



Pedagogical Practices in Higher Education: Experience Reports with Didactics in Pre-service Teaching Courses

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ABSTRACT

This essay was written with the purpose of promoting a reflection on some elements of the complex activity of teaching in higher education. Among several possibilities, Didactics was chosen as the central element of the text, since it is often understood as the main activity of teaching. To develop the ideas, two distinct experiences with the conduction of Didactics, named as iceberg situations, were taken as an example. The essay unfolds in two sections: first, three links are identified between the two experiences, being the local, the teacher and the Didactic course; second, from these links, the most fundamental elements of each situation are evidenced by means of an investigative description. In the end, it is hoped that the material collected here from the experience itself will become the object of learning for other reflections and inflections, but it will be useful to keep alive the concerns about higher education.

KEYWORDS

Didactics. Higher education. Pedagogical practice.

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Práticas Pedagógicas no Ensino Superior: Relato de Experiências com a Disciplina Didática em Licenciaturas

RESUMO

Este ensaio foi escrito com o objetivo de promover uma reflexão sobre alguns elementos da complexa atividade de lecionar no ensino superior. Dentre várias possibilidades, a Didática foi eleita como elemento central do texto, pois é muitas vezes entendida como a principal atividade da docência. Para desenvolver as ideias, duas experiências distintas com a condução da disciplina Didática, nomeadas como situações *iceberg*, foram tomadas como exemplo. O ensaio desdobra-se em duas seções: primeiro, identifica-se três elos entre as duas experiências, sendo o local, o docente e a disciplina de Didática; segundo, a partir desses elos, os elementos mais fundamentais de cada situação são evidenciados por meio de uma descrição investigativa. Ao final, espera-se que o material aqui colhido da própria experiência torne-se objeto de aprendizado para outras reflexões e inflexões, mas tenha a serventia de manter vivas as inquietações a respeito do ensino superior

PALAVRAS-CHAVE

Didática. Ensino superior. Prática pedagógica.

Prácticas Pedagógicas en Educación Superior: Informe de Experiencias con Didáctica en Cursos de Pregrado

RESUMEN

Este ensayo fue escrito con el propósito de promover una reflexión sobre algunos elementos de la compleja actividad de la enseñanza en la educación superior. Entre varias posibilidades, la Didáctica fue elegida como el elemento central del texto, ya que a menudo se entiende como la actividad principal de la enseñanza. Para desarrollar las ideas, se tomaron como ejemplo dos experiencias distintas con la conducción de Didáctica, denominadas situaciones *iceberg*. El ensayo se desarrolla en dos secciones: primero, se identifican tres vínculos entre las dos experiencias, siendo el local, el maestro y la disciplina Didáctica; En segundo lugar, a partir de estos vínculos, los elementos más fundamentales de cada situación se evidencian mediante una descripción investigativa. Al final, se espera que el material recopilado aquí a partir de la experiencia misma se convierta en objeto de aprendizaje para otras reflexiones e inflexiones, pero será útil para mantener vivas las preocupaciones sobre la educación superior.

PALABRAS CLAVE

Didáctica. Educación superior. Práctica pedagógica.

At the end, among so many concerns, reflections and abstractions about teaching in higher education, one is still very latent: what is my role in all this? I therefore hope that maintaining that uncertainty is a wise decision. Afterall, this implies new conflicts and new challenges¹... (FORTUNATO, 2017a, p. 182)

Two years ago, I wrote an essay very similar to this one, in which it dealt with teaching in higher education, conjecturing about a minimal part of the complexity that such a task implies. In this way, I start this new inflexible journey with the reproduction of the last paragraph of the previous text, which can be read in the epigraph: after exposing a myriad of elements that involve being a teacher in higher education, the final remarks were written as I was in doubt, particularly regarding the teaching role in the face of the uncertainties and challenges that teaching entail.

