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WHO ARE THE BEGINNING TEACHERS WHO TEACH MATHEMATICS IN THE EARLY YEARS OF THE MUNICIPAL NETWORK OF BOA VISTA-RR?

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Abstract: This work consists of an excerpt from a doctoral research, with the guiding question: Who are the beginning teachers who teach mathematics in the municipal network of Boa Vista? The general objective is to build a profile of this group of teachers, being a fundamental element to understand their training needs, since the object of study of the thesis are the training needs of beginning teachers who teach mathematics. The theoretical framework was built based on three central concepts: training needs, beginning teachers and training of teachers who teach mathematics in the initial years. The research methodology includes a questionnaire and partially structured collective interview. The questionnaire was applied to a group of 62 subjects and the interview was carried out with 06 teachers. The results point to a predominantly female professional profile, made up of teachers with up to five years of teaching, mostly trained in private institutions and with a trajectory marked by difficulties in carrying out studies, which interferes, in some cases, in the relationship of subjects with mathematics.

Keywords: Beginning teacher; Mathematics Education; Teaching profile; Early years of Elementary School; Teacher training.

INTRODUCTION

This work is part of the discussions on the training of teachers who teach mathematics and consists of an excerpt from doctoral research that analyzed the training needs of beginning teachers who teach mathematics in the municipal network of Boa Vista-RR”.

In this section, the question that guided the study was: Who are the beginning teachers who teach mathematics in the municipal network of Boa Vista? And the general objective is to build a profile of this group of teachers, being a fundamental element in understanding their training needs. The construction of the profile

of the research subjects was fundamental for the analysis of their training needs in relation to mathematics teaching in the initial years of Elementary School.

The constructed theoretical framework addresses three central concepts: 1) training needs based on studies by Rodrigues and Esteves (1993), Garcia (1999); beginning teachers based on Huberman (1995), Garcia (1999), Papi and Martins (2010), Hobold and Giordan (2014); and training of teachers who teach mathematics in the initial years based on studies by Nacarato, Mengali and Passos (2011).

The section is a survey-type study carried out through the application of a questionnaire with open and closed questions and through a partially structured collective interview. The analysis followed the procedures indicated by Bardin (1977) for content analysis.

THEORETICAL REFERENCE

Studies that deal with the training of teachers who teach mathematics in AIEF, in general, refer to the need to know the content to teach and know *how to teach* this content. This is already present in practically all the works read throughout this study. However, in addition to considering such needs already consolidated by research, we seek to look at other dimensions and aspects related to the challenge of teaching mathematics to children in the current and local context.

The concept of training needs is understood from studies carried out by Rodrigues and Esteves (1993), Garcia (1999), Zabalza (2003) and Galindo (2012). They are understood as drivers of the professional development process and can be related to different phenomena, such as a desire, a will, an aspiration, a need for something or a requirement (RODRIGUES; ESTEVES, 1993), which can be felt or not by the subjects individually and/or collectively, based on the context in which they carry out

their professional activities and due to the inherent incompleteness of the human race.

This conception of training needs as drivers of professional development is interrelated with the understanding of teacher training as a continuous process that extends throughout the personal and professional lives of teachers (GARCIA, 1999; TARDIF; RAYMOND, 2002), with the focus of our study is on the transition stage between initial and continuing training experienced by beginning teachers who teach mathematics at AIEF.

To understand the career initiation stage, focused on in this study, we rely on studies by Huberman (1995), Garcia (1999), Papi and Martins (2010), Hobold and Giordan (2014). These studies enabled us to understand that entering the career is a challenging and, at the same time, exciting moment for teachers, who need support and specific training to experience this moment of “survival” and “discovery”.

We understand the importance and need for continuous training based on the understanding that learning is part of human nature, not only due to the nature of useful knowledge in everyday activities, but, mainly, due to the desire for change, for transformation of a reality that affects us. It bothers us and does not leave us satisfied with what we have already achieved. This way, the perspective of a new tomorrow refers to the character of incompleteness, as explained by Freire (1996), which is why men and women are always driven by new needs.

Believing in this new tomorrow for teaching mathematics in the initial years, we argue that the processes of continuous training of teachers must value their knowledge and enable the development of knowledge necessary for teaching, for this it is essential to know the training needs of the subjects of training.

We understand that teaching

knowledge is multidimensional and has a theoretical-practical character, which implies understanding that the knowledge necessary for teaching mathematics is also multidimensional, therefore, it goes beyond the procedures used to solve mathematical problems and questions, it involves knowledge of a conceptual nature, historical and procedural knowledge in the field of mathematical content, pedagogical knowledge about the processes of learning and teaching mathematics and knowledge about curricular elements and the documents that guide them at national and local level.

Nacarato, Mengali and Passos (2011) explain that AIEF teachers, in addition to knowledge in the field of educational sciences, need to develop a repertoire of knowledge, namely: knowledge of mathematical content, pedagogical knowledge of mathematical content and curricular knowledge. According to the authors, this knowledge must be constructed in part during initial training itself, but must be consolidated in training processes linked to future professional teaching practice, as well as continuing to develop in ongoing training processes.

