

HOW CAN THE INITIAL TEACHER TRAINING AT THE UNIVERSITY OF MADEIRA HIGHLIGHT LEARNING BY PARTICIPATION?

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Abstract

In this article, we want to renew the debate about the importance of learning through participation in the initial teacher training.

For Lave and Wenger (1991) the learning happens according to the action, the context and the culture in which it is situated. Social interaction is determinant for situated learning and is intertwined with participation in communities constituted by people, practices and knowledge.

We seek to understand how students can learn from participation in real and authentic situations, in the context of schools, where they develop pedagogical practice. We also want to understand how they can learn from dealing with the restraints of daily school routine.

This process enables learning as a transformation and as dialogical action, given that the pedagogical action developed involves a change in practices and multiple interactions with the children, the cooperating teachers and other educational agents of these schools.

This procedure empowers a reflexive and critical practice validated by theory, allowing students to develop a personal trajectory in regards to the initial teacher training.

Keywords: situated learning, initial teacher training, reflexive and critical practice.

1 INTRODUCTION

In the initial formation of teachers, the students' learning reveals dynamic processes. Through dialectics, students negotiate and (re) negotiate the meanings of practices.

Learning from participation in communities in non-formal contexts is an approach advocated by Lave and Wenger (1991). These theoretical principles are also relevant in the understanding of learning processes occurring in formal contexts.

According to situated learning theory, cognitive development depends on the physical, social and cultural world in which people move, and that is why the sociocultural dimension is relevant.

Situated learning occurs in communities of people and practices. It happens through social interaction, as well as through experience and is developed based on five principles to be considered: it is based on real situations of daily life; is developed by action and allows its application to similar situations; It results from social interaction and combines thought, perception and problem solving; interconnects theory with practice; It happens in complex social environments; It happens by the mathetic when the apprentices can become conscious.

To ensure the active participation of pupils, it is important to provide authentic contexts that allow the realization of meaningful and real learning. These contexts are the real laboratories of the practices experienced. The transfer of knowledge happens simultaneously with the phenomenon of generalization and abstraction of knowledge.

But learning does not only involve the transfer of information, since it happens in a sociocultural process. It involves the participation of the pupils in the construction of knowledge and skills as well as a negotiation and (re) negotiation of meanings attributed to the lived experiences.

This process of negotiation and (re) negotiation depends on the interpretation of meanings and leads to renewed action. It gives rise to new relations, since the meanings attributed to the world arise from new negotiations, which follow each other incessantly. They are based on respect for difference, although joint negotiation is desirable.

Three metaphors allow to reconcile learning: learning as participation (Lave and Wenger, 1991 and Wenger, 1998), learning as transformation (Engestrom, 2001) and learning as a dialogic action (Alro & skovsmasse, 2002).

Learning involves participation in practices guided by a common goal and undertaken together, through negotiation of meanings and accountability for the consequences of the actions taken. This participation is personal and has a social meaning in relations established with others, because meaning does not exist in us, nor in the world, but in the dynamic relation of living in the world (Wenger, 1998). It is a complex process that provokes transformations in the people, as learning takes place (Fernandes and Santos, 2013), shaping the actions and the interpretation of the people about the world, who these people are and the practices in which they participate.

Involvement in social practices depends on the motivations (Alro & Skovsmasse, 2002) and their past experiences, as well as their expectations about this participation. In this process of learning mediated by social practices, it is natural for conflicts and tensions to arise, resulting in transformations in people and organizations, in a dialectical and intentional process, that is reflective, critical and responsible (Fernandes and Santos, 2013).

In this learning process, the lived experience is taking shape, providing the creation of points of focus, from which the negotiation of meanings is promoted. Understanding allows building procedures or tools for action.

In this process, Wenger (1998) refers to reification, which consists of shaping experience and producing objects that solidify that experience, as a fundamental process in any practice, including various actions, such as naming, coding, decoding, perceiving, interpreting, among others.

Thus, reification shapes the experience, since the tools that allow us to carry out activities can change their nature. The real contexts of pedagogical practice (internships) reify the vision of pedagogical practice, that is, reify the experience of learning to teach, as well as the associated teaching identity.

Our understanding of this reality requires a comprehensive look that contemplates all contexts, weaknesses and challenges. More than providing access to the curriculum, it also consists of making decisions related to the identity of the people.

