

Didactics of signs: an archive of mathematics

Didáctica de los signos: un archivo de clases de matemáticas

Didactique des signes : une archive de leçons de mathématiques

Didática dos signos: um arquivo de aulas de matemática

Lisete Regina Bampi¹

Federal University of Rio Grande do Sul (UFRGS)

PhD in Education

<https://orcid.org/0000-0002-6832-316X>

Gabriel Dummer Camargo²

State High School Professora Margot Terezinha Noal Giacomazzi

Mestrado em Ensino de Matemática

<https://orcid.org/0000-0002-6744-0938>

Abstract

This article focuses on the task of translating encounters with the worlds of signs into math classes. Affirmed in the notion of learning, it envisions the teaching of mathematics as a movement of the Didactics of Signs. To this end, it is involved in procedures for archiving and filing an archive made up of master's dissertations developed between 2015 and 2020 in the Postgraduate Program in Mathematics Teaching at the University of Rio Grande do Sul. In a translation process, the categories inventoried emerge and merge in the difference, in the distancing, in the regularities and randomness of approximations that emanate from a discursive field that is indistinguishable from a practice. Among the discourses and teaching practices analyzed, we produced our discourse that offers visibility to the knowledge of others, without ever repeating them. There is no pretension of creating something new for the teaching of mathematics, nor do we aim to neutralize existing discourses. What we want is to perceive some resonance in what already exists in the math classroom, taking the file in question as an example. By paying attention to learning, we believe that this investigation can become a lens to be used in education research and mathematics teaching, where teachers and students exercise themselves in re-enactments of learning.

Keywords: Didactics of signs, Mathematics teaching, Archive, Exercises.

¹ lisete.bampi@ufrgs.br

² gabriel-dcamargo@educar.rs.gov.br

Resumen

Este artículo se centra en la tarea de trasladar los encuentros con los mundos de signos a las clases de matemáticas. Afirmado en la noción de aprendizaje, concibe la enseñanza de las matemáticas como un movimiento de una Didáctica de los Signos. Para ello, participa en procedimientos de archivo y clasificación de un acervo constituido por disertaciones de maestría desarrolladas entre 2015 y 2020 en el Programa de Posgrado en Enseñanza de la Matemática de la Universidad de Rio Grande do Sul. En un proceso de traducción, las categorías inventariadas emergen y se funden en la diferencia, en el distanciamiento, en las regularidades y aleatoriedades de aproximaciones que emanan de un campo discursivo que no es distinto de una práctica. Entre los discursos y las prácticas pedagógicas analizadas, hemos producido un discurso propio que ofrece visibilidad al saber de los demás, sin repetirlo nunca. No hay ninguna pretensión de crear algo nuevo para la enseñanza de las matemáticas, ni pretendemos neutralizar los discursos existentes. Lo que queremos es percibir alguna resonancia en lo que ya existe en el aula de matemáticas, tomando como ejemplo el expediente en cuestión. Al prestar atención al aprendizaje, creemos que esta investigación puede convertirse en una lente a utilizar en la investigación educativa y en la enseñanza de las matemáticas, donde profesores y alumnos se ejercitan en escenificar recreaciones del aprendizaje.

Palabras clave: Didáctica de los signos, Enseñanza de las matemáticas, Archivo, Ejercicios.

Résumé

Cet article se concentre sur la tâche de traduire les rencontres avec les mondes des signes dans les cours de mathématiques. Affirmé dans la notion d'apprentissage, il envisage l'enseignement des mathématiques comme un mouvement d'une Didactique des signes. Pour ce faire, nous nous engageons dans des procédures d'archivage et de classement d'une archive constituée de mémoires de master développés entre 2015 et 2020 dans le Programme de troisième cycle en enseignement des mathématiques de l'Université du Rio Grande do Sul. Dans un processus de traduction, les catégories inventoriées émergent et fusionnent dans la différence, dans la distanciation, dans les régularités et les aléas des approximations qui émanent d'un champ discursif non distinct d'une pratique. Parmi les discours et les pratiques pédagogiques analysés, nous avons produit notre propre discours qui offre une visibilité au savoir des autres, sans jamais le répéter. Nous n'avons pas la prétention de créer quelque chose de nouveau pour l'enseignement des mathématiques, ni de neutraliser les discours existants. Ce que nous

voulons, c'est percevoir une certaine résonance dans ce qui existe déjà dans la classe de mathématiques, en prenant le dossier en question comme exemple. En prêtant attention à l'apprentissage, nous pensons que cette enquête peut devenir une lentille à utiliser dans la recherche en éducation et dans l'enseignement des mathématiques, où les enseignants et les étudiants s'exercent à mettre en scène des re-créations de l'apprentissage.

Mots-clés : Didactique des signes, Enseignement des mathématiques, Archives, Exercices.

Resumo

Este artigo debruça-se sobre a tarefa de traduzir encontros com os mundos dos signos em aulas de matemática. Afirmado na noção de aprender, vislumbra o ensino da matemática como um movimento de uma *Didática dos Signos*. Para tanto, envolve-se em procedimentos de *arquivamento* e *arquivização* de um arquivo constituído por dissertações de mestrado desenvolvidas entre 2015 e 2020 no Programa de Pós-Graduação em Ensino de Matemática da Universidade do Rio Grande do Sul. Em um processo tradutório, categorias inventariadas surgem e mesclam-se na diferença, nos distanciamentos, nas regularidades e aleatoriedades de aproximações que emanam de um campo discursivo que não se distingue de uma prática. Entre discursos e práticas docentes analisados, produzimos um discurso próprio que oferece visibilidade a saberes de outros, sem jamais repeti-los. Não existe a pretensão de criar algo novo para o ensino da matemática; tampouco, objetivamos neutralizar discursos já existentes. O que queremos é perceber alguma ressonância no que já existe na aula de matemática, tomando como exemplo o arquivo em questão. Na atenção ao aprender, cogitamos que essa investigação pode se tornar uma lente a ser usada na pesquisa em educação e no ensino da matemática, onde professores e estudantes se exercitam em encenações de recriações do aprendizado.

Palavras-chave: Didática dos signos, Ensino de Matemática, Arquivo, Exercitações.

Didactics of Signs: an archive of math lessons

The newer uses that are possible, and unexpected, the happier I'll be. All of my books, whether History of Madness or others, can be little toolboxes. If people really want to open them, they can use a phrase, an idea, an analysis, like a screwdriver or a wrench, to produce a short-circuit, to disqualify, to break the power systems, including, eventually, the specific systems that my books are about, well, so much for that. (Foucault, 2006, p.52).

