

# Thoughts about the profile changes of mathematics degree's students through trainers professors narratives

*Loriége Pessoa Bitencourt<sup>1</sup>*

*Bruna Borges da Veiga<sup>2</sup>*

## ABSTRACT

This study is about teachers' training with the objective of highlight those aspects that outline the profile changes of the students who attend a Mathematics degree by comparing this process over three decades with the following guiding question: In the view of the Mathematics degree training teachers, how did the students' profile change within this time? Upon telling their own teacher's training history, two professors revealed the recurrent traits that allowed disclosing the changes in the students' profile when comparing two periods of such training. The discussion of the data applied the historical analysis while the narratives were used as research instrument of Oral History. Findings evidence that the subjects perceive a modification in the students' profile due to social changes and especially to technological breakthroughs and access to them.

**Keywords:** Educational trajectory. Profile of degree student. Teachers' training. Narratives.

*Reflexões sobre as alterações do perfil dos estudantes de uma licenciatura em matemática por meio das narrativas de professores formadores*

---

<sup>1</sup> PhD in Education/UFRGS. Permanent Professor in the Graduate Program in Education at the State University of Mato Grosso/UNEMAT, research line: Teacher Training, Policies and Pedagogical Practices. Assistant Professor IV, Degree in Mathematics/UNEMAT -Cáceres campus (Mato Grosso state). Orcid: <https://orcid.org/0000-0002-7643-2091>. E-mail: [lori.pessoa@hotmail.com](mailto:lori.pessoa@hotmail.com).

<sup>2</sup> Master's Degree student in Education at the State University of Mato Grosso/UNEMAT, research line: Teacher Training, Policies and Pedagogical Practices. Graduated in Mathematics/UNEMAT. Orcid: <https://orcid.org/0000-0002-3985-8739>. E-mail: [bruna\\_nmvm@hotmail.com](mailto:bruna_nmvm@hotmail.com).

**RESUMO**

Neste estudo, discorre-se sobre a formação de professores, tendo-se o objetivo de evidenciar os aspectos que caracterizam as alterações do perfil dos estudantes de uma licenciatura em Matemática, comparando-se esse processo no decorrer de três décadas, utilizando-se a seguinte questão norteadora: De que modo, na visão dos professores formadores da Licenciatura Plena em Matemática, participantes desta pesquisa, o perfil dos estudantes dessa licenciatura foi se alterando? Os dois professores que narraram a história da formação docente revelaram as características recorrentes que permitiram evidenciar as alterações do perfil dos estudantes ao se comparar duas épocas dessa formação. Na discussão dos dados utilizou-se a análise histórica, tendo-se as narrativas como instrumento de investigação da História Oral. Os resultados evidenciaram que os sujeitos percebem uma modificação no perfil dos estudantes devido às mudanças sociais, em especial aos avanços tecnológicos e ao acesso a eles.

**PALAVRAS-CHAVE:** Trajetória formativa. Perfil do estudante da licenciatura. Formação de professores. Narrativas.

*Reflexiones sobre las alteraciones del perfil de los estudiantes de una licenciatura en matemática por medio de las narrativas de maestros formadores*

**RESUMEN**

El estudio trata sobre la formación de docente visando conocer los aspectos que caracterizan las alteraciones del perfil de los estudiantes de una licenciatura en Matemática y cómo ocurre ese proceso a lo largo de tres décadas, por medio de la siguiente pregunta orientadora: Desde el punto de vista de los profesores formadores de la Licenciatura en Matemática, ¿de qué modo el perfil de los estudiantes se ha alterado en ese período? Al narrar su propia historia, los dos profesores revelaron las características recurrentes de las alteraciones del perfil de los estudiantes al comparar las dos épocas. La discusión de los datos utilizó el análisis histórico de las narrativas como instrumento de investigación de la Historia Oral. Los resultados evidenciaron que los sujetos perciben una modificación en el perfil de

los estudiantes debido a los cambios sociales, especialmente a los avances tecnológicos y al acceso a estos.

**Palabras-clave:** Trayectoria formativa. Perfil del estudiante de la licenciatura. Formación de profesores. Narrativas

\* \* \*

## Introduction

The reflection about the formation of Mathematics' teachers is fundamental for the strengthening of Mathematics Education as an area of studies, investigations and practices in consolidation in the Brazilian educational scenario. From this perspective, the aim is to highlight, in the narratives of trainers professors, aspects that characterize the changes in the profile of students for a degree in Mathematics over three decades.

The participants of the research were two professors, egresses from the Short Term Degree in Science at the State University of Mato Grosso - UNEMAT. Both followed the transition from the short term Degree in Science to the full term Degree in Mathematics in the early 1990s. After the conclusion of the short degree, they took complementary courses in Mathematics or Physics. In 2017, the year in which this research was carried out, they were working on the full degree (from now on only: degree) course in Mathematics at the same University. This way, these two professors accompanied the training of mathematics teachers in this University for a long time, being possible to identify, in their narratives, among other things, the changes that occurred in the profile of the undergraduates at different times of this graduation.

