CREATIVE AND INNOVATIVE TRAINING PRACTICE IN THE MATHEMATICS PEDAGOGICAL RESIDENCE PROGRAM IN A LESSON STUDY CONTEXT

PRÁTICA FORMATIVA CRIATIVA E INOVADORA NO PROGRAMA DE RESIDÊNCIA PEDAGÓGICA MATEMÁTICA EM CONTEXTO DE ESTUDO DE AULA

PRÁCTICA FORMATIVA CREATIVA E INNOVADORA EN EL PROGRAMA DE RESIDENCIA PEDAGÓGICA MATEMÁTICA EN EL CONTEXTO DEL ESTUDIO EN EL AULA

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ABSTRACT: This study aims to address the formative movement triggered by a creative and innovative dynamic printed in the Mathematics Pedagogical Residency Program at the Federal University of Paraná (UFPR) in a Lesson Study context. Qualitative in nature from an analytical-systemic perspective, it involved students from the Mathematics Degree course, guiding teachers from UFPR, preceptor teachers from schools in the state education network and elementary and high school students from these same schools. The data comes from observations and notes in the researchers' logbooks. The innovative and creative practices involved the development of exploratory tasks as a didactic strategy for planning classes on the topic "financial education". The result indicates that the training dynamics developed made it possible for residents to perceive that it is possible to develop a dynamic didactic process for teaching practice concerned with mathematical meaning and conceptual learning

KEYWORDS: Teacher Training. Pedagogical practice. Mathematics degree. Creativity. Lesson Study.

RESUMO: *Este estudo tem como objetivo abordar sobre o movimento formativo desencadeado por uma dinâmica criativa e inovadora impressa no Programa de Residência Pedagógica Matemática da Universidade Federal do Paraná (UFPR) em um contexto de Estudo de Aula (Lesson Study). De natureza qualitativa em perspectiva analítico-sistêmica, envolveu estudantes do curso de Licenciatura em Matemática, professores orientadores da UFPR, professores preceptores de escolas da rede estadual de ensino e alunos do Ensino Fundamental e Médio destas mesmas escolas. Os dados advêm de observações e anotações em diário de campo das pesquisadoras. As práticas inovadoras e criativas envolveram a elaboração de tarefas exploratórias como estratégia didática para o planejamento de aulas sobre o tema "Educação Financeira". O resultado aponta que a dinâmica formativa desenvolvida possibilitou a percepção dos residentes de que é possível o desenvolvimento de um processo didático dinâmico para a prática docente preocupada com o significado matemático e a aprendizagem conceitual.*

PALAVRAS-CHAVE: *Formação de professores. Prática pedagógica. Licenciatura matemática. Criatividade. Lesson Study.*

RESUMEN: *Este estudio tiene como objetivo abordar el movimiento formativo desencadenado por una dinámica creativa e innovadora impulsada por el Programa Residência Pedagógica Matemática de la Universidad Federal de Paraná (UFPR) en el contexto del Estudio de Clase. La naturaleza cualitativa en perspectiva analítico-sistémica, participaron estudiantes de la carrera de Matemáticas, tutores de la UFPR, profesores preceptores de escuelas de la red educativa estatal y estudiantes de enseñanza básica y media de esas mismas escuelas. Los datos provienen de observaciones y notas en los cuadernos de los investigadores. Como prácticas innovadoras y creativas involucré la elaboración de tareas exploratorias como estrategia didáctica para la planificación de aulas sobre el tema "educación financiera". El resultado demuestra que una dinámica formativa desarrolla la posibilidad de percibir a los residentes de que es posible el desarrollo de un proceso didático dinámico para una práctica docente preocupada con el significado matemático y el aprendizaje conceptual.*

PALABRAS CLAVE: *Formación de profesores. Práctica pedagógica. Licenciatura matemática. Creatividad. Estudio de la lección.*

Introduction

This study aims to address the formative movement triggered by a creative and innovative dynamic printed in the Mathematics Pedagogical Residency Program at the Federal University of Paraná in the context of *Lesson Study*, hereinafter referred to as Lesson Study. The study design approaches an analytical-systemic perspective (Moraes, 2023) typical of a genuinely qualitative methodology, in which participants, actions and context are analyzed in relation, given the interdependence that is inherent to them. The idea of system adopted comes from what was stated in Moraes (2023, p. 53, our translation) that "a system can only be understood if it includes its environment, which is part of itself and which, at the same time, constitutes its surroundings and flows that nourish it." The author explains that the concept of system is inseparable from that of organization. Thus, "a system is an organized global unit of interrelations and the organization is the arrangement of relationships between the constituent elements (interactions, feedbacks, reactions, etc.)" (p. 53, our translation). It follows that a phenomenon cannot be analyzed due to the fragmentation resulting from its decomposition, due to which participants, actions and context are analyzed in relation, as explained. The data comes from observations and systematic records in the researchers' field diary produced in a descriptive way.

