



Future teachers learning about the teaching practice in a distance course degree

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ABSTRACT. This article is the result of an investigation that employed the Teaching and Learning Focus (TLF) as a strategy to investigate what future biology teachers have learned about teaching. The analytical tools of the Teaching and Learning Focus were based on the writings of 71 memorials of undergraduates in Biological Sciences attending supervised internship in a teacher training graduation at a public university. The results show that these prospective teachers outline what they have learned about teaching in topics such as interests, attitudes, knowledge, and skills. They also think about teaching as an articulation between their selves, their practices, and their social context. We conclude that TLFs are important analytical tools not only for teacher training programs and for the training needs of these prospective biology teachers, but also for their identity constitution.

Keywords: memorials; supervised internship; teaching practice.

Aprendizagens sobre a docência de futuros professores em uma licenciatura EAD

RESUMO. Este artigo resulta de uma pesquisa que abordou os Focos da Aprendizagem Docente (FAD) como estratégia de investigação de aprendizagens da docência. O objetivo da pesquisa foi investigar o que futuros docentes de Biologia aprenderam sobre ensinar. O instrumental analítico dos Focos da Aprendizagem Docente incidiu sobre escritos oriundos de 71 memoriais de licenciandos de Ciências Biológicas cursando estágio supervisionado de formação de professores em uma universidade pública. Os resultados mostram que os futuros docentes centralizam o que aprenderam sobre ensinar em torno de temas como interesses, atitudes, conhecimentos e habilidades, assim como pensam a docência na articulação entre seus eus, suas práticas e seu contexto social. Concluímos que os FAD são importantes ferramentas analíticas não apenas das aprendizagens da docência e das necessidades formativas desses futuros docentes, mas também da sua constituição identitária.

Palavras-chave: memorial; estágio docente; prática docente.

Aprendizaje de la práctica docente según futuros profesores en un curso a distancia

RESUMEN. Este artículo resulta de una investigación que abordó los Focos del Aprendizaje Docente como estrategia de investigación de aprendizajes de la docencia. El objetivo de la investigación fue investigar lo que los futuros docentes de Biología aprendieron sobre enseñar. El instrumental analítico de los FAD se centró en escritos provenientes de 71 memoriales de estudiantes en Ciencias Biológicas cursando pasantía supervisada de formación de profesores en una universidad pública. Los resultados muestran que los futuros docentes centralizan lo que aprendieron sobre enseñar en torno a temas como intereses, actitudes, conocimientos y habilidades, así como piensan la docencia en la articulación entre sus eus, sus prácticas y su contexto social. Concluimos que los FAD son importantes herramientas analíticas no sólo de los aprendizajes de la docencia y de las necesidades formativas de esos futuros docentes, sino también de su constitución identitaria.

Palabras clave: memoriales; pasantía supervisada; práctica docente.

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Introduction¹

What do teachers need to know in order to teach? How do teachers learn to teach? Moreover, what do they need to know in order for their teaching to result in the consolidation of the content taught to students? According to Mizukami (2004), many researchers have studied the teaching process and the professional knowledge foundation “[...] from a plurality of theoretical and methodological perspectives” (Mizukami, 2004, p. 33). The author also explains that this has created a research paradigm, the paradigm of the teacher’s thought. This paradigm helps teachers to create a basic knowledge for teaching, consisting of “[...] a body of understandings, knowledge, skills, and dispositions that are necessary for the teacher to provide teaching and learning processes in different areas of knowledge” (Mizukami, 2004, p. 38)

Santos and Freitas (2011) and Imbernón (2000) agree that the knowledge and skills required for teaching have originated at different times in their lives, including their classroom experience during graduation, when they started their professional careers, in exchanges with other teachers as they shared their classroom experiences, and reflect about their teaching practice. All these characteristics are a continuous learning process for the construction of the process of becoming a teacher in order to meet the different demands of a complex institution: the school (Morales & Oliveira, 2010). But, after all, knowing that the processes of teaching and learning to teach are complex, would there be a method for analyzing or at least highlighting what these teachers have learned about teaching? Do teachers give signs and evidence of what and how they have learned regarding teaching learning?