It was taken into consideration what the participants have narrated, contrasting the profile of the past with that of the present, based on their experiences, since

[...] in this perspective, experiences are stories that people live. People live stories and in telling these stories they reaffirm themselves. They change and create new stories. The stories lived and told educate ourselves and others, including young people and new researchers in their communities. (CLANDININ; CONNELLY, 2015, p. 27).

The narratives of the trainers professors, the stories they tell are, in this article, complemented by the results of the investigations of Krahe and Bitencourt (2015) and the reflections of Gatti et al. (2019).

Gatti et al. (2019) mention Silva et al. (1991), who carried out a research based on the analysis of several works focused mainly on the reflection and discussion of how the teacher was being trained, from 1950 to 1986. These authors found “a great imprecision about what profile is desirable to this professional” (p. 24), and that

[...] different works, over time, criticize the curricula of the courses pointed out as encyclopedic, elitist and idealistic. They also consider that the different reforms have ended up lightening them more and more, making them, for the most part, curricula of diluted general training and specific training more and more superficial (SILVA et al., 1991, p. 135 *apud* GATTI et al., 2019, p. 24-25)

Thus, Gatti et al. (2019) show in their text that the history of teacher training in Brazil has been progressively disfigured over time, and the profile of graduation egresses has become more and more indefinite.

The present research is based on that one carried out during our graduation, concluded in 2017, whose objective was to understand, in the scenario of teacher training in a Mathematics Degree course at UNEMAT, “Jane Vanini” University Campus, in Cáceres - MT, the formative trajectory of this degree and the changes in the student’s profile based on the narratives of two trainers professors.

This search is justified because we believe that the self-knowledge, for trainers professors, about the formative trajectory, and the valorization of the history lived from the narratives, allow the

identification of recurrent characteristics - positive or negative - of the students' profile of this degree. Therefore, this may contribute to (re)think about the formation of future generations of teachers.

Thereby, we have as a problem question: In what way, in the view of the trainers professors of the Degree in Mathematics, participants in this research, the students profile of this degree has been changing?

## **Theoretical Background**

In order to understand some aspects related to teacher training and the conceptions of the trainers professors of a degree, and their influences on the training of other mathematics teachers of a certain time, we consider that

[...] the recognition of oneself in the training process [both trainers professors and students], the choices students make in their school career become important for the identification of the person with the professional training they have chosen to enter. (KRAHE; BITENCOURT, 2015, p. 250).

We agree with these authors as we understand the importance of identifying and characterizing the subjects in the training process and those who will be trained, in order to constitute a curriculum that is significant for teacher training. We also consider the priorities of these future teachers, because “[...] as important as studying and discussing the formation of teachers from the curricula of the undergraduate courses, is to understand who are the individuals of this formation, in this case, the students who attend the course [...]”. (KRAHE; BITENCOURT, 2015, p. 250).

Therefore, the formation of the individuals, both trainers professors and undergraduate students, is built through reflection on practice, mediated by the experiences of each subject. According to Marcelo Garcia (1999, p. 19), formation “can also be understood as a process of development and structuring of the person that is carried out with the double effect of internal maturation and possibilities of learning, of the experiences of the subjects”.

Thus, students, when entering initial training courses, may have a more significant training when they assume the commitment of their own professional development, aware that, for example, in the undergraduate courses they will assume the identity of “being a teacher”.

So, “being a teacher” is evidenced in the formative aspects of the locus of research, Degree in Mathematics at UNEMAT/Caceres, through the Political-Pedagogical Project (PPP), which maintains as an explicit proposition the formation of the teacher in this curricular area. However, Krahe and Bitencourt (2015, p. 252 - 253) highlight that, “despite the written discourse, most students in this course do not want to be teachers and say they are not there to graduate as such, but rather, to receive a diploma as a graduate and, in no way, offer themselves to be a teacher”.

Because of that knowing who are the students who choose the Mathematics Degree course becomes important. It is also important for us to (re)think and (re)mean the curriculum of this formation, in order to identify some characteristics that compose the profile of these people - personal, professional and social -, gathering the qualities and challenges faced in the social context. This may contribute to give us an overview of the possible paths to be taken in this training.

Thus, getting to know these future teachers closely “seems to us not only relevant, but fundamental so that effective training strategies can be outlined” (CARVALHO, 2018, p. 8). The possible approach to the reality of the graduate, entering into the daily work of the teachers, is, “without a doubt, indispensable so that one can think, with them, the best ways of acting in the search for a quality education for all” (CARVALHO, 2018, p. 8).