This paper takes as its materiality master's dissertations developed between 2015 and 2020 in the Postgraduate Program in Mathematics Teaching at the Federal University of Rio Grande do Sul (UFRGS): a space of time that produces data and comes close to our practices as mathematics teachers and researchers. We analyzed this material in a process of translation, according to a methodology that uses the notion of "archive" in Foucault (2007) and "learning" in Deleuze (2003). Firstly, we produced an archive made up of the dissertations, converting it into an object of study. Consequently, the operative path presented manifests itself in two procedures of the translation process of this production, namely: archiving and archivalization (Aquino & Val, 2018). In the process, we look for learning manifested in approximations and distancing from Didactics of Signs (Bampi & Camargo, 2016).

The first step was archiving, in which we looked at 190 dissertations accessible on the official virtual platform of the respective program: 149 from the professional master's degree and 41 from the academic master's degree. Of this total, 93 were within the specified period and 38 were selected. These dissertations were chosen by reading their titles and abstracts, looking for records of classroom practices focused on learning some object of mathematical knowledge. According to an organization and classification of the statements, we handled the documents to look for the aforementioned approximations and distances from our objective, namely: to understand the presence and movement of the worlds of signs in mathematics classes.

When we read the texts in full, we looked for class records that could provide us with powerful data for the research. This is an archive focused on class activities, with plans determined together with the implementation of the respective actions, in which we exercise ourselves in re-enactments of learning. In archiving, we see ourselves in the class scenes, turning our gaze from the worlds of others to ourselves, which implies a "certain way of being

attentive to what is thought and what is happening in thought" (Bampi; Tourrucô, Camargo, 2016; Foucault, 2016, p.14).

This operation made it possible to make a second selection according to a filing system, in an accurate analysis of the discourses constituted in the dissertations. In the translation of a recreative imagination, we sought to identify singularities and approximations, or even ruptures, to the object of study. As a result, we came up with a study archive made up of 20 dissertations, which are qualified not according to a hierarchy, but as a first gesture of translation criticism (Aquino & Val, 2018; Olegário, 2018).

This selection culminated in the creation of an archive rich in the diversity of math classes, covering teaching practices carried out in classes from the 6th year of elementary school to the 3rd year of secondary school. We observed a heterogeneity evidenced in the different theories and teaching methodologies applied to different mathematical contents, with the guidance of different professors from the respective postgraduate programs. The full list of dissertations that make up the archive, the specific characteristics observed, and the complete research for this work can be found in the master's dissertation "Archive of Learning: The Didactics of Signs and the Mathematics Classroom" (Camargo, 2022).

We made difficult choices, striving to translate the voices that make up the archive in its polyphonic tangle - selected aspects of a disturbing analytical immersion. We also began with a unique reflection on the teaching experiences and perceptions of the teachers who wrote the dissertations as potentially audible voices that cannot prove the hypothesis, but are part of the classroom scenario (Prates, 2020; Borba et al., 2020).

In this way, we also consider the archive to be that which in a given historical period "is valued as worthy of being preserved, since its contemporaries establish a specular relationship with it", including "as preposterous of the truth of their time" (Aquino, 2020, p. 348). We are not trying to interpret discourses to turn them into a "history of the referent", where we would restore a primitive and singular experience of teachers and their methodologies for teaching mathematics (Foucault, 2007, p.57). We archive a set of practices and discourses that continue to function and change throughout history, making it possible for other discourses to emerge (Foucault, 2007).

It should be emphasized that there is no such thing as naivety, which refers to a disinterested grouping. We archive what interests us, what is contemporary and sensitive to us, what we want not to die and to continue "as it is reread, rewritten, taken up again, revived through reading and translating writing" (Olegário, 2018, p.149). In an archival gesture, as a work of reconstitution and manipulation of selected sources, we impose a refusal to contemplate

inert material. Between the walls of the apparatuses that store them, we try to hear the muffled, almost inaudible murmur that emanates from them and makes them persist (Aquino, 2020).

The reflections, conclusions, and possible answers to our questions are encompassed in this article, as in a simile that exposes projections of a broader construction. However, due to the limitations inherent in this space, and the need for examples of the translation images produced, we have focused the notes presented here on three of the dissertations studied, namely: "The teaching of functions through the use of rates of change in practical problems" (Lazarotti, 2015), "Combinatorial Analysis in the 6th Year of Primary School through problem-solving" (Atz, 2017) and "The Fundamental Counting Principle and Mathematical Modeling in the final years of Primary School" (Batista, 2020).

The translation of the reports contained in the dissertation archive also manifests itself as a learning experience, in a sample that enhances the lens of a teacher's recreation, even if it does not circumscribe inferences. In the statements in the archive, we are looking for clues to some of our research questions, for example: How do the worlds of signs manifest themselves in math classes? This is a presence that involves observing the methodologies and reports of classroom practices included in the archive.

This observation takes the form of an analysis that embraces the expression of math teachers: writers of dissertations who bring their unique voices and a gaze that translates into their learning from teacher training. Even by reading evaluations, we can build up an archive, strengthening memory mechanisms about the limits of what is thinkable and unthinkable in a space-time experience, developing our way of interpreting the worlds of signs translated into exercises in staging and recreating learning (Aquino & Val, 2018; Bampi, Tourrucôo & Camargo, 2021a).

In another way, an archive evaluation has begun to make noise in the field of education, offering itself up for translation. That's why the task of the *professor archivist* is to translate, for example, *how* an assessment *speaks*. In other words, to find in the language we translate the intention through which the echo of an original can be resurrected. The *professor archivist* is also a translator who lovingly exercises themselves with the subject of translation, staging themselves with the original and recreating it in their language (Bampi, Tourrucôo & Camargo, 2021b; Aquino & Val, 2018, p.47; Benjamin, 2008).

In the enunciations of the archive, we glimpse the intention of the speaking subject, whether in their conscious or unconscious activity, according to which we reconstitute another discourse in the search for the word that animates the voice of the *professor archivist*, re-establishing "the small and invisible text that runs through the interstice of the written lines and

sometimes messes them up". The research carried out seeks a discursive unity that analyzes "the play of their appearance and dispersion"; however, not "in the coherence of concepts, but in their simultaneous or successive emergence, in their distance, in the distance that separates them and, eventually, in their incompatibility", but not in the search for "an architecture of concepts sufficiently general and abstract to explain all the others and introduce them into the same deductive edifice" (Foucault, 2007, p. 33-43).

In a nutshell, the translation undertaken seeks encounters with worlds of signs emerging from experiences in math classes. These experiences become exercises in translation, where teachers and students stage and recreate themselves with the worlds of signs between archiving and filing procedures. These signs differ from the semiotic sign, being linked to what emanates from a certain relationship between different people. In opening up to difference, the signs we are dealing with are not focused on a defining activity, but rather on an operation, possessing a broad materiality that refers to learning and provides an encounter with thought and creation (Bello, Zordan & Marques, 2015).

In another way, we propose a look at the teachers' intentions to guide a lesson, to translate it into writing, and at the exercises that manifest themselves involuntarily between filing and archiving. The constituted discourse then goes beyond the purposes of the archive itself and the rules of formation in which we define the regularity of the object of study. In this way, we have established a kind of inventory, as an overview, and an example of learning and teaching mathematics in the discursive productivity of the field of classroom practices according to a Didactics of Signs.

