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KNOWLEDGES AND TEACHING IDENTITY: AN ANALYSIS IN A BACHELOR DEGREE COURSE IN BIOLOGICAL SCIENCES**MARCOS VINICIUS MARQUES DA SILVA¹**ORCID: <https://orcid.org/0000-0001-6009-3729>**KARLA JEANE COQUEIRO BEZERRA SOARES²**ORCID: <https://orcid.org/0000-0001-5855-8259>**MARIANA GUELERO DO VALLE³**ORCID: <https://orcid.org/0000-0001-5203-370X>

ABSTRACT: This paper aimed to analyze the mobilization of teaching knowledge and the process of building the teaching identity of students in a Bachelor's Degree course in Biological Sciences. To do so, semi-structured interviews were conducted with six undergraduate students finishing the course. The interviews were audio recorded and later transcribed and analyzed through a qualitative approach, using the hermeneutic-dialectic method. Through this analysis two categories emerged: Spaces of (re)construction and mobilization of knowledge and Feeling like a teacher: professional identities under construction. The results showed the construction and mobilization of a series of knowledges inherent to the teaching profession that, in turn, carry traces of the students' teaching identity. Moreover, they revealed that this identity is changeable, collectively built, depends on the recognition of other social actors involved in this process for it to be assumed and is based mainly on two types of knowledge: the disciplinary and the experiential.

Keywords: teacher education, teacher knowledge, teacher identity.

SABERES E IDENTIDADE DOCENTE: UMA ANÁLISE EM UM CURSO DE LICENCIATURA EM CIÊNCIAS BIOLÓGICAS

RESUMO: O presente artigo teve por objetivo analisar a mobilização de saberes docentes e o processo de construção da identidade docente de alunos de um curso de Licenciatura em Ciências Biológicas. Para tanto, foram realizadas entrevistas semiestruturadas com seis licenciandos em fase de conclusão do referido curso. As entrevistas foram gravadas em áudio e posteriormente transcritas e analisadas por meio

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de uma abordagem qualitativa, utilizando-se o método hermenêutico-dialético. Por meio desta análise emergiram duas categorias, a citar: Espaços de (re)construção e mobilização de saberes e Sentir-se professor: identidades profissionais em construção. Os resultados demonstraram a construção e mobilização de uma série de saberes inerentes à profissão docente que, por sua vez, carregam traços da identidade docente dos licenciandos. Ademais, revelaram que esta identidade é mutável, construída de forma coletiva, depende do reconhecimento de outros atores sociais envolvidos neste processo para que seja assumida e está pautada principalmente em dois saberes: os disciplinares e os experienciais.

Palavras-chave: formação de professores, saberes docentes, identidade docente.

CONOCIMIENTO E IDENTIDAD DOCENTE: ANÁLISIS EN UN CURSO DE PROFESORADO EN CIENCIAS BIOLÓGICAS

RESÚMEN: Este artículo tuvo como objetivo analizar la movilización del conocimiento docente y la construcción de la identidad profesional de los estudiantes de una carrera de Licenciatura en Ciencias Biológicas. Para ello, se realizaron entrevistas semiestructuradas a seis estudiantes en la fase de conclusión de dicho curso. Las entrevistas fueron grabadas en audio y posteriormente transcritas y analizadas con un enfoque cualitativo, utilizando el método hermenéutico-dialéctico. A través de este análisis surgieron dos categorías, a mencionar: Espacios de (re)construcción y movilización del conocimiento y Sentirse docente: identidades profesionales en construcción. Los resultados evidencian la construcción y movilización de una serie de conocimientos inherentes a la profesión docente, que, a su vez, llevan huellas de la identidad profesional de los egresados. Además, revelan que esta identidad es mutable, construida colectivamente, depende del reconocimiento de otros actores sociales para que se asuma y se fundamenta principalmente en dos tipos de saberes: disciplinarios y vivenciales.

Palabras clave: formación de profesores, enseñanza del conocimiento, identidad docente.

INTRODUCTION

Teacher education has been consolidated as an object of academic research in Brazil and has become the focus of educational policies due to the important role played by teachers in education. In this context, there is a need to review the training of these professionals, aiming to overcome the training models that place the teacher as a mere technical reproducer of knowledge, and teaching as a craft devoid of knowledge (GAUTHIER *et al.*, 2013).

The new perspectives for teacher education argue that teaching goes far beyond just knowing the content or passing on knowledge. In this sense, they affirm the existence of a repertoire of knowledge specific to the teaching profession that differentiates it from other professions and gives teachers greater competence for the exercise of their practice (GUIMARÃES, 2004).

In view of the diversity of researches that discuss the knowledge inherent to the teaching profession, Puentes, Aquino and Quillici (2009) identified different nomenclatures that refer to this knowledge. Among these, the ideas of knowledge (PIMENTA, 1999; FREIRE, 1996; CUNHA, 2004; GAUTHIER *et al.*, 2013; TARDIF, 2014), knowledge (SHULMAN, 1986; GARCÍA 1992), and competencies needed for teaching (MASETTO, 1998; BRASLAVSKY, 1999; PERRENOUD, 2000) stand out.

The authors state that, although it is represented by different terms, the conceptual meaning for the set of systematized capabilities required for the exercise of teaching is similar in all the works analyzed. Campelo (2001) also points out that, although there is a diversity of nomenclatures to designate teachers' knowledge, the studies that address this issue share the same goals: to contribute to the construction and recognition of the teaching identity and to train teachers who develop a teaching that is coherent with the socially established purposes for education.