According to Gatti et al. (2019), it is relevant to have clarity about the professional profile desired for the degree courses, since among other aspects it is the students’ experience and its significance in the formative journey that compose the framework of their teaching actions. So, the specialized literature shows the important knowledge for teaching, besides the fundamentals of education, which include:

[...] knowledge of the students and their contexts; understanding of the relationship of language with learning and cognitive and social development; knowledge of the subject to be worked on in teaching and their respective pedagogical knowledge (pedagogical knowledge of content), always treated in an integrated manner with the knowledge acquired in educational practices; and, knowledge about student assessment and educational evaluation. (GATTI et al., 2019, p. 75-76).

This knowledge presupposes an active teaching practice that seeks, in the student and teacher relationship, significant ways of building knowledge. Therefore, we understand that the proposal of practices as curricular components in the formation of teachers, contained in the latest legislation, according to Gatti et al. (2019), will only be effective if they are, in fact,

[...] integrated into the curriculum and disciplines, not constituting something apart; institutionalized in the educational system as a whole, that is, in higher education institutions and schools; and, maintained by a support system that involves trainers working in higher education and in schools (scholarships, material incentives, setting up teaching laboratories, sources of information on pedagogical resources and innovations, etc.) (GATTI et al., 2019, p. 75-76).

It must be considered that educational institutions still lack quality infrastructure and materials. However, as evidenced by Gatti et al. (2019), in order to obtain a teaching education that meets the latest legislation and corresponds to a curriculum that contemplates the practice, they are necessary: scholarships, material incentives, setting up of teaching laboratories and, especially, recognition by the trainer professor of the curriculum proposal of the undergraduate course and, therefore, the student profile who is graduating.

Considering these perspectives, knowing the profile of undergraduate students and the professional profile of the egress that PPPs present, allows the trainer professor to create new formative possibilities in the process of teaching learning, based on the actual conditions of this training. Thus, the great

meaning of training lies in the need for the trainer professor to understand that it is “necessary to incorporate the perspective that teaching requires something more than the appropriation and application of pedagogical procedures, with the awareness of the social role of the teacher in its implications for development and the lives of students” (GATTI et al., 2019, p. 75-76), and this is so significant that it enables the transformation of reality.

Other factors more recently highlighted, which intervene in this dynamic, are the profile and training of university professors, because, according to Gatti et al. (2019, p. 95),

[...] many of them have no pedagogical background and their selection and career are based, above all, on scientific-academic works in the areas of knowledge to which they dedicate themselves (Physics, Mathematics, Sociology, etc.). Most of them have no pedagogical background and few study and research issues related to teaching and didactics in these areas. [...].

Finally, we consider that the formative dynamics of initial formation courses for teaching, at a higher level, is immersed in a network of determinations that sustain and guide the formative possibilities. Therefore, the trainers professors have a fundamental role, but are not unique, in the professional development processes of these students, affecting positively or negatively the professional career of the future Basic Education teachers.

### **Methodological aspects: narratives as a mean/instrument of research in Oral History**

In this research we make use of a historical analysis, using narratives as an instrument of investigation of Oral History, which is strictly linked to the memory of the actors/authors who will remember, tell/recount and narrate their experiences lived in a space and period of time.

Oral History, as a research methodology, has proximity to the present, because it depends on the “living” memory. For Garnica (2010), Oral History is defined as a research methodology that implies:

- a) Dialogue with sources of various kinds (written, pictorial, film, etc.), emphasizing oral sources;
- b) Embrace a proposal for collective configuration with regard to the social actors involved in the research;
- c) Engender a careful and ethically committed record;
- d) Master the elaboration of narratives;
- e) Exercise the plurality of perspectives (interpretations). (GARNICA, 2010, p. 33).

For the aforementioned author, Oral Memory, as a methodological option, enables dialogue with different sources in order to subsidize multiple interpretations of the memories narrated by the subjects involved in the research.

Freitas (2006, p. 19) points out that Oral History “can be divided into three distinct genres: oral tradition, life history, and thematic history”. So, in this research we made use of the Thematic Oral History because, according to the same author, in this one, “the interview has a thematic character and is carried out with a group of people, on a specific subject” (FREITAS, 2006, p. 21). In other words, the interview - which has the characteristic of deposition - necessarily does not cover the entire existence of the informant, considering that, in the constitution of the plot, several historical perspectives are necessary.

Garnica (2010) reflects on the approach of Oral History with Math Education, because, the author says, a work in Math Education, or in any other area, produces irredeemably a historical source. The difference is that those who use Oral History intentionally are producers of sources, which makes it impossible for researchers who work with Oral History to avoid a conception about History.

