organized into three categories, as well as reflected in the light of the literature on the professional development of mathematics teachers. Thematic units emerged from the analysis: (i) teachers as positive influences; (ii) conscious choice for the Mathematics course; and, (iii) expanding horizons of being a teacher. Bringing to memory elements considered to constitute personal training is an important reflective process to be stimulated during the teacher's professional development and contributes to thinking about the action of learning and making parallels about the act of teaching, favoring the construction of subjectivity more autonomous professional, focused on the production of knowledge about the teaching and learning process.

KEYWORDS: Teacher training. Formation Memorial. Narratives. Memory.

RESUMO

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Este trabalho objetiva analisar memoriais de formação escritos por licenciandos/as em Matemática para refletir como percebem sua constituição enquanto professores/as. Os memoriais foram produzidos em uma disciplina de Licenciatura em Matemática em uma unidade universitária no interior do estado de Goiás, em 2018. Quinze licenciandos/as foram convidados/as a refletir, individualmente, por meio da escrita, sobre os percursos trilhados até a opção pela docência. Após a leitura dos memoriais, cinco foram selecionados e analisados para a produção deste texto. Na análise do material, adota-se uma metodologia de pesquisa de cunho qualitativo, tomando como instrumento interpretativo das informações a Análise de Conteúdo. A leitura e a releitura do material foram organizadas em três categorias, assim como refletidas à luz da literatura sobre desenvolvimento profissional de professores de Matemática. Da análise emergiram as unidades temáticas: (i) professores como influências positivas; (ii) escolha consciente pelo curso de Matemática; e, (iii) ampliando horizontes do ser professor. Trazer à memória elementos considerados constituidores da formação pessoal é um processo reflexivo importante a ser estimulado durante o desenvolvimento profissional do/a docente e contribui para se pensar sobre a ação de aprender e fazer paralelos sobre o ato de ensinar, favorecendo a construção de uma subjetividade profissional mais autônoma, centrada na produção de conhecimento sobre o processo de ensino e aprendizagem.

PALAVRAS-CHAVE: Formação de Professores. Memorial de Formação. Narrativas. Memória.

Opening words

Unlike other professions, the learning for teaching process begins long before entering University. The education professional has experienced a long contact with his future workplace that precedes the choice of profession, academic training and teaching practice. This contact derives from several years of school experience prior to entering a teacher training course. As Tardif (2014) and Catani (2003) consider, the perceptions about teachers' practices predate their entry into school, implying subjectivities of perceptions produced in the contexts of individual histories that extend throughout the school and professional journey.

Such perceptions can be understood as personal beliefs about teaching, with images of the good teacher, images of themselves as teachers and the memory of themselves as students (KAGAN, 1992). They continue through time and academic training has achieved little success in deconstructing or at least shaking them (TARDIF, 2014; GHEDIN; OLIVEIRA; ALMEIDA, 2015). In addition to the complexity of the initial education, graduates have been able to work as teachers and others who have been teaching for some years without any training. This complexity may contribute to the problematization of teaching and learning Mathematics, for example, when teachers recognize and reflect, collectively, on the knowledge arising from daily practice, as suggested by Gonçalves and Gonçalves (1998).

For us, initial training is a significant moment to problematize the profession through a critical reflection about the beliefs in the teaching profession. In this sense, we focus on the work of the Mathematics teacher, aiming at the licensing of myths regarding education, such as those listed by D'Ambrosio (2016, p. 158): (i) essentiality of all programmatic content; (ii) danger of technologies, such as

calculator, in the classroom; (iii) existence of a chronology for the teaching of concepts in which one first learns "this" and then learns "that"; (iv) existence of contents unintelligible to "ordinary" people; (v) "student only knows what he is able to answer or show in tests and exams". In an attempt to promote a professional with a view to education as "a set of strategies developed by societies for: (a) enable each individual to reach their creative potential; (b) stimulate and facilitate common action, in order to live in society and exercise citizenship" (D'AMBROSIO, 2016, p. 32).