In the present work, we will assume the concept of "knowledge" that, from Tardif's (2014, p. 60) perspective, involves "knowledge, skills (or aptitudes), and teaching attitudes [...]". This same author places teaching knowledge at the interface between the individual and the social. Moreover, he points out that although the existence of this knowledge depends on the teachers, who are individually engaged in a practice, this knowledge is also social, because it is shared by individuals who have the same education and is produced through relationships established among different groups.

In this sense, still in the perspective of the author, it is in the daily work, amid the adversities of the profession, that teachers evaluate and re-signify the knowledge acquired throughout their life stories and professional training, developing a knowledge composed of different knowledge, coming from various sources, through which they understand and dominate their practice. Thus, Tardif (2014, p. 36) defines teaching knowledge as "a plural knowledge, formed by the amalgam, more or less coherent, of knowledge arising from professional training and disciplinary, curricular, and experiential knowledge.

According to Pimenta (1999), the knowledge linked to experience is the knowledge that has been less highlighted in initial teacher education, and it is necessary to give it an epistemological status, since the mobilization of this knowledge constitutes the first step in the process of building teacher identity. The author emphasizes that considering the teaching practice and the knowledge it produces, it will be possible to overcome the traditional fragmentation of the knowledge of teaching and give it a new meaning in the process of teacher education, as the future professional can constitute his know-how based on his own doing.

From this perspective, it is necessary that undergraduate courses create possibilities for their students to develop knowledge, skills, attitudes and values that help them build a know-be and a know-do that correspond to the challenges posed by teaching as a social practice (PIMENTA, 1999). The Supervised Internship emerges, in this context, as an important curricular component in which, through reflections on their practices, these students can develop their teaching knowledge in a constant process of building their professional identities (PIMENTA, 1999; PIMENTA; LIMA, 2012).

Guimarães (2004) points out that the theme of identity is complex and has different meanings, depending on the viewpoint from which it is analyzed. However, despite being multifaceted, the theorists who study it agree on one point: identity is a process that is built over time and is subject to

constant changes (CIAMPA, 1987; HALL, 2000; SILVA, 2007). Corroborating this idea, Dubar (1997, p. 13) argues that identity:

[...] is not given, once and for all, at birth: it is constructed in childhood and must always reconstruct itself throughout life. The individual never builds it alone: it depends as much on the judgments of others as on his or her own orientations and self-definitions. Identity is the product of successive socializations.

Identity, in this sense, is individual but, at the same time, collective, because it is built within social relationships and depends on the recognition and confirmation of others in order to be assumed. Because it is socially constructed, it can change according to the social modifications suffered by the groups taken as reference, as they change their expectations, values, and identity configurations (SANTOS, 2002). It is understood, therefore, that identity is not fixed or permanent, but a process that develops between the intersubjective, being characterized as a gradual phenomenon, which occurs from interpretations made about oneself, as an individual inserted in a given social context, and can be understood as an answer to the question "who am I at this moment?" (MARCELO, 2009, p. 112).

When discussing more specifically about teacher identity, Pimenta (1999, p. 5) points out that it:

[...] is built, therefore, from the social signification of the profession, from the constant revision of the social meanings of the profession, from the revision of the traditions [...] It is built, also, by the meanings that each teacher, as an actor and author, confers to the teaching activity in his daily life from his values, his way of situating himself in the world, his life story, his representations, his knowledge, his anguishes and longings, the meaning that being a teacher has in his life. As well as from his network of relationships with other teachers, in schools, in unions, and in other groups.

In this way, teachers' professional identity can be defined by how the profession is socially represented and by the social-interactive relationships established between teachers and their students, their families, their work environment, and the people they live with on a daily basis and who may somehow contribute to the (re)construction of their teaching identity - an identity that is not fixed or finished, but that is subject to successive re-significations.

In this perspective, we understand that the search and development of professional identity can be propitiated by teachers' knowledge, and that both this knowledge and the recognition of this identity constitute teaching professionalism and are essential for their professionalization (GUIMARÃES, 2004; CUNHA, 2007). Thus, identifying the nature of these knowledges and the professional identity they can generate becomes pertinent in the sense that it can bring contributions to the valorization of the teaching profession not only in the epistemological scope, but also in the political and social fields, aiming at a teacher education committed to the teaching-learning process in its broadest sense, going beyond the traditional conceptions of teachers as mere technicians who reproduce knowledge. Thus, the present work aimed at analyzing the construction and mobilization of teaching knowledge in the process of building the professional identity of students in a Biological Sciences undergraduate course.

METHODOLOGICAL APPROACH

The research was developed through a qualitative approach (BOGDAN; BIKLEN, 2007) and carried out in the context of a Undergraduate Course in Biological Sciences of a public Higher Education Institution (HEI) located in the northeast region of Brazil. Six undergraduate students who were finishing the course participated in the research, and the selection criterion was the fact that they were enrolled in the Supervised Internship II, a curricular component that integrates the last semester of the course. This presupposes that these students had already taken most of the courses and had had the maximum of experiences that the course could provide, such as participation in laboratories, research groups, events, projects and teaching, research and/or extension programs, etc.

Data were collected after signing the Free and Informed Consent Form - FICF - and by means of semi-structured interviews (LÜDKE; ANDRÉ, 1986). The interview script included questions about the undergraduates' educational background and their experiences during the course. Their identities were preserved by using fictitious names. The treatment of the data obtained was carried out through the hermeneutic-dialectical method, which allows a broad understanding of the research participants' discourse as we place it in their contexts of production (MINAYO, 2010).