It is understood that narratives make up a differentiated way of doing science, as one works with the story lived through discourse, the narration of events that are not only part of the history of a society, but also that of an

individual, who was a character of a time, and the experiences/memories have value for those who tell them. Thus, meaning is subject to the interpretation of the listener/reader/viewer and the way in which the narratives are constituted. Thus, in this research we use Oral History because it is a qualitative methodology that recognizes:

(a) the transience of its results; (b) the impossibility of an ‘a priori’ hypothesis [...]; (c) the non-neutrality of the researcher [...]; (d) that the constitution of its comprehensions takes place not as a result, but in a trajectory in which these same comprehensions and also the means to obtain them can be (re)configured; [...]. (GARNICA, 2004, p. 86).

The population of our research was materialized through dialogues with professors who still teach in the graduation mentioned. We found that some of them participated in the construction and reconstruction of the history of this Mathematics Degree in Cáceres; others were students in the period when the course was a short term degree. Therefore, we composed an initial list of 20 probable individuals of the research.

In possession of this list we started an internet search to locate the lattes curricula of these teachers. Afterwards, we started a process of time analysis aiming to compose our research sample.

When analyzing the curriculum of each teacher trainer, we reduced the subjects to four, but we chose to work with a sample of two individuals according to some criteria (Chart 1): the period in which the person was linked to the institution, specifically to the Mathematics course; and also the fact that two of the individuals were students of the Short Term Degree course in Sciences and, at the time, acted as teachers in the same institution. We have chosen to identify the trainers professors as Prof. 1 and Prof. 2, to guarantee their anonymity.

**Chart 1:** Formative profile of the research individuals

PROFESSOR	YEAR	TRAINING
<b>Prof. 1</b>	1989 - 1993	Short Term Degree in Science and Mathematics and Plenification in Mathematics from UNEMAT.
	2002	Master in Education from the Federal University of Mato Grosso - UFMT.
	2010	PhD at the University of São Paulo, USP, in the area of Sciences and Mathematics.
	<b>PROFESSIONAL PERFORMANCE</b>	
	1994 - Nowadays	Employment relationship: Functional Framework: Full Professor, Regime: Exclusive Dedication at UNEMAT, in the Mathematics Degree Course until the present day.
PROFESSOR	YEAR	TRAINING
<b>Prof. 2</b>	1986 – 1988	Short Term Degree Science and Mathematics. Higher Education Institute of Cáceres - currently UNEMAT.
	1989 - 1991	Parcel Degree in Physics/complementation at Universidade Federal de Mato Grosso, UFMT, Brazil.
	1997 – 2000	Master in Education. Federal University of Mato Grosso, UFMT, Brazil.
	2002 – 2006	PhD in School Education. Universidade Estadual Paulista Júlio de Mesquita Filho, UNESP, Brazil.
	<b>PROFESSIONAL PERFORMANCE</b>	
	1994 - Nowadays	Employment relationship: Functional Framework: Full Professor, Regime: Exclusive Dedication at UNEMAT, in the Full Mathematics Degree Course until the present day.

**Source:** Elaborated by the author.

As shown in Chart 1, the trainers professors began their academic training through the Short Term Degree in Science and Mathematics offered by UNEMAT in the 1980's. They then completed the Plenification, in which one opted for a degree in Mathematics and the other in Physics. In the 1990's, both trainers professors participated in a contest at UNEMAT and started working as teachers in "Exclusive Dedication Regime". In the 2000's, both professors concluded their post-graduate studies in their respective specialties, and throughout their formative trajectory they maintained their ties with UNEMAT.

## Data Description and Analysis

In this topic, we analyze the individuals' narratives, because, according to Freire (1996, p. 39), "in the ongoing formation of teachers, the fundamental moment is that of critical reflection on practice. It is thinking critically about the practice of today or yesterday that can improve the next practice".

From this perspective, we seek to understand in the professors' narratives, the way in which they perceive the teaching formation, in the course of time, in different periods and curricular proposals. Thus, the professors, in a critical reflection on their experiences lived in the formative trajectory and those of the students, narrated the facts from their current view of education, which shows that the understanding of the world of both professors differs in the face of the theoretical readings they have made. However, they converge in the perspective that changes are necessary to improve the educational system and, especially, the teacher education.

We tried to highlight, in the professors' narratives, some aspects of the profile of the students who attended the Short Term Degree in Science, with the intention of identifying the place of origin of the academics of that time, and the teachers said that

*[...] practically, there were a few people from outside [Short Term Graduation], [...] then in the Full Graduation I think the movement increased a lot, but most of it was all from here [Caceres] [...]* (Excerpt from Prof. 1's narrative).

The aspect related to the locality of the students' residence that appears in the narratives reveals that, at the time of the Short Term Degree in Sciences, most of the students lived in Cáceres-MT. At the present time, on the other hand, most of the them reside in neighboring municipalities (KRAHE; BITENCOURT, 2015).

