

ACADEMIC INTERNSHIP AND THE TEACHING OF MATHEMATICS IN THE YEARLY SCHOOL YEARS

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ABSTRACT

Recurring theme in the discussions about the curriculum of the teachers training, the Academic Internship, a required step for obtaining the license for the practice of teaching, have been the focus of several studies and research in Brazil. Featured in the Brazilian educational reforms that have occurred since the late 1990s, they integrate the educational projects of the Pedagogy course through different proposals that are not always organized in a way to meet the demands of the necessary training for the exercise of teaching. The purpose of this article is to present an innovative internship experience, the Pedagogical Residency which is part of the curriculum of the Pedagogy degree course from a federal public Higher Education institution and it highlights the Brazilian way of organizing internships in the teaching of Mathematics for the early school years.

Key-words: Academic internships, teaching of mathematics; pedagogical residency; teachers training.

RESUMO

Tema recorrente nas discussões sobre o currículo da formação de professores, o Estágio Curricular, um passo necessário para a obtenção da licença para a prática de ensino, tem sido o foco de diversos estudos e pesquisas no Brasil. Destaque nas reformas educacionais brasileiras que têm ocorrido desde o final da década de 1990, eles integram os projetos educacionais do curso de Pedagogia, através de diferentes propostas, que nem sempre são organizados de forma a atender às demandas da formação necessária para o exercício da docência. O objetivo deste artigo é apresentar uma experiência de estágio inovador, a Residência Pedagógica, que faz parte do currículo do curso de graduação de Pedagogia de uma instituição de ensino superior pública federal e destaca o jeito brasileiro de organização de estágios no ensino de Matemática para o primeiros anos escolares.

Palavras-chave: estágio curricular, ensino de matemática, residência pedagógica, formação de professores.

INITIAL CONSIDERATIONS

During the period that I was in the school I could objectify the learning that we have in the university classes. [...] Demystifying many pre-constructed notions about the public school, its teachers and students [...] I could also relate the concepts learned in the theory and the experienced practice. And it was the practice that gave me an understanding of how to position myself, speak and act in the primary school classroom, besides the content to be worked. Thus, the experience in the classroom proved to be far more complex and intriguing. (Fragment of Internship Final Report, 2010)

The Academic Internship, an initial training period, regarding to the student, the authoress of the epigraph, is a required step for obtaining the license for the teaching practice, according to the Brazilian educational legislation. Recurring theme in discussions about the curriculum of the teachers training for basic education, are treated in researches and studies under different aspects and approaches, as a privileged space, or an important moment in the formation, for promoting a more direct contact with teaching practices in the schools environment.

However, there are many criticism about the way that the internship are organized and developed, because in many educational institutions it is more a fulfillment of a bureaucratic protocol than an effective action to mobilize the learning of teaching from those who are in the training process.

Thus, there is no doubt about their contribution to the formation, however what we are bringing up to discussion as researchers and trainers is the nature of this contribution. We defend that besides the fact of the compulsory internship allow students, from several Bachelor's degree¹, to have contact with institutional work environments and teaching situations, this by itself, does not determine the learning that could be developed unleashed based on the locus of the teaching production. There is a specificity in this area of training curriculum that requires a particular form of organization, also from the methodological point of view that aims the learning of teaching. Assisted by a conception of explicit training, this specificity needs to be considered in the planning and execution of the Internships to contribute effectively to the theoretical and practical professional formation of future teachers.

In the Brazilian case, until the late 1990s, the Academic Internships in the Pedagogy courses and other bachelor's degree, under the responsibility of teachers of subjects such as Teaching Practice and Didactics, responding to a specific project of each one of them and not necessarily to a project of training, remaining often separated from the training process in its totality.

¹ In Brazil, the courses that train teachers for the first years of primary school are called Bachelor Degree in Pedagogy and the final years of elementary and high school in specific areas of knowledge are called simply Degrees.