To look at initial formation from a problematizing perspective implies reflecting on the constitution of the teacher, looking at his/her experiences in order to know a little more about his/her life trajectory and formation. Dealing with this history can either contribute to the understanding of individual and collective trajectories, or make possible the production of alternative paths for initial formation, so that it aims at overcoming practices "rooted", often repeated and reproduced by the teacher without a critical reflection on them. Reflection based on the Theory/Practice relationship so that

from the very beginning of his or her formative experience, assuming himself or herself as the subject also of the production of knowledge, [the teacher] is definitively convinced that teaching is not transferring knowledge, but creating the possibilities for its production or its construction. [emphasis added] (FREIRE, 1998, p. 24-25).

One way to make such reflection possible is through the memorial of formation. It is an instrument that enables teachers in formation to reflect on their stories, desires about their profession and beliefs about mathematics and its teaching. In this sense, we understand with Josso (2010) that the production of a memorial plays a significant way of working on the writing of oneself, as well as of speaking and/or listening about formative experiences when they are shared.

Considering the perspective presented here, we invited fifteen seniors of the Mathematics college, in a university in Goiás state, to share their experiences through memorials of formation. This took place in 2018, in an activity developed during the subject Trends in Mathematics Education (TEM). In order to carry out an analysis of the memorials of formation written by the students, we've chosen to divide this text in two moments. In the first, we pointed out the theoretical and methodological ways adopted in the construction of emerging categories. In the second moment, we present the analysis of these categories, seeking to understand, from fragments of narratives produced by the students, their experiences and how they led them to choose the teaching profession.

Memorial and Training Memorial: Attributing Meanings

The term memorial has its origin in the Latin *memoriale* and means "memento or written that reports memorable events" (PRADO; SOLIGO, 2007, p. 6). The term "memento" generally expresses "remember", which can be understood as a "mark" to remember something, an example is when we use a notebook to write down something to be remembered.

If a memorial refers us to the writing of memorable episodes, it also refers us to memory, something that is constantly under construction, through remembrance. We understand with Morin (2011), when considering memory as a source of truth subject to errors and illusions, that remembrance can favor the regeneration of memory, but, on the other hand, it can also "embellish or disfigure it. Our mind, unconsciously, tends to select the memories that suit us and to recalculate, or even erase, those that are unfavorable, and each of them can be attributed an advantageous role (MORIN, 2011, p. 21).

This perspective helps us to understand, through a narrative produced about something, the act of remembering as a subjective process, worked according to the social context and according to the relationship built with the elements of memory, such as, event, place and characters. Writing a memorial favors the registration of experiences, memories and reflections, allowing the author to reflect on the whys of his attitudes towards certain lived situations. It is an excellent opportunity for the subject to (re)place himself in front of situations, pondering about a significant time cut now witnessed.

The memorials of formation are discursive genres. The university's way of understanding this gender values the memorials, considered as "descriptive", as a means to enter or ascend the academic career, they are also usually produced as graduation papers (TCC), a monograph produced at the end of the course (SARTORI, 2015).

When dealing with training memorial, Prado and Soligo (2007) consider important the articulation between relevant experiences in training and profession, addressing moments related to life history linked to these two dimensions. In this regard, the reflections that "took place from the course in which [the student] participated - and the resulting changes - represent the most significant points to be addressed" (p. 8). They also affirm that, in a training memorial, the author is at the same time a writer/narrator/character of his/her story. In general, it is a text in which the facts are narrated, most of the time, in the first person singular, in a

defined sequence from the memories and choices of the author, with records of his own experience aimed at producing certain effects on future readers. In an attempt to define, the memorial of formation can be understood as a type of text with a predominance of narrative, circumstantial and analytical writing, dealing with "the process of formation in a given period - it combines elements of narrative texts with elements of expository texts (those that present concepts and ideas, which we usually call 'theoretical texts')" (PRADO; SOLIGO, 2007, p. 7).

The teacher's training memorials are a single and important means of accessing the universe of training, allowing the construction of subsidies for fundamental proposals for teacher training and teacher professionalization. Prado and Soligo (2007) consider that, when the authors are students, the reflection on the practice, inevitably, is of another nature. If they have not entered the profession directly yet, it does not prevent them from pondering about the future profession by using important memories in their formation.