It is important to point out that when professors refer to the Short Term Degree in Sciences, they are reporting to the end of the 1980s, a time when UNEMAT did not have the status of a University and was called Fundação

Centro de Ensino Superior de Cáceres (FCESC), linked to the Secretariat of Education and Culture of the State of Mato Grosso (ZATTAR, 2008).

Prof. 1 narrates that the short term graduation classes were numerous, and, around 1989, the classes

*[...] had a lot of students, I remember that we had about 40 students, some left, but [...] when I graduated I had a lot of students. (Excerpt from Prof. 1's Narrative).*

We understood that these students were probably looking for the course as an alternative of formation in a short period of time to be able to act in the profession, according to the excerpt below:

*I remember that a lot of students graduated, [...] but the course was also a short degree, it was two and a half years, and that helped, [because] the person already saw that it finished soon and [...] already had the possibility to work, it was easier, and today people don't have much patience to wait a while, four years to graduate. (Excerpt from Prof. 1's Narrative).*

When referring to the short term degree, Prof. 1 states that there was little withdrawal and evasion of students, justified by the short time of curricular integralization of the formation of the time, which enabled teachers not only for Mathematics, but also Physics, Chemistry and Biology. However, relating this narrative with others of the two trainers professors we have:

*[In 1987 I started teaching in Basic Education] even though I didn't have any formal qualification, I taught there in elementary school, [...] from fifth to eighth grade [...]. (Excerpt from Prof. 2's Narrative).*

*[I worked in Basic Education around 1989] [...] my wife [...] taught classes in the State [permanent teacher], when she went to the courses [Complementation] I taught classes in her place, [...] I always liked Math, I always liked teaching classes, I don't know if I would have another job. (Excerpt from Prof. 1's Narrative)*

We inferred that students entered this short term degree knowing what they wanted as a profession, and some already taught in Basic Education. When teachers refer to the time of the full term degree, four years, there is another aspect to consider today: the profile of the student of the degree in Mathematics. This profile is made up of workers in commerce, for the most part, and also in the military or civil police, and few are in contact with the teaching work in the schools, which influences the professional choice after graduation. In addition, these students can choose to work as teachers or just to have a degree to work in other areas (KRAHE; BITENCOURT, 2015).

In his narrative, Prof. 2 talks about the spirit of collectivity, union, team, collaborative learning in the students of the Short Term Degree in Sciences, and states that this posture made all the difference in training (IMBERNÓN, 2002):

*[...] the students [Short Term Degree] everybody worked, but any activity put by the teachers everybody ran to solve and everybody helped everybody, there was no competition among the students, I think the need was so great, that we gave a hand to help each other, to pick up the other one and take with us. (Excerpt from Prof.2's Narrative).*

On another aspect of the changes in the student profile, Prof. 2 made a reflection on the changes that have occurred in society and their reflection in the university classroom and in the pedagogical practices used by the trainers professors. And he questioned:

*[...] but has this changed [lecture, blackboard and chalk]? I think that's the question, [...] I'm talking about 30 years ago, has it changed? That's maybe a big question we have to ask. (Excerpt from Prof. 2's Narrative).*

Regarding the pedagogical practices of trainers professors, Bitencourt (2014) highlights the importance of rethinking them, from time to time, because,

[...] when, in a collaborative way, the individuals meet and discuss the knowledge necessary for the professional exercise of the Basic Education teacher, they can reflect on the professional exercise of the teacher who graduates [...] and, therefore, on the University Pedagogy of the professors who train other teachers for Basic Education. Thus, it will be possible to articulate what is done with what is needed, what is developed curricularly to form a professional teacher for Basic Education with what the school really needs, putting into practice the social and political responsibility of the University, through the actions of its teacher trainers. (BITENCOURT, 2014, p. 107).

Thus, identifying the individuals who are involved in this educational process, and, in a dialogical way, students and teachers recognize each other in the process of teaching and learning will mean the formation of future teachers. In this perspective, Prof. 2 continues the reflection, saying:

*If we look at the students, they changed, the students there [Short Term Degree] didn't have information [at the time there was no access to information on the internet], but they ran after it to do it. The students here [Full Term Degree] have a lot of information, anything you [teacher] talk to any student, she/he knows something, she/he has heard about it, but if you say: 'let's do something...'. She/he says: "uhum/ok" and nobody is going to do it, they're going to find a way to roll it up, [...] [however] the teacher keeps giving the same lecture, I'm talking about 86, that is, 30 years later, the lecture given by the teacher that was not in a technological world, [...], today [full degree] the information is there totally free, what that student [short degree] wanted to do, today's student [full degree] doesn't take advantage, he wants it done, [...] she/he goes to the internet, she/he finds it ready, and, we teachers, we insist on a dialogue class, and this is somewhat paradoxical, the student has changed, they are not the same students, but this technological implementation that we had in our lives, in these 30 years, it has not reflected in the classroom, with very rare exceptions, we [teachers] have not changed our practices. (Excerpt from Prof. 2's Narrative).*

