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Resenha

Synchronized: Teacher Training And Digital Technologies

OLIVEIRA, Agnaldo. **Educação a distância e tecnologia digital**: *interação, atitude e aprendizagem. Curitiba: Appris, 2017. 125 p.*

The author, Agnaldo de Oliveira, is Brazilian, with a doctorate in Mathematics from Unesp (Rio Claro - SP), professor at the municipal education network of Campo Grande - MS, researcher in the areas of Continuing Education of Teachers and Information and Communication Technologies.

This book is the result of master's research, developed in the Graduate Program in Mathematics Education at the Federal University of Mato Grosso do Sul (UFMS). In it, Oliveira analyzes the studies carried out on the use of digital technologies in teaching and learning first and second grade functions in exploring the properties of triangles and quadrilaterals. For this purpose, in addition to the introduction and conclusion, it divided the work into three chapters, namely: 1. Teacher Training and Digital Technologies: interaction, attitudes and learning, which corresponds to the theoretical framework, having opted for studies on "virtual being together " and the attitude of "inhabitant", and it was from them that it was possible to analyze the learning possibilities of the subjects with the use of the computer in actions in the distance learning modality; 2. Methodological Path of Research, which outlines the path taken in the investigation and the constitution of the study group, namely the participants in the training action. This chapter also presents the virtual learning environment (AVA), space where the development of the training action takes place, and the proposed training action; **3.** *An Experience with Education of Mathematics Teachers in EaD: learning possibilities in VLE*, which presents data analysis from three categories: learning the mathematical concept, learning in the interaction between subjects and the trainer's attitude.

This work specifically investigates the potential of EaD, through the analysis of the possibilities of interaction and learning of specific contents of Mathematics, especially in the study of functions, using software and internet applications.

In the introduction, Oliveira raises some questions that led him to investigate the continuing education of Mathematics teachers in the form of Distance Education (EaD) for the use of technologies. How, in professional terms, will teachers working in areas far from large urban centers? Are they able to access continuing education? Are the trainings done in person or at a distance? Do teachers still need to travel to participate in training courses? (p. 18). There are also some studies aimed at the continuing education of Mathematics teachers for/with the use of technologies, in the EaD modality. Also in this part of the work, the author indicates the subjects participating in the research and the elapsed time, namely: 49 enrolled; of these, 26 completed the training. Regarding the time, the research was carried out over three months, that is, there were 12 distance meetings, with two hours available for the teachers to fully dedicate themselves to the course, in addition to the development of two plans in the classroom in schools, which totaled 30 hours of study.

In chapter 1, the author focuses on Teacher Education and Digital Technologies: interaction, attitudes and learning, and emphasizes the importance of continuing teacher education. For him, to imagine that teacher education happens only during initial training, leaving aside continuing education - that which occurs during professional life - is to deny the importance of professional development, since the knowledge acquired/produced in moments of training interact with the teacher's life, both in the professional and personal dimensions (p. 29-30).

With regard to distance education, Oliveira states that it favors the continuing education of the teacher, insofar as this teaching modality can incorporate the use of technologies as means that enable the encounter between the teacher in training and the trainer. Furthermore, the teacher in training can develop skills for the use of digital technologies in communication processes, being able, little by little, to reflect on the possibilities of integrating them into their classroom practice,

both for distance communication and to favor learning (p. 31). For the author, EaD should be understood as a modality of education whose interactions between teachers and students, which enable teaching and learning, take place through the use of digital information and communication technologies. In this modality, teachers and students can be in different places and education can take place at different times (p. 33). By following this training modality, the author chose to base the study's analysis on the "virtual being together" approach and on the "inhabitant" attitude, to investigate the interactions between teachers in training and trainers and learning in the training environment. For the author, interactions are understood as an action of reciprocity between the trainer and the teachers in training and/or exclusively between the teachers in training, which makes it possible to modify the behavior of the subjects involved in knowledge construction processes (p. 33) . For him, without this interaction, there is no way to know how training is being understood by the teacher in training.

Regarding the "virtually being together" approach, Oliveira says that the choice is linked to the fact that it goes beyond distance training, in which only information is made available without enabling interaction processes that favor the production of knowledge. The "virtual being together" approach, according to him, foresees a high degree of interaction between subjects, namely trainer and teacher in training. It allows the trainer to understand what the teacher in training does/learns during the process, being able to propose challenges to guide them in learning. In this model, the interaction between the trainer and the teacher consists of using the internet to carry out the action cycle: description--execution-reflection-debugging-new description, making learning in the form of a growing spiral, provided "by the network of mediated learners by the computer" (p. 37).

