EDUCAÇÃO & realidade

Training and Monitoring: a two-stage training model in teacher professional development

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ABSTRACT – Training and Monitoring: a two-stage training model in teacher professional development. We present a teacher training course that has emerged as a way to support the trainees as well as to keep up with the training received. It is developed in two stages: (i) the training process and (ii) the monitoring. The second stage acts as support for trainees after the training course, urging them to continue to update the training received. It has already been applied in Portugal. We describe the procedure and present the results. To contextualize our study we report some training and professional development initiatives implemented in Portugal, as well as processes of change in the scope of basic and secondary education. We also describe the model, the research questions that were outlined for its evaluation, and the results achieved.
Keywords: **Teacher Professional Development. Blended-Learning. Teacher Training. Two-stage Training Model. E-learning platforms.**

RESUMO – Formação e Monitorização: duas etapas no desenvolvimento profissional docente. Apresenta-se uma opção formativa para professores, que se desenvolve em duas etapas: (i) o processo de formação e (ii) a monitorização, consistindo esta no apoio aos formandos após a formação. A proposta formativa já foi implementada em Portugal e teve como foco a integração do Moodle em contextos de ensino e aprendizagem, nos ensinos básico e secundário. Para contextualizar o estudo mencionamos algumas iniciativas de apetrechamento tecnológico, de formação e desenvolvimento profissional implementadas em Portugal. Apresentamos o enquadramento teórico subjacente à proposta de formação em duas etapas, as questões de pesquisa, o processo de formação e os resultados obtidos.
Palavras-chave: **Desenvolvimento Profissional Docente. *Blended-Learning*. Formação Contínua de Professores. Monitorização. Plataformas de E-learning.**

Introduction

Since the 1980s, several important milestones related to educational policies in the area of Information and Communication Technologies (ICT) took place in Portugal, as well as their subsequent integration in educational settings. In September 2007, a new phase emerged, with the approval and presentation of the Technological Plan for Education (TPE)[1], the largest technological program for equipping Portuguese schools. The schools were prepared with computers and multimedia equipment in order to allow the widespread of its use by all stakeholders. It was assumed, therefore, that the schools' infrastructure was in good conditions and that it was necessary to implement innovative teaching methodologies that facilitate learning supported by ICT. TPE included various programs and projects, including the National Programme for ICT skills training as part of the System for Training and ICT Skills Certification[2], approved and regulated by Decree No. 731/2009. Along with all this came the need to prepare teachers for the efficient use of such equipment, especially in the classroom context in order to improve the quality of teaching and learning.

In 2011, the TPE Observatory (TPEO) produced a report concerning the following: (i) development and monitoring of TPE projects implementation and (ii) evaluation of the TPE impact at the organizational and behavior level (Carneiro et al., 2011). Although the results related to the perspective of teaching with ICT were generally positive, when "[...] teachers were questioned about the ICT proficiency by their colleagues, the responses denote a wide range of proficiency levels in using ICT" (Carneiro et al., 2011, p. 19), and it was also pointed out that the lack of preparation of teachers inhibits the effective use of the resources placed at their disposal by the TPE (Carneiro et al., 2011).

The concern with teacher professional development and the recognition of the integration and use of technology play a central role in teaching practices and the development of school activities, as stated by Peter (2011). For this author, there is still a long way to go in achieving high, effective and sustainable levels of technology use and resulting "[...] in the classroom use in favor of innovative methodologies of teaching and learning and more rich, meaningful and stimulating experiences for students" (Pedro, 2011, p. 260).

It was based on the identification of these needs that a training action based on the integration of Moodle into educational contexts, in basic and secondary education[3], was designed as a continuing education project based in two phases: training and monitoring, as described in this article. In Portugal, this model is called "Modelo Bietápico de Formação". In the next section, approaches to teacher training, professional development and teacher continuing education will be explored in order to contextualize the Two-stage Training Model and its relevance.

Teacher Continuing Professional Development and Training

In the recent decades, teacher continuing professional development and training in Portugal has been subject of analysis. We witness again a "[...] a return of teachers to the educational setting", says Nóvoa (2011, p. 534). This boosts that issues related to the teaching profession – the work and action of teachers – are again valued and the teacher role is recognized as central. Nóvoa (2011) reinforces the need for professional development and learning of teachers, emphasizing: (i) the idea of lifelong learning, (ii) the reflective role of the teacher (constant research), and (iii) the importance of collaborative cultures, through teamwork, monitoring, supervision and evaluation of teachers, among others. These requirements and perhaps even new dimensions of professional development, involve the restructuring of teacher performance. This recognition is essential to rethink training policies and build a policy that is consistent and that empowers teachers with knowledge, attitudes and values as well as the acquisition and/or development of crucial skills to the new dimensions of their performance (Campos, 2013; Cortesão, 2012). In this regard, Nóvoa (2011) advocates the need to implement teacher training inside the profession, to promote new forms of organization of the teaching profession (such as collegiality, sharing and collaborative cultures together with strengthening the personal dimension and public presence of teachers).