Even though the statements found in the archive are different and dispersed over time, they constitute a whole when they refer to the teaching of mathematics: the same object through which we analyze what is individual about them, grasping the interstices that separate them by the law of their distribution in a movement of translation. So we take this archive in its expressive and recreative capacity (Foucault, 2007).

On the one hand, there is the memory of the text that preserves the deeds. On the other hand, the "archive remakes, on other bases, what time has undone", and even has a lacunar nature that testifies to another approach to the gaps in our learning. The very liveness of the texts is not forgotten: a process of translation of traces and materialities that enables cultural practices and ways of understanding objects, in an updating of their elements, and the beings with whom we relate in this world (Olegário, 2018).

In reading the archive, we go through a transcreative perspective, thinking about didactics and the curriculum through translation, where the text is made, in the production of

many hands, and where each reading testifies to a new text that emerges from within. The notion of *image text* is also connected to the archive created, in which we perceive different forms of thought exercises being staged, manifesting themselves as learning and as the work of repetition in potency. Archiving refers to a reorganization of documents; filing brings possibilities of encounters with the power to recreate and revitalize discourses (Corazza, 2013; Olegário, 2018; Bampi; Telichevesky, 2012; Bampi, Tourrucô, Camargo, 2016; Aquino & Val, 2018).

The archive we create is not just a privileged and silent depository of an era. It also manifests itself as an object of study that "radiates enunciative noises and murmurs", summoning us to a task that "presupposes concentrating, unifying and identifying signs, thus conferring the power of consignment" and a response for the future. The challenge of *archiving* imposes itself in the reinvention of a specific treatment of documents, although not with the intention of "interpreting the selected texts" or trying to legitimize or invalidate them (Olegário, 2018, p.52-53; Aquino & Val, 2018, p.47).

Between archiving and filing, we exercise in staging our own learning; we translate what redesigns the traces left by the archive, engendering a new architecture through the active will to reread and rewrite that is not dead and forgotten in its letters and techniques, or even memories, but revived and recreated. In the archiving process, we look for units that involve and highlight the didactics of mathematics lessons as a teaching legacy of the research itself that is not closed or sealed off by establishing dichotomies between education and mathematics teaching. It is a teaching craft through which we venture and explore encounters with the worlds of signs, transforming and enhancing the materials of these archives amid the translation we carry out (Olegário, 2018; Bampi, 1999; Larrosa, 2018).

Notably, we are involved in keeping research alive through its reconstitution, and not through a "contemplative submission of constituted matter". The archive relates to the future by assembling the materials that live in it and the exercises that we translate into the production of categories between archiving and filing. In other words, we are exercising with memory, forgetfulness, tradition, and what is transcribed at the crossroads of time in education. With this work, we do not intend to generate a predictable ending or model: we want to find indications of what can be achieved and some clues for thinking about it (Corazza, 2013; Aquino, 2014, p.185; Larrosa, 2018; Bampi, Gasteasoro Tourrucô, Dummer Camargo, 2023).

Therefore, the analysis of the archive is an example of the translation of learning, according to a *Didactics of Signs*, permeated by unique teaching and student experiences. We have taken the dissertations to the extent of our interest, in a movement reminiscent of a player in the translated meanings of the texts, rewriting them and trusting in the power of the

fragments, the chosen data. We affirm powers, staging realities and recreating them in exercises that provide mobility to the whole (Bampi; Tourrucôo; Camargo, 2021a; Olegário, 2018).

Archive: translation, categories, and didactics

Based on the regime of objects and sets of rules constituted in our translation, we don't treat discourses as "signifiers that refer to content or representations", but "as practices that systematically form the objects they speak of". What discourses do is more than use signs to designate things, and "it is this 'more'" that we want to bring out and need to describe. Mathematics teachers are faced with many references when they think about teaching methodologies, and they can get lost in the time in which they make their own choices and become dislocated in the anguish of questions about what to do with what they already have (Foucault, 2007, p.60).

In the dissertations analyzed, as examples, teachers express paths that go through problem-solving and mathematical modeling, with functions and their rates of change, combinatorial analysis, and its Fundamental Counting Principle. The methodologies that appear involve the principles of Learning Environments, Concept Images, and didactic sequences. In the speeches, we perceive the essences of different methodologies, full of approximations and distances that involve something more subtle and which we call the *Didactics of Signs*. The contents and methodologies of mathematics teaching observed do not make up an analysis of the research itself but appear as examples of the diversity and generalization that we yearn for in the wake of classes surrounded by the worlds of learning signs.

What we have provided are images, or portraits, that exemplify the staging that exists in math classes, which are thirsty for recreation. The *Didactics of Signs* is made up of the worlds of the signs of learning: mundane, loving, sensitive, and artistic. In the translation of our research, we briefly configure these worlds with the following approximations (Bampi & Camargo, 2016; Deleuze, 2003):

- 1) Mundane signs involve the transmission of information, essentially through explanations, exercises, and examples;
- 2) Amorous signs are of the order of provocation, of instigating the desire to interpret what the object has to decipher, being lying signs;
- 3) Sensitive signs refer to a practice, a movement, or a direct or indirect action on the object of study;

4) Finally, artistic signs involve the other worlds of signs in the singularity of the learner's experience, through which they artistically translate their learning in the expressions of their doing (Camargo, 2022).

It's worth noting that the signs don't appear on their own but in intensity. When we perceive a mundane sign, likely, loving and sensitive signs will also be present, as well as artistic ones. Although there is an apparent linearity, there are no predefined methods or rules: the worlds of signs "unfold according to timelines, real learning lines; but in these lines, they interfere with each other". Hence the exercises of staging and recreating learning, in which the successions of disappointments and failures mix and alternate on the paths of the search (Deleuze, 2003, p. 23-24; Bampi, Gastesoro Tourrucôo, Dummer Camargo, 2021b).

In this way, we set out to establish categories for analyzing the archive as a technique that is not closed in on itself but allows us to give materiality to this study. The previous questions of analysis were the correlation to the respective worlds of signs: What exercises do the transmissions of the content arouse in the students? How are students provoked or instigated to exercise with the signs emitted by the objects of study? How do students stage themselves in movements with the objects of study? How do students express what manifests itself in recreations of their learning?

The aforementioned questions form an initial link of attention when reading the archive. As for the specific categories, these emerge from the analysis of the archive itself, in the observation of the approximations, distances, and ruptures that we find in the discourses. In addition, we would like to emphasize that we are not only dealing with the students' learning but also with the *professor author* of the dissertations, about his training and sensitivity to a didactic approach that intrudes on math classes. With this perception, we can identify possible principles that govern not a new didactic, but what we call a *Didactic of Signs*.