An approach to the Teaching and Learning Focus

To answer these questions, we might use the Teaching and Learning Focus (TLF) as an analytical tool to try to highlight what teachers need to know in order to learn to be a teacher. The Teaching Learning Locus (TLF) is an analogy made by Arruda, Passos and Fregolente (2012). This analogy refers to the Learning Science Focus (LSF) found in “Learning Science in informal environments: people, places and pursuits” (National Research Council [NRC], 2009). The LSFs function as a group of six specific scientific skills that are associated with scientific learning: scientific interest [focus 1]; scientific knowledge [focus 2]; scientific practice [focus 3]; reflection on science [focus 4]; scientific community [focus 5]; and scientific identity [focus 6]. According to Arruda et al. (2012), these focuses allow the characterization of science learning, and might be used as general categories to highlight this learning. Since each of these focuses represents learning, there is a link between them, an interconnection where “[...] the progress of one contributes to the development of the others” (NRC, 2010, p. 4). These LSFs have supported the construction of Teaching Learning Focus (TLF), which have been organized as the main categories of the teaching learning analysis for any learning environment.

From Table 1, Arruda et al. (2012) created Table 2 (below) by means of an adaptation and theoretical expansion that supports each one of the categories, as far as teacher training and performance are concerned.

Table 1. Teaching and Learning Focus (TLF).

| | |
|----------------------------------|---|
| Focus 1 [scientific interest]. | The student experiences interest, emotional involvement, curiosity, and motivation to learn about phenomena of the natural and physical world. |
| Focus 2 [scientific knowledge] | The student understands and uses the main concepts, explanations, arguments, models, theories, and scientific facts created for the understanding of the natural world. |
| Focus 3 [scientific practice]. | The student engages in scientific practice by manipulating, testing, observing, generating, and explaining scientific evidence, redefining theories and building new models based on observation and experimental data. |
| Focus 4 [reflection on science]. | The student reflects on science as a way of knowing, on its history, on scientific processes, concepts, and institutions and on his/her own learning process about the phenomena. |
| Focus 5 [scientific community]. | The student participates in activities developed in a scientific community and learns the practices with others, using the scientific language and tools, assimilating values from this community. |
| Focus 6 [scientific identity]. | The student thinks about himself as an apprentice of science and develops an identity as someone who knows, uses, and sometimes contributes to science. |

Source: Adapted from Arruda et al. (2012, p. 26).

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Table 2. Teaching and Learning Focus (TLF).

| | |
|--|---|
| Focus 1 [interest for teaching]. | The student experiences interest, emotional involvement, curiosity, and motivation, mobilizing himself/herself to exercise and learn more and more about teaching. |
| Focus 2 [practical knowledge of thinking]. | From the knowledge in action and based on the reflection of action, the student develops the knowledge of cases, a repertoire of didactic and pedagogical experiences that guide their daily practice <i>in actu</i> . |
| Focus 3 [reflection about teaching]. | Faced with the new problems arising from his/her practice, which he/she was unable to solve at the time they occurred, the future teacher, based on theoretical instruments, systematically analyses the situation, engaging in research and reflection a posteriori on his/her practice and his/her accrued knowledge of it, in order to solve the problems initially detected. It is about developing the research dimension in the future teacher. |
| Focus 4 [teaching community]. | The student participates in activities developed in a teaching community, learns the practices and language of teaching with other teachers or future teachers, assimilating values of this community and developing collective reflection. |
| Focus 5 [teacher identity]. | The student thinks of himself/herself as an apprentice of teaching and develops an identity as someone who will become a teacher by profession in the future. |

Source: Adapted from Arruda et al. (2012).

In Table 1 we can observe six categories, while in Table 2, about teacher learning, these categories were reduced to five. Scientific knowledge and scientific practice, focuses 2 and 3, respectively, were merged to give rise to the focus on practical knowledge. The authors claim that in “[...] knowledge of teaching, the separation between theory and practice is not clear” (Arruda et al., 2012, p. 30).

The analogy of science learning focuses is used because the authors understood that, like the scientific (or science) learning, the process of becoming a teacher is also a learning process. These focuses could also be used as an analogy to understand and discuss how teachers learn to be teachers in practice. At this point, the conceptualization made by Arruda et al. (2012) differs from the science learning, because here we are dealing with the skills and competences needed when teaching. As we deepen this reference, we will demonstrate how the authors built this analogy by creating the Teaching and Learning Focus.

Passos (2004) explains that the learning of the teaching profession depends on the interest and availability of the future teacher. In other words, the motivation and mobilization of the learner are critical in the process of learning to be a teacher. In this sense, we should give more importance “[...] to the motives of action of the teacher, because we have educated the minds, but not the desire, we do not educate the will” (Sacristán, 2005, p. 26). (Sacristán, 2005, p. 26). In view of this, Arruda et al. (2012) created focus 1, centered on the development of interest in teaching. Focus 1 is then, called ‘interest in teaching’.

