

*The Importance of Practice in Pre-service Teachers' Development:
An Analysis From Zone of Proximal Teacher Development (ZPTD) Perspective*

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Abstract

Currently the importance of teacher training emerges as a central theme in Brazilian educational scenario. With the aim of understanding one of the vertices that make up the complex kaleidoscope of a teacher's training path, this research presents the impact of teaching practices throughout two undergraduate courses – in Languages/Literature and Mathematics. To accomplish this goal, a questionnaire answered by the forementioned courses graduates was developed, generating data used to analyze the professional development process of the pre-service teachers in accordance with the notion of Zone of Proximal Teacher Development. This concept was developed from Vygotsky's Zone of Proximal Development (ZPD), which states that the construction of a future teacher takes place in and through interaction – emerging concretely in the performance of the pre-service teachers in their practical activities. In a qualitative analysis of the data – questionnaires and self-assessments on practices' reports - discursive elements that indicate linguistic clues were observed, allowing us to infer how teaching practices contributed to the development of the participants' teaching. The main results pointed out specific differences and similarities in teacher training in each area; however, it is indisputable that teaching practices and supervised internships are of central importance in the training of teachers in both courses. Future perspectives aim to contribute to the improvement of undergraduate teaching courses, with the intention of effectively impacting the qualifications of future teachers.

Keywords: Teacher Training, Pre-service Teachers, Teaching Practices, ZPD, ZPTD

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Introduction

Many teachers, especially those working in the state public education system, report difficulties in their classroom practices due to having received an initial education that was inconsistent with the challenges they face on a daily basis, as highlighted in studies by Drey (2008) and Carnin (2015). This means that teacher training programs have not been able to satisfactorily achieve their primary goal: to train educators who can teach efficiently. This scenario leads to the importance of improvement on teacher training graduation courses. An overview of teacher training in Brazil and Latin America (Gatti, 2019) can be highlighted through four main issues. 1) teacher training graduation courses are cheaper and can also be taken totally online in some private institutions, making them more accessible to students who cannot afford other bachelor's degrees, thereby serving as a possibility or opportunity of access to higher education; 2) students who choose teacher training courses usually come from poor social, educational, cultural, financial background, which means the worst students usually become teachers – as they do not have enough conditions in all the forementioned aspects to rise to higher education; consequently 3) teaching is not a goal, as they are only pursuing a graduation degree. Finally, 4) teaching training courses usually offer few practical activities, only in the end of the course.

According to the LDB¹ (Brasil, 1996), it is essential that teacher education programs integrate both theoretical and practical dimensions in their pedagogical projects. In the same vein, the National Education Council (CNE) also points out the disconnection between theory and practice as one of the main issues to be addressed in initial teacher training programs, clearly emphasizing the need for students to bridge technical knowledge with classroom practice. For this reason, Resolution CNE²/CP No. 7, dated September 27, 2018, established the requirement of 800 hours of practical experience throughout the teacher training courses (divided into at least 400 hours of internships and 400 hours of practice, distributed across various curricular components from the start of the program). In this context, practice is understood as a fundamental curricular component in teacher education programs, particularly during periods of teaching observation and reflection on the teaching process and all related elements. However, it is in the moment of entering the classroom that future teachers reveal their greatest challenges in the process of "becoming" a teacher. This occurs, more specifically, during the courses on Methodology and Language Teaching Laboratory, as well as during the Supervised Internships—when pre-service teachers (graduation students) are required to design and implement teaching projects, taking into account the translation of theory into practice and the school reality in which they will be placed. What was observed, although, is that student teachers face difficulties in associating, relating, and applying theoretical content when developing their teaching practices. Regardless, simply completing an internship does not guarantee the adequate training of future teachers. A critical reflection on the practice experienced is necessary so that the intern can identify the strengths and weaknesses of their teaching, in order to find ways to improve it. In this perspective, the analysis of internship reports becomes a valuable tool for evaluating the development of the future teacher's training.