Through the lens of the respective archive, the approximations and distancing of this didactic are manifested according to the previous categories from the archival process, which we call Teaching Preview, Teaching Off-cells, Teaching Movement, and Teaching Evaluation. The *Didactics of Signs* manifests itself in encounters with the signs of learning that are not only linked to repetition from memory, memorizing a formula, or knowing how to solve an exercise. Above all, it is a movement in which the learner translates a sign emitted by the object of study, according to their power to exercise with it and with the *professor tutor* (Bampi, Gastesoro Tourrucôo, Dummer Camargo, 2021b).

In this sense, we think of learning as an approach to singular knowledge, closer to the ability to stage and recreate oneself in solving a problem, for example, than to the ability to

solve an exercise using a given formula, or even to solve a problem. In the same way, learning is closer to knowledge that awakens concern in the student. In these approaches, we realize that the signs of learning can be of different types, with their characteristics in the expression of the student's thinking and reasoning.

Thus, our attention turns even to the professor's silence: a good and generous silence "which is a condition of attention, respect, intimacy and listening", where explanations that are not given can emit signs as valuable as words - silence is not opposed to words, but rather germinates them. The silence of non-explanation is shown to be an emitter of signs that encourage students to enter the labyrinth that the (already given) problem indicates. From the perspective of this article, we emphasize that a problem provokes violence in thought through the desire for a decipherment that is not found in memory or a resolution methodology (Larrosa, 2018, p.417; Camargo, 2011).

However, it is formed from the singular experience that makes it possible to recreate knowledge, given to others. Real problems are not easy to produce, since "the truth of a problem lies only in the possibility of it receiving a solution", including in mathematics, where there is "a general tendency in Greek geometry, on the one hand, to limit problems to the benefit of theorems, and on the other, to subordinate problems to the theorems themselves". In the movement of *archiving*, as a singular and translating analysis of the approximations and distancing of discourses, common interests are identified among the professors who are authors of the constituted archive (Deleuze, 2006, p.229-230).

Approaches and distances

From the data that enables an inherent and necessary worldliness, we move on to a loving motivation, according to which one must be attentive to what is going on in one's thinking. Although there is an inherent *didacticism of duty* in the classes, there is an attempt to *escape from explanations* and to give students autonomy in their doing and thinking. There is also a kind of *didactic attention*: attention to choices that can generate loopholes, even though there may be a lack of looking at the darkness of their time and exhausting the possibilities (Agamben, 2009; Deleuze, 2003).

Repetition is necessary for the mundanity of learning, as is data, but the centrality observed in these elements of the lesson sometimes disturbs and distances itself from our didactic translation. The lack of focus on possible encounters is present, even though the signs are apparent: in the mundanity of the explanation, in the attempt to motivate a loving encounter,

and in the problems that stand out in sensitive signs. On the other hand, art manifests itself in the attention paid to the writing of the student who notices *something* in what is being taught, the student who questions and suggests possibilities for solving a problem, the one who searches the internet, or even the student who just applied a formula and got the question on a test right (Atz, 2017; Batista, 2020; Lazarotti, 2015).

In Lazarotti's work (2015), for example, results were measured in hits and misses through hypothesis testing. At one point, we realized that the parameter didn't say anything, because the result could be random at that particular point of analysis. This gave rise to the conviction that we needed to expand our exploration of the respective object of study. At another point, a number was found that would mean learning, especially in the activity linked to the proximity of the context to everyday reality, as well as the observation that learning and the quality of the plan would be linked to the student's performance of the exercises.

On the other hand, some students also seemed to forget the previous explanations, needing examples to activate their memory of the respective mathematical knowledge. In these three speeches, we see the mirages of a *tired professor* in a world full of exercises that are mistaken for problems and exercises that are exercises. Thus, an assumption is made about possible unsatisfactory learning: with more activities, the differences between concepts could become clearer. This is a distancing in the *archivization* carried out because, in *Didactics of Signs*, there is the principle of a manifesto of less (Atz, 2017; Batista, 2020; Lazarotti, 2015; Bampi & Camargo, 2016; 2017; Deleuze, 2010).

The professors, in the singularity of the experience, and the students, in the repetition of a memory of a previous problem, stage gaps in dialogues modeled on mundanities, but also possibilities for encounters with loving and sensitive signs. However, we identified a tendency to be limited to a duty by the object of study, plans, and methodologies, amid the importance of modeling and patterns in math classes, including through the dance with the time of a question or institution. The *student-individual* already knows something before the lesson, the problem, or even the exercise. And what they don't know is taken as something that hasn't been explained to them, hasn't been seen before in the course, or the previous grade.

The perception that learning is linked to the words of the teacher, who breaks the silence of the subject being taught, is subject to the myth of an explanatory pedagogy that is intrinsic to the work of professors. So professors explain that it is necessary to know something mundane before facing possible encounters with sensitive signs, mixed with loving signs plastered on the walls of contexts. At the end of the lessons, the solutions are given, the test is applied, comparisons are made and the diagnosis is prescribed: the didactic, or lesson method, has, in

this time and school, brought benefits to the teaching of the respective class or even the pairs of students who have signed a consent form (Ranci re, 2007; Batista, 2020; Lazarotti, 2015).

The speeches in the archive deal with free time spent learning functions or combinatorial analysis, for example, where the expected results were achieved to a greater or lesser degree, even if there are always adjustments to be made. This is a portrait of math classes in which learning becomes possible: perhaps in the intelligent questioning that was answered or in the writing of a student who went further and demonstrated her knowledge. We understand that these movements are approaches to a world of art that doesn't fit entirely into technical assessments. After all, learning does not manifest itself in the control that leads to homogenization, but as a problematic event (Gallo, 2012).

There is an approach that is dispersed in essence, but surrounded by encounters with possible signs, especially in the observation of didactics of "duty" that involves information, motivation, exercises/problems, and students' writing/expression. This is a *Didactics of Signs* wrapped in mundanities that can be suffocated in gaps suppressed by the webs of a professor's plan that does not exhaust possibilities and is not yet contemporary with his classroom. However, we have not forgotten that the lessons present in the speeches are borrowed for a specific time, for a specific research project, and according to a historical and institutionalized context, where we find the necessary material for a movement to approach teaching, always staged and recreated in exercises of learning (Agamben, 2009).

The analysis we are proposing is not about observing a better or worse dichotomy, but about the historicity of this archive, according to the translation we carry out through archivization. A work that forms itself into an *archive example* of a possible *Didactics of Signs*, since its elements are present in the classes. We also observed a perception present in the author professors of various levels and characteristics of approaching a *Didactics of Signs*, in which they try to get away from explanations and recognitions.

Author professors look for a motivation that will keep their student's attention in class; they organize and make available movements in exercises and various problems that are enhanced by sensitivities. They look at the students' writing, their production, and art, hoping to capture in those symbols the signs of encounters with the worlds of signs of learning. From the analytical perspective of the archive, and as an image created of the math classes through the research carried out, we move on to the translation of the categories that emerged from the approximations and distancing observed.