It is only after the period of educational reforms in the country, as a result from the requirements contained in the Guidelines and Bases of National Education Law - LDB, 1996, that the internships are interpreted as *"a task of the entire team of trainers and not only for the 'internship supervisor' "* (BRAZIL, 2004, p. 23). At this point they also started to assume this step of the teachers training, responsible for subjects called methodologies of teaching of the various fields of knowledge, such as the teaching of mathematics, English, history, among others.

The studies resulted from this other scenario created new questions on the subject, however, most of them are about the internship associated to the teaching of physics, mathematics, chemistry, philosophy, among others degrees and only a few are related to the internship in Pedagogy courses - which trains the teachers to the teaching of the early years of elementary school. Moreover, there are few studies that deal with the internship and the teaching of mathematics in the early years of school.

In this way the article aims an innovative experiment of internship, the Pedagogical Residency, which is part of the curriculum of the degree course of Pedagogy, from a Brazilian Federal Public Higher Education institution and it highlights the Brazilian way of organizing internships in teaching Mathematics for the early school years.

PEDAGOGICAL RESIDENCY AS AN INNOVATIVE EXPERIENCE OF THE ACADEMIC INTERNSHIP

In Brazil, we inherited a model of initial teacher training guided by the assumptions of technical rationality that has been through the entire history of the Brazilian education and gained legitimacy since the LDB 5692/71. Put in evidence from the 1990s, practical rationality is highlighted and becomes guide as well as studies and research of the legislation related to the teachers² formation.

The assumptions of these two "logic" of training that have been the basis or reference for the organization of the curriculum of the inicial teachers training in the early years of primary school and therefore have guided the internships proposals which compose the pedagogical Projects of Pedagogy courses.

We consider, however, to be appropriated to overcome these assumptions organizing a training that enable future teachers to understand the school and its political, economic, social and pedagogical determinants, recognizing it as an institution producing culture. Furthermore, the future teacher is able to recognize the political and epistemological framework that leads to their practice and defend the reasons that lead them to choose this framework so in this way be able to choose their social direction that want to attribute their action. In the words of Contreras (2002), this future teacher needs to exercise the professorship constituting their professional autonomy.

In this direction, it would be propitious to the period of Academic Internship expected in a training curriculum that it was guided by the assumptions of critical rationality and organized in such a way that contributes to the current demands of training. It is not just

² Its bigger legal representation is in CNE / CP n. 09/2001, which established curriculum guidelines for the training of basic education teachers and CNE / CP n. 1/2006, which established the curriculum guidelines for courses in Pedagogy.

about to ensure a time in a practical situation, in this case the school, nor develop a reflective process on it, but more than that, the time of Academic Internship must be a period in which the Pedagogy student unveil the conditioning of teaching situations, understanding it as a social practice that occurs in a given context between subjects who assume different social roles, and for these reasons, require from who teaches “*a solid scientific knowledge, a rigid technical-didactic understanding and an approach meta-analytic constant*” (ROLDÃO, 2007, p.102).

As Diniz-Pereira states (2002, p.29) “*the technicians models have an instrumental conception about raising problems; practitioners have a more interpretive perspective and critical models have a more explicit politic point of view on the subject*”. In this case, it breaks with the first two models in an attempt to reach the critical rationality as orientation to the training practices and, more specifically, the Academic Internship, expecting an acquisition from the trainers a knowledge about what characterizes each of these models.

Moreover in nowadays is stressed the importance of the teachers training who teach mathematics in the early years from the Trends in the Education of Mathematics³ Thus, the moviment present since the late twentieth century, as innovative curricular proposals, which take into consideration the training for the teaching of mathematics in the early years, seeking a link between university-school-teaching under proposals involving knowledge produced in the field of the education of mathematics. (SILVESTRE; VALENTE, 2013)

In this context of considerations we present how the Academic Internship are developed in a Pedagogy course of a public Brazilian university, located in the city of Guarulhos, the Federal University of São Paulo. It is a program called Pedagogical Residency⁴ - PRP - whose main motivation for its implementation was to break with the practices of the internship that are recurrent in initial training courses and that, somehow, do not recognize the importance of this stage of the course for promoting the learning of teaching in all its dimensions.