In order to develop the second focus, Arruda et al. (2012) concentrated on knowledge in action and reflection in action. To this end, they united focuses 2 and 3 of scientific learning. Knowledge in action would be the knowledge that the teacher possesses, and as it is accrued over time, it might be identified as the knowledge of cases, related to their practice (Garcia, 1992). The reflection in action is that which takes place in *actu*, when the teacher needs to respond to a problem situation that arises at the time of class. We understand that this type of reflection is a great indication/instrument of teaching learning, because it allows the teacher to confront his convictions when facing a problematic reality. Although in this case circumstances such as time pressure, for example, do not allow for the accuracy of a systematic analysis of the case. These two types of knowledge (knowledge in action and reflection in action), since they are merged with practice, make up the focus of practical knowledge. Thus, focus 2 is called ‘practical knowledge of teaching’.

Reflection about reflection in action would be an analysis that the teacher does a posteriori when he/she faces a problem in class. With time and theoretical tools, the teacher would have the opportunity to reflect on his/her pedagogical practice in the classroom, and could change it or not. It is therefore, an investigation of the practice itself “[...] laying the foundations for what has been agreed to be called the research teacher” (Pimenta & Lima 2004, p. 20). This, in some way, reminds John Dewey in his book ‘How We Think (*Como pensamos*)’ (1959), in which he presents the theory of investigation not separating thought and feeling from action, referring to the third TLF, that of reflection on teaching. Although Arruda et al. (2012) have not used Dewey in their references, it would be possible to perceive the dialogue between the learning focus and ideas of Dewey. In analyzing the role of reflection in experience, Dewey (1979, p. 165) notes that thought/reflection is “[...] the discernment of the relationship between what we try to do and what happens

as a consequence". In this sense, reflective experience is conceived as thinking about the action and its effect. Reflection a posteriori on the teaching action would be a provocative element of a higher quality experience, making it more meaningful.

Pimenta (2002) explains that the reflective teaching practice, because it is a social practice, can only occur from collectives. The author argues that schools should be transformed into "[...] learning communities in which teachers support and stimulate each other" (Pimenta, 2002, p. 26). Schön (1997) provokes us by saying that reflective practical teaching might produce significant changes in the school, and therefore should not be an isolated practice, therefore involving all teachers in the school. This leads us to a better explanation of focus four, called 'teaching community'.

The last focus is on identity, which is also one of the traditional issues, especially in teacher training research (Passos, 2004). According to Mockler (2011), teaching identity would involve three dynamics: the external environment of politics, the professional context, and personal experience. Each of these dynamics presents different movements of 'being a teacher' resulting in a qualitative improvement "[...] from the involvement and understanding of oneself, of the working field, or political spheres" (Iza et al., 2014, p. 276). In the same way, we understand that although it is along the profession that the teaching identity is constructed, it is during the process of their initial formation, especially in the discipline of Supervised Internship, that its foundations are laid (Pimenta & Lima, 2004). These arguments make up the fifth focus on the development of the teaching identity, named 'teaching identity'.

From the theoretical framework presented above, we can resume the focuses of teaching learning, developed by Arruda et al. (2012) from the analogies established with the focuses of scientific learning.

According to Moryama, Passos and Arruda (2013) every aspect of TLF might bring with it evidence related to the process of teaching knowledge/learning. Each focus represents a dimension of teaching learning, which we know does not occur in distinct compartments and in an individualized way. Arruda et al. (2012) explained that AfDD may be used in many contexts of learning environments such as "[...] disciplines like Supervised Internship and in small teaching practice training courses such as PIBID" (Arruda et al. 2012, p. 44). In the context of this research, we used the Teaching and Learning Focus to outline the speech of the investigated subjects (Biology undergraduates) who attended the Supervised Internship in an OLD Biology undergraduate degree, about what they had learned about teaching. The use of TLF is justified, therefore, because we understand that this tool is a set of intersection of much other knowledge related to teaching learning. By using the students' narratives, we have had access to these aspects of the knowledge on teaching learning, considered as evidence of what such subjects have learned about teaching.