Teacher training continues after initial training and must be sustained by action-research processes, making students able to better reflect on practice to create solutions to the problems they face in contexts of pedagogical action. They are meaningful training practices (Leal and Fonseca, 2013) because they are authentic and relevant experiences for the integral development of students (Gouveia and Brazão, 2015).

Through the action research (A-R) methodology it is possible to study a variety of problems with diverse approaches such as: case studies and ethnographic studies about students, teachers, groups or schools; Measures of curricular structuring; Microinsurance and other experiences about supervised practices (Hatton and Smith, 1995).

According to Sousa (2005), an investigation usually begins because there is a need to seek clarification of a doubt or to answer a question. It always sought to arrive at more rigorous answers. A-R has the main goal of leading the researcher to reflection practices supported by scientific rigor and to help him / her to initiate processes that allow him / her to improve the conditions of practice. A-R is a reflexive study, which allows for quality improvements in pedagogical practice (Elliott, Lomax and Bartolomé, cited by Coutinho, 2011).

According to Elliott (quoted by Máximo-Esteves, 2008), A-R is defined as the study of a social situation with the purpose of improving the quality of action. In Coutinho's perspective (2011), Research-Action is one of the research methodologies that provokes changes and at the same time favors understanding through a spiral cycle, alternating between action and critical reflection. It is developed along four phases: planning, action, observation and reflection (Coutinho et al., 2009). These steps follow each other until the goals are achieved.

This research methodology is qualitative, since it is based on a personal interpretation of the reality observed in a practical context and values reflection and understanding (Sousa, 2005), in addition it does not intend to generalize data, but only to investigate phenomena in all their complexity and natural context (Bogdan and Biklen, 1994).

In fact, A-R is a critical educational science (Carr & Kemmis, 1988), which favors the professional development of teachers, as it allows them to do research, while reflecting on their practices and developing them in School contexts with children.

Teachers are responsible for their own personal and professional growth (Alonso, 2007, p.118) and their main objective is to improve practices. Although A-R is a systematic and self-reflective scientific research developed by practitioners (McKernan, 1998, quoted by Máximo Esteves, 2008), it departs from the objectivism and neutrality defended by the positivist paradigm. Nor is it also identified with the excessive subjectivity of the interpretive paradigm (Coutinho, 2005).

According to Máximo-Esteves (2008), the A-R methodology involves formulating practice-related questions to identify objectives and selecting the most appropriate strategies for implementing and evaluating project results. Research-Action is a methodology characterized by a permanent dynamic between theory and practice. The teacher interferes in the field of research itself, analyzes the consequences of its action and produces direct effects on the practice (Alarcão, 1996). The teacher acts in a cyclical process, that is, the teacher thinks about what they are going to do, do it and then return to think about the results obtained to return to do something that can involve changes in relation to the one that was thought at the beginning. With this process, the teacher better understands his own practice and has a more adequate awareness about it (Oliveira-Formosinho & Formosinho).

To carry out an A-R project you need to go through several steps. First, we start with questions that relate to the problem that will be studied, and then one proceeds with a review of the literature in order to to acquire the necessary information.

Then the methodology is defined and data is collected, both of which are subsequently organized and subject to interpretation. According to Fortin (2009) this collection of information can be done through observations, interviews, and records or published texts, allowing the discovery of new phenomena. In this sense, in the first phase of the research project it is important to make a participant observation, with the aim of better understanding the contexts where the pedagogical practice will be developed. Data analysis takes place from the beginning of the investigation to the final stage. At the end, the data is triangulated, that is, the phenomenon is observed from three or more different perspectives and / or with several instruments (Sousa, 2005).

2 METHODOLOGY

The master's degree course in *Pre-school Education and Teaching of the 1st Cycle of Basic Education* of the University of Madeira presents in its training plan, a curricular unit called Research-Action. Students in the 1st year of this Master Degree in the University of Madeira must exercise their skills in pedagogical practice and establish a relationship between theory and practice, between action and reflection about and for action. The work ends with an internship report that is presented and defended in a public exam in the fourth semester of the course.

At the beginning of the semester, the first sessions of the curricular unit aim to clarify and discuss the foundations of research in education and also the assumptions for the development of A-R . Subsequently, individual and group tutorials are scheduled to follow up on the projects. During these tutorials we noticed that the students had many difficulties in the elaboration and implementation of the project but it was notorious that significant learning had happened. It was necessary to better understand this learning process within the context of their training.

We found in the students' reports references to the constraints of this work related to:

Time management issues regarding the implementation of the A-R project; Reflection as an action evaluation process; Reflective discourse about information, about the meaning of this information, about evaluation and about the different reconstruction of the action; The involvement of the actors in the educational practice and the continuity of the project after their exit (Gouveia and Brazão, 2015).