RESEARCH METHODOLOGY

The research methodology corresponding to this section includes a questionnaire with open and closed questions and a partially structured collective interview. The questionnaire was applied to a group of 62 beginning teachers who teach mathematics in the initial years of Elementary School (AIEF) in the first phase of the research, carried out in the second half of 2016.

It is worth highlighting that in 2016 there were 1,225 teachers working in the initial years of Elementary Education in the Boa Vista-RR Municipal Education Network, according to data provided by the Municipal Department of Education and Culture itself,

and of these, 164 were beginning teachers, which corresponds to the percentage of 13.38%, very close to the data pointed out by Giovanni and Marin (2014) at a national level. Our sample corresponds to 38% of these beginning teachers.

The interview was carried out in the second phase, with a group of 6 teachers who worked at the same school. As selection criteria for the institution where we carried out the interview, we defined: 1) having at least five beginning teachers who taught mathematics at AIEF; 2) availability of subjects to participate in the interview; 3) opening of the school management for our participation in the ongoing training meetings that took place at the school.

The collected data were organized and analyzed interpretively based on the stages of content analysis, according to Bardin (1977) and are presented in the next section.

DATA DESCRIPTION AND ANALYSIS

The data produced in the research shows that 85% of the subjects are female, which reflects the process of feminization of teaching (TANURI, 2000), especially in Early Childhood Education and the Early Years of Elementary School. The publication entitled "Profile of Brazilian teachers: what they do, what they think, what they aim for" (UNESCO, 2004), when discussing the issue of the feminization of teaching in Brazil, points out that this characteristic is stronger in Elementary Education and can be explained by some factors: the male search for better paid jobs in the process of expanding school coverage and the imaginary, which associates education and motherhood, which implies the understanding of school as an extension of the home and the need to have space educational someone who takes care of children.

The subjects of our study are distributed

as follows according to the criteria of year in which they worked and gender, according to Table 1.

Year teaching	Gender		Total
	Feminine	Masculine	
1° ano	09	-	09
2° ano	13	01	14
3° ano	10	02	12
4° ano	15	03	18
5° ano	06	03	09
Total	53	9	62

Table 01: Research subjects according to the year they teach and their gender.

Source: Data collected in the survey, Questionnaire, 2016

The age of teachers varies from 26 to 55 years old, with the majority being between 31 and 35 years old, followed by those between 26 and 30 years old and 36 and 40 years old. Combining these three age groups, we have 88.8% of subjects aged between 26 and 40 years. This result also corresponds to the indicators pointed out by UNESCO (2004), in which it was found that the age range of Brazilian teachers is 37.8 years old, being considered relatively young.

Regarding marital status, 58% of teachers are married, which implies taking on other activities and commitments related to family life in addition to their teaching work. 38% are single.

Regarding teaching time, we obtained the following responses: 27% have been in the profession for three years, 21% have been in the profession for four years, 8% have been in the profession for two years and 7% have been in the profession for 5 years. With these data, we noticed a more significant entry into the teaching career among the research subjects, in the years 2014 and 2015, which coincides with the period in which the last municipal public competitions for teaching were held, which took place in the years 2012 and 2014.

Regarding the year in which the teachers taught during the period of application of the questionnaires, we found that 09 (nine) worked in the 1st year, 14 (fourteen) worked in the 2nd year, 12 (twelve) in the 3rd year, 18 (eighteen) in the 4th year and 09 (nine) in the 5th year. It is noteworthy that the majority of beginning teachers who participated in our research were working in 2016 in the 4th year, which was the year chosen by the Department of Education to have the greatest support from trainers, as a way of preparing students for the Test Brazil, which took place in 2017, when these students were in the 5th year, which implies making beginner teachers responsible for the results to be achieved with the Test.

As expected, the majority of teachers did not take the Specific Qualification for Teaching at secondary level. Only 03 responded that they took this course and, practically, all the teachers in our research studied a degree in Pedagogy. All teachers completed their undergraduate courses between 2006 and 2014, with 77.4% completing it between 2010 and 2013. And knowing that beginning teachers have a maximum of 05 (five) years in the profession, we can infer that our subjects managed to enter their careers in the first few years after completing their degree. These data coincide with the results of research presented by UNESCO (2004), which indicates that the majority of teachers already begin their professional lives in teaching before completing their degree or in the first years after completing qualification courses.

As other studies point out (GATTI; BARRETO, 2009; GIORGI et al., 2011; UNESCO, 2004), 79% of teachers studied at private institutions. In addition to the Degree in Pedagogy, 27% of these teachers studied another degree. Among the other degrees taken, courses in Geography, Chemistry, Literature, Biology, Mathematics, Physical Education and History were mentioned.

Regarding the professional status of the teachers, they all responded that they are public servants and are part of the permanent staff of the municipality of Boa Vista-RR. This same information had already been provided by the Municipal Department of Education and Culture, explaining that public inspection bodies did not allow selection processes to be carried out to hire teachers.