Study context, research subjects, and empirical material analysis

The research reported here took a qualitative approach, through the (self-)biographical narrative research carried out from a comprehensive-interpretative perspective. We chose this approach for its ability to demonstrate the historical-social context of the investigated subjects and their emotions and internal conflicts, among other factors (André, 1995; Passeggi, 2010, Souza, 2014). The empirical material emerged from the reading of 71 training memorials of the students of an open distance learning biology course of a public Institute of Superior Education, who were finishing their degree. All of them signed an informed consent form, thus allowing the reading of the material for analysis.

According to Souza (2006) the comprehensive-interpretative analysis of narratives aims to highlight the relationship between the object and the training practices, its objectives, and the research process. In this context, one of the types of (self-)biographical writing common in Brazilian undergraduate programs is the written memorial. During the supervised internship, students are required to write, through memorials, about their experiences in the classroom. According to Passeggi (2010), the memorial has been built and modified according to the developments in higher education in Brazil. Defending this practice, the author defines it as an academic social practice, explaining that "[...] while institutionalized narratives of life, they should introduce the problem of reinventing oneself in an injunction of institutional context" (Passeggi, 2006, p. 203-204).

The teacher training in Biological Sciences herein investigated is officially of four years. Most of the time the students do not see their teachers in person, because this degree is in the distance mode. The interaction is mainly through a virtual platform called Moodle where students can communicate with each other and with teachers and tutors. In the last supervised stage (in all there are three stages) the students

start writing the training memorial. In this text they report and reflect on their classroom experiences, confronting them with what they have learned during their degree and throughout their lives. The empirical material that emerged from the memorials was submitted to the an analysis inspired by the comprehensive-interpretative analysis, following the script summarized by Maknamara (2015) from Souza (2014). Thus, it was possible to detect regularities and discontinuities in the set of oral and written narratives of the investigated subjects, as described by Souza (2014). To address the research question, each case was organized around the TLF (Table 2) involving beliefs about teaching and perspectives about how Biology teachers should or could think and act. Next, we begin the discussion on key issues that emerged from this analytical contribution of their narratives in the training memorials.

Presentation and discussion of results

The numbers of Table 3 correspond to the presence of the teaching learning focuses in the 71 training memorials analysed.

Table 3. TLFs found in the memorials.

| Focus on teaching learning | Number per TLF |
|---|----------------|
| Focus 1 [interest in teaching] | 67 |
| Focus 2 [practical knowledge of teaching] | 55 |
| Focus 3 [reflection on teaching] | 60 |
| Focus 4 [teaching community] | 18 |
| Focus 5 [teacher identity] | 60 |

Source: Developed by the authors

Unlike the results of Lucas, Passos and Arruda (2015), where focus 3 and 4 were the most common, and focus 1 the least common, our analysis identified that focus 1, 3, and 5 were the most present TLFs found in the memorials. The TLF 4 (teaching community) was the least common in our empirical material, a fact that might be explained by realizing that in open learning distance (OLD) education, students take some time to conceive the idea of belonging to a teaching community. It is also believed that the geographical distance and the types of interaction and interactivity established in this course are not enough to provide the necessary behaviors and motivations for a sense of belonging to a teaching community, as also seen in Bittencourt and Mercado (2014). We acknowledge that OLD should not be a distant education, rather, it should be a modality that allows the student to perceive himself as a constituent part of a large community. Therefore, we conceive the fact that although OLD requires autonomy (Costa & Rezende, 2014; Moraes, 2014; Duarte & Maknamara, 2016) above all on the part of its students, it must be materialized with an independence that does not result in isolation and demotivation. The aspects mentioned here are best discussed in the following sections.

FAD 1 - Interest in teaching: between inspiration and internship

This group is composed by all the research subjects who have shown interest, stimulus and motivation, mobilizing themselves in various ways to learn about teaching and the desire to be a teacher. By reading the empirical material collected, we were able to locate the subjects who showed this focus in two main groups: those who were motivated by a teacher from the past (here called 'teacher from the past, especially an inspiration'); and a group in which the interest in teaching only arose after the supervised internships (here called 'internship: is this the final decision?'). In the first group, we highlight some lines:

As I've said before, my interest in teaching has grown since the early grades through my science teacher and only increased with my school development - Bonnie.

Just by watching my teacher teaching, I always saw myself in his place one day. I felt the emotion that was involved in teaching, knowing that the professional, personal, and student life of the students depended on a teacher, how important that profession was in the formation of each one of those students - Paulo

My interest in being a teacher came when I realized how satisfying sharing knowledge is for me and for the students. Since the 8th grade I felt this desire, thanks to my biology teacher who was called Paulo. His way of teaching made me develop the interest in biology and the will to share knowledge - Albert.