The PRP committing itself to a training that offers to the future teachers and educational managers skills so they can perform a quality school education, it proposes a new way of organizing Academic Internship “*drawing an articulated model of theoretical and practical learning from the position held immersed in context of public schools: the classroom, the school and education systems*” (UNIFESP, 2010a, p. 47-48).

In order to accomplish its objectives, it needs to rely on coordinated actions of three protagonists: the resident - student who develops the internship at the public school and

³ Trends in Mathematics Education is the title that has been used to designate new possibilities brought by the development of the field of mathematics education. Academic references, books, subjects from the training courses for teachers and other appropriations title just relating the use of technology, problem solving, history of mathematics, mathematical modeling, the Ethnomatematics among other elements, such as new possibilities for pedagogical practices for the teacher who teaches math.

⁴ The Pedagogical Residency Program composes the pedagogical project of pedagogy course and, being a stage of the teachers formation, future teachers and educational managers, foresee the accomplishment of three hundred (300) hours of internships and fulfill a legal requirements in the current CNE / CP n. 03/2006, the CNE / CP n. 1/2006 establishing the National Curriculum Guidelines for the Pedagogy course, and Bachelor degree in the law n. 11.788/2008 which provides for the student's internship.

the teacher responsible for the resident during his internship period and teacher-trainers who receive residents in their classrooms. Are the constant and systematic meetings between them, based on dialogue and collective work, articulated by a working methodology that aims the success of this phase of the training of students in a pedagogy course.

ARTICULATED ACTIONS FEATURING THE PEDAGOGICAL RESIDENCY

In this text, our attention focus on the Teaching Residency - RP - held in the classroom from the early years of primary school and the teaching of mathematics, however, the actions highlighted here, also featuring other forms of RP developed by students during the course of Pedagogy.

From the three hundred (300) hours of the Academic compulsory internship required by the Brazilian law, which are accomplished by residents in public state and municipal schools located in the city of Guarulhos, 105 are devoted to the teaching in the early years of elementary school. The period in which the resident stays in school is called immersion and it is accomplished in a continuous and uninterrupted basic principles of PR, marking its differential. Characterized as a time in which the student has the opportunity to learn in depth the context in which teaching occurs, identifying and recognizing aspects of the school culture; tracking and analyzing the learning processes which the students pass through and raising characteristics of the organization of the pedagogic work of the teacher educator and the school.

The Preceptors responsible for RP in elementary school meet student groups organized according to the immersion period and the school-field where it will occur. This organization provides, among other things, a greater bond between the teacher and the schools-field.

During the immersion period the preceptor conducts weekly meetings with the group. In this direction, its mediating role becomes essential to the learning process of the resident because in these meetings there is the opportunity to discuss and raise the contradictions inherent in the analysis of the reports brought by the resident through records contained in his notebooks field.

Initially, his job is mainly to present to the residents the guidelines on the period of residency, organized in the manual of Teaching Residency Program (UNIFESP, 2010b), as well as information about the context and characteristics of the school-field.

Preceded by this first meeting, the immersion period is organized in four stages and lasts for about four to five weeks depending on the official calendar of public schools. Regarding the schedule of activities to be performed during the four weeks of PR the preceptorship emphasizes the basic structure of the work in each week based in their goals.

In the first week whose purpose is to know the foundations of the work of the teacher, the dynamic of his work with the class, the contents of the classes, the school and its spaces, the priority is the setting of the resident to the daily classes and educational activities of the school. In this way the knowledge of the school space, the education

professionals working in the institution, the functioning routine with their schedules, breaks, meals, meetings of teachers, the approach to the class teacher, the knowledge of his career, its work dynamics, the perception of students as members of a specific school year, the beginning of the involvement with a student group and many other elements of that pedagogical culture are priority for this space of time which revealing the strangeness and profound differences of the academic and school cultures.

In the second week of activities the resident is instructed to know and analyze the schedule of classes taught by the class teacher. The teacher points out that such goals are a prerequisite for the organization of an Pedagogical Action Plan - PAP.