Therefore, in the:

> [...] Complex puzzle that makes up the teacher training, there can't be missing components that enable a rich educational practice, questioned by the capacity to listen, interrogate and analyze critically, to investigate your own work environment, supported by solid knowledge, not only in their specific area but also the socio-anthropological field (Cortesão, 2012, p. 732).

Recent changes concerning not only the curriculum but also the organization of institutions imply new demands on teacher performance (Campos, 2013; Cortesão, 2012). Of these, we highlight the enhancement of new learning outcomes in education, the development of new learning processes and, consequently, rethinking the roles that teachers and students take in a school in transition (Johnson et al., 2014).

We believe that these changes can only occur in an effective way when teachers are given time to discover and take ownership of new tools and reflect on their own teaching practices (Santos; Carvalho, 2014).

The integration of technologies in the curriculum, as pointed out by Daly, Pachler and Pelletier (2009) and by Felizardo and Costa (2014) should be linked to the recognition of its utility in educational contexts. It is therefore a complex situation which transposes the knowledge and access to the technologies itself, resulting in many emerging issues related to teacher training in this field (Felizardo; Costa, 2014).

As presented in Decree-Law No. 22/2014 of 11 February (MEC, 2014, p. 1286):

> A new paradigm is established for the continuing training system, aimed at improving the quality performance of teachers in order to focus the training system on the priorities identified in the schools and the teacher professional development, so that the training enables continuous improvement of teaching quality and is linked to the local and national educational policy goals.

Veiga Simão and colleagues (2009) argue that the success of teacher training depends on several factors, among which is the ability of schools to engage in the design and development of collective training projects that meet their needs and help find answers to the problems they face in their day-to-day.

Thus, all spontaneous learning experiences and those which, in a planned and conscious way, attempt to directly or indirectly benefit individuals, groups or schools and contribute to improving the quality of education in classrooms (Day, 2001; 2007) are included in teacher professional development.

There is a close relationship between teacher professional development and change, especially when there is development of professional teacher competencies through different spontaneous experiences, whether formal or informal, as Day (2001), Estrela and Estrela (2006) and Marcelo (2009) amongst others, highlighted.

> [Teacher professional development] is the process by which teachers, as agents of change, review, renew and expand, individually or collectively, their commitment to the moral purposes of education, acquire and develop, critically, along with children, young people and colleagues, knowledge, skills and emotional intelligence, essential for effective professional reflection, planning and practice in each stage of their working lives (Day, 2001, p. 21).

> [Professional development] is a set of individual processes of change in relation to work, operated throughout a career and which arise from a plurality of factors [...] (Estrela; Estrela, 2006, p. 75).

> Professional development seeks to promote change among teachers so that they can grow as professionals and as people. Several research have been devoted to trying to figure out how these changes and developments happen, this is, understanding how learning takes place (Marcelo, 2009, p. 15).

Speaking of change processes associated with education requires a view of this change from a high level of complexity. We believe that teacher professional development is a process in which the dynamics of individual and collective change intersect, even if the development is marked by the change that is intended to occur in a specific direction

(Morais; Medeiros, 2007 apud Almeida, 2014), aiming at a perspective of (re)construction of personal and professional individual trajectories (Almeida, 2014). It is, therefore, important to rethink the educational processes (here, with particular emphasis on those who are associated with teacher professional development) and redraw them in terms of a more demanding and in constant change society. Thus, teacher professional development implies continuous learning, both as a process and as a product (Deaudelin et al., 2005 apud Almeida, 2014).

Professional Training Modalities of Training in Continuing Teacher Education

From the literature review and the analysis of the different forms of continuing training activities for teachers, it is urgent to find an adequate response considering the demands of the present and of the future.

If, on the one hand, in Brazil,

> [The] teacher training for Professional Education and Technology (PET) is crucial so that the current policy of expansion, internalization and democratization of this educational modality can become effective with social quality, production of knowledge, teacher appreciation and local, integrated and sustainable development [...] the challenge of teacher training for PET reveals itself in various ways, especially when you think of the new needs and the political and pedagogical demands [...] (Machado, 2011, p. 693-694).