Based on these issues, the main objective of this study is to understand how a graduation student (or a pre-service teacher) becomes a teacher in a teacher training course and what the

¹ This refers to Brazil's national education law (Lei de Diretrizes e Bases), which outlines the principles, guidelines, and regulations for the country's education system. It is often abbreviated as *LDB*.

² Abbreviation of Conselho Nacional de Educação (National Education Council), which is the body responsible for formulating and advising on educational policies in Brazil.

role of this course is. More specifically, it aims to analyze the perceptions of pre-service teachers regarding the impact of practical teaching activities during the graduation course on their development as educators, examining the importance of this process in shaping future autonomous teachers who can act as didactic engineers of their own lessons, and consequently, become teachers capable of providing effective, high-quality education in their professional careers.

The study took place at IFRS Campus Osorio, a federal held technical institution that offers technical, undergraduate and graduation courses, including teacher training in Languages (Arts) and Mathematics – in which this research was developed. It is located in the northeastern coast of Rio Grande do Sul state. Data analyzed in this study consisted in questionnaires and self-assessment reports of newly graduated teachers.

The contrast amid the theoretical assumptions presented and the data from the questionnaires helped us to understand some aspects of the teacher education and professional development of these graduates, their critical reflection on their own teaching practices, and the value they place on classroom experience. In this way, it was feasible to observe which elements are essential for teaching, such as the construction of teaching knowledge throughout their training in undergraduate programs. Additionally, it was sought to understand how they perceive pedagogical practice, how they apply the knowledge acquired at university, and, for example, how they carry out lesson planning or choose their teaching methodologies.

Theoretical Frame

In the context of this project, the perspective of constructing a future teacher based on Vygotsky's idea that human development occurs through interaction and within it was adopted. This is a concept that is concretely reflected in the actions of the research participants in their practical activities. This analysis was already initiated in previous projects, with some preliminary results published in Drey et al. (2019); however, after conducting the four previous research projects, a framework of linguistic-discursive elements that will allow us to conduct a more concrete and enlightening analysis was designed.

One of the most prominent aspects of Vygotsky's theory is the concept of ZPD (Zone of Proximal Development), which better specifies the interrelation between instruction and development, and the importance of all human maturation achievements for the constitution of the individual (Vygotsky, 2007; 2005). Vygotsky believed that human development has two levels: the first is the level of actual development (ZRD – Zone of Real Development), which encompasses the set of activities the individual can solve on their own. This level indicates the cycles of development that are already complete, referring to the psychological functions the individual has already built up to a certain point. The second level is that of potential development: a set of activities that the individual cannot accomplish alone but can solve with the help of someone and/or instruments that provide proper guidance (a more experienced peer, for example). For Vygotsky (1988), the potential development level highlights development itself more than the actual development level, because the latter refers to already completed development cycles, which belong to the past, while the potential development level points to the individual's future development. Thus, Vygotsky (1988) defined the difference between what a human can solve independently and what they can solve with the help of a more experienced peer as the Zone of Proximal Development, which represents the gap within ZRD (the real development, what has already been achieved,

learner's actual capacities) *and a proximal set of knowledge and skills that they can reach through expert-other mediation.*

This concept highlights the personal and collective dimensions of the development of teacher professional competence, an issue that continues to be prominent in the works of Mark K. Warford (2011). While Vygotsky introduced the concept of the Zone of Proximal Development (ZPD) pursuing to investigate human development itself, Warford (2011) went further and brought the concept of ZPTD, the Zone of Proximal Teacher Development, seeking to understand how teacher development occurs. Warford (op.cit.) found that during initial teacher training, pre-service teachers were only taught direct concepts, leading to the repetition of actions and simulation of knowledge transferred from their teachers to their later classroom practice. The previous experiences of pre-service teachers were not given space for exposure and discussion during the course, resulting in a gap between academia (theory) and the field (practice).