At this stage the resident begins sketching the first ideas about the intervention that will develop during their period of stay in the classroom. It is the time he should talk to the teacher trainer who will help him in his choices. This intervention should be performed based on the characteristics of students, such as age and school year, the demands required by the teacher educator and the guidance of the preceptor. At this point in the process, we highlight the significance and importance of the resident's action in daily school life of the institution where the RP is performed.

For the third week of RP is reserved for the actual realization of the PAP, depending on the plan done, there will be two to four days for the development of the activity. Our understanding is that it is the most significant step of the internship because it tests the knowledge and skills necessary for teaching practice. The development of the PAP by the resident mobilizes scientific knowledge of a particular field of knowledge, besides those related to the technical didactic of the teaching action. Furthermore, mobilizes mechanisms that affect directly his quality of interpersonal relationships established with and among children during their development.

It is established normally during this period a time of tension produced by the simultaneous presence of different reasons as they come into dispute, the demands of the teacher educator, the uncertainties of the resident on the teaching practice and the requirements of the preceptor on the practice to be held based on ethical standards, political and pedagogical. However, this is a unique moment learning about teaching, because when there is a negotiation process (CONTRERAS, 2002) between personal values and interests of the resident and the social and institutional context in which it operates, plus the provision of the preceptor to promote an action of good quality, what is in jeopardy is the constitution of the identity of the future teacher.

Finally, the fourth and final week, it will conduct an assessment of the resident's stay in-school field. Here, as a priority, indicating the PAP done. The preceptor immediately stresses that the best assessment is one that demonstrates the PAP has been an action which, in fact, there were the students' learning, active participation of the class teacher in the joint preparation and development of activities and personal growth of the resident in terms of the meaning of a good quality teaching practice. The analysis of the work done in meetings with the preceptor and also with the teacher trainer should allow criticism and understanding of failure and good results achieved. And considerations about, somehow, must be present in the final production of Residence: partial and final reports.

Another aspect to be considered is that teachers who receive residents are called trainers, mainly because we understand that these teachers by mastering knowledge of experience acquired over the years of the teaching, have rightfulness to take on this role. However, not all of them have this understanding at the beginning of the activities of the residents in school. We could say that here is found the one of the biggest challenges of PRP.

THE PEDAGOGICAL RESIDENCY AND TEACHING OF MATHEMATICS

As explained earlier, the Pedagogical Residency - RP - develops itself over a period of immersion in the school field, mediated by elaboration and development of the following instruments: Observation Guide; Fieldbook; script elaboration of Pedagogical Action Plan, Partial Report and Final Report.

These instruments used during the performance of each type of the Pedagogical Residency are based on the written record. This record takes different shapes depending on the Pedagogical stage where resident is found. Thus, during the period of immersion in the school the Fieldbook, which is designed based on an observation script, is an instrument that allows residents to express their impressions about what he experiences in the school routine.

The construction of the Fieldbook is connected to a notepad. Thus, the day-to-day school, noted by the student takes the mark of the words and key terms. Something to be taken out of school, so as not to lose the themes that command a particular day of classes. In this way the Fieldbook constitutes a support monitoring of RP by the student and school supplies as an instrument is to be used by the resident along the RP. From the point of view of content is expected to be found in the texts they refer to the fundamentals of ethnographic research in school, it is referenced in the contributions of anthropology to the educational field. The very name "field notebook" is revealing of such appropriation. The Fieldbook is the place of superficial descriptions regarding the dynamic operation of the school routine. These descriptions are superficial as they explain what first appears to the sight of a foreign territory that is not his: the student of the Pedagogical course, in the midst of a classroom in the early years of elementary school in an environment that is not their common place of study. But the notes of the superficiality, what can be seen at the first glance in the dynamics of school class, is fundamental to understanding and deeper search of the meaning of actions teachers and students in the educational process. An example of that would be a superficial description:

On the 7 of May, at 9 am, children in the school playground, mothers day, clippings activities in the classroom, music discussion, coordinator distributes text for teachers of the Municipality, normal class from 10am, correction of the math exercise (accounts 56 +564 +121, 66 +102 +34, 56 +56 +234); begin of activities about parallels and meridians. (Fragment Fieldbook, 2011)

Leave anonymously the characters involved and tries to capture only the pace, sequence of events, pointed data in memory that would be lost if not recorded at the time they

appear. Page by page, the Fieldbook of each resident are being accumulated superficial descriptions. And from them will be given the preparation of dense descriptions. (SILVESTRE; VALENTE,2013).