We note, in Prof. 2's speech, a reflection on the changes that have occurred in society, technological advances, and changes in the profile of students, of yesterday - in the short term degree - and today - in the full term degree. According to Prof. 2, the students of the full term degree, at

present, are surrounded by information, however, he highlights that the trainer professor and the educational system have not followed such technological changes, that is, the trainer professor continues giving the same class of 30 years ago. This fact was also verified in Bitencourt's (2014) research, in which the researcher evidences that,

Besides the structuring of the educational system [...], the crisis can be identified by professors finding [...] students with different profiles from those they were used to, and these students, in turn, pressuring professors for change. (BITENCOURT, 2014, p. 193).

Thus, to obtain a more in-depth characterization and understanding of the students of the Mathematics course we cite the results of Krahe and Bitencourt (2015) research, conducted with a sample of 39 students of the same course in 2014. The authors, from a universe of 39 students, highlight that 16 (41%)

[...] made the choice for the course from the desire/choice to be effectively a Mathematics Teacher. Of these, eight chose to be mathematics teachers because they were influenced by good teachers and entered the Degree by inspiration of the them [...]. (KRAHE; BITENCOURT, 2015, p. 257).

Of these 16 people of the same research, eight (50%)

[...]chose to be Mathematics teachers only because they liked the subject in Basic Education and because of their performance in it. (KRAHE; BITENCOURT, 2015, p. 260).

In addition, the authors point out that the professional choice of the students, because they are mostly workers, was linked to the option of evening courses. However, these students did not show whether or not they wanted to be teachers, leaving the hypothesis that the option for the night course was aimed at the need to work on a different period of their studies.

Other authors also evaluated that the financial condition and, consequently, the need to maintain the employment relationship, may be one of the criteria for choosing night courses, as shown in the following quotation:

Cultural capital - the families of students who choose courses to be teachers have low overall level of education. Since the early 2000s, just over 30% of these students were the first of their families to graduate from high school, and just over 10% were able to complete a higher education. The socio-cultural profile of the most prestigious students in Brazilian Higher Education Institutions (HEIs) is very different. (GATTI et al., 2019, p. 309-310).

Thus, in relation to family schooling, as Gatti et al. (2019) shows, there is a low general level of schooling, which may generate the hypothesis that these individuals do not have a sufficient family income to maintain their studies without having to work. Still in this perspective,

[...] the student probably wanted to take another course, but the socioeconomic conditions she/he had at the time of his choice did not allow her/him to do so, and in this respect, when considering the options, it is noted that the course initially idealized by the individual cannot always be realized, which indicates that decisions are often taken within a framework of real possibilities, given their concrete socioeconomic and cultural context. (KRAHE; BITENCOURT, 2015, p. 261).

In turn, Lapo and Bueno (2003) quoted by Krahe and Bitencourt (2015), when analyzing a group of teachers, show the abandonment of the teaching career, since none of them really wanted to be a teacher and conclude: "Being a teacher was the possible choice at the beginning of professional life. Becoming a teacher appears as the possible and feasible alternative of dreaming of being a doctor, lawyer, veterinarian, etc.". (LAPO; BUENO, 2003, p. 76 apud KHARE; BITENCOURT, 2015, p. 261). This fact becomes perceptible from this data, because many individuals choose the (teaching) course not because they identify with it, but because it is a possible option.

Krahe and Bitencourt (2015) emphasize, based on the results of their research, that in relation to the institution, students end up choosing the State University of Mato Grosso “for being the only one in the interior of the state, more specifically in the region of Cáceres, and for the Mathematics course, because of their understanding facilities in this subject in Basic Education” (KRAHE; BITENCOURT, 2015, p. 263).

Regarding the data from the socioeconomic questionnaire, filled out at the time of enrollment in the admission test, evidenced in the research of Krahe and Bitencourt (2015), the students of the night courses of UNEMAT - Cáceres Campus are,

[...] mostly industrial or commercial workers, public employees (federal, state or municipal), who depend on their own work to maintain themselves. Among the evening course options these students have, they choose the Degree in Mathematics for their performance in this subject during their Basic Education studies. (KRAHE; BITENCOURT, 2015, p. 264).

The analyses show, among other aspects, that the option for the course is related to the importance of the profession (I want to be a teacher), teachers who inspired, alternative option (trampoline), financial conditions, ease of access to the course site (night courses), option that remains (I don't want to be a teacher).