The emotions that run through graduates when they remember their school memories show that, for some, the teacher of basic education played an important role in influencing the choice for this profession. Discovering the teaching profession and being affected by it since basic education is also decisive for the subjects heard by Quadros, Carvalho, Coelho, Salviano, Gomes, Mendonça, & Barbosa (2005) and Santos e Freitas (2001). We have noticed that all the students who were inspired by some past teacher in their interest for teaching were able to experience in the internship joy, contentment, and the desire to learn teaching more and more. Within this perspective, Tardif (2002) draws attention to the fact that the 'teaching' profession is one of the first with which students have contact and also one in which we experience its development for a longer term, a fact which might influence the choice for the teaching profession. For Pimenta (2002) this inspiration and interest are linked to the mobilization of the

[...] knowledge from their experience as pupils who learned with different teachers throughout their school life. Experience that allows them to tell which were good teachers, which were good in content, but not in didactics, that is, they did not know how to teach. Which teachers were significant in their lives, that is, they contributed to their human formation (Pimenta, 2002, p. 21).

We also saw that other students were not initially interested in teaching and it was evident in these cases that the moment of interest in teaching only occurred when the internships began. According to Tardif (2002), internship is one of the most important stages in the academic life of a graduate. Pimenta and Lima (2004) explain that the learning of any profession is practical, and that this knowledge, or interest in the profession only takes place when the professional has the opportunity to experience it in practice. The reports of the participants about their internships reveal, therefore, some of the learning that these curricular components have fostered:

I learned to like teaching, the act of teaching is very pleasing, before the internship I had another opinion about teaching - Mary.

At first, I did not give the slightest importance to the profession, often I even said that I would exercise this profession as a last resort. This concept was formed over the years, especially when I developed habits of studying alone, I adapted myself, so much that I was kind of blocked to transmit my knowledge. When I woke up, I was enjoying teaching, and my awakening was when I did the internships - Caroline.

Although the purpose of this work is not to bring reflections about the Supervised Teacher Training Internship, it is inevitable to discuss it in the context of the training of the participants, given the many times it has been cited in the speeches of the students. The Supervised Internship is conceived here as a learning practice through the exercise of functions related to teaching: in this case, acting as a teacher (Imbernón, 2000). The supervised internship provides the graduate with the experimentation and mastery of the theoretical and practical instruments essential to his/her functions as a teacher. If for many of the students, the interest and motivation to teach only came from the supervised internship, it is possible to conceive the internship, therefore, as a door of significance for the future teachers in relation to teaching learning, confirming the results also found by Santos and Freitas (2011).

FAD 2 - The experience as a teacher: a reflection *in actu*?

In this second focus we find all the data referring to the students who have gradually developed, from the reflection in actu an experiential knowledge of cases, that is, a repertoire of pedagogical practices that guide their daily practice at the moment of action. According to Mizukami (2004) the development of a repertoire of cases can help guide the thoughts and reflections of students using them as lenses to think their own work. At first, the expression 'plan B' appeared several times indicating that the trainees reflected on their action and changed their practice during class, because they had a knowledge of cases about school daily life:

What makes me sad during my classes is the fact that many times I did not feel any interest on the part of some students and they, by their turn, made the other students less interested in the class. This reflects negatively on the development of the class since we need to pay attention to what is happening in the classroom and lose focus on the objective of the class, Then we have to use 'B' and change everything that was planned for that moment and try to call the attention of the class to make the class satisfactory - John.

At the beginning I could see this experience in the practice I had planned a lesson to my class and by an unexpected fact the collaborator professor asked me to give this lesson to another class of the same year. When I

arrived there I had to make some adjustments since the methodology was not obtaining the same result in the second class– Elijah.

Thus, it became evident in the lines of the future teachers that several times they had to 'improvise' to “[...] deal with some situation that you are not used to” (speaks of future teacher Ester). Together, these moments of improvisation come together in a repertoire of cases, which are inherently reflective, transforming “[...] experiences lived into shared experiences” (Mizukami, 2004, p. 46). In view of this fact, it is interesting to note that this preparation for improvisational action might be understood as reflecting it in action. According to Schön (1997), reflection is associated with the way one deals with the problems of practice. In this sense, the supervised stage, seen as a window of possibilities, allows the prospective teacher to experience this aspect of knowledge in action and reflection in action. During teaching, this reflective practice in actu can provide teachers with opportunities for personal and professional development, helping them to free themselves from behaviors that might be impulsive and commonplace.