Developing a dense description it intendeds to capture the web of meanings that is in jeopardy in a situation, in a given culture. Thus, appropriated by the education, dense description has as a task to show any significant element of the school routine, school culture, which at first does not seem to be understandable. Elements that give meaning to the teaching practices carried out by teachers in day-to-day lessons.

It is worth to present, from that example of the superficial description, a case of densification in the description of the activities that moved the May 7 in-school field.

My expectation for the class is to understand how the teacher will resume the lesson that was given to students the day before. As soon the class begins and the teacher asks for the students notebooks. Asking them to remain in silent, the teacher goes to each desk, checking the task given. She is not concerned with the correction, but rather to see if the student has copied the homework given and if they wrote something about it. The homework were the calculation of $56 + 564 + 121, (+102 \ 66) - 34, 56 + 56 + 234$. Tell the teacher that this is part of a review of matter given at the end of last year. The nature of the task does not fail to leave us astonished. After all students are at the end of the first school year and still only work with addition and subtraction. Insinuating this concern and the teacher evaluates that they never progressed in school content until all the students knew "straight" all the matter. And I noticed that, after having finalized the notebooks checking, the teacher went to the board to solve the calculation, and most of the students showed that they did not get the results correctly. On the blackboard (green) the teacher did not "show" the calculation. She resolves it in her mind and put on the board only the final result, asking who got it right. Analyzing some students books I realize that they did not know how to "make" the calculation. They do not understand the ordering of units, tens, hundreds and how to place them one below to the other in order to perform the calculation correctly. So they get results that mean nothing, when they add the amounts of tens with thousands, for example. Why the teacher when she realizes in other classes the difficulty of students in articulating the addition, does not solve the lessons on the blackboard "showing the calculation"? When the correction is finished, the teacher asks the students to use another notebook. She says that she will begin a new theme: parallels and meridians. (Fragment Fieldbook, 2011)

To Vygotsky (2000, p. 409-410) every thought *"seeks to unify something, to establish a relationship between things. Every thought is a movement, a flow, a breakdown [...]"* this type of record allows the teacher to create forms of intervention which cause the resident to profound his own report, deconstructing naturalized relations established between things, the facts, observations, overcoming and deepening the initial impressions.

Another example can illustrate how a prepared record profoundly contains indicators that assist the preceptor to cause reflections and questions about teaching, specifically in this case, on the teaching of mathematics:

The teacher then tried to go through the numeric sets, using pencils and popsicle sticks. Ten sticks were a group of ten, called dozen, as well as ten squares in a bar also formed a group called dozen. But then the children began to ask why the stick was like a small bar, but only represented one. They were concentrating on the format rather than in the quantity, I believe that because they did not understand the relationship between the number and the amount that it can represent. [...] There is not a golden material in school. (Fragment Fieldbook, 2012)

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In this excerpt found in a Fieldbook we found that the record reveals contents of various natures: how the teacher works with the area of the knowledge; elements of the learning process of the children; aspects that show the limits imposed by the school reality. It is expected from the preceptor, analyzing this record, recognize its content and problematize it so that the resident can deepen his analysis level of specific situations of mathematics teaching and meet its determinants.

Reading prior the Fieldbook prepared by residents, the analysis of the existent contradictions, the problematizations about the contents exposed, make the kind of work that must be developed by the preceptor and characterizes the importance of their role as mediators in the process of learning about about teaching.

The importance of this moment is revealed by Vasconcellos (1995, p. 70) that explains the overcoming of the knowledge by “*the individual will be giving from the awareness of the contradiction between the subjective element (its representation, idea, concept) and the objective element (reality in its multiple determinations)*”. To checkmate the observations and analyzes brought by residents about their experiences during the immersion period the preceptor enables them to overcome the immediate explanations and common sense that weave about educational phenomena observed and experienced making broaden their theoretical repertoire on the chosen profession.