In conceptual terms, echoing Torre (2010) and Ribeiro and Moraes (2014), we adopt an open and non-static concept of creativity, seeking connection with a theoretical-epistemological perspective that fosters dynamic didactic processes compatible with a teacher training process in a more systemic and less fragmented way, which considers the emergencies specific to the classroom, and outside of it, as a stimulus for the conceptual learning of curricular contents.

We consider that this connection can be established by Class Study taken as a teacher training process, when developed in collaborative and reflective environments and spaces, open to innovation and creativity, such as the Pedagogical Residency Program (PRP), more specifically, the PRP Mathematics developed at the Federal University of Paraná (UFPR).

However, for the alchemy between creativity and innovation to come to fruition, it is essential that there is a supportive environment, where residents feel safe to take risks, make mistakes and learn from these mistakes. Such a supportive environment, in the Mathematics Pedagogical Residency Program at UFPR, has a contribution in the context of Class Study as it allows teachers and future teachers to experience teaching through collaborative work. Given this scenario, we discuss the formative movement triggered by a creative and innovative

dynamic printed in the Mathematics Pedagogical Residency Program at the Federal University of Paraná in a Class Study context.

The Pedagogical Residency Program

The Pedagogical Residency Program (PRP) marks a new perspective in teacher training in Brazil. It is an initiative that seeks to promote the collaborative training of teachers, involving graduates in a field school, called residents, as well as Basic Education preceptors and university advisors. The objective of the program is to insert the resident in a planned and systematic way into the school environment, providing real day-to-day experiences at school and in the classroom, with the mediation of theoretical and practical reflections, as outlined by GAB Ordinances No. 38 (Brazil, 2018), GAB No. 259 (Brazil, 2019) and GAB No. 82 (Brazil, 2022) of the Coordination for the Improvement of Higher Education Personnel (CAPES). Furthermore, the PRP seeks to stimulate innovation and creativity in the training of future teachers, exploring new teaching methodologies and techniques, in order to prepare professionals who are more engaged and able to face the challenges of contemporary education.

However, it is observed that the approach to innovation and creativity, as aspects foreseen in the documents that establish the PRP, has become a growing trend. Ordinance No. 38 (Brazil, 2018), mentions support for Higher Education Institutions (HEIs) for the implementation of innovative projects, which articulate theory and practice, in undergraduate courses in partnership with public Basic Education networks. There are no references to creativity in this document yet. In Ordinance No. 259 (Brazil, 2019), such approaches are present among the objectives of the Institutional Teaching Initiation Scholarship Program (PIBID), highlighting the importance of innovative and interdisciplinary teaching practice in the context of initial teacher training. However, among the objectives of the PRP, there is no mention of innovation and creativity. However, the PRP is included among the characteristics of what should cover the institutional project of HEIs, whose document highlights “the development of actions that stimulate innovation, professional ethics, creativity, inventiveness and peer interaction” (Brazil, 2019), in relation to starting teaching. In Ordinance No. 82 (Brazil, 2022), the approach to innovation and creativity is also included among the characteristics that the institutional project must contain in relation to: (i) the articulation of initial training with continuing training; (ii) the performance of residents (undergraduates) in innovative teaching activities and (iii) encouraging the development of innovative and creative pedagogical actions.

Therefore, it is understood that all the Ordinances mentioned have in common the purpose of promoting innovation in teacher training, through the implementation of programs that encourage practical experience and the adoption of innovative and creative practices. The intersection of innovation and creativity in PRP may lie in the possibility of real-time experimentation. Residents, immersed in the school environment, encounter daily challenges that require creative solutions. These challenges can range from adapting complex content to more accessible language, to using emerging technologies to engage Basic Education students. Furthermore, the PRP, by providing this practical experience, also offers a unique opportunity for critical reflection on teaching practice. This reflection, when based on creativity, can lead to significant innovations in the teaching and learning process.