According to Dewey (1964), reflection is an important tool for teaching because “[...] it allows us to know what we are when we act” (Dewey, 1964, p. 211). Which means that when undergraduates focus on this TLF there is evidence not only that they are putting into practice what they have learned in graduate school, but also that their identification with the teaching has grown as their classroom experience increased. This is because we see in the reports how much they enjoyed the classroom experience, and how much they wanted to do their best at that time. Our results regarding this focus are close to Giaimo-Ballard and Hyatt (2012), when the research subjects described the practice of improvisation as a means of analyzing their own teaching procedures to determine the effectiveness of their strategies. They also approach Freitas (2013), when they show that the interaction with students and the assumption of their doubts by the teacher intend to turn the teaching work into something more meaningful and creative.

The idea of improvising while teaching is also connected to the ideas of Schön (1983) when he talks about 'reflection in action'. Thus, this finding resonated in our work in order to perceive reflection (be it at the moment or later) as a necessary tool to improve not only the teaching practice, but also to provide a real experience that helps to build the future teacher. These results are consistent with the current literature because many researchers have noted that one of the goals of reflective practice is to help teachers improve their teaching (Schön, 1997; Zeichner, 2007). This means that, with all the connections this TLF makes, it might be seen as evidence of one of the elements that participants in this research have learned about teaching: reflection during teaching practice. But what about a possible reflection after teaching? That is, a reflection after the fact? This is what we will discuss below

D 3 - The teaching experience and the reflective teacher

This focus concerns the reflections on pedagogical practices carried out after the action, i.e. a posteriori. In this group are all the students who have shown through their narratives that they have made the reflection about reflection in action. Since it is a more systematized reflection, this type of thinking might generate a change in the pedagogical practice of the teacher. Most of the students demonstrated that they had made reflections on their pedagogical practice, indicating that throughout the stages, they perceived some problems in the classroom and later stopped to think about what had gone wrong in class, causing a change in the choice of their methodologies. This might be seen in the following speech:

With each class given, I did my thinking: Is my planning good? Is it meeting students' needs? Is it covering all areas of knowledge? In other reflections on my practice I thought about changing it to meet the reality of the students - Damon.

We understand that this type of reflection about reflection in action allows the teacher to break the action down into the reasons for its practice and the consequences of it (Schön, 1983). In this sense, teachers who reflected on their practice were seeking to solve problems in their teaching, to improve their pedagogical practice. Probably the students who were under this perspective were constantly trying to provide the conditions for learning to take place. Thus, we might say that the reflective practice evidenced in TLF 3 requires from the graduate a constant (self) analysis, responsibility, and sincerity. This is because if reflection is a tool that helps to learn how to teach and improve the teaching and skills that it requires to take place, the practice of reflection must be constant and continuous for all problems, planning, and decisions made (Dewey, 1933; Schön, 1983; Darling-Hammond, 2006).

[...] I continued to observe the classes and I saw that what was happening on the part of the students was not only in one class but in all of them, from then on I began to wonder where the problem was. I started to observe the same classes in different subjects and teachers, and that's where I came across a truth: the problem was not only in the students, but also in the teacher and his old methodologies that did nothing to facilitate learning. From then on I started my internship II, and as I already knew the class that was going to do the internship I started to make my plans taking into consideration its reality. The class had some repeating students and for this subject it did not seem so important, because they had seen it before. So I saw that I would have to use new methodologies where they would really be seeing the same subject, but explained in a different way that would draw the attention of both the repeaters and the level students - Elena.

If we read the above case carefully, we might see that the intern, upon entering the classroom for the first time, observed the teacher of the class of the school-internship field. From her observations, it was possible to conclude what should change in the pedagogical practice, noting the diversity and problems of the class. Moraes and Oliveira (2010) consider that any reflective process is guided by different knowledge, values, and beliefs related to the ongoing process of training experienced by any teacher. The authors confirm what we find in the reports of the research subjects by reading their memorials, that is, that in the process of development and learning how to teach, reflection is personal and contextualized.