Teacher preview

The first category that emerges through our translating lens is the professors' perceptions and concerns and their choices, even before they enter the classroom. Teacher Anticipation is manifested in the approach of professors to their teaching methodologies and theoretical references, a scope that translates a teacher's sensitivity and anticipates the lesson in terms of ideas, possible paths, and the objectives they are aiming for.

In the subset of dissertations that we bring as an example from our archive, the professors start from a perception that students would not learn only through exercises and explanations. In their references, we find elements of a kind of escape from exercise or an explanatory pedagogy. For example, Lazarotti (2015) uses problem-solving in his classes, explaining the difference between problems and exercises. However, there is also the observation of the need for prior knowledge and retention exercises to improve techniques that can help in solving problems, which explore situations in which strategies are developed that provide understanding beyond the mere retention of memory.

This methodology encourages the deepening of knowledge and the awakening of curiosity, making it possible to "create new knowledge with each experience of contact with unusual knowledge". Teacher Anticipation is also present in the possibilities of motivating students and arousing their interest in the content. In the practices analyzed, this movement manifests itself in the desire to make activities contextualized, for example, according to the object of a technical course, in mathematical modeling of a situation linked to the student's experiences, or in the selection of problem situations that are meaningful to the students, observing their needs and leading them to reason (Lazarotti, 2015, p.15; Atz, 2017; Batista, 2020).

Understanding the reality that surrounds the students becomes an inherent path of the professor's thinking, linked to studies already carried out and tested in the choices of their theoretical references. Motivation is in the order of an encounter with loving signs, bringing the student's need to decipher, which can provoke them to want to understand a given situation and, who knows, to express what they are doing, thinking, and learning. The search for new resources and ways of teaching appear in the speeches as important factors in teacher training and are related to this desired student motivation.

This is a teacher's concern that reflects gaps in the classroom, including those linked to students' difficulties in their studies and professors' difficulties in adapting their methods to help students. The professor's willingness to take risks often results in him leaving his comfort zone

and creating creative environments that encourage freedom, investigation, and student participation in class. Professors' attention in this Teaching Preview varies according to their training, preparation, and class situations, in other words, it is mixed with their actions in their words and gestures, in their movements.

Teaching Movements

Next, we see a second category linked to teaching. Teaching Movement is manifested in the organization and actions of professors in their didactic interactions with students. Concerned about getting away from explanations or fixation exercises, the author's professors indicate the need to enable students to think autonomously, seeking to start their lessons not with an explanation, but with an elaborate question. In our examples, Batista (2020) guided his students through questioning, to carry out the desired research into mathematical modeling, while Atz (2017) began with a guiding question.

Lazarotti (2015), on the other hand, provided a start without explanations, evidenced in the methodology employed, in which he applied an initial assessment to verify the hypothesis test used later in his practice. Starting the class with a test, without explanations, even with the intention of comparison, brings another perception to the object of study. The possible encounters with worldly signs were not linked to the information given by the professor but indicated in questions and problems presented directly to the student. In his didactic sequence, the professor turns more to explanation but is still linked to questions and problems that must be thought of by the students themselves at an early stage of the activity.

In the Teaching Movement path, there is a concern to challenge students, although without discouraging them, especially through problem situations, manipulative materials, games, and a variety of teaching experiences and student records, in an attempt to find a subtle balance. This care extends from the Teacher Preview, where the professor's planning and choices, whether in methodologies or activities, contextualized or not, reverberate in the lines of the plan or the gaps in the lesson. Thus, perceiving the gaps in the lesson, or if they are dark, becomes an important teaching characteristic when it comes to genuine learning linked to *the Didactics of Signs*.

Teacher off-cells

The intermediate category called Teaching Off-cells is manifested in the perception of gaps in lessons, which are of the order of the unforeseen, appearing as discoveries of a darkness full of didactic potential. The professor authors of the archive indicate moments when

something off-plan emerged, but which, in general, didn't go ahead due to various factors. The term off-cells is used by neurophysiologists to name a series of retinal cells that are uninhibited in the absence of light, becoming active and producing the particular kind of vision we call dark. We explore this expression through the notion of a *contemporary professor*, who perceives the darkness of the present left by worldly signs and places them about other times (Agamben, 2009; Bampi & Camargo, 2016).

Lazarotti (2015) observes a *dark* moment in his class when the complexity of using limits arose amid a problem, arising from the link in the elaborated statement, we realize that something provided an unforeseen complexity. The paths adopted could have been varied and unforeseen; however, faced with the dilemma, the professor chose to give the students a formula, a calculus tool, facilitating the development of the problem in question. The justification is based on the perception that the students could be demotivated by the difficulty, a notion that relates to the balance that teachers seek in their classes between motivation and challenges.

This is a question that has no simple deciphering, depending on the singularities of the classroom, in its historical, spatial, or temporal conceptions. Although disappointment is part of the mundanity of the classroom and is even an inherent characteristic of encounters with loving and sensitive signs, there are no determining norms for teaching decisions when faced with the gaps that arise in lessons and their respective dilemmas. When rolling the dice of a calculus tool, the professor naturally decided on a safe path, as if to hide the gap that arose using a mundanity, and this, in turn, momentarily resolved the situation and kept the lesson on track (Deleuze, 2003; Camargo, 2022).

The mundane signs, immanent in the movement of the professors, bring a necessary formalization to the problems. However, the question remains: What encounters or lessons could arise from exploring the gaps that manifest themselves beyond the plan? It's not a question of a "good" or "bad" movement, just of singular teaching choices, during a historical context that brings, according to the translation of this research, distancing or approximation to a *Didactics of Signs*. It is also an ethical, political, and aesthetic choice that we make before the lesson: staging and recreating ourselves in preparation exercises (Bampi; Gasteasoro Tourrucôo, Camargo, 2021b).

In turn, Batista (2020) highlights the possibilities of approaching different contents that arose during class discussions, such as Financial Mathematics. However, like Lazarotti (2015), the professor author stuck to the plan, with a specific focus on the desired content. Even so, we observed an important meeting of the students who approached this gap in the lesson and

witnessed, for example, the statement by one of them about his learning related to the high cost of airline tickets (Batista, 2020).

In Atz (2017), such a gap arises when a student asks the professor how to write down a certain thought in a given problem. The professor chose to remain in the plan, indicating that this moment of the student's recording would be taught at a later point in the lesson. In our translation, we saw the student facing a possible encounter with an artistic sign in her learning: after understanding the activity, she was looking for ways to translate her thoughts into writing. If, on the one hand, breaking the moment of the question by waiting for another time may have limited the student's expression, on the other hand, an explanation given at that moment could direct her learning towards a facilitating movement, restricting her thinking to repetition.