Class Study

Class Study is characterized as an approach to the professional development of teachers in different domains of knowledge and teaching levels, supported by two central principles: collaboration and reflection. Centered on the teacher's pedagogical practice and focused on student learning, it promotes professional relationships, sharing of ideas, peer support, mutual encouragement and overcoming hierarchies, anchored by a reflective process capable of developing an analytical, questioning and critical stance (Richit; Ponte; Gómez, 2022).

Therefore, it breaks with the isolation stance assumed by teachers when teaching, a stance that is characteristic of current years in which work is carried out alone, from planning to evaluation. Class Study, as an investigation process, enables the study of students' reasoning, lesson planning, anticipating student responses, data collection during the implementation of the lesson and discussion of student responses and the outcome of the proposed teaching. (Estrela *et al.*, 2022), based on collective work by teachers. It also provides opportunities for changes in professional practice regarding the objectives and intentions for teaching curricular topics, the strategies and resources involved, and the ways of planning professional practice in an eminently collaborative process (Richit, 2022).

Originally from Japan, following changes in the country's education system that broke with the individual perspective that characterizes teaching, Japanese teachers began to work collectively and discuss their classes before and after they were held, a practice that is widespread in several countries with adaptations to different realities and cultural contexts. In Brazil, Class Study has been present since the last decade, with research work carried out by professors from different universities that gave rise to dissertations, theses and articles that, in

turn, have highlighted important contributions to teaching professional development and to implement changes in the teaching of Mathematics (Richit; Ponte; Gómez, 2022).

According to Ponte *et al*. (2016) Class Study develops as a cycle that unfolds into four major moments: (i) definition of a research question and curricular study; (ii) planning the investigation class taking into account objectives related to student learning; (iii) observation of that class and data collection and (iv) reflection on the class based on the data collected.

Initially, a theme and/or research question is defined by teachers or students, based on a common interest or a learning difficulty. Studies are carried out on the content involved and on curricular guidelines related to the topic. Next, the research class is planned. Planning needs to take into account teaching objectives, involve the construction of teaching tasks and strategies, develop class observation instruments and anticipate possible doubts or difficulties that students may encounter when carrying out activities. The observing teachers and the teacher who will teach the investigation class are defined. The class is taught and notes are taken, based on observation of the students, by the teachers. Next, the observed class, based on the notes made, is a reason for analysis, reflection and collective discussions among the teachers participating in the process. The possibilities of the class to promote learning for students, as well as teaching learning regarding planning and teaching processes are the subject of such discussions.

Some authors consider that from then on, if deemed necessary during the discussion, a new cycle can be started. This cycle involves a new lesson planning (based on the same objectives) to be taught to another group of students and the analysis and reflection of the new lesson (Murata, 2011; Fujii, 2018).

This approach promotes a different teacher training process than usual. The teacher is invited to build pedagogical practice instead of reproducing pre- elaborated processes. In this sense, creativity and innovation are also important characteristics of Class Study. By moving constructive processes, teachers mobilize thoughts and actions in an environment created, organized and supportive of the evolution of provocative, creative and transformative ideas. By visualizing, collaboratively and based on collective reflection, solutions to problems, by making decisions, by distinguishing relevant information, by strengthening arguments, predicting, synthesizing and evaluating, the teacher develops creative thinking (Suanno, 2017). Furthermore, Class Study favors dynamic cohesion and common goals, which makes it potentially creative (Torre, 2010)

Criativity and innovation

The polysemy that permeates the term "creativity" resulting from approaches in so many fields of knowledge, as well as internally within them, drives us to anchor our conceptual basis in the position of Ribeiro and Moraes (2014, p. 99, emphasis added, our translation) that,

> Currently, despite the excessive number of concepts and interpretations, the most used, as well as the most common way of referring to creativity in new times, is to say that it is a **complex, multifactorial, multidimensional, plural phenomenon**, among other terms that signal, in contemporary times, more open views. The discourse that not only the individual and cognitive aspects must be taken into account, but also the psychosocial and environmental aspects must also become more common, in short, it encourages us to believe that the losses of fragmentation have already been or are being gradually realized.

According to Torre (2010), when a **group** has dynamic cohesion and common goals, this group has the possibility of becoming creative. This is because such cohesion creates a climate that produces energy that flows between its members and expands in the relationships that are naturally established, this energy being the creative power of the groups. We add to the Tower, Suanno's (2017, p. 29, our translation) perception about the emergence of creativity "where the dialogue between people, of thoughts and actions, proposals and sensitive listening, expresses the freedom of manifestations with confidence in an environment created, organized and maintaining the evolution of provocative, creative and transformative ideas".