Teachers (in initial formation, continued or not) revisit and reflect on student memories can contribute to a more critical understanding of the formative process, of one's own learning, and imply in the search for other ways of teaching than the one centered on the transmission of content to students and the collection of a full reproduction of the exhibition. The reflective process can contribute to thinking about other ways of teaching, of (re)thinking about previous beliefs assumed during student life. Recalling and writing about one's own education contributes to

as a process of recovery of the self, and the narrative memory, as a significant turning-point, marks a look at itself in different times and spaces, which are articulated with the memories and the possibilities of narrating experiences. [...] Working with memory, be it institutional memory or that of the subject, brings out the need to build a retrospective and prospective view in reconstituted time as a possibility for research and teacher training (SOUZA, 2007, p. 64).

By adopting this perspective, we understand working with training memorials as an important reflective process to be stimulated during teacher training. The action of writing them favors the construction of a more autonomous professional identity, more directed to the production of knowledge about teaching and learning. In this sense, we agree with Prado and Soligo (2007) that the production of written texts favors reflection on teaching practice. And we add that, as a consequence, it can favor the improvement of teaching quality.

Theoretical and methodological paths

For the analysis of the training memorials of the students, we use a qualitative research methodology based on the assumptions of Content Analysis. The qualitative approach can answer peculiar questions by worrying about a reality that cannot be quantified. It works with a universe of meanings that obeys to a deepening of the relationships between subjects and researchers, of methods and phenomena that cannot be synthesized to the operationalization of variables (MINAYO, 2001).

The interpretation of information was inspired by the Content Analysis methodology (BARDIN, 1977), used to describe and interpret the content of all types of documents and texts. In this sense, we adopted three stages: (i) Pre-analysis: stage that deals with the scheme of work, which involves the first contacts with the analysis documents, the formulation of objectives, the definition of procedures to be followed and the formal preparation of the material; (ii) Exploration of the material: stage that corresponds to the fulfillment of the decisions previously made, i.e., reading of documents, categorization, among others; and, (iii) Treatment of the results: stage in which the data are polished, making them significant, the interpretation must go beyond the contents manifested in the documents, seeking to discover what is behind the immediate learning.

The training memorials, now analyzed, were produced in the subject Trends in Mathematics Education. Fifteen (15) students (8 men and 7 women) participated in this activity and were invited to write individually about their formation process. Reminiscing and, in this process, (re)thinking about the life and formation journey, choices and outstanding experiences and, finally, the paths taken that led them to choose the Mathematics course. The texts produced highlight influences received, before and during formation, reflecting on the contributions derived from them in order to rethink the act of teaching and learning.

In the production of this text, 05 (five) memorials of formation were randomly chosen and read and analyzed. From the reading and re-reading of the texts, the thematic units emerged: Teachers as positive influences; conscious choice for the Mathematics course; and, broadening horizons of being a teacher. In the sequence we will present and discuss each one of them.

Training memorials: What do they reveal to us?

Here, we seek to reflect on how students perceive their constitution as teachers from fragments of the narratives of the memorials of formation produced by them. In order not to expose the students, we have chosen to give them fictitious names: Henry, Maria, Marcos, Rosa and Wilson.

Teachers as positive influences

Recalling the past, Rosa says she always wanted to be a teacher: "I loved my kindergarten teachers and I loved to imitate them when I played school. This desire was sharpened when she won a small birthday gift board from her parents. At that time, when they asked her what profession she would like to follow, she didn't hesitate and immediately answered that she wanted to be a teacher. As time went by, she describes that in some periods of her basic education her dream was "fading" due to conflict feelings: "I no longer felt the same admiration for many of my teachers. Perhaps because they didn't have the same sensitivity and care as the primary school teachers or [...] because they didn't show love for what they did" [Rosa].

Rosa and Maria recognize, from their memories, that since Basic Education they have felt the desire to become Mathematics teachers. Both reveal to have felt a censorship regarding the choice for teaching. In Maria's words: "[...] when [teachers] asked the profession that each [student] wanted [to follow, most] always spoke medicine, law, engineering or architecture and I always said mathematics [...] many times I was criticized for my choice".

For Lapo and Bueno (2003), there are many factors that contribute to teachers' disenchantment with the profession, such as low salaries, precarious situations, dissatisfaction at work, professional and social disfavor, etc. Imbernón (2016) adds that remaining in teaching can be tied to an obligation or the need to survive, with no other perspectives on the horizon. In this sense, the memories of Rosa and Maria show a disenchantment in their teachers, going so far as to advise against selection for the licentiate. Perhaps the lack of accomplishment with the teaching and a feeling of inertia, with no prospect of professional growth, led them to warn their students about the evils of teaching, advising them to rethink their choices. As Rosa reported, her teachers considered her to be a great student who could attend professions of greater social prestige and with better financial gains.