The narratives of the trainers professors of our research relate the University, the conditions of permanence and the profile of the students when they enter in Superior Education with the Basic Education and the teaching practice. Prof. 2 talks about the current full degree course, highlighting what, for him, is one of the great problems at UNEMAT:

*For me, one of the big problems is not joining UNEMAT, it's the policy of permanence, [...] it's not thinking that I'm going to have egress, it's thinking that [...] they'll never leave. That's a policy of permanence. [...]* (Excerpt from Prof. 2's narrative).

In this speech of Prof. 2, the need to maintain the link between the University and Basic Education is highlighted, so that the egresses of the course can maintain the dialogue with the trainers professors and strengthen the exchange in these spaces of discussion and construction of knowledge, enabling a continuous formation. Thus, we agree with Bitencourt (2014, p. 106) who highlights, in her research, the

[...] the need for a closer approach between University and School, [...] since the University develops the initial training of teachers to act at Basic Education Schools and, this current school, needs to feed the University of contemporary discussions for the training of teachers that this school institution demands [...].

Prof. 2 continues his reflection, and narrates about the students that today arrive at UNEMAT and what the Basic Education school is, that is, the teachers that teach Mathematics at this level of Education have influenced the teaching of this student:

*[...] I say that our student who arrives here is a mediocre student, because she/he does not have access to many [...] material goods and cultural goods produced by humanity, consequently this vision of her/him is a vision restricted to the space she/he lives, to the countryside space, to the small town space, to the space of the lack of options for nightlife, to the space of the lack of culture, to participate in a dance group, a music group, a theater, a ballet, so this is the student who arrives [enters university]. And it is a student whose school has been emptied, the school itself has been emptied of what it should teach, to read, to write, to teach Mathematics, Physics, Chemistry, so that the student could enter higher education with a different background. [...] You don't think about Science without thinking Math or Physics or Biology [...] you need to have a very strong Basic Education, and that teaching has been emptied of content. (Excerpt from Prof.2's Narrative).*

And Prof. 2 tells us what often happens in the current degree course, because the student who enters it comes across a trainer professor profile from 30 years ago, who in some cases does not understand that “[...] teaching is not transferring knowledge, but creating the possibilities

for his own production or its construction” (FREIRE, 1996, p. 52). And, the same teacher continues:

*[...] so this student who comes here is the fruit of this emptying, and then I arrive in the classroom, and I still want, in my conception as a teacher, take the book and stick it inside the student's head, stick it in an expository class and I want the student to tell about contents that she/he hasn't seen yet, so this for me is an abyss that we have, the school has been emptied of contents and [...] this teacher is the teacher from thirty years ago [...]. (Excerpt from Prof. 2's narrative).*

As we can see in Prof. 2's narrative, today's schools are failing to adapt to the new demands of society and many of the students who end up at the University are the fruit of this curricular emptying. One of the conditions for an improvement in Basic Education would be to provide an adequate initial education to the current educational demands, but Tardif and Raymond (2000) show that students go through the initial education “without substantially changing their previous beliefs about teaching. And, as soon as they start working as teachers” (p. 217), they do not resignify new possibilities of practices in the teaching learning process, and, “in the context of urgency and intense adaptation that they live when they start teaching” (p. 217), they end up solving their professional problems by always reactivating the same old beliefs and ways of being teachers.

Therefore, changes occur in society, and technological advances have triggered a change in the profile of students, both in Basic and Higher Education, but teachers and the educational system have not followed this transition. That is, the teacher continues to teach the same class as 30 years ago to students who are connected to digital media, surrounded by information. However, they do not have access, in their daily lives, to several cultural assets and basic academic knowledge, because they are restricted to school time that has not evolved as technological means; it has not evolved in material and structural issues, which also restricts the pedagogical action of teachers and, consequently, the acquisition of knowledge by students.

## Final Considerations

In this article, through the narrative of two professors who teach in a Mathematics degree, we seek to understand how the profile of the students of this course has changed over time, and which factors have been contributing to this scenario and to the composition of the scenario of contemporary teacher education.

We found, from Krahe and Bitencourt's (2015) research, in correlation with the narratives of the trainers professors participating in our research, that some factors for the choice of the degree course in Mathematics correspond to the importance of the profession (I want to be a teacher), teachers who inspired, alternative option (trampoline), financial conditions, ease of access to the course (evening courses), option that remained (I do not want to be a teacher), and that these aspects have not changed over time.

The participants of this research, in their narratives, show that they observe a change in the profile of the students due to social changes, especially technological advances. However, they highlight that neither teachers nor educational institutions were able to evolve and keep up with the universe of technology.