In Portugal, the Ministry of Education and Science (MEC, 2014, p. 1286) published the Decree-Law 22/2014 in February 11, which stated that:

> It is necessary to enhance the endogenous resources of training institutions and schools themselves in the production of quality training responses based on the identified training priorities. It should also ensure the quality of training through different regulation devices, among which stands out the introduction of a new monitoring mechanism that enables reliable data collection to support decision making on the teacher continuing training, necessary for a greater adaptation of the training offer to the needs of the present and the future.

Several authors (Carvalho, 2008; Felizardo; Costa, 2014; Johnson et al., 2014; Peres; Pimenta, 2011) recognize as important that institutions should provide diversified and adequate training programs, able to produce effective changes in teacher teaching practices.

Until February 11, 2014, in Portugal, continuing training, according to the Educational Scientific Council of Continuing Education, included two large groups of training sessions: one focused on the content and the other focused on the school settings and on professional practices (Table 1).

Table 1 – Existing Professional Training Modalities in Portugal, before and after February 11, 2014

Training actions	Professional Training Modalities, before February 11, 2014	Professional Training Modalities, after February 11, 2014[4]
Based on contents	Course	Course
	Module	----------
	Seminar	----------
Based on the school settings and on professional practices	Study circle	Study circle
	Workshop	Workshop
	Project	Project*
	Internship	Internship[5]

Source: Educational Scientific Council of Continuing Education (CCFCP, n/d).

The first group focused on the generalized forms of continuing training for teachers and was intended mainly at the acquisition of knowledge. As it was aimed at content acquisition, it could have some use in teacher professional development. The second group included training modalities that were aimed at providing answers to issues related to school settings and teaching practices, guided to problem solving within schools, seeking to improve the teaching and learning process.

Currently, and according to the Decree-Law No. 22/2014 (MEC, 2014, p. 1286) of February 11:

> Without any harm to other alternatives, the modalities adopted will be training courses, workshops, study circles, while short-term training will also start to be recognized. Training using distance learning methodologies and networking through electronic platforms are considered key issues to value on the different forms of training.

As we can see in Table 1, currently there is only one type of training focused mainly on the contents (Course).

The retrospective analysis made by Lopes et al. (2011) on teacher training points as key dimensions the changes focused on teachers, schools and the use of ICT. According to the existing modalities of continuing education in Portugal (presented in Table 1), we chose to highlight the Training Workshops, as it was the modality used in Two-stage Training Model.

In a Training Workshop, it is essential to identify the prior training needs and adapt them to the training practice, the pedagogical research and the didactics in the different fields of teaching. Despite its eminently practical nature, it is crucial that there are moments of so-

cialization, in which the students present their practices, share them, evaluate them and then apply them. For this, the development of monitoring mechanisms is essential, both for the work done in the Training Workshop, and also for the use, in each context, of the materials produced in the workshop. Among these mechanisms, there should be joint classroom sessions, in which teachers produce work together, of reflective or practical nature. Thus, these sessions should be spaced in time in order to promote the real use of the activities and the materials produced (CCFCP, n/d, Portugal, 2007; 2010).

There has been a gap between the knowledge acquired in the training moments and the knowledge that is later applied in the educational contexts. In regard to this, Nóvoa (2009) launches the challenge that teacher's continuing education should be more focused on teacher practice and on its analysis, instead of being excessively focused on theoretical and methodological issues. The same author also believes that there is a deficit of practices and reflection about these practices, knowing how to do things. Teacher training depends, among other factors, on the capacity of schools to engage in the design and development of collective training projects that meet their needs and that provide possible answers to their everyday problems (Veiga Simão et al., 2009).

Training and Monitoring: a two-stage training model

Based on the existing models of teacher continuing education in Portugal, the need to change the attitude that trainers and teacher-trainees adopt in their own professional development, the importance of integrating the ubiquitous technologies in education - as an alternative to traditional environments, followed by new educational approaches and guidelines related to the need for new teacher professional development scenarios – we designed a training project due in two consecutive steps, which we call Two-stage Training Model. We consider it a model of flexible and personalized lifelong learning for teachers and, therefore, allows for more meaningful learning in richer and diverse contexts.

This model includes two stages: the first stage focuses on the training process (with classroom sessions and online sessions) and the second in the monitoring of trainees (for one to two consecutive school years and subsequent to the formative period).