In this regard, teacher development occurs in four levels that represent dynamic stages. The first (Level I), self-assistance, considers the prior reflections of the pre-service teacher and his/her own assistance when doing their practical activities; the second (Level II), expert-other assistance, highlights the importance of mentoring by a supervisor or more experienced peer (other teachers and classmates) through seminars and exchanging experiences; the third (Level III) reveals the importance of the internalization of Levels I and II, since the pre-service teacher has the opportunity of reframing his/her teaching practices after assistances. Finally, the fourth level (Level IV), named recursion, allows the pre-service teacher to review their practice and identify issues to be developed and improved, through repeated application of pedagogical concepts learned in the former stages.

The role of ZPTD in the comprehension of the professional development is to provide an understanding of the complex kaleidoscope of professional development of teachers.

Methodological Procedures

This research is characterized as action research, widely used in the educational field, not only because it facilitates an investigation between educational theories and practices, but also because it is designed as a form of participatory and collaborative research, pursuing the improvement of these practices (Kemmis, 1997). Participants were 20 newly graduates in Languages and Mathematics teacher training graduation courses. The data corpus consists of two distinct sets of data: questionnaires on the importance of teaching practices during the undergraduate program; and self-assessments from the final reports of the supervised practice internships.

Data Analyses Methodology

The textual-discursive approach of Machado and Bronckart (2009) was used to identify the discursive strategies used by the graduates. This content-analysis method looks for linguistic traits that represent the participants perspective in a specific topic – in this case, a reflection of their practices during the teacher training course.

This approach is carried out at different categories of analysis, which can be perceived in a text and are divided into Organizational, Enunciation, and Semantic Levels. It is important to

understand that the analysis of each category is not performed in isolation, but rather in correlation with the others.

In the organizational level, specific vocabulary related to classroom, schools, institutions and teaching practices can be depicted. The analysis of the enunciation level focuses on the mechanisms of enunciative accountability, indicated by markers of person, spatial deictics, and place, as well as obligations, values, opinions, rules of the social world (institutional prescriptions), and the insertion of voices and modalizers of the utterance. This category unfolds subjective responsibility mainly through linguistic traits known as *modalizers*, as they modify the meaning of the content. They can be classified in four types:

- Epistemic/logic: they show a degree of truth or certainty about what is said (i.e. *I should do..., I may do...*).
- Deontic: when statements are supported by the common values, opinions and rules of the social world, marked by expressions such as *I must, I have an obligation, I mustn't, I can't*.
- Pragmatic: expressed mainly by verbs such as *wanting, trying to know, intending*, etc. They present an interpretation of subjective aspects of action, including not only what is done by the worker, but also what he tries to do and cannot, that is, the impediments and desires that, in fact, were not fulfilled.
- Opinion: they consist of expressions that present the speaker's own evaluation of what is said.

The analysis of the semantic level, or the level related to the semiology of action, examines the judgments related to the thematic object, the modes of action involved in the tasks developed, which activities take place on the individual level (motives, intentions, capacities), and which occur collectively (external determinants, goals, tools), as well as the responsibility attributed to the action.

Results and Discussion

Questionnaires

Linguistic clues in the questionnaires pointed out different perspectives of teaching to the pre-service teachers of each graduation course. According to the textual-discursive methodology of Machado & Bronckart (2009), in the organizational level there are significant differences. Vocabulary on the utterances reveal Languages students conceive theory and practice as intrinsic, remarking the importance of different methodologies for teaching; while Math graduates mention theory as one aspect, and practice as other aspect.

In the enunciation level, regarding the analysis of the graduates in Languages, there was a high occurrence of epistemic modalizers (which represent the degree of certainty in the actor's perception), reflecting on teaching, as well as on the connection between theory and practice and how to be effective in this integration in the classroom. They also expressed concern about the impact of good theory on their future teaching practice, and how to convey technical content to students in a meaningful way. For the graduates of this program, the concept of teaching is formed through the combination of theory and practice. Among Mathematics graduates, there was a high incidence of deontic modalizers (which indicate institutional prescriptions, obligations, and rules of teaching in the social world); and pragmatic ones, reflecting the singular plan of action, where the graduates used the third person singular and presented a narrative focused on their individual actions as teachers.