The UFPR Mathematics PRP involves four constituent parts of the educational network, three of which work in a group in an organic way (university training teachers, school supervising teachers, future teachers who are students of the mathematics degree course) and one of them, that of basic school students, is the tip relative to the common goal of the creative proposition. It is from the analysis and group reflection on the implementation of the proposition prepared in a group at school, that the feeding elements of each class come, a component of the creative proposition. It is an environment in which group activity takes place through freedom of expression and manifestation, in a movement of coming and going about ideas based on school knowledge and ways of developing it, a movement that is the object of Class Study, just as we developed it. Without a doubt, "This means escaping the seduction of our comfort zone and creating resources of estrangement from the positivist rationalist logic that is always promising us solid ground" as stated by Ribeiro and Moraes (2014 p. 251, our translation). Furthermore, for them, creativity is considered "as the emergent state that arises

from congruent autopoietic processes or from the structural coupling between the individual and the environment" (Ribeiro; Moraes; p. 259, our translation).

Torre (2010) lists three key points for the school to offer creative education, namely: (i) teacher training, since the possibility of the school offering creative education necessarily passes through the teacher; (ii) the creation of innovation projects; and (iii) the presence of creativity in the curriculum, not as a discipline or other form of imposition, but in teaching action that enhances the development of creative attitudes and skills. In this sense, Torre (2010) understands that creativity transcends the cognitive scope, being also will, emotion and decision, which we understand to be in line with Suanno (2017) regarding collaboration for the development of autonomy, self-confidence, self-esteem, freedom of thought, as well as empowerment to position and make decisions in your life.

Suanno (2017) states that the development of creative thinking can occur through the visualization, in groups, of solutions to specific problems, as the actions that result from this can help the development of:

> prediction, synthesis, evaluation and decision-making capabilities, in addition to developing value judgments, distinguishing relevant from non-relevant information and reasons, determining the credibility of information, recognizing logical inconsistencies, identifying logical fallacies and the strength of an argument (Suanno, 2017, p. 266, our translation).

Still with Suanno, it is assumed that this development entails the construction of a level of reality that is immediately more expanded than the previous one, which results in the ability to understand reality at other, more evolved levels and that, to this end, "the importance lies in I work with a multi-referential and multidimensional vision in order to find new meanings for the same situations, or new ones that present themselves to us all the time". (Suanno, 2017, p. 268, our translation). In fact, Ribeiro and Moraes (2014) strengthen the idea that creativity conceived as a complex and multidimensional phenomenon is not subject to ritualization organized in pre-fixed stages, as it is inherent to the human constitution. "It is a phenomenon that manifests itself as an emergence from self-eco-organizing processes, inherent to the constitution of all living beings". (Ribeiro; Moraes, 2014, p. 260, our translation). From this, we have the purpose of *creativity of an ecosystemic nature* coined by Moraes (2014) resulting from the reconnection of the ecological and systemic dimensions in the conception of creativity as emergence. According to Ribeiro and Moraes (2014, p. 262, our translation),

> The assumptions that underlie a pedagogical practice adjusted to the nature of creativity point to the existence of a new educational environment, whose

> energy that emerges from it can bring a new creative scenario, characterized by space and ecosystem processes that act in the expression of creativity.

In a non-Cartesian interpretation, we construct the idea of the non-existence of a relationship of direct implication, or order, between creativity and innovation. Although innovation comes in some way, from creative processes, in a systemic way, both are strengthened in an environment favorable to relationships between peers, the freedom of thinking, the possibility of trying and what emerges from situations that are not controllable a priori. In this case, the innovative environment is that of PRP.

Innovation and creativity in a Class Study

The UFPR Mathematics PRP is made up of Mathematics course graduates - residents, who are organized into three groups ranging between 5 and 8 participants. Each group is linked to a Basic Education preceptor teacher, belonging to a different field school, in the public education network, in the city of Curitiba-PR.

Class Study in the PRP Mathematics at UFPR is developed in the form of cycles, the systematics of which include weekly monitoring of the preceptor teacher in his daily activities at school and the meeting of small groups at the University, in periodic meetings, forming a large group. In these meetings, the large group focuses on analyzing and reflecting on the practices planned and carried out by the small groups. And, with this, doubts, clarifications, suggestions and new referrals are generated as a contribution to the improvement of lesson plans, prepared in small groups.