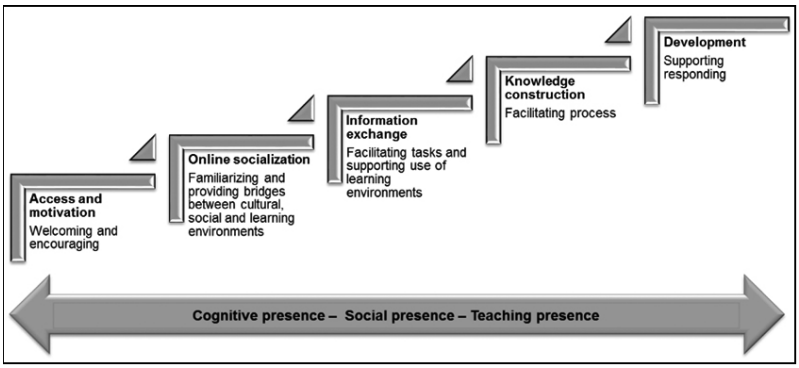
First Stage: training

Based on the literature review conducted, our experience as teacher trainers and the theoretical frameworks (Lopes et al., 2011), during this step we fostered reflection in action and action in reflection (Schön, 1983; 2000) so that all the participants can become more aware of the importance of the relationship between the training and the school contexts.

On the online sessions we decided to combine two models of instructional training, namely *e-moderating* by Salmon[6] (2011) and *Com-*

munity of Inquiry (CoI) by Garrison and Vaughan[7] (2008). We believe that these two models are complementary and enrich the learning process, as can be seen in Figure 1.

Figure 1 – Instruction Model used on the Online Sessions in the first stage of the Two-stage Training Model



Source: adapted from Garrison; Vaughan (2008); Salmon (2011).

Salmon (2011) presents five development stages in the model (*The Five-Stage Model of e-moderating*) with different degrees of interaction and increasing learning (as shown in Figure 1), which are crucial in the creation and growth of a learning community (Pallof; Pratt, 2007). The success of online learning is based not only on the creation and sharing of learning communities, but also based on the level of collaboration between all the elements that comprise it (Pallof; Pratt, 2007; Salmon, 2011).

Garrison and Vaughan (2008) include in their model of community inquiry (*Community of Inquiry Model - Model CoI*) three key elements: cognitive presence, social presence, and teaching presence (as seen in Figure 1). The authors consider that the trainer will be more successful the greater the interconnection between these three key elements, which are essential in building learning communities (Garrison; Vaughan, 2008; Pallof; Pratt, 2007).

The instructional models referred focus on a social constructivist approach, an aspect that is highlighted by the emphasis that both give to the importance of socialization, collaboration and building collaborative knowledge in online education environments (Garrison; Vaughan, 2008; Salmon, 2011).

Second Stage: monitoring

The purpose of this stage is to support (technically and pedagogically) all trainees. We believe that monitoring should occur immediately after the training period for one to two academic years as a way to continue the work done during the formative action. This opinion is shared by Veiga Simão et al. (2009), who consider the need to under-

stand the articulation between the training processes and the teachers' educational practices who participate in them.

The absence of this monitoring has been identified, by some researchers as a failure in teacher professional development (Carvalho, 2008; Costa et al., 2012.). In this regard, Maio (2011) refers to the importance of collaborative scaffolding processes in the consolidation of the progressive appropriation of new forms of coordination and integration of various tools as well as in supporting the changes that teachers face. The OECD (2005, p. 95) reinforces the idea that "[...] [the] professional development to be effective, includes training, practice and feedback, and provides adequate time and support in the next step"[8].

But how to promote this monitoring? We consider that there is no unique form of support and, therefore, our actions must take into account the group and the individuality of trainees, the kind of support needed and their purpose. Monitoring can take place face-to-face and/or online, one to one or one to many, depending on the situation in question. In the face-to-face support, workshops can be organized, as well as teacher professional development opportunities (formal and informal) can be created to improve some knowledge and enhance skills acquired during the training activities. In online support, monitoring can be done through email, Skype, Hangouts and also through the creation of support spaces, fostering professional development and fostering communities of practice (Wenger, 2011).

The training project of the Two-stage Training Model was implemented in 2011, in the training action called *Taking advantage of the integration of learning management systems in teaching and learning contexts, in primary and secondary education*, according to blended-learning approach. In the following section, we will describe the application of the Two-stage Training Model steps for the case reported in the training action referred previously.

Implementation of the Two-stage Training Model: training and monitoring

Stage 1: training

The training action - *Taking advantage of the integration of learning management systems in teaching and learning contexts, in primary and secondary education*, - has been credited by the Educational Scientific Council of Continuing Education (CCPFC), and took place over three months, a total of 50 hours, according to blended-learning approach, with the support of Moodle as LMS[9]. Based on the schedule approved officially, we decided to split the total hours of training time in 25 classroom hours (CH) and 25 online hours (OH), interspersed with each other. The first and last session would be necessarily classroom hours.

Based on the objectives of a Training Workshop (mentioned previously), we developed a set of tasks that had to be held in OH (which must

be interspersed with the CH), which turned the self-individual work (not scheduled) in a continuous and pre-defined work.