Additionally, they were concerned with the gap between what is learned at university and the reality of the classroom, what they need to have and/or know to work in the public education system, and the meaning of what they learned during their undergraduate studies in their actual teaching practice. Thus, the concept of teaching constructed by these graduates emphasizes technical-disciplinary knowledge, where technical (mathematical) knowledge is seen as essential for effective practice.

The findings on the former levels (organizational and enunciative) state the results regarding the semantic level. Languages graduates highlight the importance of assistance, advising and scaffolding in building their professional skills, meaning a collective point of view. Math graduates, however, take into consideration their own abilities/experiences from their self-feedback, which underlies a singular perspective.

Reports

As forementioned on the questionnaires analyses, linguistic clues in the reports also brought up different profiles of teachers according to their courses. While Languages graduates consolidate their professional skills on reflections based on collective constructions along their practices; Math graduates keep a self-distance from the practices, as if they were “isolated” from the contents. Also, their reports present reflections and feedback on external factors, apart from their actions. They mention the supervisor at school, student’s bad behavior in the class, lack of a decent infrastructure at schools, but not their own responsibility or participation in this process.

Conclusion

The analyzed data depict some aspects of the profile of graduates from the two programs and some of their particularities. Mathematics graduates appear to be more focused on technical content, while among Languages graduates the integration of theory and practice emerges more strongly. These observations suggest that teacher training graduates may carry certain intrinsic characteristics from the courses they attended, which end up arising in their professional practice. They acquire not only the specific knowledge of the subject they teach, but also absorb a teaching awareness settled in their training institution. This awareness includes an understanding of pedagogical principles, teaching methodologies, and assessment strategies. These analyses point out that Languages graduates can integrate more easily the 4 levels of ZPTD – probably because the course promotes assorted opportunities of reflection. Math graduates, on the other hand, do not consider assistance and reflection as to develop their professional skills. They believe the more technical Math content they know, the better teacher they will be. Practices are considered a mandatory part of the course.

Furthermore, both programs report a positive impact regarding the practices carried out throughout the course, as these activities provided an important experience in building confidence in their professional actions, even though this reflection was constructed in different ways by the graduates. This aspect was understood as an important issue concerning the quality of the programs, contributing to the development and (re)construction of the curricula and the educators themselves.

Finally, all the graduates reported being employed as teachers in schools, which serves as an important piece of evidence validating our analysis, helping us to understand the positive

impacts the programs had on the professional development of the graduates, and how the institution provided a training that led the graduates to continue working as teachers.

After reflecting on the data, the understanding emerges that the development of a teacher's competence is *dynamic*, which means it's flexible, constructed along and after the course, on the teaching practice after the graduation course. Both Languages and Mathematics graduates point out *practices* consist in the *turning point* of their development, or it is said, the moment when they realized they became "teachers" was during the practices. Due to this, practices are so important since the beginning of teaching graduation courses, as they provide opportunities for assistance (self/other), internalization and recursion for the pre-service teachers – integrating the four levels of the ZPTD, promoting a dynamic teacher's professional competence development.

Further studies could expand this discussion and contribute to enhancing the quality of education in Brazil. One key approach is for schools to motivate students to consider teaching as a career, creating an early awareness of the profession's importance. Additionally, it is crucial that teacher training programs incorporate deeper discussions about the role of teachers and foster continuous reflection on teaching practices within their curricula. As research has shown, better teacher graduate programs produce better teachers, and better teachers are essential for improving education outcomes. High-quality education, in turn, has a direct impact on social development, fostering a more informed, skilled, and engaged society. Therefore, investing in the improvement of teacher education is not only an investment in the profession but also a fundamental step toward advancing the broader educational and social goals of the country.

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