For Wilson, the taste for mathematics began early. He highlights the early years of Elementary School (EF) as the moment of his enchantment:

[...] we began to learn how to read and write, what was unity, dozens, hundreds and thousands, but I always had difficulty with speech, I always spoke fast and nobody understood what I was talking about, however, this made me not like to read or talk about the content, but within the discipline of mathematics I ended up enjoying it was the beginning for my training in the area (Wilson).

Wilson had problems with his speech, implying a malaise in reading, probably reading out loud and commenting on the content caused him embarrassment

because of mocking colleagues. For him, mathematics was different, that is, there was no need to express himself about the content. Although this is not the case in his memorial, he exemplifies banking education, denounced by Freire (2011), in *Pedagogy of the Oppressed*, in which he, as a student, is a passive subject who receives information deposited by the teacher, memorizes it and reproduces *ipsis litteris* at evaluation moments.

The Mathematics classes, as Alrø and Skovsmose (2006) point out, focused on bureaucratic absolutism, have teachers whose role is to point out mistakes and successes of the students without necessarily discussing them. Perhaps it is this math classroom environment that attracted Wilson. Because of his problem with speech, he didn't want to expose himself. However, we hope that his vision about the Math class, from the reflections during the formation, will contribute for him to understand the subject he will teach as a way of reading and understanding the world. As a consequence, it demands discussion of ideas, exposition of arguments and counter-arguments, listening attentively to the other, positioning yourself. Besides a mechanical reproduction, it demands reflection on the object of study, that is, it requires involvement in the process.

Both Wilson and Maria maintain their desire to be mathematics teachers without exposing, in their memorials, conflicts regarding the choice for teaching. Differently, Rosa manifests a conflict with the desire to be a teacher depending on the way her teachers taught. Teachings, considered by her, with little or no enthusiasm made her discard her interest in the profession for some years of ES. However, her interest re-emerged in the ninth year of ES more specifically in the Subject of Mathematics. One of the teachers responsible for this was Aristotle and she recalls: "[...] I remember his fun and relaxing way of explaining the content" [Rosa].

Although Rosa expresses her admiration for the teacher she referred to, she makes a reflection about his classes. She comments that they had a "[...] traditional rhythm, with explanation of content and, later, resolution of exercises", from the textbook. She believes that his differential was the way he taught: "[...] through playfulness he gave us the freedom to ask questions and question". Through reflections made possible during the initial formation, Rosa respectfully makes a critical analysis of the teacher's posture that influenced her to persevere in her choice. He was a contagious teacher, but his classes were inserted in the exercise paradigm, as defined by the authors Alrø and Skovsmose (2006), with content

exposition, followed by examples and, finally, with a good number of fixation exercises.

Rosa, Wilson and Maria's reports show Basic Education teachers as important models that influenced them in their choice for the Mathematics course. Reinforcing the idea that "the student in the early stages is more likely to be influenced by examples that impress him or her, by models that make him or her decide to be a teacher and that he or she imagines being able to follow and repeat" (MORAES, 1991, p. 146). Even with advice against the choice of teaching, the teachers' good relationship with their classes, as well as the attractive and fun way of teaching, were stronger. We can conclude from this that actions are really worth more than words.

Conscious choice for the Mathematics course

In his report, Henry states that his choice for a course in Mathematics was not random: "It was a totally purposeful choice, because it is something I like and with which I identify in my studies. Wilson also recalls that he entered university through the Serial Evaluation System (SAS), in a "course that he always wanted". Henry and Wilson highlight their choice for the course because they like Mathematics, and Henry stresses his "interest and willingness [...] to study this science, because I see it as something extremely powerful and beautiful, which in fact it is, although for many it may even seem crazy".