In the first CH, we informed all participants about how the training action would take place (Santos; Carvalho, 2014). Based on the planning schedule established, the CHs were biweekly and lasted 3 hours each (on average). In these sessions, several activities were developed, mostly in groups and with the use of ICT, to promote interaction between all participants. Some authors (Carvalho, 2008; Garrison; Vaughan, 2008; Stacey; Gerbic, 2009) consider that these interactions are fundamental to build relationships and consequently the emergence of the sense of community within the group. In the LMS, two workspaces were created: one to support the CH and the other as a support for the online activities. We assigned two different profiles to trainees: the student (used in CH) and the teacher (used in OH) so that the trainees could create workspaces with their students (Santos; Carvalho, 2014). The selection of the different tasks proposed was based on the models of Salmon (2011) and Vaughan and Garrison (2008).

Since the CH interspersed with the OH, after each CH we proposed online tasks (individual or group) and, to support their achievement, we made available diverse materials through the LMS (Santos; Carvalho, 2014). Whenever online support was necessary, trainees communicated synchronous (chat) or asynchronously (by private message and/or forum) with the trainer. In some situations, this communication was also established among the participants (without intervention from trainer), a situation that is likely to occur based on the instructional models we used.

It is crucial to provide online support (pedagogical and technical) to students so that they feel confident and implement their individual learning into their teaching practices. For all this, we emphasize the importance of CH and OH to be spaced in time, interspersed with each other and at every two weeks. This allows trainees to build a more continuous work and, therefore, to be more involved in the tasks they had to perform during the training period. The OHs combine, as already mentioned, the models of Salmon (2011) and Garrison and Vaughan (2008) because we believe they complement each other (as shown in Figure 1).

Stage 2: monitoring

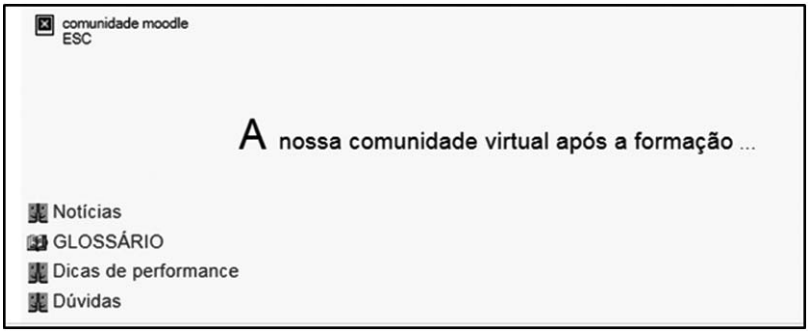
Initially, this step was intended only for the academic year after the training period, but due to several requests from some trainees, it was extended for another school year. The reasons for this are due to the fact that some of those who had not used the LMS yet felt motivated and also needed to start using it. The reasons pointed out were based mainly on the following: (i) working with colleagues in the same department who taught the same areas or related areas, (ii) the integration of teams working together on projects in progress at school, (iii) the fact that students were using the LMS in other courses, except the one that they were teaching, (iv) the facility to provide greater flexibility

in teamwork, in what regards time and space (sometimes teachers saw themselves unable to work in groups due to different schedules), and (v) support to solve technical problems with the LMS, which was felt in the previous school year.

During the monitoring, trainees were provided technical and pedagogical support in many different ways. The group was very heterogeneous, so several forms of assistance were used, depending on the degree of interest, the level of acquired knowledge and skills developed during the training. Project work, collaborative work and support based on ongoing initiatives and projects at school were stimulated.

Support was provided both in person (face-to-face) and at distance. In the face-to-face modality, monitoring was individual and/or in small (inter)disciplinary groups working together (in projects and/or were teaching the same classes and/or the same levels of education). At this stage, we continued to support the trainees, providing them with all the specific and necessary help for the effective integration of ICT (in general) and LMS (in particular). In order to contribute to increase the trainees' confidence, we monitored the teaching practices in regard to the fulfillment of the teaching and learning objectives (always framed in the guidelines of the different courses and the School Educational Project). The distance monitoring was supported by email, Skype, Hangouts and also in Moodle, with the creation of the course *Supporting training in the LMS* (Figure 2),which followed the training action, providing the opportunity for the exchange of ideas and materials (between trainer and trainees and of these among themselves).

Figure 2 – Supporting Course created in Moodle after the training workshop



Source: created by the authors.

In this course, updated permanently, supporting materials were placed (e.g. tutorials, links, podcasts, videos, eBooks, text, info, manuals, screencasts etc.) whenever requested by a teacher-trainee or because the trainer understood it could be useful. Communication spaces (forum and chat) were also created for the exchange and sharing of ideas.