Teaching choices are not easy and are linked to the very movement of restlessness and creation that encounters with the signs of learning in class provide. These difficulties involve the teacher's training, experience, sensitivity, preparation, and attention. Learning times are unique: being attentive to encounters that are outside a mundane chronology is part of the attention, and even the predisposition, of the *contemporary professor* (Bampi & Camargo, 2014; 2016; 2017).

Teacher evaluation

A fourth category that stands out in the analysis of the file is reflected in the evaluation that the professor carries out, both of the students and his practice. There are two inherent movements in this category: the perception of what it means to verify student learning and the action in which assessment is carried out in general. In the first movement, we observe that the authors' professors' understanding of the final resolution of the problems proposed, together with their writing methods, are the source of information on student learning.

For example, Lazarotti (2015) states that the students would have understood the content because they had given the expected answers to the exercises: if the students managed to solve the problem, then they had learned and the method worked. In Atz (2017), in addition to the concept of being able to do the problem, there was the notion of learning related to memory, in which students made connections with problems or knowledge studied previously. In Batista (2020), mathematical modeling manifested itself in a broad evaluation, according to discussions developed around the data and the professor's questions.

In terms of action, the professors relate learning to the student's writing practice. In Lazarotti (2015) there was an essentially objective analysis in terms of assessment, so that the professor took the students' scores in the tests given to carry out a hypothesis test, statistically

verifying the students' possible learning in each of the stages he developed. The question of an assessment linked to a form of student expression comes close to the possibilities inherent in encounters with artistic signs, in which students develop their art in terms of learning.

The student's concern about recording her knowledge identifies signs of encounters with the signs of art. Similarly, another student wrote more than she needed to, showing a possible deepening of her learning (Lazarotti, 2015). In this sense, we are approaching a *Didactics of Signs*, in which a possible assessment, i.e. a verification of learning, manifests itself in the observation of an artistic expression by the students in terms of the desired knowledge.

Possible student expressions, on the other hand, don't necessarily have to be written down, which is just a form related to a formalization system intrinsic to the school institution. This is a mundanity that is nonetheless necessary and does not constitute genuine learning in itself. The correlations that many assessments make between carrying out activities and learning are valid, interesting movements that enhance the knowledge developed in the face of a standardized perception.

However, knowledge does not translate the whole of possible learning according to what we understand by the *Didactics of Signs*. Batista (2020), on the other hand, has a discursive approximation in the *archival* process, in which he analyzes that assessment needs to be enunciated constantly during the activities, manifesting itself throughout the dialogues between students and professors. A significant departure is listed in the subscribed perception that students learn when they correctly develop a problem.

This softening of oppositional developments can also be seen in the students' final statements about what they learned most in Batista (2020): that plane tickets are expensive. In this example, learning was involved in sensitive and loving signs, announcing artistic possibilities in dialogues, not necessarily in what was intended as a representation of the desired knowledge. As for the assessment in Atz (2017), an interesting insight is found in the students' insistence on using memory.

The students refer to examples of previous problems, trying to associate them with something from the past, without having a real interpretation of the problem or grasping its differences. The movement of association was interpreted as a movement inherent in the students' learning; however, without the evidence inherent in encounters with artistic signs. It should be emphasized that this observation, or any other of the above, does not testify to the absence of learning, just wandering, or lack of perception, of encounters with artistic signs.

In this way, we still don't know how or what our students have learned: paradoxically, we are approaching a *Didactics of Signs*, insofar as we don't know how someone learns

(Deleuze, 2003). In this *didactic*, a lesson is staged from the very beginning of its preparation, starting with the professor's emotion towards the subject of study, the students, or a situation. A professor can choose not to stage himself too much; however, in the case of this research, it is a duty and an obligation that we offer to others as an invitation to exercise. Because if we haven't practiced enough, we won't be prepared for re-creation (Bampi, Gasteasoro Tourrucôo, Camargo, 2021b).

Other approaches and distances

In *archiving*, other specific points can be observed, or inventoried, as approximations or distances from the *Didactics of Signs* based on the production of the archive. Worldly signs are constantly present in math classes, inherent in the information, and serve as a guide for students and professors. As for the analysis of the unsatisfactory results, the professors indicated the need for more activities, not necessarily specifying a difference in quality, but in quantity.

Nevertheless, Atz (2017) notes the need for the professor to be attentive to what is happening in his or her class, including his or her mistakes, and always be ready to interfere to work out the paths together with the students. Although attention is linked to perceptive representations, and not necessarily to gaps, we can think of a movement of approximation with a predisposition to encounters with the worlds of signs of learning (Deleuze, 2003).

The issue of memory is explored mainly in the discourse of Lazarotti (2015) and Atz (2017). The professors essentially focus their observations on the knowledge that is already present in the student, on something that has already been assimilated, whether in other classes or even in previous problems. This observation is linked by Atz (2017) to a possible difficulty for students who limit themselves to reproducing models rather than seeking a unique interpretation of the problems they are facing.

Another point to highlight is the approach to students' difficulties in reading the instructions in a book on their own, to interpret the problems presented on their own. In Atz (2017), the steps of individual and collective reading of the problem statements are part of the methodology developed. These steps are important within the worldview used by the respective professor, but also a movement in which the students had many difficulties, not carrying out what was being proposed with due attention.

For Batista (2020), the students' difficulty in reading and interpreting is justified as a consequence of Mathematical Modeling, which would have taken them out of their comfort zone. A comfort zone in which "the student takes a passive stance during lessons, and in this new learning environment they are the protagonists of their learning" (Batista, 2020, p.75-76).

The movement towards and away from the *Didactics of Signs* is manifest and exemplified in the **archival** process developed.

Inventoried Possibilities for *Didactics of Signs*

Dreaming, wishing, planning: all of this is writing, but the difference between you and the average person is that you're looking at it, putting it all together in your head, realizing the significance of the insignificant, and putting it down on paper. You may be immersed in the agonies of love or pain, but you are merciless in your observation. You are your material. You are a writer and one thing is certain: whatever happens [...] you will never be bored again (Mccourt, 2006, p. 252).

In this work, we glimpse approximations and distancing from a *Didactics of Signs*: an opportunity to rethink what we learn and teach, as well as the very images of classes, constituted in the small stories of a Graduate Program. In the characters that make up the scenarios in our archive, we can see a tangible weariness in the number of achievements, organizations, and plans. In the archive, there is evidence of attempts to escape and of teaching involved in plans, intertwined with other desires for singular encounters in which *tired professors* seek to reach the depths of classes amidst their methodological surfaces (Bampi & Camargo, 2016).

However, nothing is new, but renewed by the exhaustion of what already exists, of experiences and models already lived. The plans, methodologies, theories, and activities are the background elements in the room and the dissertation archives. In this environment, there is a will that is established, an organization that develops, and an expectation that is recreated. The explanations and reports found in the archive involve voices and scenes of learning that move between worlds of signs, in their often-unknowable bustle of glances that go beyond repetition and disappointment.