Rosa also talks about her interest in Mathematics, highlighting her good grades in learning this discipline and her willingness to teach it. She adds that, upon entering university, she continued to be a great student and, because of this, she received the invitation from a professor of the Mathematics Course to teach in a private school. Thus, training for teaching and working as a teacher were practically simultaneous. According to Gatti (2009), the choice for the teaching profession becomes a chance to change the 'status quo' for many young people, as it allows them to enter the professional field almost immediately. For the author, young people who choose "teaching tend to be from a lower class, which also corroborates the prospect of seeking an immediate salary for survival, and the meaning of social advancement" (GATTI, 2009, p. 13). Although Rosa does not express in her memorial a search for an immediate salary as a way to contribute to her survival, her student and professional career confirm, as expressed by Gatti (2009), that entering a higher education course allowed her to enter the profession immediately.

Maria, as well as Rosa, Wilson and Henry consider to have been a good student in Mathematics during the Basic Education, however she adds that she did

not manage to enter "the first vestibular call". In addition, like her colleagues, she says she has chosen the course because she had an affinity with the subject and "did not like reading and writing". This idea is reinforced by the following excerpt from her memorial: "[...] I thought that in the course I would only have calculus subjects and that I wouldn't need to read and write text, but I was very wrong, not everything happened as I thought and expected". Maria liked Mathematics and wanted to study only calculus subjects during graduation. She chose to take the course because of this affinity and realized that her expectations regarding the Mathematics course were not consistent with the reality of the formation.

In the same way, Marcos thought that a degree course in Mathematics would not "have many readings, that it would have only calculations", in his words: "[...] [I thought] that it would not have to present [oral works] and it would not have educational subjects in the course. In the first class I met with the history of education, with languages, I did not expect to have these subjects". Something similar happened with licensee Rosa. She claims to have taken "a scare with the educational subjects", because in her conception when she entered the course there should only be specific subjects in the area of Mathematics. She did not consider the subjects in the area of teacher training as relevant. According to Rosa, "[...] the important subjects were only those of calculation". As the course progresses, she reflects on the relevance of subjects in the area of education and reports a change, now with a positive bias, in her understanding of these subjects. The same idea is shared by Henry:

[...] I imagined that the focus would be on mathematical content (not that it doesn't) and that subjects in the area of education would have a much smaller workload. I didn't imagine that I would read so many texts, articles, that I would know so many works of great educators and researchers of Mathematical Education (Henry).

In Henry's excerpt we note that, although he did not expect there to be any subjects in the field of education, he recognizes their importance through the reading of "great educators and researchers" of mathematical education. The expression "great educators and researchers" gives a positive adjective to the readings he carried out, giving an idea that changed his conception of the course having only disciplines with mathematical content.

These narrative fragments point to a unanimity in the opinion of the seniors when they began the course in Mathematics. They did not expect to come across subjects that required reading, discussion, presentation and defense of ideas. This is

due to the social culture brought from Basic Education that sees Mathematics as a ready and finished subject, with the exclusive requirement of finding a unique response through calculations carried out using algorithms, placing little value on reading, inquiry, argumentation, the search for consensus of ideas through the negotiation of meanings.

The shock, or fright, as Rosa expressed it, occurs when the mechanical knowledge, to which they were accustomed, is problematized when they come across disciplines such as: Textual Production, Sociology of Education, Psychology of Education, History of Mathematics, Trends in Mathematics Education, Research in Mathematics Education, among others. Students give signs that they are beginning to realize that the future Mathematics teacher needs mathematical knowledge, but it is not the same that requires a bachelor to be a good mathematician. In this aspect, as they open themselves to the discussions provided by the science of education and Mathematics Education, they begin to realize that the Mathematics teacher needs to know Mathematics as a scientific field, but above all, "the school mathematics and the multiple mathematics present and mobilized/produced in the different daily practices" (FIORENTINI; OLIVEIRA, 2013, p. 924). As well as knowing ways to deal with the human and contribute to the formation of subjects in a society in constant transformation.

Broadening horizons of being a teacher

From the analyzed memorials it was possible to perceive different expectations regarding the course. One of the students pointed out that it was a teacher training course, but that "*I didn't imagine it that way as I know it today. I imagined that some notions about teaching methodology plus the mathematical knowledge acquired in the course were enough*" (Henry).