The work carried out during the monitoring process (in person or online), had different support procedures, always considering the most

effective way to integrate the different features of Moodle according to the different curricula. Sometimes, given the specificity of the teaching areas, the LMS features were not enough, requiring a complementarity with other Web 2.0 tools. In such cases, we supported the development of some activities due to the doubts and difficulties that persisted in exploring and complementing the LMS features with other tools.

Throughout this stage, we often reflected on what was done and how the classes were carried out, the impact of these activities, trainees' behavior and willingness. The trainees' perceptions were important to proceed with adjustments (to improve the work that each intended to develop and likewise prevent less good aspects be repeated). Here, again, we emphasize the importance of creating non-formal professional development opportunities, combined with the emergence of communities of practice. In addition to all this, we announced events of different natures: courses, projects and workshops, as well as new developments that took place during the near future and that we believed could contribute to the professional development of the trainees.

The support was almost always given at the request of the trainees. However, at times, it was the teacher (trainer) that would contact the trainees whenever she realized that the lack of communication could be due to a lack of confidence.

In the following section, we present the methodology used in our study, as well as some of the data obtained.

Methodology

The methodology used is the intrinsic case study (Stake, 2007 cited in Amado, 2013) with a mixed approach that seeks to understand the interactions between the case study and their contexts.

It is a type of study that does not have a rigid structure, because, as it is ongoing, it can put aside plans and initial ideas to make way for other ideas which turn out to be more suitable. Thus, as far as the researchers get to know better the subject under study, plans are modified and strategies are selected (Amado, 2013; Bogdan; Biklen, 2013; Yin, 2014). The selection of the participants of this study was made by convenience (Amado, 2013; Yin, 2014), the teachers who participated in the training.

Quantitative data were analyzed using the SPSS software and qualitative data obtained primarily through interviews were subjected to content analysis.

Research questions

The purpose of the study is to investigate the integration of LMS in an educational context, based on the implementation of the Two-stage Training Model and its impact on teaching practices, according to Kirkpatrick and Kirkpatrick (2006). The main research questions are:

1. How was the training stage evaluated by trainees?

2. What was the impact of the monitoring on the trainees' teaching practices?

Participants

The trainees were 33 teachers, from various subject areas, who worked at a secondary school located in the north of Portugal. All trainees signed up spontaneously in the training action mentioned above and were selected by the School Association Training Centre to which the school is affiliated. They were mostly female (67%), aged between 29 and 56, in different work situations (76% part of the School Board) and all of them have a degree and 18% have a post-graduate course. In regard to the use of ICT, except for one participant, all the rest used ICT in their classes. Of these, the vast majority (94%) used the Internet, but only 27% used the LMS in their teaching practices. In regard to the tools available in the LMS, 23% used them, but only as a repository. We consider, therefore, that participants were at an early stage of use of the LMS. They had attended training activities mainly in the form of workshops (94%) and in a semi-present format (85%). Participants recognized that the various training activities had contributed to improve their professional performance (70%).

Methods of Data Collection

To evaluate the Two-stage Training Model, several methods of data collection were used.

In the first stage (training process), we used an Identification Form (for academic characterization, professional and digital literacy) and two Opinion Questionnaires: one that allowed to evaluate the training level of the Two-stage Training Model (Kirkpatrick, Kirkpatrick, 2006), the use of LMS and the expected performance, expected effort and attitude in regard to the use of technology (three constructs of UTAUT[10] Model, Venkatesh et al., 2003), and another questionnaire distributed by the School Association Training Centre to evaluate the training action, observation guidelines, field notes, audio recordings and testimonies, considering what we intended to quantify/measure (Amado, 2013; Bogdan; Biklen, 2013; Yin, 2014), namely, evaluate changes in the learners' behavior and the use of LMS.

Throughout the training process, we used formative assessment aimed at improving its quality as a means to obtain feedback from trainees and become aware of their needs and expectations. Throughout the training action, new skills were developed and knowledge was consolidated, in a continuous development and improvement process.

In the second stage (monitoring), we carried out semi-structured individual interviews. For this, a previous interview guide was prepared and validated by experts. This interview guide included four dimensions: (1) the relationship between the training process and teaching practices, (2) perceptions about the importance of integrating Moodle

in their teaching practices, (3) the way Moodle was integrated in the teaching practices and its implications, (4) main constraints/difficulties and the positive conditions that facilitated the integration of Moodle in the teaching practices. The interviews were conducted face-to-face (mostly), others by Skype/Hangout and by email, as one of the trainees was teaching in Timor.

Results

To facilitate the analysis of results, we decided to divide them according to their stage in terms of the mentioned model.