The method proposed by Minayo (2010) involves three steps, namely: data sorting, data classification and final analysis. The data sorting stage corresponds to the mapping of the material obtained and the constitution of the research corpus. In this stage, we transcribed the audio of the interviews, through which we were able to identify and select the most representative excerpts according to the general objective of this research.

In the second step - data classification - Minayo (2010) emphasizes the importance of understanding that data do not exist by themselves; they are constructed as they are submitted to questioning based on the theoretical foundation of the research. Thus, we identified recurrences, convergences and divergences between the undergraduates' speeches that led us to the construction of two categories, namely: "Spaces of (re)construction and mobilization of knowledge", in which we identified spaces in which the undergraduates mobilized more expressively the knowledge built throughout the formative process; and "Feeling like a teacher: professional identities under construction", in which were addressed, from the undergraduates' perspective, constitutive aspects of their teaching identities.

After the categorization phase, we went to the last step of the method proposed by Minayo (2010), called final analysis. In this stage the articulation between the data obtained and the theoretical frameworks that underpinned the research was performed. For the analysis of teachers' knowledge, we used Tardif (2014), who classifies them as Knowledge of professional training - knowledge of educational sciences and conceptions coming from reflections on educational practice that guide the activity of teachers, providing a pillar to the profession and some techniques and forms of know-how; Disciplinary knowledge - knowledge defined, selected and transmitted by training institutions that, as the name suggests, refer to the disciplines that the teacher is dedicated to teach; Curricular knowledge - corresponds to the discourses, objectives, contents, and methods that the school uses to select and categorize the knowledge historically produced by humanity in order to elaborate the school curriculum; and, finally, experiential knowledge - knowledge produced by the teachers themselves through experiences lived in the context of professional performance.

The aspects related to the construction of teacher identity were analyzed based on Dubar (2009), Guimarães (2004), Pimenta (1999), and Tardif (2014), who discuss the theme of identity directly or indirectly, understanding it as a process that develops in a social context through intersubjective relationships and that is constantly changing.

RESULTS AND DISCUSSION

Spaces for knowledge (re)construction and mobilization

Throughout the data analysis, we identified different moments that provided greater opportunities for mobilizing knowledge. Among these spaces, the Supervised Internship and the Institutional Program of Teaching Initiation Grants - PIBID stand out. Thus, we divided this section into two subsections in which we discuss the knowledge constructed, mobilized and/or re-signified by the undergraduates in each of these spaces.

The Institutional Program of Scholarships for Initiation to Teaching

Created in 2007 by the Coordination for the Improvement of Higher Education Personnel (CAPES), the Institutional Program of Scholarships for Initiation to Teaching - PIBID - aims to insert undergraduates from the first years of graduation into their future work environment so that they can

develop didactic and pedagogical activities in Brazilian public schools (BRASIL, 2019). Among the research participants, two undergraduate students were part of this program and in their interviews, they presented some reports in which we observed the potential of PIBID in initial teacher education and, consequently, in the process of construction and mobilization of knowledge.

Although they have experienced the school space throughout their life stories, through the PIBID, the undergraduate students began to give a new meaning to this space from another perspective. For a long time they had been students, but during their participation in the program they returned to this environment as teachers. As they realize that the roles have changed, the undergraduate students feel the weight of the responsibilities inherent to the teaching profession and, consequently, develop certain fears regarding professional practice. However, in the midst of this problem, the PIBID appears as an agent for overcoming these fears, at the moment it enables contact with the school environment, as can be seen in the following excerpt:

The most important thing I can say about PIBID is that I overcame several fears [...] the fear of speaking in public, the fear of speaking to other people, I learned to remake my head inside PIBID, so it was very important this part for me, because in PIBID we went there to the school and everything else, we had this contact of going there and I lost all that, I saw that it was not a seven-headed monster (Bruna).

From this excerpt, we can say that, in a way, the program achieves one of its goals by creating possibilities for the professional development of future teachers, who, possibly, when they are in office, will feel less impacted by the "shock of reality. This shock, as Huberman (2007) points out when discussing the professional life cycle of teachers, constitutes one of the aspects of what is called the "survival" stage, in which beginning teachers are faced with the complexity of the professional situation, evidencing the gap between the perspectives and the daily realities of the classroom.

According to Ponte et al. (2001), the first years of the teaching profession are crucial for the development of teachers' knowledge and identity, since they are left to their own devices, having to develop strategies to deal with a variety of professional roles under varied and adverse conditions. Although situated in a different context, through the PIBID, the undergraduate students have their first contact with school reality, and this experience has a significant impact on their education. Through the experiences lived in the scope of this program, the undergraduate students can redefine conceptions about the school, education, the curriculum, the subject, the students and the teaching activity, contributing to the process of building knowledge and their teaching identity that will possibly help them in the exercise of their profession.

We also observed that one of the contributions of PIBID is present in the context of planning, an essential practice for the organization and systematization of the teaching work. According to Padilha (2001), planning comprises a process that has the characteristic of avoiding improvisation and aims to provide answers to a particular problem by establishing the ends and means that will guide the educational action. This can be evidenced in Isabel's speech:

PIBID gave me a lot this idea of planning, the importance of planning, of you thinking "how am I going to teach this class, what activities can I do?" Even the division of how many students have in the class, what activity I can do, how much time I will have for that activity [...] (Isabel).