Maria also demonstrates a change in the way she understands the course, reporting that at the university she has come across "sensational professors". And, according to her, the subjects of education and mathematics education have contributed to "changing a little my way of looking at things". She considers all the subjects as a "challenge to move forward" using as an argument the dropout in the course: "Our class started with 52 students and today we are only 16" and, in the sequence, Maria expresses the meaning of the subject of Didactics in her formative process:

In the didactic class [...] we work with a very important author for our formation, Paulo Freire, who is very critical of banking education as

that which many teachers still work in the classroom, which is to fill the students with contents and then during the test, he simply does the 'looting' [of the contents] (Maria).

Based on her readings, Maria alludes that, as future math teachers, we should not "teach our students only to get good marks in exams, but to [...] make them critical citizens and not alienated. In this sense, Freire (2011) states that it is essential to look at the other as a human being and, for this very reason, as a subject who produces knowledge, capable of reflecting on the reality around him and transforming it. The confidence in the capacity of the other refers to thinking about possibilities to the initial formation beyond requiring a mere reproduction of techniques for the exercise of teaching.

The discipline of Didactics seems to have influenced the formative path of another student, Wilson. He states that by deepening his theoretical knowledge he discovered, through Paulo Freire, that the teacher is a mediator of learning. "I thought the teacher was responsible for my grade, but I am responsible for it" (Wilson). It is possible to perceive an understanding of this licensee of the importance of sharing with the subject of learning, the student, the responsibility of the teaching and learning process. It is not the sole responsibility of the teacher, it needs to be shared to show respect and trust in the student as being able to learn and to take responsibility for their learning.

In her narratives, Maria reports that still in the first year of her graduation she entered the Institutional Program of Teaching Initiation Scholarship (PIBID⁴), remaining there for almost two years. She says she was able to assimilate and learn that "there is no teaching without research and research without teaching" quoting Paulo Freire (2011). And that, "we need to research what is still unknown and improve what we already know in order to be able to teach" and thus create situations for the production of knowledge by students. PIBID is a program financed with scholarships for teachers and graduates who participate in it, provides a quality

⁴ The maintenance of the PIBID is due to the struggle in favor of the continuity of financing for actions related to teacher training and the consequent improvement of public schools. An example of this is the SALVADOR LETTER elaborated by educators at the XII National Seminar of Formation of Professionals of Education, XL National Meeting FORUMDIR and I National Seminar Forpafor and Forpibid-RP, held between September 16 and 19, 2019, at the Federal University of Bahia (UFBA), in Salvador (BA). In the referred letter there are manifestations for the defense of education autonomy; of freedom and pluralism of ideas; of a school without prejudice and, among other points, "the maintenance of policies for the formation of teachers, considering their capillarity and comprehensiveness in the different regions of the country, their effective approach between higher education institutions and the school units of the different educational systems, with emphasis on PIBID, Pedagogical Residence and Parfor, ensuring its financing". Available <https://www.fe.unicamp.br/pf-fe/noticia/7019/carta_de_salvador_19set2019.pdf>. Access on 31 Aug. 2020.

infrastructure, with the objective of valuing and encouraging teaching. Unfortunately, as Lima (2012) warns, it privileges only a group of fellows and teachers from schools and universities. It is worth mentioning that PIBID is a program of the Ministry of Education (MEC) financed by the Union, through the promotion agency of the Coordination for the Improvement of Higher Education Personnel (CAPES), with the "intention of uniting state and municipal education secretariats and public universities, in favor of improving teaching in public schools.

Henry also shows an openness to new learning, broadening his perspectives and horizons with the reflection on ideas of researchers in the field of Education and Mathematics Education. According to him, his initial expectations with the course have been broadening, leading him to an understanding that a course, intended for teacher training, deals with much more than just learning the specific contents of a particular science, it has to do with

[...] dealing with people, human beings from different realities. This is why the educational context is so complex, and it is up to the teacher to know how to work in a respectful and open way to the heterogeneity of this context. The teacher needs to be flexible in the face of the differences in the classroom and the other problems of the environment in which he works (Henry).

The fragment above shows an understanding of the teacher as a learning subject, since the initial formation, which implies an active posture of systematically and methodically investigating the practice itself. In this movement, the reflection on practice makes the concept of the reflective teacher interdependent with the concept of teacher-researcher, as suggested by Ghedin, Oliveira and Almeida (2015). We add that writing about oneself, through the training memorial, contributes with reflections on ways of being a teacher.