A range of acquired knowledge that articulated with the reality, would not only explain it, but also to intervene in it. Thus, the preceptor meets one of the goals of these meetings that “*is to provide academic space for reflection on the experiences mediated*

by the theories studied” (UNIFESP, 2010a, p. 9) and the residents move towards unveiling the false dichotomy between field theory and practice field.

However, it is in the preparation of the Pedagogical Action Plan - PAP, the Pedagogical Residency takes its main purpose: to create learning situations of teaching. The PAP, as explained earlier, is prepared based on the data of reality known by the resident through the initial period of immersion in the school, the expectations of the teacher trainer in relation to the content to be taught and the guidance of the preceptor holder of a specialty didactic and pedagogical knowledge.

In this direction, discussions about the appropriateness of pedagogical actions that are performed on the various fields of knowledge direct decisions based on the contents seized during the first week of immersion. In the case of the subject of this article, the records of the notebook field explained above demonstrate the descriptions presented in the first week of RP pointing difficulties with the treatment of the topics of the mathematics teaching in the early years. However, when the preceptor ponders the need to plan pedagogical actions aimed at teaching math, some students demonstrate some apprehension. They assume to have a lot of difficulty with the discipline fitting the preceptor to ensure tranquility to the resident considering this will be a work with collective planning that will involve field-school teacher, the preceptor and the resident, and joint discussions with the group of residents.

Ending this first step, even with the assistance of the preceptor, the resident organizes its action plan, which will be developed over a week in the school, providing ways of organizing time and space in the classroom, selecting the methodological procedures and material resources.

A new meeting of preceptorship follows with initial suggestions for each resident about the intentions of working with mathematics teaching in each class where they do the internship. Prior to this discussion, the teacher gives to the resident several alternatives of work with the themes of mathematics from the early school years. One of which seems to be most well used by residents is the work with the abacus. Numeration, place value, arithmetic operations are the various possibilities of using didactic teaching to this ancient instrument of calculation. (SILVESTRE; VALENTE, 2013).

To better organize the planning of the PAP, the preceptor gives to residents a script plan for the *Development of Pedagogical Action Plan*. In the script plan there are items such as the context for the development of PAP (motivation, pedagogical activity relationship with the work of the teacher class, the possibilities of continuity PAP by teacher class or by the next resident that this teacher will receive); PAP itself (What will be done? For what will it be done, what are the areas of knowledge involved and what learning is expected? How will the activity developed? How will the evaluation of the work be performed?).

Thus, in order to contextualize the PAP, the resident initially looks for answers to questions that will help him to establish a relationship between what he thinks of developing and reality of the classroom that is already known by him.

Then, with the teacher's help, he makes his choices trying to answer the reasons that led him to choose the contents of the classes, which areas of knowledge it will cover, which learning is expected and how the evaluation process will be performed.

The objective of this set of systematic issues in a script is to make the resident, trying to answer them, realize the importance of referring their actions to teach, situating epistemological, didactic, methodological and politic that guides their Pedagogical Action Plan.

Therefore we understand that the achieving of the PAP is the biggest-moment of the internship. Moreover, coming from conversations and appointments with the teacher trainer, analyzed and optimized in meetings with the preceptor, represents the effective opportunity for the resident to experience the experience of teaching and pedagogically deal with a class of about thirty students from a public school Education.

In fact, in the days before the completion of the PAP the residents become very anxious. If at the beginning, several of them have presented very broad proposals, no feasible, after some time of comings and goings of reports and construction of several drafts of the PAPs, the residents tend to plan the work in a way that does not to allow a degree of flexibility the actions to be developed.

