

A cross-media environment for teacher training

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ABSTRACT

The aim of this paper is to reflect on the definition of a cross-media learning environment by analyzing two training approaches to the professional development of teachers. The first approach centers around curricular internships as training for future teachers, the second focuses on professional development for teachers in service. The aim of our analysis was to identify the factors that contribute to overcoming the 'real' vs. 'online' and 'theory' vs. "practice" gap, opting for an integrated cross-media learning environment..

Categories and Subject Descriptors

K.3.1 [Computer and education]: Collaborative learning, Distance Learning

General Terms

Human Factors

Keywords

experience learning, learning environment, internship, eLearning.

1 INTRODUCTION

This paper compares two training projects within a cross-media environment. Both approaches integrate multiple learning *media*: the traditional (technologically equipped) classroom, on the job experience, and the eLearning (LMS – Learning Management System) online environment, all done in a university setting.

Our research focused on the definition of a multi-level learning environment, analyzing the effectiveness of the learning processes of two specific types of training: internship curriculum courses for teacher education and professional development courses for experienced teachers. In the first instance, our research followed the training that took place during the third year of a course partly in the university and partly in schools. In the second case, our analysis focused on understanding the integration of classroom, on the job, and online training for teachers in service working on a post-graduate degree program. Both training approaches availed themselves of an e-learning platform (Moodle) and emphasized group work.

2 CONCEPTUAL FRAMEWORK

The main challenge posed by this research and training project consisted in the initial experimentation of some teaching tools and techniques aimed at grasping the importance of an integrated

multimedia approach promoting individual and group learning processes.

To this end, we based ourselves on three fundamental models of experiential learning. Model number one is Revans' Action Learning, later propagated and reinterpreted in various contexts[1]. The second conceptual frame of reference is the Expansive Learning Theory defined by Engeström [2]. The third model analyses the current thinking around the Web, characterized by sharing and participation [3] and the Web as a natural place for multimedia learning based on interactivity and collaboration [4].

2.1 Action Learning

Learning by doing, Revans believes that learning is about asking the right questions when facing problems in order to come up with possible solutions. Action Learning (AL) is a model based on the connection between reflection and action; a process whereby people at work confront issues considered critical and take time to reflect and learn from their work experience [5].

The basis of this model is people's potential for change activated by their will to understand and solve problems through social interaction. It is a way to learn from our own actions and what happens around us, taking the time to question certainties, to understand and reflect on future actions [6].

The first stage of an AL process defines a critical issue and shares it with the group. This might seem to be just semantics, however, AL makes a clear distinction between a puzzle, which usually has but one correct answer, and a problem or issue, which may have a number of answers. According to Revans, asking questions allows the participants to develop a new interpretation of their experience, learn new skills, and generate new conceptual models that promote good practices, «real learning only happens when we succeed in contextualizing knowledge [...] in a real life situation; this is made possible by structuring a training program much like an investigation, looking for solutions to problems by asking questions» [7].

Group work is at the center of Action Learning. Interacting socially through constructive dialog; therein is the potential to generate new skills and know-how, which increment personal culture and lead to the solution of real world professional challenges. Solving a work-related problem and acquiring new skills are the two basic principles that everybody must agree to when setting up a new work group.

Wilson et al. identify three AL types. The first one was proposed by Revans and sets a few basic requirements: a) working as a team; b) an issue to deal with; c) a facilitator; d) a project sponsor. Another AL type emphasizes the experiential element and is based

on the Kolb learning cycle and the learning cycle as defined by Pedlar, which include on the job experience, understanding, planning, and implementation. A third type of Action Learning, developed by Marsick, is characterized by the development of skills derived from critical reflection. It has its basis in a transformational perspective that considers the beliefs and meaning patterns that define one's world view in addition to the analysis of one's experience.

This last AL type determined most of the project's educational choices. Forum discussions, drafting Wiki and blogs, and revisions of the on the job experience were supported by a teaching philosophy aimed at searching for solutions, starting from whatever issues may come up.

2.2 Expansive Learning

A second methodological approach that drove our research and training project was based on the Expansive Learning Theory [8].

This theory puts the community first, along with the transformation and creation of new cultural artifacts, the horizontal movement and hybridization of the learning process, and the formulation of theoretical models. This approach emphasizes the important influence of groups and group-based systems on individual activities.

Community of practices, through this perspective, develop a learning process that does not just go from the outside toward the center, but unfolds through a plurality of horizontal movement that go beyond the community itself and explore new areas of knowledge, producing new know-how and work practices. Expansive Learning is an eminently social and relational experience; a group consciousness arises in a set of people sharing their discoveries in a laboratory for critical and reflective thinking [9].