At the time, I dealt with educational beliefs and conflicts, based on Bejarano and Carvalho (2003), and the risk of allowing common sense about education itself to crystallize too soon in teachers, perpetuating a very superficial understanding of the meanings and teaching purposes. From the memory of private school experiences, but also supported by even more remote literature, such as McKeachie (1963) and Freinet (registered in FORTUNATO, 2016), it was possible to go on realizing and showing how much formal school education seems stagnant for centuries. The memories and the authors read seemed to converge to the same symbolic place: it is necessary to think about other ways of teaching, but, mainly, of (re)organizing the educational system as a whole, as the challenges of teaching cannot affect only on didactic questions. On the contrary, as Didactics tends to become hostage to a disciplinary, cyclical structure, with periodic evaluations to promote or retain students, measuring their results of successes in official tests, etc.

Thus, what I was able to note was some work possibilities that were in accordance with the inflexibility of the system, which requires the fulfillment of a high number of school days, the diversified use of assessment instruments, the registration of attendance, syllabus, partial and final grades, etc., but that could, at the same time, account for the uniqueness of each student, challenging them to think about how to make the best use of the time allocated to fulfill all these curricular requirements.

After two years, now I have a new opportunity to reflect on the paths taken in the teaching of higher education, particularly with the intrinsic mission of acting in pre-service teaching courses, conducting classes in the degrees in Physics and Mathematics, and in Pedagogical Education², at the Federal Institute of São Paulo, Brazil, Itapetininga campus. In addition to the work in pre-service courses, teaching in the specialization course in Informatics Applied to Education and the development of research and extension activities

¹ Original text: Ao final, dentre tantas inquietações, reflexões e abstrações sobre ensinar no ensino superior, uma ainda é bastante latente: qual meu papel nisso tudo? Espero, portanto, que manter essa incerteza seja uma decisão acertada. Pois isso implica novos conflitos e novos desafios.

² This is the Special Teacher Training Program supported by National resolution CNE 2/97, updated by resolution 2/2015, aimed at holders of higher education degrees, in the bachelor's and technologist modalities..

have enabled work in life-long education, including the so-called in-service training, being in contact with teachers from the municipal, state and teaching technique, as well as third sector educators, involved with non-formal education, including museums and organizations for strengthening social bonds (see FORTUNATO, 2018a).

Nevertheless, the question remains: what does all this mean? So here is the moment to state the objectives of this essay: to promote a reflection on some elements of the complex activity of teaching in higher education, never with the intention of exhausting them, which would not be possible, since their meanings are not only multiple and subjective, but also dynamic. What is proposed, therefore, is an investigation based on the classic popular *iceberg* metaphor: the one in which it is said that only a small portion of the huge block of ice is visible on the surface, with most of it remaining submerged, invisible. After all, for each basic activity, such as teaching, evaluating and supervising, for example, the components of experience and training underlie, in addition, of course, the educational beliefs, affections and individual conceptions that are so present in the teaching.

This means teaching, for example, although it takes over evident formats (public speaking, use of audiovisual, driving etc. groups), which are expressed in very similar ways among teachers, such modes are planned and organized in very distinct and private manners, which can only be accessed and understood by the teacher who organizes and conducts them. Although it is obvious, this is rarely noticed, having been pointed out by Gascón, Aguilar and Elizondo (2016) as something necessary for the transformation of teachers. According to the authors, in order to continue acting assertively as a teacher, in complex, shifting and transitory contexts, it is necessary to promote the constant transformation of oneself. For this, an inner search must be developed, centered on a process of self-formation and self-knowledge, which is developed through the intentional maturation of the practice. Such maturation, in turn, does not occur without deep meditation, investigating, according to the *iceberg* metaphor, what does not emerge to the surface, remaining invisible.

To develop the ideas presented here, it is necessary to take examples. Being consistent with the proposal for self-training and self-knowledge, such examples could not be taken from anywhere other than my own experience as a teacher in higher education. Therefore, the situations that are described here as motivating for reflection are situations experienced in the first person. They must be considered biased, of course. However, it has already been pointed out that “learning from oneself” is a fundamental pedagogical knowledge for the constant formation of the conscious exercise of the teaching profession (FORTUNATO, 2018b). Perhaps it is even the most fruitful way of being able to leave the surface and become aware of the deepest elements, which guide teaching.

So, the *icebergs* situations used in this paper are from the development of the Didactics discipline in two different contexts. The first, still in the year 2017, as offered at night to the fifth semester of the Physics teaching pre-service course. The second context, in the Special Teacher Training Program, offered in the afternoon, in the second semester of 2018.

