

Designing an Online Mixed Training Method (Synchronous and Asynchronous) for the Development of Skills for Teachers in Training

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Abstract

The current challenge for teachers and trainers is to change the way they teach by becoming competent to integrate ICTs into their traditional teaching methods. To our knowledge few studies, if any, have examined this integration into a continuous training process in the work place. This paper presents the problem, the objectives and the methodology of a study that aims to experiment with a mixed model of online training. Depending on the learning profile and the skills of the adult student in the workplace, this model provides a personalized level of synchronous presentational teaching and asynchronous distance learning, as well as the creation of the learning objects of the Form@tion program and its virtual workshops.

Introduction

Successful adoption of Information and Communications Technology (ICT) requires organizational change (Drucker, 1992). Technological change has the potential to challenge and upset the professional lives of trainers. It is important to manage this change: the key to successful introduction of ICTs in educational settings is not so much a matter of technological capacity, but rather a matter of the trainer's capacity to exploit the potential of the technologies to enhance learning. When technologies are introduced without considering the organizational context or when technologies are underutilized by personnel, educational benefits are limited. It is in this pedagogical context and with the goal of having trainers adopt and integrate ICTs into their practices that this study deals with.

The problem

What are the needs of trainers in the work place? An analysis of the needs and a study of the work place (Sauvé and St-Pierre¹, 2003; RQuODE², 2006) show that trainers have very heterogeneous skills in relation to online training and that the time it takes to learn varies from one trainer to another when acquiring the skills. The analysis and study also show that trainers

have difficulty in adapting to an individualized learning situation where their role is no longer that of someone transmitting knowledge, but rather that of a facilitator, a companion or counsellor. The trainers also wish to acquire skills in relation to Web communication tools that are susceptible to improve their teaching and their interventions towards their clientele, particularly their clientele living in remote areas. The analysis and study have also shown that the trainers feel the need to develop help and support skills for their students getting into online learning. Finally, the trainers would opt for a tailor-made training program that takes into account their prior knowledge and skills as well as their learning characteristics. This reality coincides with that of teachers in the public school system. Piette *et al.*³ (2007) conclude that education in new teaching technologies for teachers is essentially limited to pedagogical experiences inspired from a purely instrumentalist perspective and centered on a more efficient use of Internet technology: creating a Web page, producing animated images, creating hyperlinks, using the search engines efficiently, evaluating the graphic quality of a site, etc. The real education that is critical in these new technologies is however still a work in progress (Piette *et al.*, 2007).

Very little formal research has been conducted on the training of trainers, as researchers have concentrated primarily on the advantages and disadvantages of integrating ICT into classrooms while focusing on learners (Heer & Akari⁴, 2006). Larose *et al.*⁵ (2004) have studied factors stimulating or inhibiting the integration of ICT in teaching practice, as well as the transfer of skills acquired in training to teach. A number of contextual factors can impede this transfer, such as the equipment available in the training site, the amount of time available to the trainers, the importance of the training as recognized by the institution and collaboration between colleagues (Paquin⁶, 2007). Carugati and Tomasetto⁷ (2002) concluded that training can play a determining role in reducing anxiety, as it guides teachers to a greater acceptance of innovation. The skills acquired in training must include technical skills, but even more importantly pedagogical skills. Trainers-in-training should be able to acquire a critical mindset and reflect on teaching scenarios with regard to the use of ICT,

and thereby alter their own teaching. Coen (in press) identified that the current challenge for teachers is to adapt their teaching methods to make the effective integration of ICT more likely, rather than integrating it into their traditional teaching practice.

What are the conditions looked for by the trainers to train themselves for work? For trainers, time is a precious commodity which brings them to search for “à la carte” training solutions according to the fragmented schedules of their work place or close to their living environment. In recent years, the explosive spread of the Internet has paved the way for new solutions to bring about the knowledge of the actual needs of adult learners, and this no matter where they are, including their place of work. The Internet also allows individuals to access knowledge that, for many different reasons, would otherwise be impossible to obtain in their immediate environment, such as the absence of immediate services, distance or high cost. What do we really know about the impact that these online solutions have on learning in a work environment? The literature is not prolific in this regard. Therefore it is of high interest to put in place a study to analyze these types of interventions and document the winning conditions for an online training program in the work place.