Another factor highlighted by one of the researchers is the access to many material and cultural goods produced by humanity, and consequently, to knowledge and information, which is related to the research data of Gatti et al. (2019) that show the low level of schooling (cultural capital) of the families of this type of course's students. In his narrative, one of the teachers highlights that the students live in a small town in the interior of the state of Mato Grosso, with restricted access to the internet at the place of their residences, which does not allow them to expand their world view and perspectives. This factor produces an even greater disparity when related to temporal analysis, at the time of the short degree and full degree, when we think about technological advances, at least in the university space.

A comparison that we highlight is the fact that the two professors who worked in Basic Education even without having concluded the degree emphasized that they already wanted, at that time, to exercise the profession of teacher. We also emphasize that, in the teachers' speech, few students gave up on the short term degree, if compared to the number of students who abandon the Full Term Degree course in Mathematics today.

The narratives show factors that can differentiate the profile of the short term degree students from the current full term degree. One of them is that the majority of the students of the short degree resided in Caceres, and, according to the professors, this proximity to the institution may justify the reduction of the reasons that lead to the abandonment of the course, causing a greater number of students to come together to study in groups, as the professors pointed out when they said that in the short term degree there was collaborative learning. On the other hand, in relation to the full term degree, in which most students do not reside in the same city as the teaching institution (Caceres), there is a lack of identification with the course and a greater number of dropouts. These factors, hypothetically, could generate a distance between the students, but for the trainers professors it was characterized as a lack of commitment to the formation and development of the proposed activities.

The narratives of the trainers professors allow us to highlight a cycle that repeats itself in terms of social changes: the fact that educational institutions have stopped in time in relation to technological advances, causing teachers to continue teaching the same way they did 30 years ago; students who arrive at the university in need of a quality Basic Education and end up, again, finding teachers who have not reflected on their University Pedagogies. That is, their teaching actions continue based on the prevalent models for three decades.

Finally, understanding the possibilities and difficulties present in the researched public institution - sometimes a reflection of a larger conjuncture - when we analyze a sample of the teaching staff and the profile of the

students who come to this institution, the question arises: how is the curriculum of this course contributing to the formation of these professionals? Does this curriculum consider the aspects already mentioned in this research? Which individuals is the curriculum made for? Is this curriculum thought or (re)meaningful by which individuals?

## References

BITENCOURT, L. P. *Pedagogia Universitária potencializada no diálogo reflexivo sobre Educação Matemática: quando três gerações de educadores se encontram*. 2014. 268f. Tese (Doutorado em Educação), Universidade Federal do Rio Grande do Sul. Porto Alegre.

CARVALHO, M. R. V. de. *Perfil do professor da Educação Básica – Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira, Série Documental. Relatos de Pesquisa, n. 41. Brasília – DF, 2018.*

CLANDININ, D. J.; CONNELLY, F. M.. *Pesquisa Narrativa: experiência e história em pesquisa qualitativa*. 2ª Edição. Uberlândia: EDUFU, 2015.

FREITAS, S. M. de. *História oral: possibilidades e procedimentos*. Editora Humanitas, 2006.

FREIRE, P. *Pedagogia da autonomia: saberes necessários à prática educativa*. 22. ed. Rio de Janeiro: Paz e Terra, 1996.

GATTI, B. A.. BARRETTO, E. S. de Sá; ANDRÉ, M. E. D. A. de; ALMEIDA, P. C. A.de. *Professores do Brasil: novos cenários de formação*. 351 p. – Brasília: UNESCO, 2019.

GARNICA, A. V. M.. *Registrar oralidades, analisar narrativas: sobre pressupostos da História Oral em Educação Matemática*. Ci. Huma. e Soc. em Rev. Seropédica v. 32, n.2, Julho/Dezembro, 2010.

GARNICA, A. V. M., A. V. M. História Oral e educação Matemática. In: BORBA, M. C.; ARAÚJO, J. L. (Org.) *Pesquisa Qualitativa em Educação Matemática*. Belo Horizonte: Autêntica, 2004.

IMBERNÓN, F. *Formação docente e profissional: formar-se para a mudança e a incerteza*. 3.Ed. São Paulo, Cortez, 2002.

KRAHE, E. D.. BITENCOURT, L. P.. *Formar-nos professores de Matemática: opção pela profissão ou o que nos restou?* R. Educ. Públ. Cuiabá, v. 24, n. 55, p. 249-269, jan./abr. 2015.

MARCELO GARCIA, C. *Formação de professores: para uma mudança educativa*. Porto – Portugal: Porto Editora, 1999.

TARDIF, M.; RAYMOND, D. Saberes, tempo e aprendizagem do trabalho no magistério. *Educação & Sociedade*, Campinas, p. 209-244, v. 21, n. 73, dez. 2000.

ZATTAR, N. B. da S. *Do IESC à UNEMAT: uma história plural 1978-2008*. Cáceres: Editora UNEMAT, 2008.

Received in june of 2020.

Approved in december of 2020.