We haven't analyzed lesson plans or a text, but we have produced an archive and from the life that is extracted from it, in its times and experiences, we have made a translation that doesn't necessarily reveal new methodologies. This translation creates our way of observing others and ourselves and we continue to ask ourselves: Where is the learning? Which students can say they have learned mathematics? Those who applied the formula correctly? The one who interpreted the problem correctly? Or the one who went beyond what was predicted? Which of them created their art? And what do we do with what mundanity puts in our hands?

There are no vectors indicating meanings, but rather a search for evidence and clues about the acts of recognition that occupy a central place in our mundane tribulations, whether

in their approximations, distancing, or attempts to escape. In the movement of making matter speak, we use voice, gestures, problems, models, examples, exercises, and explanations: elements of a scenario that are shaped by times and places, and even resources. Many possible exercises make up the classroom space, whether natural or constructed in a learning environment by the artisan professor - as someone who thinks and knows what they are doing - according to a set of skills and knowledge, and even dexterity, in a movement of art that can always be learned and improved (Larrosa, 2018).

Quality even manifests itself in the idea of a new thing that doesn't require the old to be subjugated; nor does it refer to the creation of a new material that will give it prior support. After all, even the quantification of data, whether in hypothesis testing or various evaluations, can move thought, and encounters with signs of artistic learning can occur. The very impossibility of anticipating paths becomes relevant in its uncertainty of paths, as it brings an essence of valuing the mundanity of informative data (Bampi, Tourrucôo, Camargo, 2016).

In the image of the *Didactics of Signs*, we see the mundane sign as a principle of learning. One of its characteristics is its tendency to dissipate quickly, being replaced by another in a sequence that tends to infinity: a mechanical reproduction that can never be repeated existentially and where "the event never overtakes something else" (Barthes, 2012, p.14). It is precisely in the difference that can arise in repetition, or a gap, that an encounter becomes possible, according to a force of disquiet. And so a new sign is established in the place of mundanity, without its power being obliterated.

There are potentialities in the classroom, according to a game of probabilities, approximations, and distancing from a gaze that is attentive to the singularities, regularities, and mathematics that emerge in the activities: be it in the information that instigates, in the awakening of sensitivity or in the task that is investigated or carried out. What we understand as learning requires re-creation: new and unique possibilities and differences are generated for each learner (Gallo, 2012). In terms of the plan, the information does not come alone but is accompanied by the professors' intention, namely to motivate the students in their relationship with the object of learning. Their writings, speeches, questions, and movements intertwine in worlds of artistic signs, according to complex and unforeseen combinations.

The experiences of learning do not always reproduce a copy of the object of knowledge but manifest themselves in other writings or in questions and perceptions that concern life itself. The information is no longer empty in its mundanity but configures a unique learning experience in the movement of the lesson and the plan. It's not a question of excluding exercises, examples, and formulas from didactic activities, but rather of allowing escapes when these

elements of the classroom fail to bring students closer to an artistic learning experience that is unique and full of creation. Even the mundane repetitions of exercises to fix a problem have value in these movements as a possible improvement, in which the student establishes new knowledge about a given piece of content (Lazarotti, 2015).

Everyone, students and professors alike, encounters the signs of learning as they approach and distance themselves from an object of knowledge, between empty mundanities or potentialized transformations of other signs, in which the mantle of a representation is broken in the stitching of thought itself.

In the order of experience, love can emerge and bring closer the desire to decipher the beloved object, or distance itself in pain and jealousy through the disappointment of the error of a hasty interpretation or subjugated by faster signs of the copy of the explanation. And in the sensitive movement, in the pathways of the object, there is the attempt to discover what is hidden, bringing understandings closer together or pushing them apart in failure. All these movements are linked to an art of creation and singular encounters, unpredictable and unspeakable in their materiality (Deleuze, 2003).

Here, we have a microscopic and telescopic lens: we look at tiny gaps in an archive, and between the lines, we see signs of a *didactic* approach that emerges from difference. These are curricula, didactics, and methodologies given and reflected in the formative mirrors of teaching history. Elements from which we do not deviate, but explore according to our unique translation; elements through which we think about the mathematics classroom, observing differences in the approximations and distances from a *Didactics of Signs*.

We visualize the Teaching Anticipation in the expectations and preparation of lessons, we intuit the Teaching Motivations in the wake of the desires for genuine thoughts and not just elements of reproduction, we observe the attention of a contemporary professor's approach through Teaching Off-cells, and we ask ourselves where the art of true mathematical learning lies in terms of a *Teaching Evaluation*. The strands of this work echo and intertwine in other approaches and distances - from necessary repetitions - to concerns about reading and writing, until they resonate in learning that doesn't always reveal the object of study, intertwining in unique student contexts and creations.

What we bring to this research is a possible translation of an explored *archival* process, not necessarily effective, just the power of a re-creation: an image to be observed, thought about, and even transformed into other decipherments. This is learning that is shaped by the unique subjectivities of each individual in their own rules, observing a creative student domain. In the art of knowledge itself, whether informing, loving, feeling, or creating a movement in

which the learner uses mundanities, loves searches and results in singular motivations, feels the forms and possibilities of the object of study, translating their experience into an artistic expression of creation (Bampi; Camargo, 2016).

For, "Goodwill and a well-developed method are not enough to teach us to think, just as a friend is not enough to bring us closer to the real thing. [...] Truth is not given, it is betrayed; it is not communicated, it is interpreted; it is not voluntary, it is involuntary" (Deleuze, 2003, p. 89). In our work of invention, in *archiving* and *filing*, we have constructed approximations and distancing of a *Didactics of Signs* as an archival gesture that operates an interval fold in the present, dividing what we no longer are and, at the same time, forcing us "to conjecture what we have become" (Aquino, 2020, p.350).

The *didactics of signs* is already in math classes, regardless of the content and methodologies of the professors; it needs to be translated. It resounds in the emission of signs that swarm in the expectation of an encounter; in attentive perceptions that can potentiate them in the darkness of the classroom. The *didactics of signs* are affirmed in the exercises of our professors through the curiosity of a loving encounter and an eternal return of difference.

— *Love forgives even the desire to be loved* (Nietzsche, 2013, p. 133).