At the beginning of Internship II, Elena began teaching lessons based on her reflections from the problems faced in the classroom. We understand that although the student was not reflecting on her own practice - at that moment - she did a *posteriori* reflection on the pedagogical practice of the class teacher in order to elaborate an adequate planning to the problems encountered. This means, according to Pimenta (2005), that this practical work took place even by the observation of the pedagogical practice of others, surpasses the already existing repertoire of the observing teacher, demanding from him a search, an analysis, and a reflection to solve the problems encountered in class. Thus, we stress the importance of observation in the stages. Observing the pedagogical practice of other teachers and the overall functioning of the class favors the planning and execution of classes by the trainees (Krasilchik, 2008), resulting in a knowledge of cases (Mizukami, 2004). - from the observation of the practice of others - and the possibility of a more systematic reflection - *a posteriori*.

As we have noted, the reflection about the teaching practice is once again seen as an important tool in the process of building teacher learning in the context of supervised internship. According to Schön (1997) deep learning occurs when teachers do more than simply describing a fact or an action. The author explains that deep learning occurs when teachers explain not only what they are doing (or what happened), but why. And this 'Why am I doing this?' or 'Why haven't they learned?' is perhaps the key to providing deeper reflection after school. It also underlines the importance of exchanging knowledge and reflections on your practice with other teachers. Which brings us to the next point in our discussion: the teaching community.

FAD 4 - Teaching community: the idea of belonging

This focus of teaching learning was the least apparent in the speech of the students. However, research participants revealing this focus were better able to solve classroom problems with the help of the collaborating teacher. The help of the teaching community was very useful in overcoming fears and anxieties for some trainees, as seen below:

The Supervised Internship III is the last part of a cycle of periods that are dedicated to experience the classroom and in this last stage of internship, my person, as on other occasions, was very well received by all the staff, teachers, and students of the class of the school which I elected as an internship field, identifying that today I am more articulated as a group and that there is among us a synchronism and a team spirit, constituting itself as a strong point for the consolidation of this new phase, making it more pleasant and positive - Tamara.

I was very afraid to enter the classroom, but this difficulty I am overcoming with the help of my collaborating teacher who is helping me to choose pedagogical resources, strategies and tools, both didactic and expressive so that the students feel involved with the classes - John.

We consider the collaborating teacher as someone in constant professionalization, someone aware that he/she carries with him/her the experiences of a teaching career in permanent construction. In this way, the collaborating teacher consolidates in his/her professional exercise several characteristics formed by routine, strategies used, and way of behaving in the classroom. However, the collaborators mentioned here generally do not receive a specific training in order to receive and guide the trainees "[...] which may cause a

gap and possibly be based on their experiences when they were trainees, or even keep themselves in a distance monitoring” (Benites, Souza, Borges, & Cyrino, 2012, p. 19). This gap is even more serious when it is known that not only reflection is important for the teaching exercise, but also the collaboration of a community formed by teachers (Mizukami, 2004).

We were able to observe that all the students who exhibited this learning were able to solve more easily the problems found in the classroom, since they had the help of the collaborating teacher. York-Barr, Sommers, Ghore and Montie (2016, p. 16) noted that the impact of effectiveness might be multiplied through [...] sharing experiences among peers. The authors acknowledge that when teachers reflect, they may share these reflections with other teachers by exchanging experiences and learning. This makes us wonder why this focus was the least apparent in the memorials of the students. If the effectiveness of teaching might be multiplied either when we think together or when we think alone but share experiences from our teaching practice, why the teachers or students from this teacher training program are not realizing this?

The phenomenon of reflective practice in teaching (Schön, 1997) does not need to happen in isolation (Tardif, 2002). The memorials of the students indicated that the practice of reflection in action led them to analyze their own practice and in the case of some, to share this reflection. This resulted in improvements in teaching learning. These discussions in the present study lead us to a further reflection about the supervised stage regarding the way it is organized in undergraduate education. This means that the internship model, the form of accompaniment, and the type of supervised internship greatly affect this category. For example, here the internship is divided into three semesters, but for most of these students there does not seem to be sufficient institutional support to understand themselves as part of a teaching community, which could mean more effectiveness in their work as future teachers.

FAD 5 – To be or not to be? The construction of the teaching identity

As suggested in the title above, the teaching identity is a construction. We could see that most of the students only came to make up more clearly a teaching identity, that is, to think of themselves as a teacher by profession and as a member of a collective, with the internships. One of the points that permeate this TLF is whether the graduate thinks of himself/herself as this teaching apprentice, something we have perceived throughout the reading of the memorials of the trainees.