Thus, the writing is divided into two sections: first, it identifies what there is in common between the two experiences that present themselves for reflections about teaching in higher education. Second, and based on the links between these experiences, the most fundamental elements of each situation are highlighted through an investigative description. In the end, it is expected that the data collected here from the experience itself will become an object of learning for other reflections and inflections, but, mainly, it will serve to keep the concerns about higher education alive. This is because it is these concerns that mobilize thinking and provoke new ways of understanding education – in a broad way.

About Links That Unite Experiences in Higher Education

When looking at the two iceberg situations chosen for the reflections proposed here, some more evident elements that unite the two experiences are immediately noticed: (1) the institution where the classes took place, (2) the responsible teacher and, obviously, (3) the Didactics with a focus on teacher education.

Regarding the first element, when the Federal Institutes were created³, by federal law 11,892 of 2008, one of its objectives was to offer 20% of its courses to pre-service undergraduate teaching courses. Itapetininga campus has fulfilled this objective since it was founded, in 2010, with the offer of the Physics teaching degree as its first undergraduate course, expanding the offer later with the Special Teacher Training Program, in 2011, and the degree in Mathematics teaching in 2016 – the same year in which the specialization course in Informatics Applied to Education began, aimed at teacher training. It can be said, therefore, that institutionally there is a privileged place for Didactics, allowing it to go beyond its teaching (as sharing and reproducing what is already known), taking it as an object for the development of research in education and teaching. This prerogative enabled, at the end of 2015, the foundation of the research group FoPeTec - Teacher Education for basic, technical, technological and higher education⁴. The group has been dedicated to theoretical and empirical research on a variety of themes, of which, quite frequently Didactics appears in the last two years (FORTUNATO, 2019; 2018a).

Regarding the second element common to the experiences – the responsible teacher – I must say that it was only after a few years in the career, acting directly in the initial training of teachers, that I realized that self-reflection is fundamental to understand and transform what is done in terms of teaching practice (FORTUNATO , 2017b; 2018c). After all, the complexity of everyday dynamic life makes things constantly change, presenting an equally constant need to seek answers to seemingly consolidated questions, such as, and just as a sample: what is teaching? How to teach? How to evaluate? What is education? What does it mean to be a teacher? And to be a student? ... Not to mention more specific questions, referring, for example, to the syllabus to be taught, to the individual and collective

³ To learn more about the Federal Institutes, it is recommended to read Shigunov Neto, Silva e Fortunato (2018).

⁴ Mirror of the CNPq Research Groups Directory group: <http://dgp.cnpq.br/dgp/espelhogrupo/7562965087625574>, accessed jan. 2020.

characteristics of the students, involving expectations, knowledge already acquired, etc., etc. Besides, of course, issues related to the institutional, social, economic, cultural, historical and geographical etc. context, which involves all the work done in the classroom and that is also something dynamic, constantly changing, even if one remains teaching in the same place.

All of this to say that, despite the two experiences with the Didactics discipline having as common element the same teacher, this does not imply that all students, from different courses, in different periods, did have the same classes, with the same syllabus, the same assessments, the same learning time, etc. In fact, it does not even mean that they had the same teacher, metaphorically speaking, because, once I was aware of the contingencies of each class, each class, each student, it becomes possible (necessary, perhaps?) to think that pedagogical/didactic/educational work is dynamic, flexible, built on what can be called “between”, that is, on the living relationships that are established between teacher and student(s), between teacher and syllabus, between students and syllabus, and between the complex plot that established in the teaching-syllabus-student triad. All of this becomes even more complex when it is understood that these relationships do not begin or end in the time-space of the classroom, making what has been called “between” something paradoxically ephemeral and perennial. This is because while being passenger, measured in minutes at a specific meeting place, it can potentially persist for a lifetime.