Besides helping to overcome possible fears related to teaching, contributing to the process of building knowledge and encouraging the practice of planning, the PIBID enables the articulation/mobilization between different teaching knowledge that has been built, which can be observed in the following statement:

In PIBID I learned to write for events [...] I went to two congresses [...] Moreover, there we were very encouraged to plan differentiated classes, to do activities in which students were builders of their own knowledge, so, for example, the work I sent to an event, was about the biomes of Maranhão, which we worked a lot on the issue of regionalism, because in the textbooks they talk about biomes, but not the ones from here, and here there are plenty. It was about a sensitive

trail, and we took several materials that they could smell, hear, even feel, even eat, so it was very cool (Isabel).

Through the knowledge of professional and pedagogical training, the undergraduate proposes a class in which she places her students as protagonists in the learning process and, to develop it, she uses the disciplinary knowledge, through which she can identify the different biomes that make up her state. Through the curricular knowledge, she questions the school program, which most of the time follows only the textbook, and, based on this, she inserts the regional particularities of the context in which she is inserted so that the teaching becomes more representative and meaningful to the students.

An even more interesting aspect evidenced in this report is that the results of this activity were not limited to the classroom: the undergraduate student went beyond the school walls, taking the work developed to events in the area, where she could share the experience with other teachers and encourage the development of similar practices, which would represent an indication of the development of research skills and investigation on the practice itself, processes through which new knowledge can be produced (SCHÖN, 1992).

In discussing the teacher-researcher as a tool for improving science teaching, Moreira (1989) points out that the researcher in teaching is, most of the time, someone outside the classroom and that the results of the research only reach other researchers and do not reach the schools. In the midst of this problem, the author highlights the need to engage teachers in research activities, since, by being in constant contact with the school reality, such professionals would be in a better position to develop it, which could make the results of such research more significant to substantiate their practices.

According to Nunes (2008), research should be the basis of teacher training, as it can enable these professionals to develop a critical awareness of their actions. In the author's perspective, this practice would provide the formulation of research questions consistent with the classroom context. Thus, teachers would assume greater responsibility for their pedagogical decisions, since, based on empirical results, they would be better able to identify under which conditions the didactic strategies adopted would achieve better results.

The Supervised Internship

In the analyzed context, the Supervised Internship is divided into Internships I and II, developed in Elementary School and High School, respectively. All the participants had completed Internship I in the semester prior to the data collection for this research and were finishing the teaching practice phase of Internship II. Our results are consistent with the literature, which highlights the contributions of the Supervised Internship for the construction and mobilization of a series of knowledge related to the teaching work (BACCON; ARRUDA, 2010; MARTINY; SILVA, 2011; CARMO; ROCHA, 2016), since it can enable reflection on professional action, in addition to providing the development of a critical view of the dynamics of existing relationships in the future work environment (BURIOLLA, 1995; PIMENTA; LIMA, 2012).

Upon arrival at the internships, some undergraduates reported the difficulties encountered during the development of their actions. This can be evidenced in the following statement:

(The course) It did not prepare me so much, there are subjects that we see many theoretical things and in practice we cannot associate this to the classroom, I think it is very focused on theory and not for our classroom [...] (Samara).

Samara's speech reveals the weaknesses of her training, which is similar to that found in other teacher training courses, which, most of the time, build their curricula based on subjects that, when isolated from each other, do not show the connections with the reality of everyday school life, which is recurrently confirmed by the speech that "in practice the theory is different" (PIMENTA; LIMA, 2012).

By recognizing the limitations arising from the failures present in the educational process, the undergraduates try to develop, through the experiences provided by the internship, a knowledge that supports their actions in a more meaningful way. During this process, they approach what Pimenta and

Lima (2012) call "practice as model imitation", in which the learning of the profession occurs through observation, reproduction or reworking of the practices observed.

The authors point out that during this process students are able to elaborate their way of being/acting from the critical analysis of the actions of the teachers with whom they live. In this process of building their "I" as a teacher, students adapt, separate and/or add what seems to be more relevant to them, using their experiences and knowledge acquired over time. This can be evidenced, as we will see in the next excerpt, when Samara reports that during her internship she tried to do everything differently from what was done by her supervising teacher:

I made a game about plants, which was of questions and answers, I made parodies to explain about the reproductive cycle of plants [...] I realized that was what drew their attention, because my technical supervisor, who was very strict, his business was to arrive in the classroom, write on the board, explain and that was it, it was over [...]. And then I realized that some students identified better with these other types of activities [...] things they didn't do with the teacher, so I did everything the teacher didn't do. (Samara).

By performing this exercise of shaping her practice against her supervisor's, it is inferred that Samara begins to mobilize her knowledge of experience, which are "those that teachers produce in their daily teaching, in a permanent process of reflection on their practice, mediated by the practice of others" (PIMENTA, 1999, p. 20). Named by Tardif (2014, p. 39) as experiential knowledge, this knowledge "springs from experience and is validated by it. They are incorporated into individual and collective experience in the form of habitus and know-how and know-being skills.

In addition to enabling the construction of this knowledge, the daily practice of the profession also provides an opportunity to redefine the knowledge coming from training institutions (PIMENTA, 1999; TARDIF, 2014). We realize that undergraduates come to the internships loaded with disciplinary, curricular and pedagogical knowledge obtained throughout the training process that, in a way, enable them to build certain certainties about the profession. They study pedagogical trends, methodologies, and teaching strategies and, during the internship, try to apply these techniques, which can be observed in the following statement:

In Internship I, I used a lot of practice so showing things from their daily life, associating it with the class [...] I tried to take some of this to Internship II, only I saw that the students played a lot instead of paying attention, and then I tried to reduce as much as I could, so much so that I did only two practices, but then I did other types of activities (Samara).