To better understand this crucial problem in the initial teacher training, we have developed a new research question for this study:

What are the learning outcomes of the action-research projects reported by students in initial teacher education?

This question originated others:

- 1 What difficulties did students encounter in the immersion in real and authentic contexts, despite the advantages they recognized and how did they try to circumvent them?
- 2 How were the other educational actors involved during the project?
- 3 What do students say about the articulation between theoretical and practical knowledge in the action-research project?
- 4 How important is this experience in the personal and professional training of students?

For this work we developed qualitative research according to Bogdan and Biklen (1994). We held a semi-directed, collective interview with a group of ten students from the 1st year class of the aforementioned Master's Degree who were developing projects of A-R in Pre-School. Of the twenty students, we selected ten randomly. The interview was held at the end of the first semester of the 2015/2016 school year. For the treatment of the data we did content analysis and interpretation and discussion of the students' answers.

According to some authors, such as Sousa, Alonso and Roldão (2013), ethical issues cannot be forgotten, since this type of research demands great responsibility and allows us to counteract the excess of technology we use (Jonas, 1995).

Students are the main protagonists of the educational scene, loaded with inter-subjectivity. Students need to be able to develop their autonomy and their capacity to intervene in the world so as to transform it (Sousa, Alonso & Roldão, 2013). Therefore, they play an important role in the future of the pupils, because their intervention in the present will have reflexes in the future that is intended to be better.

In this study we safeguarded the anonymity of the students, the contexts in which they worked and their collaborators.

3 RESULTS

The action-reflection and the valorization of the situated knowledge of the teachers. We present the interpretation of the answers given by the students to each question:

3.1 What difficulties did students encounter in the immersion in real and authentic contexts, despite the advantages they recognized and how did they seek to circumvent them?

Regarding the development of the project, the students mentioned difficulties in the articulation between strategies defined in the research project - action and the curricular program. The difficulties are related to time management and the topics that must be taught, as well as the work routines that are already installed in the classroom. The action - research project required changes in the organization of pedagogical work, which was not always easy because the cooperating teachers were not prepared to work according to this new paradigm of pedagogical action. The plans used by these teachers focused a lot on the curricular contents and on the themes and traditions usually worked throughout the school year and valued throughout the school institution such as: Bread for God, Christmas etc.

Table 1. Difficulties encountered by students in the immersion in real and authentic contexts

For me, the most difficult thing was to try to develop the project in practice and at the same time to think about the themes of the curriculum. (Student 9)
I think that in the development of the project the most difficult thing was to try to put it into practice and conjugate it with the other activities of our pedagogical practice, that is, to mix the two concerns: to think about the activities that are programmed for the class and those that are specific to working out the problem named in the project. (Student 3)

Yes we have a project and our practice. Each activity we did had to be related to the overall schedule of the class and the activities of the project. If we were to carry out the project exclusively it would be different. There were practical activities in the class that had no connection with the problem assigned in the project. I did only did a few activities because of school activities, for example: from November we were doing God's Bread activities for Christmas instead of doing specific project actions. It's these little things that limit and affect the achievement of the project. I could have worked more aspects because, for example, I could have worked the waste and marine pollution, but there was no time. (Student 1)

The problems encountered are due to the difficulty of reconciling the programs already defined with the themes that emerge from the work contexts. These action-research themes were related to problems identified throughout the pedagogical practice. It was considered that most of the curricular time should be used in function of the already established programs for the group instead of these problematic), that despite not being valued interfered directly with the life of the group and of their learning.

Table 2. *Justification given by the students to the difficulties encountered*

I think the choice of the problem has implications in this. In the case of a question about environmental preservation it could not be interconnect with many other issues. I am not saying that I did not try to relate to the problem as well. But it is more complicated, it is not so related. (Student 4)

In the case of the issue of conflict resolution, this was no longer the case. My problematic question was related to the intra and inter-personal relationship. I tried to reconcile the curricular themes with the problematic ones. School festivities always provided an opportunity to work on values. Our problem was worked out in practice because the question was very broad. (Student 6)

In my case, in solving the problems of interpersonal relations, I have been able to develop the strategies interconnected with the proposals of the program to be developed. (Student 8)

3.2 How were the other educational actors involved throughout the project?

Regarding the cooperation of the educational actors in the action-research project, the students reported that the type of collaboration provided was more frequent in the classroom, with the involvement of the kindergarten teachers, and sometimes the auxiliary teachers. However, their involvement was not substantial.