From the initial formation it is relevant for the professional to know himself/herself, to understand the social role of the teacher, to critically analyze the problematic situations of the school. Learning and teaching have to do with a certain perspective of perceiving the world built by men. Therefore, we understand that the process of humanization demands reflective subjects who analyze the past, think about the present and make plans for the future. Something intrinsically related to a way of understanding the other as people, as a conscious being and, therefore, much more than a repeater of ideas.

The graduate Marcos cites in his narratives that his expectations brought a naive vision about the Mathematics Degree course, since he thought that being a teacher was an easy and very simple task and that it was enough "to pass exercises

and correct, giving a grade and that's it". This vision was being transformed according to the "advance" of his initial formation. In the same way Wilson broadens his vision about the teaching activity, according to him the subject, Trends in Mathematics Education, brought important discussions about the formation of Mathematics teachers with emphasis on research in the school field. Different from what he said when he was a student of Basic Education and did not argue in the classroom he demonstrates another way of understanding the interaction between teacher and students in the classroom.

[...] take an activity that involves the students [...] The teacher should not say "it's wrong to do it again", this may demotivate the student. The teacher should say: "look, you almost made it, if you do it you will make it". A teacher must not take away the student's voice, he must ask questions, because the student's knowledge is created in a dialogue between student and teacher, as well as in a book or article, is the author talking to the reader (Wilson).

The reflection, through the writing of a memorial of formation, enables the subject to take a critical position regarding his own formation, seeking to understand how he learns and the means to contribute for his students to produce knowledge. Valuing the engagement of the graduate contributes to his or her

learn to ask yourself, to inquire, to place yourself before reality. If there is no such possibility in the work of formation, we will not achieve the development of autonomous subjects, researchers. For this basic principle to become effective, to become concrete, we must change the way we work our methodology of formation, opening the dialogue, creating a favorable climate for participation, for the emergence of questioning, critical, creative subjects who, by living this experience, will be able to replicate it later with their students (ANDRÉ, 2016, p. 22).

In the process of broadening his understanding of what it is to be a teacher, Wilson adds that "being a teacher is not an easy task. This conclusion comes from his observations during the Supervised Internship, when he accompanied the regent teacher of Mathematics, in classes of the final years of ES, in the school that received him as an intern. The contact with the school, no longer as a student, but as a teacher in training, allowed an understanding that the school is "marked for being a complex environment, where students from different realities meet in the same place and it is up to the teacher to know how to prepare classes that take into account these differences" (Wilson). He adds that there are many problems about the "public policies outlined for schools, working conditions of education professionals, infrastructure of school facilities, etc." (Wilson). here is an understanding of the complexity involved in teaching beyond the classroom.

Conclusion

Considering experience, in Josso's perspective (2010), as particular experiences that when reflected gain experience status, one can say that the writing of the memorial of formation has provided the students with the opportunity to tell/reflect on their experiences, which constitute and are constituted by their life and formation trajectories, perceiving their experiences as formators (JOSSO, 2010), the learning originated and their contribution in the formative process for teaching.

Finally, exposing what they considered relevant to share, they contributed, through their reflections, about the contributions of the Mathematics course to professional development. Their narratives reveal the beginning of the academic trajectory as a moment marked by surprises, since the scenario found is different from what they imagined. They begin to understand the existence of two universes of knowledge, one of specific content subjects and the other of pedagogical subjects. The conflict arises when they assume the relevance of a constant movement between knowledge of content and pedagogical knowledge. As well as between theory and practice, they will always be in an uninterrupted process of getting to know each other, and getting to know each other more. We understand that the formation of the subject, in the case of the teacher, happens in a continuous and constant movement that happens throughout life, from the reflection on oneself, on the other and on the world.

From the memorials analyzed, some seniors point out the option of becoming Mathematics teachers under the influence of good teachers in their school life in Basic Education and entered the Degree by inspiration of them. It was also possible to notice that they relate this teacher to their taste for the subject of Mathematics and their good performance in it and, consequently, this set of factors helps in the choice for the Mathematics Degree.

Thus, bringing to mind elements considered constitutive of personal formation is an important reflective process to be stimulated during the teacher's professional development. It contributes to thinking about the action of learning and making parallels about the act of teaching, favoring the construction of a more autonomous professional subjectivity, centered on the production of knowledge about the teaching and learning process.

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