We observe that, by analyzing and reflecting on their context, the undergraduates realize which strategies are pertinent or not at that moment and, based on this, they try to establish other alternatives. In this way, everyday experience can be seen as a learning process through which teachers retranslate their training and adapt it to the profession, reformulating what is not pertinent to them and keeping what can serve for their practice (TARDIF, 2014).

The reports of the undergraduates refer, therefore, to what, from Tardif's (2014) perspective, represents a process of knowledge feedback through which future teachers critically resume the knowledge built before or outside professional practice. Through experience, this knowledge is reviewed, judged, and selected by teachers, aiming to build a knowledge made up of all the other retranslated knowledge that will be validated by daily practice. This process can also be observed in the following excerpt, in which Bruna reports the measures taken from the moment she noticed the peculiarities of her Internship II class:

[...] I had a very agitated class and we had to make an agreement with them. So I asked them to ask questions about life, about science. These questions were put inside a little bag and if they let me teach the class well, we would answer the questions at the end of the other class. I saw that with time they accepted the agreement very well [...] so it was really cool, this was a tip from my teacher supervisor [...] (Bruna)

Based on Bruna's account, which highlights the important participation of the supervising teacher who, by advising her, helped her to overcome the situation presented, we can highlight the interactive character of experiential knowledge, which is a knowledge that does not reside wholly in individual subjective certainties, but is configured as a shared knowledge that also emerges from the relationships established between teachers who, on a daily basis, share a practical knowledge based on their experiences (TARDIF, 2014). Such knowledge also emerges from the relationships established between future teachers and their students and from confronting the adversities that daily practice imposes on them. About these adversities, Luiza tells that:

[...] a student said he was not going to do the activity. I called him to talk and he came up to me, saying he didn't want any of it, that it wouldn't make any difference in his life, that he didn't want to study anymore. At that moment I realized that his problem was not with me, it was something he was going through [...] Then I talked to the teacher and she said he had a problem with his family [...] so in this situation I talked to the father, then I talked to the boy, he apologized and I gave him another opportunity to do the activity [...] I did not let that episode be a barrier for me as well as for him (Luiza).

Although uncomfortable, in a certain way, this situation becomes formative, since, through it, Luiza may possibly make reflections that will guide her in future situations that are similar to this one. Moreover, this account leads us to observe the social nature of teaching knowledge, which is also built through the complex relationships that teachers establish with their students.

According to Tardif (2014, p. 50), teaching as a social practice implies the establishment of "a network of interactions with other people in a context where the human element is decisive and dominant and where symbols, values, feelings, attitudes that can be interpreted and decided are present. Still in the author's perspective, these interactions are mediated by discourses, behaviors, ways of being, etc. and demand from teachers not a knowledge about an object of knowledge or a practice, but the ability to behave as people in interaction with other people.

Like Luiza, Isabel also faces an unexpected situation that raises reflections during the development of the Internship. This situation can be observed in the following account

[...] I taught a class on chromosomes and then I talked about DNA, chromatin and chromosomes, all in a single class. I gave the class in slides, I even took a necklace to explain chromatin, chromosome and then, at first everyone liked it, [...] but it was so much content, that there was a time that they gave up [...] it was so much, that in the end they were not understanding anymore and then, when I asked them to do the parody, they didn't want to [...] then I understood that when we put too many subjects, no one can stand it. If I had stopped right then and there and just gone back to the content and tried to do the activity in a lighter way, maybe it would have worked [...] So I think this is cool, because we reflect on what happened. (Isabel).

The experiences lived by the undergraduate students are located in what Tardif (2014) calls conditioning factors of the profession. According to the author, these constraints are related to real situations of the teaching work that are not amenable to finished definitions and that require improvisation and personal ability to be faced. Also from the author's perspective, dealing with constraints is formative, because the teacher can develop habitus (certain dispositions acquired in and through practice), which can "become a teaching style, in "tricks" of the profession and even in professional personality traits that manifest themselves through a personal and professional know-how validated by daily work" (TARDIF, 2014, p. 49).

During this process, the importance of reflection in teaching practice is evident. When facing the constraints of the profession, the undergraduate students recognize their limitations, reflect on their actions and, based on that, try to establish strategies to overcome the problems imposed by daily practice, approaching a profile called by some authors as a reflective teacher (SCHÖN, 1992; ALARCÃO, 1996). According to Pimenta (1999), the teacher, as a reflective professional, is understood as an intellectual in constant training - training that can be understood as self-training, since teachers re-elaborate their initial

knowledge in face of the situations experienced in school contexts in a continuous process of reflection in and on the practice.

Up to this point, we have approached experiential knowledge as knowledge that emerges from practice and situates the teaching work when students feel difficulty in responding to the unexpected situations of daily practice experienced in the internships, as these go beyond the knowledge of professional training. As a result, through experience and reflection on experience, these students build a training based on what some authors call practice epistemology (SCHÖN, 1992), which values professional practice as a space for knowledge construction through reflection, analysis and problematization of this practice.

However, it is important to emphasize that, despite being practical, this knowledge does not emerge only from practice. The importance of practice is undeniable, knowledge comes from practice, but, by placing it solely in this perspective, we reduce all knowledge to its practical dimension, excluding its theoretical dimension and consequently reinforcing a dichotomy between theory and practice (GHEDIN, 2006). According to Pimenta (2006), teaching knowledge is nurtured by theories. These, in turn, provide the subjects with "varied points of view for a contextualized action, offering perspectives of analysis so that teachers understand the historical, social, cultural, organizational contexts and themselves as professionals" (PIMENTA, 2006, p. 24). Thus, it is evident the important and necessary articulation between theory and practice in the process of knowledge construction during teacher education.