According to Engeström, every System of Activities comes with its own internal contradictions that can turn into real sources of change and improvement. People start an Expansive Learning process at the very moment when they take on these internal contradictions and set them up as a challenge to overcome. They identify the zone of proximal development and progress through a dialectical process, adding to the initial analysis step by step, in order to produce new forms of best practices, which ultimately means organizational change.

2.3 Online environment

Our underlying intent in proposing the types of training presented above refers to an approach to eLearning defined in terms of "Web-based Learning", a training strategy where the Web becomes an integral part of the learning model outlined here. Using the internet for training courses is the consequence of a "total connectivity" for the purpose of accessing the internet thanks to which multiple resources are easily within reach and always available [10].

Our eLearning activities availed themselves of a number of multimedia tools accessed through an LMS (Learning Management System), a Wi-Fi internet connection, and the help of devices (computer, tablet, smartphone) increasingly used as meta-media to

manage the whole "learning system". Therefore, the 'net' is no longer just a tool to transmit data, but it is an actual "place" integrated with the classroom where to activate a learning process that features a high level of interactivity, authoriality, and collaboration.

This perspective required the planning and teaching staff to display a system of complex competences, qualified according to the following three areas:

- Preparing the training material, produced by working on a training project that would match the cross-media approach of the learning environment.
- Setting up the collaboration and reflection activities which dealt mainly with group management, including cooperative learning and the activation of forums, blogs, and the Wiki.
- Managing communications based on people rather than data, handling real time (chats) as well as non-real time (bulletin boards) exchanges, with the object of discussing themes and issues brought up by the training.

Within this perspective, e-learning has now been freed from the prevailing idea of "distance education" where experts send didactic materials to trainees. From a more current perspective, online activity appears as a proposal for learning that is characterized by a new communication paradigm, centered on an idea of sociability that makes use of digital media and shares knowledge in a participatory and reflective way thanks to a flexible and constructive educational approach.

In order to stress the multi-perspective scope of e-learning connected with experiential learning, R. Robson [11] offers five different definitions for the letter "e" of e-learning, each specific to a dimension of teaching:

- *e* as in *electronic*: the historical significance that derives from the commercial sector is central here;
- *e* as in *experience*: the valorization of the participants' past experiences as well as of their experiences during the training represents an indispensable resource;
- *e* as in *extended*: the temporal dimension is characterized by an unlimited extension of availability;
- *e* as in *expanded*: infinite possibilities for exploring knowledge, an expansion of boundaries that fosters the development of knowledge;
- *e* as in *enhance*: knowledge is enhanced by learning with the help of this technology.

This set of meanings attributed to the letter "e" promotes the involvement of multiple dimensions within a learning environment where everyday and online reality are integrated. These dimensions afford the possibility of combining classroom-based training and interactivity with the potential of the new communication technologies.

Action Learning, Expansive Learning, and eLearning share several strong points conceptually and as far as their applications. Some of them are the following: 1) reflecting on one's experience as a process to foster changes in thought and behavior; 2) the group as the central learning resource, stressing the importance of diverse points of view and the courage to overcome the boundaries of the group itself; 3) an overall outlook that analyses a sys-

tem of activities that is part of a larger organizational framework; 4) results from individual or group learning promote changes in work practices.

In the light of these four shared conceptual elements, we designed and developed a research-training project with the purpose to better understand the dynamics of experiential learning in a cross-media environment.

3 Analysis of the training courses

Through our action oriented research approach, we observed and activated two learning experiences centered around planning and using a multi-articulate learning environment featuring interconnected activities: for the classroom, on the job, and online.

The first training experience we analyzed was the third year of a college training course for Nursery and Primary School teachers (Primary Education); the second was a qualification course for teachers in service called Active Training Internship. In the first case, we had college students facing their first professional experience, in the second, teachers in service taking a professional improvement course.

An initial analysis highlights a learning environment that emerges from the intersection of two progressive variables: from the classroom setting to on the job learning, teaching and learning both online and offline (see Fig. 1).

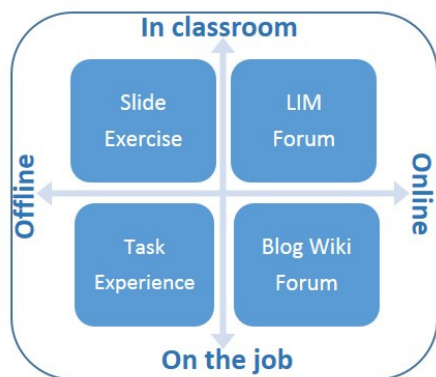


Fig. 1: Didactic matrix

The didactic material produced for classroom/offline activities of both training courses provided for lessons based on slide presentations and exercises in small groups, with the support of video clips and discussion groups. For online activities in the classroom, featuring forums and wiki subgroups on specific subject areas, the Moodle platform was used, with its app for Android and Apple. Where possible, this type of teaching was supported by Multimedia Interactive Whiteboards.