Finally, the third element in common to the experiences reported is the concept that gives the discipline its name: Didactics. But, what is Didactics? Far from an apparent sophism, this question becomes prudent when seeking to know more about what is taught and what is learned, after all, Didactics as a discipline is certainly unanimous in pre-service teaching courses of any science, being present as a mandatory discipline in practically every undergraduate teaching program. In addition, as Longarezi and Puentes (2015, p. 196) pointed out, “there is little research and few publications about didactics and what is published takes place in vehicles of lesser national and international recognition”. The authors focused on the production of national graduate studies, looking for specific lines on Didactics in education programs in all regions of the country, during a longitudinal period of over five years. The data obtained and analyzed led to this costly finding that Didactics still would not have found its place in the research or, worse, it would be effectively stagnant in its conception already crystallized, both by common sense and by most of the teachers themselves, that is: Didactics would be just a simpler word to designate “good universal teaching techniques”, or whatever.

This conception was highlighted by Marin, Penna and Rodrigues (2012) as something that has been sought to be overcome, at least, since the beginning of the 1980s, although it is still very present in schools and even in pre-service and in-service teacher education courses. For the authors, it is imperative to overcome this technical view of Didactics, in which it is seen only as the best ways to teach. Libâneo (2011) also agrees that there is a certain stigma in the term Didactics, as if it was related to a traditional, ancient teaching concept. It is a view named by the author as “conventional”, which concerns the instrumental character of educational practices. But, warns the author, Didactics have to do with research on learning

and, more importantly, must be directly linked to an investigation on the particular contents of the science that one intends to teach. This means that Didactics has something “common and essential” in teaching practices as a whole, yet it is up to it to identify the particular characteristics of each science to be taught, effectively making it an object of learning. In other words, teaching Didactics presupposes understanding it as something much broader than its own instrumental character stigma. Hence, in order to study Didactics, it is necessary to allow oneself to go beyond possible educational beliefs already established that means knowing how to pass the content to the students.

In a more recent text, Libâneo (2015, p. 663) noted that Didactics deals with researching and analyzing theoretical and epistemological foundations about “the professional knowledge to be mobilized in teaching action”, intending to unite something that has long been separated: the disciplinary (or scientific) knowledge from the pedagogical knowledge. Particularly and recently, it was found that Didactics appears to be on the path of the necessary and desired pedagogical renewal, but, it seems that it persists in becoming a barrier, as there is an almost universal tendency to treat this renewal as something external to each one of us (FORTUNATO, 2019). Well, although the transformation of education cannot be achieved without a collective, institutional, systemic project, etc., such a project is not cultivated – or it even germinates – without attitudes. These can only emerge when it is understood that renewal does not begin from the outside to the inside, but through the transformation of the educational beliefs and pedagogical attitudes. This is what was called the “radical approach” (GASCÓN, 2013), as it seeks to go back to the roots of Didactics itself.

In a way, it was these conditions from which the Didactics discipline was thought, in the two distinct experiences mentioned: the institution that welcomes and encourages the production of knowledge in this area, a responsible teacher concerned with these possibilities of renewing the old concept pedagogical and the Didactics itself that, for about 40 years, no longer wants to be what they think it is, that is, a limited list of universal techniques to teach anything to anyone under any circumstances.

Here, Then, Are the Two Experiences

The first iceberg situation chosen for the elaborations of this essay has already been the subject of previous reflection, since a final, collective product has been generated, which has become an important institutional extension project and the practice of initial training for physics teachers. In this discipline, conducted in the second semester of 2017, at the initiative of the students themselves, a Physics Show was created, seeking to articulate experimentation as a teaching practice, with the playfulness inherent in the fun provoked by a show. Although the planning and execution of this project within the scope of the discipline has already been recorded in another essay, here the focus is on and/or on the teaching process that we developed together, teacher and students (FORTUNATO, 2018d).

As soon as we started our discipline, we initiated a discussion about a complex contradiction of formal education: on the one hand, it is known that traditionalism, based on the classic Paulo Freire's notion of "banking education", is no longer included in the educational proposals of full development, including citizenship development and preparation for the labor market; on the other hand, we have no idea how another education system could be established, which is not maintained by terms (bimonthly, semi-annually, annually, e.g.), which does not have a pass or fail grade system, which is not disciplinary, curricular, cumulative, sterile, etc. etc. By emphasizing this contradiction, the objective was to draw attention to the fact that teaching techniques, which are often confused with Didactics, are not responsible for transforming education. Paradoxically, however, by remaining inert, Didactics consents to the perpetuation of the education banking system.