The spaces addressed here provided the opportunity to build, retranslate and mobilize different knowledge that helped the undergraduates in the development of their actions and in understanding the complexity that involves the teaching work. We have also observed that these spaces have allowed them to position themselves no longer as students, but as teachers, besides providing evidence that they are gradually building their identities as teachers based on this knowledge. In the next section, we will see the implications of these experiences provided by these spaces and the different knowledges they mobilized for the process of building the teaching identity of these undergraduates.

Feeling like a teacher: professional identities under construction

In an attempt to trace the path of the construction process of the teacher identity, we firstly looked at the motivations that led the participants of this research to choose the licentiate course. With the exception of Luiza and Samara, who said they had chosen the licentiate degree, we noticed that the other participants, a priori, did not enter the course with the intention of becoming teachers. Some students did not even know the difference between undergraduate and bachelor courses, and their speeches suggest that they would like to pursue a career as biologists.

[...] I didn't know that in one semester the bachelor's degree comes in and in the other the licentiate, I didn't know there was this division [...] I chose biology, but not with the intention of teaching, but focused on being a scientist, staying inside a laboratory, I always saw myself this way (Daniela).

Although the initial intention is to train as biologists, we noticed that, throughout the course, the students seem to change their minds about the degree, the themes approached around teacher training, and start identifying themselves with this area, either by affinity with the subjects or by better opportunities in the job market. This can be evidenced in the following excerpt:

[...] nowadays I already realize that if I went back and could choose between undergraduate and bachelor's degree, I would not choose the bachelor's degree but the bachelor's degree, because I think it is something I like, the area of teaching. I believe that there are more opportunities in the undergraduate course and mainly, because I think that in a certain way I found myself in the undergraduate course (Mateus).

During this process of identification with the course and the profession, the undergraduates report some elements that contribute to their training as teachers and, consequently, to the construction of their identity, besides pointing out the factors that hinder this construction. It is important to emphasize that, given the complexity of the theme identity, the teaching identity will be treated here through the aspect of the development of convictions related to the teaching profession (GUIMARÃES, 2004), approaching the role of the analyzed course in the sense of creating possibilities for its students to identify with the profession.

Among the factors that, from the perspective of the undergraduates, contribute to the construction of this identity, the Supervised Internship appears in most of the speeches as a watershed in the process of recognition as a teacher, which can be evidenced in Bruna's speech:

My thoughts about the degree changed drastically even when I did Internship I, until then, I was already accepting the degree, only that I really liked it only after the internship. So, this contact with the school, with the teachers, with the students is very important, and I think that it is only from that point on that we can understand what graduation is (Bruna).

According to Pimenta (1999), analyzing the school context not from the point of view of a student, but from that of future teachers, is one of the steps to be followed in the process of building the teaching identity. As the internship enables contact with the school space, students begin to build their own way of being and being in the profession, positioning themselves no longer as students, but as professional teachers who, through the knowledge they have developed, realize that only what was acquired during the formative process is insufficient or disconnected with reality and, thus, retranslate this knowledge according to the context in which they are inserted. Besides the Supervised Internship, we noticed that the PIBID also plays a fundamental role for the students to identify themselves with the profession:

(The PIBID) taught me to value the profession, taught me to like it, and taught me to be a teacher [...] PIBID trained me as a teacher and Internship I and Internship II made me find myself even more in the classroom [...] (Isabel).

Through the reports involving both the internships and the PIBID, which are moments that strengthen the relationships between the undergraduates and their future work environment, we can evidence what is pointed out by the literature on the need for a differentiated epistemology for teacher education; This takes practice as the starting and ending point for their training, since teachers gradually learn to master their work environment as they enter and internalize it, developing specific knowledge necessary for the construction of their identity in the face of uncertainties, singularities and conflicts inherent in professional practice through reflection in and on the action (PIMENTA, 1999; GUIMARÃES, 2004; TARDIF, 2014).

Aspects related to the curricular matrix of the course are also scored by undergraduates as important during the identification process with the profession. They highlight the specific disciplines of Biological Sciences that give them a content base, and the pedagogical disciplines, which enable the act of teaching. About the specific subjects, we observed that, as Pimenta (1999) points out, they have a strong influence in the process of building the professional identity, constituting, in some cases, as the main factor for this identity to be attributed to the (future) teacher by the other social actors with whom he or she interacts. This can be observed in the case of Daniela, who, when reporting the contributions of the course to her training as a teacher, highlights

The subjects that I learned here (in the course), in a way [...] will help me to build myself as a teacher [...] in matter of having a base even of content, all the subjects that we do in the course, a matter of base in the specific knowledge (Daniela).

We observe that Daniela relies mainly on disciplinary knowledge to build her identity as a teacher. This fact is aligned with the way the teaching profession is socially represented, in which the mastery of content is highlighted as the main factor to characterize a teacher. In a way, this brings negative

experiences to Daniela during the development of Internship I, because the undergraduate was responsible for a 9th grade class of elementary school and was in a situation where she had to teach chemistry, a subject of which, according to the report, the undergraduate had no mastery:

I felt very insecure, I was going to the internship asking to finish, not because I did not want to be a teacher, but because I was not good with students, because I taught chemistry and not biology, I was teaching 9th grade. I felt very bad about teaching in internship I, because it was a content that I had no notion of, we have the discipline of chemistry, but it is something very superficial [...] (Daniela).