The curious and magical thing about this profession is that, no matter how much we attend subjects about teaching, no matter how much we read about it, no matter how many tips other people give us, it is only in practice - and little by little - that we really learn what it is to be a teacher. There is always room to grow, change, improve. I learned from the internships that, the teacher I want to be, is not the same as yesterday, but one that is always dynamic, a learner, just like life - Jenna.

As reported by Santos and Freitas (2011), here the Supervised Internship was also an important device to foster the identity of the teacher, especially among those who were in doubt regarding the teaching profession. Moraes and Oliveira (2010) explain that there is a knowledge that is only provided to these students by the practice developed in school. These authors also state that this set of knowledge and practices, in relation to teaching learning, is often not well offered by the undergraduate courses of Brazilian universities. This construction is part of the process of becoming a teacher, as we can see in the report below:

To be quite honest at first, I didn't really like to teach, although I did like to teach in church. But in class it was totally different, I think due to the shyness and lack of practice, but after talking to some people and the Magdalene tutor who helped me a lot and encouraged me to fight for what I want, I started to have more interest and started to develop more the practice of teaching classes. And now in the third stage I know what I really want for my future, I want to be a Science and Biology teacher, and I want to be in class, sharing knowledge with the students - Anna.

The 'formation of 'being a teacher', that is, of his/her identity, involves various issues ranging from his experience as a student at school (Quadros et al., 2005), moving on to initial training (Santos & Freitas, 2011), and then to becoming a teacher in permanent training. It is possible to say that it is in the initial formation that this identity is confirmed, since it is during his/her practice (in the internship) that he/she may get to know himself/herself personally and professionally. The teaching identity, therefore, pervades

countless subjective facets of the human being, which with practice reveal or not the 'process of becoming a teacher. Based on this, Luehmann (2016) explains that:

Using identity as a lens to becoming a teacher highlights the importance of engaging and growing up in the practices of the teaching and science disciplines, the role played by various members and stakeholders in the community of the teacher, the risks involved and ways of navigating these risks, storytelling as an essential aspect of learning, the whole person involved in the learning process (not just the cognitive processes), and ways of comparing activity structures to the available learning resources (Luehmann, 2016, p. 16).

This author also explains that this process of becoming a teacher, of constituting a teaching identity may involve the [...] development of historically grounded narratives about who you are and who you want to be' (Luehmann, 2007, p. 825). The narratives of the subjects participating in this research emerged from their training memorials. Reading this material, we could notice that the classroom experiences are unique and that some research subjects presented greater clarity regarding the constitution of this teaching identity. It was in the supervised internship that many subjects of this research came to build, for the first time, their own narratives about teaching.

Final considerations

The results discussed in this paper make it possible to state that, in view of the knowledge that underlies the teaching and learning focuses (TLF), they might be used as a strategy that highlights the learning of graduates about teaching. In the light of the TLF, these subjects provided evidence on what they learned from teaching including: interests, attitudes, knowledge, and skills to be developed for teaching learning. In this sense, most of the research subjects: showed interest in teaching, became emotionally involved with the teaching work; mobilized to learn more and more; reflected or sought to reflect on their own actions, analyzing them; maintained a dialogue with their collaborating teachers in order to learn more about the teaching practice.

In other words, the subjects of our research, future teachers coming from a graduating course in Biological Sciences, learn to teach through a continuous process of negotiation between their selves, their practices, and their social contexts. This understanding emerges from the autobiographical writing materialized in the training memorials, which have enhanced the elements for evaluation and interrelationship of TFL. By offering perspectives about how to highlight what graduates learn about teaching, this study might also facilitate actions to improve what is conventional for a degree course. The focuses presented here are important tools not only to help in the process of improving teaching and teaching learning, but also to understand how the identity of teachers is constructed throughout his/ her life.

In the wake of these elements of teaching learning, we now ask ourselves what actually happens at other times, other than at the supervised stage, so that the students have not also become aware of them, constituting their teaching identities. This does not seem to be a problem, not only because the internships take place in the last periods of a degree. Despite the undeniable importance of teacher training internships in constituting these teaching identities, what happens outside of them deserves greater attention from those who are concerned with the learning of teaching in a teacher training course. This brings back the debate about the different possibilities of curricular implementation that have been shaping the perception of the awareness of the students about their ways of being and being in teaching. In addition, it was possible to identify through TLF that in OLD courses the lack of presence of the teaching community may represent a problem, since the absence of coexistence with other teachers has had a negative impact on the process of learning to teach of future teachers.

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