However, although we do not have numerical data, we found in direct contact with teachers that, in addition to carrying out the activities of their effective employment contract, they carry out after-hours activities within the network as hourly teachers. This involves working double shifts as teachers, sometimes at the same school and other times at different schools.

This situation is not restricted to beginning teachers, but there is such a significant number of teachers working double shifts that fortnightly meetings in schools take place during the night shift, when it is possible to bring together even teachers who work in another network.

We understand that this is an element that weakens the training process at school, as it involves a third shift of work, when teachers are already tired from the daily shift.

To build this profile, we chose to ask an open question regarding teacher capacity, which was driven by information given by SMEC that beginners must be sought out in schools further away from the city center. The question was: *Why are you assigned to this school? Was it your choice?*

In the answers we obtained, 50% of the teachers said that it was not their choice to be assigned to the school where they were working and that if they could, they would work closer to their homes, however, it was very difficult to get a place in closer schools, and the rest They responded that it was their choice to work at the school where they are

assigned, because it is close to their homes and they do not intend to change.

The situation of placement of beginning teachers in more distant schools coincides with the results of the study carried out by Giovanni and Guarnieri (2014) when they point out that these teachers, in general, are sent to places of greater social vulnerability.

In the second phase of the field research, with the partially structured interview(s), our subjects constituted a group of six teachers, only one of whom was male. They all worked at the same school, with classes from the 2nd to the 5th year of elementary school.

It was possible to identify in the teachers' statements that, in general, they have a life story marked by difficulties in studying, especially when it comes to accessing and remaining in Higher Education, whether because they live in rural cities or because they started a family before complete high school or enter higher education. In the speech of one of the teachers, we also see a certain similarity with the data presented by UNESCO (2004), when it points out that the level of education of Brazilian teachers' parents is very low, corresponding to a percentage of almost 50% with only incomplete primary education.

When referring to the option for teaching, only two teachers say that they identified with the profession even before completing their degree and, among the reasons that may justify this option, they highlight their participation as teachers of Bible schools in their churches. One of the subjects even highlights that his religious background is very significant, to the point that he learned to read through contact with the Bible. The same professor, while valuing the religious dimension of his training, does not seem to perceive the same meaning in his academic training, which is evident in his statements about graduation: "[...] studying pedagogy in college, I discovered that everything they said

there I had already learned in Sunday Bible school." For this teacher, the knowledge built in practice seems to offer him the support he needs to be a teacher, which is demonstrated when he says that he taught classes in high school having only completed his own high school in the Youth and Adult Education modality (EJA): "[...] There I worked as a volunteer at a school, but only with high school, I worked there as a substitute teacher, I taught everything... (history, geography, etc.), whatever they told me I played forward [...]"

The other teachers took the course, because it was the opportunity that arose in their lives to continue their studies or to get a job more easily within the social and economic conditions in which they lived. It is worth noting that one of the teachers pointed out in her speech that she resisted a lot to enter the Pedagogy course and even when she was studying undergrad, she thought about giving up during the first semesters. Identification with teaching only began to emerge with the experience of curricular internships, even so, the teacher says that she really enjoyed her first two years in the profession, but she was thinking about the possibility of leaving the classroom, as she felt disillusioned with the classroom, his desire is to work in the administrative area of the school.

Regarding their relationship with mathematics, in this first moment of the interview in which they were asked to talk about their insertion in the teaching career, only two teachers spoke about their relationship with mathematics. The two said that they consider that their mathematical training was deficient and, therefore, they had difficulties working with this subject. One teacher said that she still worked with classes until the 2nd year, as she was able to teach mathematics content until this year and another teacher explains that she even had mathematics "trauma", however, today she is

able to work on the subject even with classes that require more mastery of the content, as is the case in the 4th year of Elementary School.

CONCLUSIONS

The profile constructed of teachers who teach mathematics in the initial years of the Boa Vista municipal network indicates a predominantly female group (85% of subjects), aged between 26 and 40 years old, with more than half being married subjects. The majority of subjects completed their degree between 2010 and 2013 and entered teaching shortly after completing their degree, between 2014 and 2015.

As other studies reveal, we found that 79% of the subjects graduated from private educational institutions, and in the interview the teachers indicated weaknesses in the courses they took, especially in relation to the subject focused on the study of Mathematics. The only Mathematics graduate showed, on

the other hand, that mastering the content was not enough to feel trained as a teacher, which is closely related to studies on teaching knowledge, which are complex, plural and of different origins.

Mathematics teaching in more advanced years (4th and 5th years) has a greater male presence than in the literacy cycle (1st to 3rd years), which may highlight a gender issue related to the teaching of content considered more difficult. Some teachers even expressed the challenge it is/was to teach mathematics classes in more advanced years.

Knowing this profile of beginning teachers is essential for planning continuous training actions in the municipal network of Boa Vista, bearing in mind that the professional life cycle, knowledge, needs, fears and desires of the subjects must be the point of departure. starting of any training process whose purpose is to value the teacher in training.

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