Results achieved in Stage 1: the training

The first stage, regarding the training action, was evaluated very positively by the trainees, both in regard to the work plan and the organization in Moodle, the available resources and methodologies to support the training action, the various forms of mutual help and communication between all participants, to the material available in the LMS and the organization of the course created for the training action. The blended-learning approach was considered by almost all participants (97%) as positive to their learning and the vast majority (82%) felt prepared to use Moodle with their students. Means of communication, synchronous and asynchronous, used in this stage (forum, chat and private messages - sent by email, via Moodle), were considered very important for student teacher learning and participation. The different features of Moodle, such as the Glossary, the Forum, the Survey, Labour and the Lesson were evaluated positively, on the curricula taught disciplines. The results from the opinion survey, referring to the UTAUT constructs, showed acceptable levels of reliability in performance expectations, and effort (with values of 0.72 and 0.75 respectively) and a good degree of reliability (0.85) on attitude toward the use of Moodle (Venkatesh et al., 2003).

Results obtained in Stage 2: the monitoring

The content analysis of the interviews allowed us to conclude that the results for stage 2 of the Two-stage Training Model (monitoring) were also positive concerning the relationship between the training action, the support received and the trainees' teaching practices, the perceptions of the importance and way of integrating Moodle in the teaching practices, and simultaneous (re)construction of their teaching practices. Of the 33 participants in the training activity, 19 continued to use the LMS Moodle, the remaining 14, for various reasons such as unemployment, technical problems in the use of Moodle, personal reasons and the school's decision to use another LMS, did not used it, as was reported in Santos and Carvalho (2014). In regard to the constraints, it is possible to highlight the bad technical conditions (maximum size allowed for uploading files, lack of space on the server,

Internet access difficulties and the LMS, among others) and the high number of students per class (30). However, from December 2012, these technical constraints have been resolved, which contributed to a more frequent use of Moodle. In addition to this, the layout was improved and other features were added, by inserting new modules/blocks in the LMS, which was only possible because the school made an upgrade of the Moodle version that was in use.

The advantages found and the facilitating conditions related to the integration of Moodle in teaching practices were many. Through the interviews[11] carried out, we found out that participating in the training activity and the experience lived had a positive influence on the trainees. Even those who were using the LMS before the training action recognized that they acquired new knowledge and developed skills:

> I already used Moodle before, but only to provide materials for my students. I was unaware of most of the features that exist in it (P2, interview, September 28, 2011).

A similar situation happens in regard to the real or potential use of LMS in teaching practices:

> Well, you cannot realize how it has facilitated my work [...] more organization, the possibility of students submitting work, the discussion of topics in the forum [...] (P4, interview, October 5, 2011).

> For me it's great, I organize everything in my courses and when I need something I know where to find it... and found out features that help me a lot at work (P5, interview, October 6, 2011).

The trainees recognize that the support received (technical and pedagogical) has been very important in the use of LMS:

> When I need help, I have someone to help me (that's you)! (P5, interview, October 6, 2011).

> When you have a short period of free time [...]. It would be important to come back and promote training with more time and perhaps more face-to-face classes ... I think ... it's a suggestion I give you (P11, interview, October 28, 2011).

> [The support] has been fantastic. I think if we did not have this support I believe that we would have had given up already (P16, interview, November 22, 2011).

In regard to the use of LMS, trainees' attitudes are not consensual, either in regard to the motivation and interest, either in regard to the interaction between trainer and trainees and of these among themselves. We believe that this is justified not only by the methods used but also by the tools that the teacher uses:

> My students sometimes complain. I have to insist that now it will be like this. So that they start becoming aware that it is not only book, pencil and paper (P1, interview, September 26, 2011).

> It is interesting to see how students become 'others' when I put those performing tasks in the Moodle (P6, interview, October 13, 2011).

> Some of the features that I use have contributed to make them become more responsible, for example with the delivery of reports (P5, interview, October 6, 2011).

Some trainees consider that the openness of students to the use of Moodle is related not only with the school level but also with the subject area being studied.

> My students are still very used to using the book and when I put support materials there [Moodle], they begin to complain [...] they want it in paper (P3, interview, October 4, 2011).

> I think some still have a certain resistance to the use of Moodle. They interact with me, but very little among themselves (P1, interview, September 26, 2011).

The trainees who teach exact sciences denote some gaps in the features available in Moodle and therefore feel the need to use other Web 2.0 tools, a situation that does not occur as often in teachers who teach Languages and Social Sciences and Humanities areas.

> [...] Moodle has everything I need. Although I am still exploring some of its features (P4, interview, October 5, 2011).

> I organized a topic with links that are excellent for students to have direct access to materials and that otherwise could not access (P7, interview, October 13, 2011).

> The features are not enough for my course, so [...] I add [...] videos, links, applets [...] (P5, interview, October 6, 2011).