The PAP makes the residents experiencing situations of teaching practices and, from that experience, enables the learning of specific knowledge of teaching. The reports below reveal some important learnings:

Especially when I developed my Pedagogical Action Plan my learnings were even greater. I realized that the organization of time is very important for the application of a class. On my first day, I had planned a whole afternoon of activities, but in the end I had too much time left, but thanks to the teacher, who gave me some tips, I managed to do another activity related to the subject of classes, which completed the time that was missing. (Fragment Partial Report, 2011).

Being my first experience in the classroom I could see how difficult it is to face the students, holding a position of authority grounded in the knowledge that will be mediated, in establishing rules and behavior contracts and its compliance. (Fragment Final Report, 2011)

Moreover, the PAP allows overcoming a fragmented view of planning, because during its preparation the resident, all the time, is challenged by the preceptor to reflect on their choices and justify them. Learn a methodological procedure that can not be chosen without being asked to what extent this will provide a teaching situation to achieve a specific objective of the worked content. Or he will not be able to choose the forms of assessment if he does know it deeply, what should be evaluated.

With all this exercise is created good conditions for the resident be able to understand the dimension theory and practice of teaching activity as demonstrated by the report below:

The PAP has allowed the broad vision of the importance of planning as well as the redesign when realized how the development of the

class was either very fast as it was in my case or slower. Planning is essential so that there is a clarity of what is intended to teach, where we want the students to achieve performing such tasks. (Fragment Partial Report, 2011).

In this direction, the end of Immersion, are the Partial Reports - which contains an analysis of the development of the PAP - and Final Reports - containing synthesis discussed through specific literature, the learning of the whole process - which gain importance because have the function of assisting the resident in the systematization of their learning and expose the various levels of relationships that could be established between the different knowledge.

In this sequence of reports presented below, taken from Partial and Final Reports, found that residents were able to systematize them in order to characterize their learning about teaching and, more specifically, on the teaching of mathematics, when their observations, reflections and question are pointed, about the reality experienced in the classroom, their difficulties in dealing with the proper content of mathematics, his concern with the learning process of the child, finally, on their own practice.

The last activity was aimed to the assessment, in which students had to reproduce an image on graph paper. [...] As an evaluation instrument I elaborated two tables that would analyse minutely the performance of the students individually. After analyzing the results, I realized that what I proposed was successfully achieved. The performance of the children were better than I had imagined, I realized that they had understood the concept of geometric shapes and the notion of proportion. (Fragment Partial Report, 2011).

With the approach of mathematics content "information processing", Pedagogical Action seek to develop in the students the ability to read and understand data in an organized manner using graphs and tables, as well as formulate and construct such representations with information from students' everyday lives. [...] Among the failures in the implementation of activities, the language was the most led me to reflections, because it is through the words, deeds and actions mediated by the teacher that the student elaborates the concepts according to their previous experiences. As explained by Fontana (1993, p. 124), in the activities of the school environment involve the apprehension of the systematized concepts and are organized in a discursive and logical-verbal way, and the child's relationship with the concept should always be mediated by some other concept. In the case of the pedagogical action, I taught a concept without mediating the concept of their previous experiences - for example, when I told them to "draw a vertical line", I should have said: " draw a line (a straight line) standing (in the vertical direction) ", using the concept of spontaneous terms, absorbed in their daily lives, with the terms of systematized concept. (Fragment Partial Report, 2011).

Thus, the instruments used during the immersion of the resident do not have an end in itself, but lining up in a set that is based on a specific methodological guidance developed by the preceptor to achieve learning about teaching that are significant. Is this working methodology adopted in PRP that gives unity and coherence to all the elements that is part of the development process of Pedagogical Residency.

In this case, the mediation of the teacher assumes a critical role for the resident, through meta-analytical exercises, may realize the contradiction in their records and in their practice and transfer their reflection to a level higher than the theoretical. In the specific case of mathematics teaching the work of the preceptor in this direction allows the resident to recognize, on the one hand, the need to have a basic repertoire of specific knowledge of the area and, second, learn to treat this content in a Didactic way, organizing the teaching through a unique methodology, while considering the context in which they are working.