Table 3. *The implication of the other educational actors in the action-research project*

In my case it was complicated because my problem situation arose even in context, in the way children addressed each other, they did not know how to manage emotions during simple tasks. Adults also showed difficulty in these interpersonal relationships. I noticed some improvement in the participation of the educational auxiliaries, but I do not think anyone was fully involved in that project. The educator told me that it was a good problem issue. Although I noticed evolution in children, I never felt much involvement from these educational actors. (Student 8)

In my case the issue of A-R was not broader because the object of study was very centered within the class. Educational assistants were used to collaborating and participating in the development of project activities. (Student 6)

From the point of view of practice, the educator helped me a lot to try to clarify the problem, to be strategic in the class taking into account the problem to solve. (Student 6)

The students differentiated the type of participation of the educational actors in the project, distinguishing the cooperation in the action and the implication in the projects. So while some tried to help in some moments, others were really involved giving continuity to the project, after the student completed the student's internship.

Table 4. *Justification given by the students to the implication of the other educational actors in the research project-action*

In my case I had the cooperation of the coordinator for the project. The eco schools program was related to the environmental issue. I had her support, but the involvement in the project is different. There were awareness

activities on marine pollution, children made an exhibition the week they waved the banner of eco schools, but the community was not really involved in the project. Sometimes the educator forgot that we had a project to work on. I think she did everything she could to help, but there were always plenty of things to do. (Student 1)

About the collaboration and continuity of the project after the internship in my case it was clear. The educator said she would continue the work on the problem raised. In my case I think the educator continued to implement strategies related to the problem raised. I also left support material for the educator so that the educator could continue to develop strategies. She told me she would continue weekly. The support material helped her a lot. (Student 6)

In general, there were no concrete results from the implementation of the action-research project because the time allocated to this work was not enough, besides not mobilizing some educators in the continuity of the project.

Table 5. *Justification given by the students about the effect of the implication of the other educational actors on the evaluation of the results of the work*

Also while there I've seen improvements. After finishing it already I came back casually and verified that the time for the accomplishment of that project was not enough. (Student 9)

The educator was very approachable. As for the other actors, the parents also collaborated. The principal did not know about our concerns. In my case the principal did not cooperate because she was working in another school. The question of inquiry was addressed at room meetings. The question of inquiry was not foreign to the problem of children. The intervention concretized the strategies that used to manage the group. It did not cause much change in the work environment. In my case the problem was well identified and conscious in all stakeholders. The theme was related to the development of fine motor skills. The educator knew how to give guidance in the development of strategies, the assistants of educational action knew that I did the activities according to the problem raised. I talked regularly about my A-R question even though I shared more with the educator. (Student 10)

3.3 What do students say about the articulation between theoretical and practical knowledge used in the A-R project?

Nature of knowledge: The articulation between theoretical and practical knowledge, used in the action-research project.

Students acknowledge have articulated theory and practice in the design and implementation of the A-R project, even though the situations were complex. They got support from the university to effect this articulation.

Table 6. *The articulation between theoretical and practical knowledge in the research project-action*

We do not yet have experience as researchers. Therefore it was difficult to find a relevant problem that would prompt us to develop the project comprehensively. It was also difficult to find the correct terms to write as well as with the strategies it was necessary to seek theoretical knowledge that would base the formulation of intervention strategies. I feel that a more structured system to evaluate the intervention has been lacking - which could be for example a frame of reference and after that the classification of the aspects to be assessed. The development of the project A-R was also somewhat complicated. Developing a project is always more complicated. We feel difficulty. We had a theoretical approach to A-R, but in practice when we are acting on the situations that arise in us everything is more complex. We try to develop strategies to solve the problems. Theoretical classes helped to link theory and practice. With the accompaniment of the professor of the UC Project of A-R, on the theoretical clarification we always managed to advance in the work. (Student 1)

The students also valued the collaboration of their colleagues during the intervention:

We understand the process theoretically, but it's a complexity process. So it becomes difficult to systematize and write it. It is important to have a clear idea of what we want to value for the job report. We need a lot of guidance. Talking with colleagues has also helped us to see how we treat and value practical experiences, we have learned to value what is important to write in of our project. (Student 8)

From the theoretical point of view, one of the authors used for the orientation of the work was Máximo-Esteves. (The author's approach clarified us in the A-R processes.) I also found another author who was more specific, but I did not find an author who had an intermediate point of view. Previous theoretical knowledge was not enough for me. In this project I had to deepen, to do more readings to understand how the cycle of A-R develops, but the books do not explain everything about the practical learning, which was revealed to be authentic learning. It was very important for example to observe the educator and to perceive what their

practices are, what strategies they use and to reflect on how this knowledge can help us (Student 7)

3.4 How important is this experience in personal and professional training?

The significance of learning: the implications of this action on personal and professional training. There is no doubt about the importance of work in action-research methodology in the personal and professional development of the students. They emphasize the critical and reflexive role that they had to develop in the self-analysis of their interventions.