These initial notes were valuable for students to understand the complexity of this issue regarding the maintenance of traditional education. Thus, because we are also uncomfortable with the old-still-present-and-insistent form of the school, we started to think together about possible ways to reconfigure the banking, disciplinary model. Some working hypotheses were listed, such as the use of the "flipped classroom" format, a technique that has been gaining prominence in school education, or "conversation circles", which is a very useful technique in terms of building knowledge through dialogue. However, what seems to have been collectively accepted was the proposed idea of an "educational mission" (FORTUNATO, 2018b). In this form of work, students and teacher focus on a concrete situation from a school, discussing it theoretically while planning an action (or a sequence of actions) that is consistent with the context now identified.

That was how the Didactics present in the Physics teaching course syllabus presented itself as a kind of resistance to banking education: jointly, they did not consent to the proposal to study concepts and, at the end of the term, to verify whether they were (momentarily) apprehended through a written test, or a seminar, or a synthesis text (etc.). Likewise, it was not guided by the proposals known as "active methodologies", because, although fundamental to think about renewing formal education, they did not fit in the context thought by the physics undergraduates' class: the desire to go beyond the security of the classroom and even the institution walls.

Thus, the Physics Show was built from a very complex and daring proposal which was able to (1) meet the challenges and needs of a partner public school; (2) promote the construction of knowledge about Didactics together with elements of Physics as a science to be taught; (3) enhance the initial training of these future teachers, when dealing with a set of knowledge regarding the planning, development and evaluation of a teaching-learning process; (4) demonstrate how the production of knowledge about Didactics can be applied in society; (5) establish the framework on which an institutional extension project was built; (6) go far beyond the traditionalism of formal education; and (7) include joy in the educational process of teacher training. Details of the project, in turn, were described and examined in the aforementioned essay (FORTUNATO, 2018d).

The second iceberg experience with the Didactics discipline was conducted in the first semester of 2018, in the Special Teacher Training Program, affectionately known in our institute as Pedagogical Training. In this discipline, which happened in the afternoon, the yearnings and expectations about Didactics appeared anchored in the conventional view. This is because the students of this course are composed of people already graduated, whether in a bachelor or technologist degree, that is, courses in which Didactics does not present itself as an object of research, only as an experience inherent in classes, exclusively from the perspective of the practice observed as student. For this reason, almost as a consensus, the Didactics known by the students is that of the experience as a student of traditional basic education and higher education, that is, almost always traditional. Presenting Didactics as a field of research and studies was challenging, being a very complicated task in the course of a semester, a very short time to become a catalyst for the transformation of educational beliefs that have already crystallized.

The term started, therefore, with the explanation about conventional Didactics and the confrontation with its radical focus. Interestingly, when we discussed the classic proposal, the level of consent of the students was quite high. Probably because it is comforting to hear one's own educational beliefs being highlighted in a higher education teacher training course. On the other hand, the radical approach was not immediately agreed. After all, it presupposes a transformation in formal education, including provoking a semiotic and symbolic return to the educational process itself, since entering the first year of basic school. This return, although it is a healthy practice from the point of view of teacher training, is not so feasible, to the point of being triggered by the reading of an article or by the explanations of a professor.

To think of traditional Didactics is to think that the teaching action begins and ends within a classroom, focused exclusively on teaching, therefore for learning some content from a given discipline. To make this relationship clearer, a basic but figurative example of mathematics is borrowed, which is the teaching of multiplication tables. In this case, the purpose of Didactics can be understood as the use of several teaching techniques, such as oratory, copying, memorization, repetition exercises etc., with the purpose that all students, during the space-time destined for the multiplication table study, are able to reproduce the results of any multiplication of numeral 3 by any other number. If the class is able to enunciate out loud all the possible relationships between number 3 and the others, and if each student gets all the multiplication proposals presented in a written test right, it is considered, therefore, that the Didactics used by teacher was a success. When launching this example in the Pedagogical Training course, there were no discussions between the future teachers, on the contrary, this was only a reinforcement of what was already known: Didactics is to teach well, and the concrete evidence, collected in the individual tests and in the collective enunciation is enough to leave no doubt that the students have learned; therefore, there is no reason to doubt the Didactics used.