This fact brought direct implications to the development of the relationships between Daniela and the teacher who supervised her and also with the students. At the moment that the students perceive the limitations of the undergraduate student in relation to the mastery of the subject, they do not give her the identity of a teacher, which can be observed in the next excerpt:

[...] what bothered me is that when I was going to say something, if I made a mistake, she (supervisor) didn't wait and interrupted me. This bothered me a lot, because the students didn't see me as a teacher, they would turn around and ask her [...] This made me very bad because at that moment I wasn't being a teacher, the students didn't see me as a teacher (Daniela).

However, despite the difficulties faced, the situation changed in Internship II, when Daniela reports that teaching a class about something she knows made all the difference for her students to recognize her as a teacher:

In my second internship, I taught classes on bacteria, on viruses, on fungi, so, many things I learned in the course I took there, like, I remembered a lot of my Microbiology practices when I went to teach a class on fungi [...] when I went to teach a class on diseases in which the students started to say: "Oh teacher, I know such and such a person who has this disease. So [...] this made me see that, in a certain way, I was being a teacher. At that moment, the students: "Teacher, can I go to the bathroom?" "Teacher, I missed an activity, can I make up for it?" So they came to me, as a teacher, they saw me as a teacher (Daniela).

These accounts make us reflect on the collective construction of identity, which is marked by the need for recognition from the other in order to be assumed (DUBAR, 2009). In the case presented, the identity is attributed through the aspect of content mastery; however, it is necessary to seek to re-signify it, in an attempt to avoid a possible "crisis" on the teacher's identity. In today's increasingly globalized society, in which access to information has become much easier, the role of the teacher seems to be emptying. Knowledge is no longer tied to the teacher's image; a simple search on the internet allows a universe of information to be obtained. Thus, the profession that was once essential for this purpose seems to lose its importance in society.

According to Libâneo (2001), professional identity emerges from the personal and social meaning attributed to the teacher. For the author, "if the teacher loses the meaning of work both for himself and for society, he loses his identity with his profession" (LIBÂNEO, 2001, p. 5). In this sense, this identity needs to be re-signified, moving from the restricted aspect of content mastery to that of mediation between knowledge and students, since, although access to information is facilitated, it happens unevenly, and exposure to vehicles of information is no guarantee for its acquisition. Moreover, having information is different from having knowledge: information is only one of the stages in the process of knowledge construction. Knowledge implies working with information, classifying, analyzing and contextualizing it. The teacher's role is, therefore, to help his students operationalize this information, giving it meaning so that, based on this, his students can build knowledge and interpret their realities (PIMENTA, 1999).

As for the subjects offered by the course, the undergraduates emphasize the pedagogical subjects and teaching methodologies and practices as important for the identification process with the profession. However, in addition to the contributions, they also point out the limitations of some of these

courses which, in a way, hinder the process of building a professional identity. A recurring case is related to the subjects called teaching practices. Cited by all the research participants, these courses, from the perspective of the undergraduates, seem to have a strong potential to help in the process of identification with the profession. However, these courses have presented some flaws that hinder this process. Among these flaws, the training of the teacher trainers is pointed out by the undergraduate students as one of the main obstacles.

The lack of specific training in the education/teaching area on the part of the teacher trainers reflects in the way the course is taught. Students report that some teachers have difficulty in establishing teaching and evaluation strategies for the subjects, always asking for the same type of activities, which, according to the students, ends up giving the subjects a repetitive character, besides, in some cases, having no connection with the reality of the classroom, which can be seen in the following excerpt

I think it was very superficial, I couldn't get a practical application of how I could use this knowledge in the classroom. Some proposed activities I didn't see the sense of teaching practice, because for me, teaching practice is what you are going to practice in the classroom. [...] "If you were in a classroom, how would you act?" They should give that kind of situation. "If you were in a classroom and this student asked this?" Play situations that we really see in the educational environment [...] (Samara).

According to Guimarães (2004), the formative practices, which constitute the ways in which the curriculum of the undergraduate course is developed, also have an influence on the process of construction of the teaching identity of future teachers. According to the author, "it is in a specific undergraduate course and with their respective teachers that the students are learning the profession and have it as a reference to build their professionalism" (GUIMARÃES, 2004, p. 57). Thus, it is necessary to give new meaning to the subjects, as mentioned in the reports, with a view to developing a culture of the profession that, when internalized by future teachers, can generate a collective style of perceiving situations, thinking about the problems of professional practice, finding solutions, developing pedagogical competence and creating possibilities for the construction of the teaching identity.

Although the course and the training elements provided contribute to the undergraduates' redefinition of their conceptions about the teaching profession, when asked about their identification with the profession, most of the answers were negative. Only two undergraduates identified themselves as teachers; one of them expresses this identification in the following excerpt:

[...] after the internships, after the teaching practices, finally, I feel like a teacher [...] I will leave here graduated in the course of Biological Sciences Degree, with modality to be a teacher [...] and I already consider myself yes as a teacher, even because I went through the internships, I had this experience, so there they called me as a teacher, I was the teacher. (Mateus).

In Matthew's speech, it is evident the contribution of the teaching practices and mainly the contribution of the experience provided by the internships, in which, through the established interactions, the identity of a teacher is attributed to him by the students and later assumed. As in the case of Matthew, Elizabeth, who also recognizes herself as a teacher, cites the internships as the locus of construction of this identity:

The moment I understood that I was a real teacher was in Internship I, [...] I realized that when you are there, you are exercising what you have learned. Both the Science part and the mediation part, which I think is the coolest [...] when I realized that I was capable of that, or in Internship II, when it got out of control, and it's okay to get out of control and go back to it, even if it's only the next day. You understood that things happened, you can change, it will not be like this all the time, I understood that this is being a teacher and I see myself [...] (Isabel).