Based on contributions from Scherer (2005), the author states that it is necessary for the teacher in training to be engaged in the development of the proposed activities. For this purpose, it suggests that the teacher-in-training and the trainer inhabit the training environment, thus becoming inhabitants of the virtual environment, not just being visitors or passers-by, since it is not internet and computer access that

creates situations for the trainee teacher to learn, but their attitude (p. 40). The inhabitants are those who are responsible for their actions and those of their partners, seeking mutual understanding, communicative action, reconstructive questioning; the inhabitant is always being part of the environment. Then we have the visitors, who are students and teachers who participate in the learning environment with the intention of visiting. When we visit an environment, we do so out of duty, affection or friendship. Some of them even collaborate, but without cooperating with the group, as they are sometimes part of the environment, but not continuously; they do not inhabit the place, the content, as they are visitors. Finally, we find the passersby of the learning environments: students and teachers who pass through the environment. Some enter, circling the spaces, others just pass. They are passers-by, not visitors or inhabitants.

For Oliveira, this training environment housing by trainers and teachers in training establishes a cycle of actions and contributes to the dynamization of the learning spiral, and this is done through interaction between the subjects.

In chapter 2, the author indicates the methodological paths and the constitution of the study group — the research subjects and the organization of research experimentation —, the training action and the source of data analysis, and describes the virtual learning environment .

Regarding the methodology, the author opted for studies on "virtual being together" and on the "inhabitant" attitude, and said that the choice was due to the fact that, based on them, it is possible to analyze the learning possibilities of the subjects with the use of the computer, in actions in distance education mode. The group was formed from the offer of a 30-hour continuous training, in partnership with the UFMS, entitled "Distance Training for Multipliers: Technology and Mathematics Education". The course was developed entirely at a distance, through a virtual learning environment, from the perspective of "virtual being together". 49 teachers were enrolled, of which 45 were graduated in Mathematics; three were graduated in Science, with a degree in Mathematics; and one in Biology. Of this universe, only 26 completed their training, with 23 graduated in Mathematics and three

in Science with a degree in Mathematics. The training lasted three months, that is, it was developed during 12 distance meetings with the teacher's availability of two hours a week to fully dedicate himself to the course in the virtual environment, using the Moodle platform. It was based on the following dynamics: interaction, reflection, analysis, development and sharing of ideas and carrying out the activities proposed for each activity agenda (p. 55). For this training, the author aimed to offer continuing education at a distance for Mathematics teachers who work in technology rooms for/with the use of educational software in Mathematics classes. The contents taught were: function of the 1st and 2nd degree, in the field of algebra; and studies of triangles and quadrilaterals, in the field of geometry.

Regarding the use of digital technologies, for algebra studies, the author used the online Google Docs spreadsheet, since the application allows remote monitoring of the construction of graphics, as long as there is sharing among users; functions applet and Winplot software. For the development of geometry studies, the author opted for the S-Logo and Geogebra online software (p. 54).

Finally, in chapter 3, the author presents the analysis of research data, in which he seeks answers to the following fundamental question: what are the possibilities of learning for Mathematics teachers in distance continuing education actions? More specifically, it aimed to analyze learning possibilities in an action of continuing education of Mathematics teachers, in EaD modality, in virtual learning environments. Data analysis was carried out from the records of the participants in the spaces existing in the virtual environment for the study of algebra - especially the studies of the 1st degree function, which took place in the first three weeks -, and, for the study of the domain of functions, using Winplot, with the activity "Masks and functions of the 2nd degree", in the seventh meeting. With this analysis, Oliveira verified the following: the teachers in training, subjects of his research, had to mobilize knowledge related to the study of elementary school; some teachers changed their previous certainties in relation to the graphic representation of the 1st grade; the knowledge built during the training action in the meetings analyzed from the records happened through/

in the interaction that took place in the "meetings" under the "virtual being together" approach, in the EaD modality; the trainer is an important learning agent by keeping the action cycle and the learning spiral of the trainee teachers functioning during the training action.

The author defends the need for the teacher trainer to be virtually present, always placing himself as a "present inhabitant". It also defends the importance of the teacher putting themselves in a permanent state of learning, as a principle of survival in training, and that the EaD modality is an important alternative for education, but it needs to be thought of in a model of "virtual being together ", with teacher trainer and teacher in training inhabiting the training space — the learning environment of the training action.

Studies on the presence or not of digital technologies in schools and the importance of the EaD modality as an alternative for education are growing rapidly in Brazil, and this work constitutes an enormous contribution to this line of investigation, because it indicates training actions in the EaD modality and research and uses of digital technologies in schools, aiming at the search for knowledge and, through it, more quality for education. Therefore, it is recommended the study of this work by Mathematics and distance education teachers, researchers and students interested in distance education and the use of digital technologies in classrooms. The work was very well organized, has a clear and objective language, thus allowing a fluid and pleasant reading.