Some trainees plan activities with colleagues from the same area or different areas, others prefer to conduct individual work. The projects that are being developed at the school have been a strong contribution for collaborative and cooperative work.

> It is an excellent tool for teamwork. Each of us can work when it's easier for us [...] it is increasingly difficult to get common schedules at school. So, everything is easier [...] each one can work when and where you want and everything appears ready (P2, interview, September 28, 2011).

> Fantastic! The colleague I work with teaches the same school years. Everything is easier [...] All is now in Moodle (P6, interview, October 13, 2011).

All respondents said they intend to continue to use Moodle not only in their teaching practices, but also in other educational settings.

Final Remarks

The Two-stage Training Model resulted from the literature review and our own experience as teachers-trainers and trainees. In the training stage, through face-to-face classroom and online sessions, we aimed to present the e-learning Moodle platform and help trainees to take ownership of its features. We took in consideration: (i) Salmon's recommendations (2011) about the five stages of development of her

model, the increasing degrees of interaction and learning, considered crucial in the creation and growth of a learning community - success factors of online learning (creating learning communities and sharing and the degree of collaboration between all the elements that comprise it) and (ii) Garrison and Vaughan's Framework (2008) with regard to the presence of the three interdependent key elements of the *Community of Inquiry* in a dynamic structure: cognitive presence, social presence, and teaching presence (strengthening the creation and the level of interconnection between these three elements is essential in building learning communities) as well as the reflection in action and action in reflection (Schön, 1983; 2000). The step of monitoring was crucial for all trainees who requested support to the trainer, having helped them overcome some difficulties that could have led to the discouragement of the use of Moodle. With this support, we enabled the trainees to gain more confidence and have a more favorable attitude in the use of Moodle and other tools.

Data analysis suggests that, in general, the training action proposal (stage 1) was regarded very positively by trainees. The blended-learning approach has become very advantageous for their learning, such as the methodologies used and the resources used to support the educational process. The trainees recognized the Two-stage Training Model as an innovative training proposal on teacher professional development and, therefore, acknowledged the need to acquire new frames of teacher continuous education similar to this and contribute positively to a better teacher professional development.

> No doubt, everything we learned during the action turned out to be converted to other practices that ended up developing in a very productive way. This was seen last year when we moved forward with the project (P10, interview, October 25, 2011).

> Thinking about the teaching practices, there was in fact a change [...] I had never thought about that strategy, it was not part of my lesson plans from a few years ago, and now I do it and I think it is very important (P6, interview, October 13, 2011).

> I felt it changed because I started to think in a different way. From the moment I started attending those 'lessons', a new door was opened to me (P9, interview, October 25, 2011).

During the training period, teamwork and interdisciplinary skills were developed with the effective use of ubiquitous technology, seeking for new ways for their integration.

We understand that continuing training programs should bring meaning to the teacher professional development and, therefore, their specific needs and schools. Thus, teacher professional development should take account of the development stages of the teachers, their purpose and their needs, in order to contribute to improve the capacity and active engagement in the long term, as we set out to develop the Two-stage Training Model. It is crucial to develop socially active spaces, promoting cooperative interaction, collaborative learning and group

work, strengthening professional collaboration and collegiality (Nóvoa, 2009). Teachers involved in projects, such as those found in this study, are those who perform a more collaborative and cooperative work, this is, multidisciplinary, compared to others working in a more isolated way.

> The effects of continuing education are more likely to be prolonged in time if they can be supported and adapted to local contexts of the classroom and school (McLaughlin, 1993 apud Day, 2001, p. 211).

Given all this, we believe that we created, adopted and implemented a training project – the Two-stage Training Model – which can be an excellent contribution to teacher professional development, given that it takes time to explore, adapt and integrate.

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Notes

1 More information available at: <http://www.dgeec.mec.pt/np4/49/>.

2 More information available at: <http://hdl.handle.net/10451/7011>.

3 These school levels correspond to elementary and secondary school in Brazil.

4 More information available at: <http://www.ccpfc.uminho.pt/uploads/RJFCP%20DL22.2014.pdf>.

5 Modalities that can occur, in specific conditions, after being requested the accreditation by the CCPFC.

6 More information available at: <http://www.gillysalmon.com/five-stage-model.html>.

7 More information available at: <https://coi.athabascau.ca/>.

8 Original excerpt: "[an] effective professional development is on-going, includes training, practice and feedback, and provides adequate time and follow-up support."

9 Acronym for *Learning Management System*, commonly used to designate an *e-learning* platform.

10 UTAUT – Unified Theory of Acceptance and Use of Technology.

11 We used a coding type P1, P2 etc., to identify the participants who were interviewed, guaranteeing their anonymity.

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