We note that the experience provided by the internships is crucial for the acquisition of the feeling of competence in relation to the teaching profession (TARDIF, 2014). By realizing that she is able to mobilize the knowledge that was built throughout her training to deal with the adverse situations of the profession, Isabel assumes herself as a teacher.

The insertion in the workplace, according to Tardif (2014), leads to the construction of experiential knowledge that is transformed into certainties about the profession, in tricks, in models of classroom management and subject teaching. However, these knowledges do not end in the cognitive and instrumental domain of the teaching work; they encompass aspects such as personal well-being in working in this profession, emotional security, the feeling of being in their place, as well as confidence in their abilities to face problems and be able to solve them. Thus, as we saw in Isabel, the development of this knowledge allows the teaching identity to be gradually constructed and experienced in a process in which emotional, relational, and symbolic elements come into play that allow the individual to consider and live as a teacher (TARDIF, 2014).

We realize that when there is difficulty in developing this knowledge, this identity takes time to be assumed. This can be evidenced in Bruna's account, who feels the need for more experience in the classroom:

I think I am still building my identity as a teacher; you know? I think I need a lot more experience in the classroom [...] I have to study a lot of relationships between people to know how to understand the whole environment of a classroom, because we as teachers will have to know how to deal with situations that can happen there. So, I think I still don't have that [...] (Bruna).

Once again, the importance of creating possibilities for the development of experiential knowledge during initial training is evident, since it constitutes the foundation of practice and professional competence (TARDIF, 2014), understood here as "the ability to mobilize a set of cognitive resources (knowledge, skills, information, etc.) to solve a series of situations pertinently and effectively" (PERRENOUD, 1999, p. 30).

When the reality of the future work environment is only evidenced in the internships, which in certain cases may be insufficient, the construction of this knowledge is affected and, consequently, the teaching identity that they could confer. This is evidenced in Samara's account, who still feels insecure about the teaching profession:

[...] I don't consider myself as a teacher yet [...] I need to improve a lot for me to be a teacher [...] I think I need to improve a little more my didactics, my orality, my posture in the classroom, my knowledge [...] If there was some kind of quick course for beginning teachers, I think I would do it, at least for me to have more this firmness to arrive in the classroom and impose myself as a teacher (Samara).

Another factor that seems to hinder the recognition as a teaching professional by the undergraduates, evidenced during the course of this research, is related to the fact that some undergraduates developed what we call a transitory professional identity. The undergraduates who manifested this form of identification recognize themselves or wish to be recognized as biologists, but do not deny the identity of teacher, and may resort to the latter and assume it, depending on the situations and contexts they experience:

I am a biologist with a degree, so if I want to teach biology, I am qualified, I can be a teacher. Now, if I want to work with other things that are not related to the degree, even if I took a degree course, I am qualified, at least that is what the Regional Council of Biology says" [...] So, for me, being in this role of being a teacher depends on the situation (Luiza).

This form of identification can be explained both by the changing nature of identity, which can be constantly re-signified, and by the fact that the course itself provides its students with a hybrid professional identity, as pointed out by Luiza, giving them both the identity of a biologist and the identity of a teacher. However, we noticed that the identity of the teacher seems to remain in the background.

In this sense, we emphasize the need to review the way the professional teaching identity has been represented in the initial training courses, since this training space is the locus of construction of this identity, and the way the institution and the trainers act has direct implications on this process (GUIMARÃES, 2004). Thus, it is necessary a formative model that goes beyond the training of

"bachelors who teach" and, as Tardif (2014) discusses, aims to train professional teachers who, in addition to having mastery over the content they teach and have didactic and pedagogical knowledge, are able to develop a practical knowledge based on everyday experience and, with each new experience, give new meaning to their knowledge, promoting a constant professional training based on reflection from their experiences.

FINAL CONSIDERATIONS

The results presented here indicate that, provided mainly by the Supervised Internships and by the PIBID, this previous contact with the work environment enables the construction, mobilization, and re-signification of different knowledge linked to the teaching profession, which, in turn, carry traces of the teaching identity of these undergraduates, helping them to develop a personal and professional know-how validated by the experience provided by these spaces.

Thus, we emphasize the importance of a more attentive look at internships so that they are not developed as a mere bureaucratic activity that needs to be fulfilled or as the practical part of the course in opposition to theory. We emphasize the same for the PIBID, which also brings very significant contributions to the training of undergraduates, reinforcing once again the need to consider the context where future teachers work, the school ground, as a formative space, since it can be a generator of knowledge and, consequently, of the teaching identity.

Based on the results obtained in this research, we noticed that the professional identity of the undergraduate students is changeable, collectively constructed; it depends on the recognition of the students to be assumed and is based mainly on two types of knowledge: the disciplinary and the experiential. However, we emphasize the importance of creating possibilities for the development of other knowledge, in the sense of not restricting the teaching profession to the mastery of the discipline alone, or to an activity that depends strictly on practice to be performed.

We hope that the results and reflections presented here can contribute to the debate on teacher education and raise new questions and investigations that aim at the analysis and problematization of this research field, seeking the recognition of the teacher as a professional endowed with specific knowledge that legitimizes his/her profession and, consequently, contributes to his/her professionalization.

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