As for the on the job/offline environment, the students' training focused on performing actual tasks and problem-solving in the work place [12]. At the same time, using different devices (smartphones, tablets, netbooks) they reprocessed their real life experience through blogs and forums. Access to the Moodle platform during on the job phases occurred mainly by downloading the Moodle app on smartphones and tablets.

Our analysis confirms again that the multiplicity of contexts where it is possible to facilitate learning is great as long as some educational conditions are respected.

Specific experiences in the workplace, internships, classroom activities, alternating school and work are some of the ways in which training can take place.

What is at the basis may be described with three statements: a) the necessity to confront and solve a real life problem, b) solving the problem fosters a change in the behavior of the individuals involved, c) the means by which the solution is reached are de facto cross-media tools.

In our project, the students immersed themselves in an interactive environment in which the characteristics of the workplace, the intertwining of relationships between professional roles, and online interactions were considered key factors in fostering the processes of change and learning. Diverse approaches and strategies were determined by the specific languages and characteristics of the participants.

These observations suggest initially at least three simple but fundamental points that invite reflection on teaching applied to professional and continuing training:

- an integrated context (environment and relations, online and offline) is structurally inherent to teaching;
- teaching and learning strategies are influenced by the participants' experiences;
- training is not just about direct transmission of information.

It should be stressed that, as in the case of the teachers in service, the learning dynamics relied heavily on the analysis of professional practices. This started along with the beginning of the training course in a natural and automatic way. The approach in the classroom was conducted according to the instructions of the Socratic method (Socratic dialog); as for the online environment, the individual groups produced worthwhile discussion threads in the forums. Participation to the forums was organized according to sub-groups; the students, based on their experience, created work and learning units to be applied subsequently in their own work context.

In the case of the students at their first training experience, the teacher had an important leadership role in promoting a method of observation of the workplace reality according to models analyzed in the classroom. Furthermore, the teacher worked as a trigger for debate, facilitating shared participation as much as possible. An online journal, or blog, was used to record the actual reprocessing of the real life training experience. The blog was based on three chronological guidelines, "the waiting", "the training", and "the conclusion".

The first guideline, posted in the *blog* by a tutor, was phrased as follows:

You are about to start training at your work place, which means you will have to be directly involved. Try to describe and share your feelings during this time of waiting.

This was done to make clear the preconceptions that characterize the students' experience. This area looked at prior knowledge about the world of school, expectations about the skills to be

acquired, and the emotional experience that characterized this stage.

The second guideline was aimed at investigating the experiences and processes of awareness expressed by the trainees while training in the workplace. The emergence of these factors was stimulated by the following post:

What impressed you most during your experience?

Can you remember a moment or event when you were certain you had learned something new? Can you tell us about it?

What are the factors that favor/hinder learning during training?

At first, the above questions brought up reflections on the event considered most significant (*reflection in action*), what the students' point of view considered a significant area. Subsequently, the trainees were led to describe their learning experiences by focusing in on an event and a factor considered effective from a learning perspective, as well as what trainees considered to be obstacles.

Finally, the third guideline was posted in the *blog* at the end of the experience, to promote a moment of reflection with greater emotional detachment. In particular, we aimed to understand the level of integration between the teachings and the practical areas of the training perceived by the students, as well as to identify weak and strong points.

Which of the teachings supported you most through his experience?

What were the things not said or not discussed enough that caused difficulties?

Do you believe you received enough training? What things do you think should be studied further?

This final step is what Schön calls reflection on action, turning one's gaze to the past to understand whether one's expectations were met, if unexpected new skills were gained, and in particular, if there was increased awareness of one's resources and new learning goals to be achieved.

4 Conclusion

These experiences occurred within a learning environment going beyond the online /offline and theory/practice distinctions; both dichotomies were integrated with and structurally inherent to the act of teaching and its definition. A complex, multi-level learning environment characterized by a dialogical and reflective epistemology.

Learning was triggered when “doing” became “experience” through self-conscious reflection. The connection between the learner and the experience in itself is always culturally mediated by means of signs and tools; these cultural artifacts mediate every action, whether concrete or at the intellectual level. According to the areas we focused on, the dynamism of learning consists in the interconnection between different contexts and methods.

The acquisition of practical knowledge, in fact, avails itself of a specific cultural and relational space that overcomes the separation between real and virtual and renders the didactic act unique and unrepeatably, inextricably linked to its social context.

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