References

- Agamben, G. (2009). *O que é o contemporâneo?* e outros ensaios. Tradução Vinícius Nicastro Honesko. Chapecó: Argos.
- Aquino, J. G. (2014). *Da autoridade pedagógica à amizade intelectual: uma plataforma pra o ethos docente*. 1 ed. São Paulo: Cortez.
- Aquino, J. G. & VAL, G. M. do (2018). Uma ideia de arquivo: contributos para a pesquisa educacional. *Pedagogía y Saberes*, Bogotá, 49, 41-53.
- Aquino, J. G. (2020). Operação arquivo: pesquisar em educação com Foucault. In: Aquino, J. G. (Organizador). *Foucault, arquivo, educação: dez pesquisas*. São Paulo: FEUSP, 337-353.
- Atz, D. (2017). *A Análise Combinatória no 6º Ano do Ensino Fundamental por meio da resolução de problemas*. [Dissertação de mestrado profissional em ensino de matemática, Universidade Federal do Rio Grande do Sul]. <https://lume.ufrgs.br/handle/10183/164618>

- Bampi, L. R. (1999). *O discurso da Educação Matemática: um sonho da Razão*. Porto Alegre: UFRGS/FACED/PPGEDU. (Dissertação, Mestrado em Educação).
- Bampi, L.; Telichevesky, M. (2012). A estudante e a professora fugitiva... Um encontro necessário. In *Childhood & Philosophy*, Rio de Janeiro, v. 8, n. 16, jul./dez, p. 459-476.
- Bampi, L. R. & Camargo, G. D. (2016). *Didática dos Signos: ressonâncias na Educação Matemática contemporânea*. Bolema, Rio Claro (SP), v. 30, n. 56, p. 954 - 971.
- Bampi, L., Tourrucô, F. y Camargo, G. D. (2016). Como enxergar no aprendizado de alguém a arte de tecer mundos? En Kohan, Walter (Ed.) **VIII Colóquio Internacional. de Filosofia e Educação**. Rio de Janeiro. Mundos que se tecem entre "nosotros". <http://www.filoeduc.org/8cife/>
- Bampi, L. & Camargo, G. D. (2017). *Didática do meio: o aprender e o exemplo*. Educação E Pesquisa, São Paulo, v. 43, n. 2, p. 327-340.
- Bampi, L. R., Tourrucô, F. G. & Camargo, G. D. (2021a). Entre confinamentos e signos amorosos: exercitações de encenações e recriações docentes. *Hybris*. Revista de Filosofía, Vol. 12 N° 2. ISSN 0718-8382, noviembre, p. 169-191 190.
- Bampi, L., Tourrucô, F. G. & Camargo, G. D. (2021b). Sobre métodos e avaliações: uma experiência como prova e um aprender como consequência. In Álvarez-Muelas A. Arcos-Romero I. (Comps.). *Avances en Ciencias de la Educación Investigación y Práctica* (p.486-491). Madrid: Editorial Dykinson.
- Barthes, R. (2012). *A câmara clara: nota sobre a fotografia*. Tradução: Júlio Catañon Guimarães. Ed. Especial. Rio de Janeiro: Nova Fronteira.
- Batista, M. (2020). *Princípio Fundamental da Contagem e Modelagem Matemática nos anos finais do Ensino Fundamental* [Dissertação de mestrado profissional em ensino de matemática, Universidade Federal do Rio Grande do Sul]. <https://lume.ufrgs.br/handle/10183/220402>
- Bello, S. E. L., Zordan, P. & Marques, D. (2015). Signos e interpretação: entre aprendizagens e criações. *Cadernos de Educação*, 52, 1-19.
- Benjamin, W. (2008). A tarefa do tradutor. Branco, L. C. (Org.). *A tarefa do tradutor de Walter Benjamin: quatro traduções para o português*. Belo Horizonte: Fame, 25-49.

- Borba, M., Almeida, H. R. F. L. de & Gracias, T. A de S. (2020). *Pesquisa em ensino e sala de aula: diferentes vozes em uma investigação*. 2. ed. Belo Horizonte: Autêntica.
- Camargo, G. D.; Bampi, L. R. (2014) Sobre o que pode a escola - Do professor cansado ao professor ao professor contemporâneo. In: VII Colóquio Internacional de Filosofia da Educação, Rio de Janeiro. VII Colóquio Internacional de Filosofia da Educação - O que pode a escola hoje em nossa América? v. 1. p. 1-13, 2014.
- Camargo, G. D. (2011). *O ato da explicação e o aprender: experiências com o ensino de matemática*. [Trabalho de conclusão de curso. Licenciatura em Matemática. Universidade Federal do Rio Grande do Sul]. <https://lume.ufrgs.br/handle/10183/31956>
- Camargo, G. D. (2022). *Arquivo de um aprender: a Didática dos Signos e as aulas de matemática* [Dissertação de mestrado acadêmico em ensino de matemática, Universidade Federal do Rio Grande do Sul]. <https://lume.ufrgs.br/handle/10183/263283>
- Corazza, S. M. (2013). *O que se transcria em educação?* Porto Alegre: UFRGS.
- Deleuze, G. (2003). *Proust e os signos*. Tradução de Antonio Carlos Piquet e Roberto Machado. Rio de Janeiro: Forense Universitária.
- Deleuze, G. (2006). *Diferença e Repetição*. Tradução de Luiz Orlandi e Roberto Machado. 2. ed. Rio de Janeiro: Graal.
- Deleuze, G. (2010). *Sobre o teatro: um manifesto de menos; o esgotado*. Tradução de Fátima Saadi, Ovídio de Abreu e Roberto Machado. Rio de Janeiro: Jorge Zahar.
- Foucault, M. (2007). *A arqueologia do saber*. Tradução Luiz Felipe Baeta Neves. 7. ed. Rio de Janeiro: Forense Universitária.
- Foucault, M. (2016). *A hermenêutica do sujeito*. São Paulo: Martins Fontes.
- Gallo, S. (2012). As múltiplas dimensões do aprender. *Congresso de Educação Básica: aprendizagem e currículo*, Florianópolis, 1-10.
- Larrosa, J. (2018). *Esperando não se sabe o quê: Sobre o ofício de professor*. Tradução Cristina Antunes. Belo Horizonte: Autêntica Editora.
- Lazarotti, R. F. (2015). *O ensino de funções através do uso de taxas de variação em problemas práticos* [Dissertação de mestrado profissional em ensino de matemática, Universidade Federal do Rio Grande do Sul]. <https://lume.ufrgs.br/handle/10183/13365>

- Mccourt, F. (2016). *Ei, professor*. Tradução Rubens Figueiredo. Rio de Janeiro: Intrínseca.
- Olegário, F. (2018). *Jogo com arquivos: procedimentos didáticos tradutórios* [Tese de Doutorado em Educação, Universidade Federal do Rio Grande do Sul]. <https://lume.ufrgs.br/handle/10183/182461>
- Nietzsche, F. (2013). *A Gaia Ciência*. Tradução Antonio Carlos Braga. São Paulo: Escala.
- Prates, A. P. (2020). O encontro arte-museu-educação no jogo entre liberdade e governo. Aquino, Júlio Groppa (org.). *Foucault, arquivo, educação: dez pesquisas*. São Paulo: FEUSP, 232-266.
- Ranciére, J. (2007). *O mestre ignorante*. Tradução de Lílian do Valle. 2. ed. Belo Horizonte: Autêntica.