Thus, the practices developed by residents constitute a process of collaboration between peers that begins in the small group, with the creation of exploratory tasks and strategies on how to propose these tasks in the classroom. It continues in the large group, with analysis and suggestions for improvements to the tasks and strategies developed, and returns to the small group, for reflections and final modifications to the tasks and/or strategies, before starting the planned investigation class, constituting a collaborative movement that goes from the local to the general and returns to the local, that is, from the small group to the large group and back to the small group.

This is a creative and innovative movement of training practice in a teaching learning environment, mediated by the articulation between initial training and continuing training, based on collective work developed in collaboration between peers.

The innovative aspect implemented in the training process of PRP Mathematics extends to the internal movement of small groups in carrying out the Class Study cycles. For the development of a cycle, the starting point is the choice of the class theme. Once the theme has been defined, which may originate from students' learning difficulties and/or the need for teachers and future teachers to study for teaching, each group begins a creative process of developing a practice to develop the class on the chosen theme.

One of the themes chosen was Financial Education. The reason for choosing this topic was the need for knowledge of the area, given the recent inclusion of a subject with the same name in the High School curriculum. Currently, Financial Education is addressed in the National Common Curricular Base (BNCC) as a transversal theme to be developed in different disciplines. It has been included in the public high school curriculum in the state of Paraná since 2021, by Joint Normative Instruction No. 011/2020 - DEDUC/DPGE/SEED (Paraná, 2020) and is included in the school curriculum as an object of knowledge in the Final Years of Elementary School, according to Normative instruction No. 007/2023 - DEDUC/SEED (Paraná, 2023).

The inclusion of Financial Education in the High School curriculum impacted both future teachers, as there is no curricular provision for a degree in Mathematics to deal with this area, and in-service teachers, who also did not have the opportunity to participate in specific continuing education About the subject. With the theme defined and theoretical and curricular studies carried out, each small group began the process of creating the exploratory task that they would develop in the investigation class. The tasks created so far have covered different subjects: family budget; financial investments; purchasing merchandise as the best option for purchasing t-shirts and cell phones; marketing of products such as sales of coxinhas and brigadeiros; cost-benefit analysis such as the choice between means of transport to get to school or work. As an example, we will specifically deal with the creation of an exploratory task on the family budget.

Residents learned to organize planning from the moment they realized the need to anchor the approach to content relevant to the theme “family budget” in everyday situations that made sense to school students. An interesting and formative fact of this process was the discussion of the meaning of knowledge for school students, at the same time that the meaning of knowledge for residents was discussed. It was decided that an exploratory task would be the teaching strategy to place residents in a position of inquiry and reflection in the face of knowledge, at the same time as it would enable students to investigate situations that were curious to them, develop the ability to predict, synthesize, evaluate and take decision-making

(Suanno, 2017) and sharpen the mathematical sense, which is in line with Baptista, Ponte, Velez and Costa (2014) who characterize it as an open, accessible and challenging task for students. From this characterization, the investigative action is at the heart of the exploratory task, enhancing the open and non-static concept of creativity that we adopted.

Thus, the small group met at the school and began the process of creating the exploratory task, comprising the survey of ideas about contexts that are part of the reality of the school's students, more specifically, the class in which it was developed, search for information relating to the contexts chosen for the task, elaboration of the statement of that task with the respective resolution and analysis of the knowledge necessary to solve the task. An environment of debate was established, where the residents, mediated by teachers, preceptor and advisor, presented arguments and counter arguments with the pros and cons in relation to the objective that the group wanted to achieve by proposing such a task, the previous knowledge necessary for carrying out the task and the meaning and meaning it would provide to the students. In this way, each participant's speech contributed to the emergence of a set of new ideas for the other participants. It was in this movement that creative practices emerged as a result of collaborative work between future teachers and in-service teachers at school and university.

The group chose the context of shopping in the market as the context for the exploratory task, with the aim of providing a reflection on conscious consumption in light of the relationship between desire and need. As the context theme was of common interest to the group, its definition occurred smoothly. However, the establishment of what would be and how the topic would be approached in the task, took place through debates and exchanges where each participant in the group exposed their ideas and with these they formed other ideas. Some were considered viable and others were not. And, as they talked, they changed the wording of the task. In this process, some residents took on leadership of the group to systematize the set of viable ideas and suggestions. The preceptor teacher also participated in the process, contributing information about students' knowledge regarding mathematical content, how they learn and what is pertinent to their realities, thus guiding the group's focus on creating the strategy and how propose the task. The intention was to develop, in an impactful and engaging way, the concepts of Natural Numbers and Rational Numbers, as well as notions about family planning based on the concept of personal budget and family budget.