Table 7. The implications of this action on the personal and professional formation of students

I was already familiar with the concept of A-R . The Professor of A-R helped to relate theory to practice such as in defining the issues because it is not easy. It was very difficult to choose and formulate the question. The theoretical knowledge have helped to understand and solve the research problem. Another important thing is to decide what is urgent to implement, and regular our action from feedback we received. We have to analyze the information and relate it with knowledge learned in class. These were important because we had to review the literature to better justify the problems. In class we perceive the essential, the logic of the action-research cycle. This helped a lot in the intervention. The process is always cyclical and we never have an end. We always try to improve. That helps us to develop a critical attitude - that action-research requires and tried to find questions that would promote this critical attitude and develop our practice. (Student 6)
I recognize the importance of this work. For example, I completed a theoretical work on phonological awareness for the Portuguese Didactics CU. I knew a lot about the theory, but only when it was necessary to solve a problem of communication of a child did I realize the difficulty of interconnecting theory with practice (Student 5)
This project was very important for me. I have learned to understand how A-R can improve teacher education. I learned a lot theory and practice. I learned too with the educator. I learned to observe her about how she deal with the children and the strategies she developed. Some of these strategies were theoretically based (Student 6)
This experience has helped us to prepare to the future us professionals. We give our best. We are led to recognize that we could improve on the next intervention. We will not forget. It was a great personal and professional experience. It was important to be aware of how to find the crucial issue for the development of the project. (Student 1)
I learned not to underestimate children, I learned to identify problems. I learned to involve children more in scheduling spaces and working times, I have trained the situated learning. I think that we have our profession more valued because we have results when we work well (Student 8)
A-R helps us to develop better practice and to respond better to children, to reflect on how to promote dialogue. Is very important for our future. We did learning in practice, for example, I learned a lot about conflict resolution and emotions an aspect that I had not previously learned in my initial training. I feel more prepared. It is not enough to act only by empirical knowledge. Is necessary to research theoretical knowledge to apply them and then we transform our praxis. (Student 7)
At the level of A-R I learned to identify the theoretical knowledge needed to solve a practical question. We are used to do theoretical systematization at the level of action. I think this project is very important because I had to be critical with myself, watch the children and think what strategies I can return to solve their problems. Watching for me is a complicated task, but in this project I learned to observe better. There are many things that children do not say, but they think. I have learned to understand their interactions with their emotional reactions. (Student 4)

3.5 Syntesis

The reports on the trajectories of situated learning prove that the mathematics of the students in initial teacher training are closely related to authentic learning, by participation, contextualized in the educational environments of the schools where they developed the pedagogical practice. The action - research project reifies the experience of pedagogical practice given that in function of this research methodology the pedagogical practice interconnects theory to action and beliefs about action.

In fact, A-R enables students to understand pedagogical practice in another perspective. The complexity and unpredictability of the issues addressed require the development of a collaborative research culture, truly sharing of work between the actors in the pedagogical action as well as the construction of a new teaching identity.

Thus, from the signaling of the training needs, the students in formation develop processes of self-formation and reflection on the management of the curriculum and the perspectives of teaching action (Alarcão, 2000). The teaching function moves from the Teacher-Technical function to the Teacher-Author function.

4 CONCLUSIONS

In this research, we could verify that A-R has translated into a strategic potential for the learning of the students in the internship. It is reflection on action that leads to commitment and change. We found different trajectories of student learning in the development of projects and the implications of acting and reflecting in context.

The voices of trainee students led them to realize that their pedagogical practices experienced in the action-research project were synchronized with the ecological and community contexts of schools, that they conferred meaning and scientific reasoning to the formative process, in addition they contributed to their integral development as Citizens. On the whole, the situated learning demonstrated the maturation of the students, as being one of the greatest challenges presented to them in the initial formation of teachers.

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