However, the reflection, as Contreras (2002) explains, to be given in the context of performance, sets some goals and professional practices, however, often without revealing contents that underlie these practices. This can cause the reflective exercise justifies the actions taken and don not report it. For this reason, it is necessary to the preceptor recognizes which training references subsidize their training practices in Pedagogical Residency so they can make a decisive contribution to the training of residents, future teachers.

5. FINAL CONSIDERATIONS

The debate about the field of the teacher education in Brazil has focused, among other issues, the learning of teaching. In this direction, the training stage is characterized as a very conducive environment to this learning and they are the Academic Internship. As explained briefly in the beginning of this article, the history of the Brazilian education may explain that the Academic Internship has never been devalued, however, at different times, it had been interpreted and performed in different ways seeking specific training models.

Even so in a inexpressive way, alternative ways to achieve the Academic Internship have been incorporated into the curriculum of the teacher training. In order to pursue a more meaningful approximation between the theoretical and practical field, constituents of action of teaching, these new forms intend to seek quality in teacher education.

The Pedagogical Residency Program, described briefly in this article is based on the scope of initiatives that seek innovative ways to achieve the internship. Conceived as a guideline of the Pedagogy Course, the program is stablished in the porpose of being “*a guidance of the curriculum that links the learning setting of the university with external professional learning scenarios*” (UNIFESP, 2010a, p. 54-55), a fact that implies the establishment of relationships between the university, a number of other schools, and municipal and state departments.

Therefore, how the PRP is designed and organized with its own methodology constituted by specific instruments that require continuous records, allows the resident, even for a short period of time, to develop some basic knowledge necessary for the practice of teaching.

It is highlighted in the process implementing the Action Plan Pedagogical - PAP - mainly because its preparation takes into account the multiple knowledge involving the teaching profession. For its realization the factors which contribute for it such as the specialty of knowing brought by the preceptor teacher, expectations and preferences for certain activities expressed by residents and the needs and suggestions expressed by teachers in schools field at any given time of the school year and a specific class of teaching.

Constituting the central point of the activities of Residency, PAP takes into account most of the variables that are present in the day-to-day of the schools, in the achievement of the job teaching. The PAP seeks to create conditions for it to be unveiled, the dialectical movement existent between the logic of the field of knowledge and logic of learning, insight into the act of teaching that the professional of education, responsible for the early years of the primary school have to know and mediate.

Moreover, the process of preparing the PAP, which is gradual and the resulted of a dialogue between preceptor, resident and teacher trainer, puts over the components that is part of the organization of the Pedagogical work: space-time-methodological procedures; Content-goal; evaluation and learning, which makes possible to the future teachers, not only deconstruct a fragmented view of planning, but also understand the theoretical and practical teaching.

From the point of view of PAPs that take into account the teaching of mathematics, there are many challenges. The first to be taken into account is the limited proximity of most undergraduate students in Pedagogy with this field of knowledge. This fact is a important and motivating challenge for the teacher in charge of the mathematical disciplines in the training course for the future teachers. On the other hand, the performance of PAPs focusing on mathematics education enables the arrival on the scene of many elements that give meaning to different activities present in the disciplines that address the teaching of mathematics in the early years.

The experience has shown the appearing of many demands for activities directly related to teaching math. These demands, coming from school teachers-field, where occurs the Residency Program, end up constituting a motivator element for the residents to develop joint activities with teachers taking into account school mathematics. And in this case, most of it happens in a double exchange: to the residente the possibility of having a teaching experience, the knowledge of their teaching and their professional background; for the teacher from the the field school, is not rare, the possibility to incorporate their knowledge, activities and processes, taking into account content mediated by the preceptor teacher the Residency Program.

Finally, we call the attention to the fact that there are numerous challenges to a training course when the group of teacher propose themselves to develop a type of program as a Pedagogical Residency. One of them is to promote an ongoing dialogue between the university and school field as a way to consolidate a partnership that takes on the absolute commitment to the education of the egress student. However, the main challenge is to understand that a proposal of the development of the Academic Internship that expects to be innovative needs to elect the learning of teaching as the central focus, otherwise it will be reproducing practices that historically have not promoted the quality of training processes for future teachers.

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