The statement prepared for the exploratory task was as follows: *You got 20 reais from your mother. Soon, he had the idea of going to Armazém do Macedo and buying something he liked. When asking your mother for permission, she agreed and asked you to buy: 5kg of rice;*

1 package of beans; 2 toothpastes; 2 packets of cookies for the family. To pay for these purchases, she gave him 50 reais. Can you buy what your mother asked for? What do you want to buy at the Warehouse? Do you have enough money for this? Why? Express your purchase mathematically. To solve the task, residents created a folder to be distributed to school students, with the aforementioned products, among others common to a supermarket, and their respective prices. The investigation class would end with a moment for school students to present the choices they made, explain the reasoning used to solve the task and reveal their difficulties using the following questions: *How did you think about buying the items your mother asked for? Did you need to use your money to pay for your mother's order? Was there something you wanted to buy that wasn't possible? What can you do to purchase this item next time?*

After the research class taught, the Class Study cycle continued with the residents gathered to analyze and reflect on the results obtained, considering the point of view of the resident who taught the class and the notes and perceptions of the other residents and professors who participated as observers. Such discussion about the results allowed the group to realize the relevance of planning in teaching practice, in addition to the possibility of improving the exploratory task, aiming for a new class. This movement, triggered by the Class Study, constituted an innovative training practice, as it allowed residents to experience teaching through a process in which the residents' personal creativity influenced the collective creativity of the group, by developing the work in a reflective and collaborative way.

Considerations

In this study, we realized that the open and non-static concept of creativity triggered a teacher training movement in a systemic and less fragmented way in which the emergencies specific to the classroom were the substrate for the development of the actions developed, considering the process in its set. The continuous mode in the relationship established between participants, actions and context, due to the same intentionality for the entire group, but with particularities depending on each of the three participating schools, triggered a continuous and continuous work routine, without ruptures and segmentation between participants, between theory and practice and between school and university.

We consider the UFPR Mathematics PRP process to be creative. The principles of the Pedagogical Residency Program and its regulations are the same for everyone. What is the specificity of the UFPR Mathematics PRP? It has a continuous dynamic relationship between school and university considering the 3 ends (university teachers, school teachers and residents)

organically united on a weekly basis, creating a continuous and continuous work routine, without ruptures and segmentation between theory and practice, as well as, between schools and universities. We created a continuous mode in this relationship, based on the same intention for the entire group, but with particularities depending on each of the three participating schools.

It is a complex process depending on the connections that are established. You have the whole of the PRP and the specific in action at the same time. There are 4 points, three in an organic way and the other, which is the school in a feedback way, because the three work in an organic and systemic way. There is no difference between them in the training process. The system was structured horizontally, in which the hierarchy exists institutionally and not pedagogically, that is, the university's supervising teachers do not tell those at the school (preceptors) what has to be done, nor do those at the schools have the ability to concern dictates what the resident should do and controls their physical presence at school. This organic movement makes possible what Torre (2010) mentions about the energy that erupts in group activity, creating the energy of the creative process itself.

We understand, in general, that the creative act is not only manifested in acts, actions or miraculous results. We consider the differentiated training process that residents experienced when planning classes on family budgeting to be creative. The way in which the classes were planned, the structuring elements of planning that were considered, the emergencies specific to the classroom that fostered the conceptual learning of the curricular contents, the group discussions for the elaboration of the didactic approach and activities were what were innovative and creative.

In this article, we do not discuss the development, in itself, of activities that include Financial Education. In the training process in the context of Class Study as we developed it, residents played different roles in the face of the multidimensionality of the teaching and educational process. Planning was carried out in groups considering the contexts of each school and all plans were discussed by everyone in weekly collective meetings. The challenge that emerged was how each resident would manage the classroom space based on a work proposal they created together. Everyone developed classes and everyone observed classes. In other words, everyone acted either as teachers or as observers. Sometimes they had one function, sometimes they had another function, in other words, they experienced different perspectives, learned to observe others and themselves, to identify different factors that involve teaching practice.

We are aware that in their professional lives, residents will not work in groups, nor will they have other professionals with them in their classrooms. However, what matters to us is that, in the training process experienced, through Class Study, they are realizing that it is possible to develop a dynamic and creative didactic process for teaching practice that is concerned with the mathematical meaning for students of in order to promote conceptual learning.

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