By the radical approach, on the other hand, this cause-effect relationship on which the teaching-learning process seems to be based is not sufficient. It means that it is not enough, at the end of a sequence of techniques, to qualify as success or failure the results obtained in evidence such as tests, journals, seminars, lists of exercises or others. This is because, in this perspective, Didactics should not be thought of as a succession of activities that end with the certification that certain knowledge has been successfully transmitted from a teacher to his/her students. It is necessary, then, to consider multiple elements, almost always transitory, identified through questions: what, how, why and for whom to teach?

Other questions necessary for the radical approach of Didactics concern students: how do they learn? Does the knowledge listed in the syllabus fit into the individual and collective contexts? Still, the questions necessary for the development of the radical approach must fall on the teacher him/herself, asking him/herself about his/her own involvement with the syllabus intended to be taught: how does this knowledge – the multiplication table of number 3, p. ex. – is part of one's life and makes one's action in the world different, better?

Thus, this experience in the Didactics discipline, developed in the Pedagogical Training course, can be qualified as an epistemological experience. After all, the effort was directed to the conceptual level, seeking to reframe the already crystallized understanding of Didactics, such as the excellence of teaching techniques, for a new understanding regarding the complexity that involves both teaching and learning. Thus, unlike the classical perspective, in which these teachings would be verified by means of tests and/or other concrete records, in the radical approach there are no means of control, only stimuli and provocations, as it is the only way to put one's beliefs in evidence. Therefore, being in evidence, they can be put in check and, if necessary, transformed.

From the Link, the Situations and the (New) Concerns, Abstractions and Reflections for New Experiences ... or, the Conclusions

I don't know where I'm going
 But I know I'm on my way⁵
 (Raul Seixas, at the back of the school yard song, 1977)

This essay started with the reproduction of the last passage of a previous essay, written with the same objectives: to think about (own) teaching in higher education. Recursively, in the end, it goes back to the beginning. Thus, this text was thought and produced like a Sierpinski Triangle, in which each of its parts is similar to the whole, although it is not the whole. This means that a fragment of teaching in higher education was highlighted under the lens of (self)reflection, in order to understand it in its entirety: which means the two *iceberg* situations presented and analyzed. However, when looking at the fractal complexity of teaching, it becomes impossible to guarantee that the metaphorically microscopic examination performed here effectively represents any pedagogical practice performed in higher education.

⁵ Original lyrics: Não sei onde eu to indo. Mas sei que eu to no meu caminho.

Thus, it is expected to have fulfilled the proposal: to promote a reflection on teaching, especially in higher education. In fact, due to the presentation of situations thought of as *icebergs*, it is expected that the reflection was profound, going beyond the most apparent, objective, concrete evidence... In these incursions, three link elements were found, which are fundamental for teaching practice: (1) the institution that welcomes and encourages, (2) the teacher who allows him/herself to reinvent him/herself, and (3) the Didactics, which can be a key element in the so-called pedagogical renewal, which has covered the annals of education for decades.

Identifying such links was essential to examine the conduct of two didactic disciplines, identical in the syllabus, however circumstantially very different. Thus, with one of them we went beyond the walls of the initial formation itself, putting progressive ideas of Didactics to the test, while with the other we remained in an epistemological discussion, but equally necessary for the development of teaching. It is obviously not a question of put situations side by side to compare them; that would be to reduce the reflective foundation of the thing. Putting the two situations in evidence serves, in essence, to reveal that the same discipline, the same program, the same basic bibliography, etc. can result in very different pedagogical work. I believe, even, that this can be considered something desirable in formal education, because it implies, among other characteristics (or something like that), a renewal that surpasses traditionalism: the contents are not imposed, they are appropriated.

In the end, a reprise: the essay is again inconclusive. After searching the concerns, abstractions and reflections, I realize that these have not been reassured; on the contrary, they were potentiated. Thus, new uncertainties are taken, new challenges are established, and we set out in search of other conflicts in this complex mission/task/work of teaching teachers.

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