Why experiment on a mixed model for online training on trainers? No matter which educational approach is used for online training, it is incontestable that the trainer is physically far away and that the interactions between the learner and trainer, between the content and the learner, and between the learners themselves, differ according to the technologies used on the Web, i.e. synchronous or asynchronous. The asynchronous mode has certain pedagogical limitations when exploiting situations that demand teamwork, when sharing expertise, when the experience of the group becomes a central element of the learning process such as brainstorming sessions, case studies, problem resolution, educational games that deal with a communicational dimension based on the exploitation of the dialogue mode and personal exchanges in real time. These dynamic situations are based on co-construction, co-production of knowledge, the creation of affective and emotional relations which are essential elements for learning and management that include continuous training. Research has highlighted the idea that the synchronous dimension opens new avenues, supporting even more of these types of pedagogical actions with online distance training (Quignard⁸, 2001) by being supplementary to the inherent shortcomings of the asynchronous mode. Telepresence technologies (videoconferencing, sharing applications and a common white board) allow trainers in training, no matter where they are physically located, to find themselves in the presence of other trainers as well as

their teacher so that they can exchange and confront ideas and share their personal know-how. By allowing them to experience a mixed online training model, this study places the trainers in active learning situations so that they can transfer the acquired knowledge into their own teaching methods (some activities were planned for this purpose during the training) while developing a positive attitude towards technologies.

To design a program for trainers in training that takes into account their diversity, adjusting this program by offering them courses more adapted to their needs and optimizing the learning situations in function of the requirements related to their workplace and their personal skills, we hypothesized that the adaptation of the training modes to the rhythm and to the needs of each trainer would increase their skills while at the same time giving them the motivation to continuously train throughout their career. It is within this context that the present study has the goal of testing a mixed online training model that ensures a personalized level of synchronous presential teaching and asynchronous distance teaching, in accordance with the learning profile and the skills of an adult student in the work place. The objectives of the study are: (1) to understand the obstacles and the resistance to change the trainers in training have towards ICTs; (2) to examine how a mixed training program that offers a personalized training plan responds to the needs for training and to the learning profile of the trainers and (3) to measure the change in attitudes of the trainers on the idea that they have to continually train throughout their lives.

Methodology

Given its purpose of describing an existing situation in order to better understand and explain it, this study adopts an interpretative posture. It combines quantitative and qualitative approaches to collect the data. This is done at times by means of questionnaires (6) and a tracing system, or with interviews, logbooks, e-mail exchanges, forums and videoconferences. Our study deals primarily with the trainers that are exercising and achieving their learning in a work environment (n=80).

Form@tion, the online training program for trainers, was brought online with the help of the Personn@lisa platform, which was conceived for testing various elements of our educational approach. Let us examine how the trainer in training navigates this learning environment. First, he completes an analysis of his needs which brings to light the skills that he or she must acquire as an online trainer. The results generated by the questionnaire constitute the first level of sorting in the individual's proposed

program path. Filling out a set of three additional questionnaires allows the learner to establish a learning profile: (1) an inventory of personal learning processes which identifies the manner in which an individual processes information. This inventory generates results that sort the learning objects as a function of the types of learning resources that are involved (e.g. multimedia, written, game-based, simulation, etc.) and (2) an inventory of learning conditions which generates results that sort the objects as a function of the type of learning (individual, collaborative, or mixed). Once training needs and a learning profile have been established, the results activate analytical filters in Personn@lisa in order to generate personalized learning programs. The platform sorts the learning objects and regroups them in a virtual directory and into synchronous virtual training workshops to produce a training program based on a learning sequence adapted to the individual trainer. The trainers can then follow their individualized self-directed learning projects at their own pace.

The Design Process for the Learning Objects

The elaboration of the learning objects (textual and rich in multimedia content and interactivity) relies on a three-phase process: the creation, the mediatization and online publication.

The creation phase permits the drafting of the pedagogical component in which the creators identify the following for each tool: author(s), content summary, objectives of the learning object, the pedagogical formula to be adopted and the necessary resources that are needed. In order to illustrate the process, we present the approach taken by the three authors. They first determined the content of the 32 learning objects dealing with the use of a collaborative communication tool. Once the content had been defined for each of these objects, they completed the pedagogical component. This step is very important when several creators are simultaneously involved in the creation of the learning objects. It reduces duplication and overlap of content while offering a first step for revision through the formulation of comments by the team. Thereafter, the creators drew up the contents for each learning object with a creation component.

Each component includes the contents of the screen pages of the tool to be mediatized as well as the directions given to the members of the mediatization team. For each screen page of the learning object to be presented online, five steps were completed: the table of contents with the identification of the section referred to, programming, computer graphics, the

creation and the content of the page to be posted on the screen.

Table 1: An Example of a Design Component — for the “Introduction” Page

<p><u>Table of contents</u> Introduction Video clip Exercise Conclusion</p>	<p><u>Programming</u> The computer programming must be done for this page.</p>
<p><u>Computer Graphics</u> Create the figures and integrate the numbers in order to visualize the components</p>	<p><u>Creation</u> Look for an image that illustrates the notion of having a meeting.</p>
<p style="text-align: center;">Content</p> <p>Objective: Creating a meeting in the videoconferencing environment ENJEUX. Competence: The necessary steps in creating a meeting. Target audience: Trainers, teachers, pedagogical councillors</p> <p>Introduction- Creating a Meeting <u>(Integrated Meeting Picture)</u> To create a meeting, you must click the Create menu in the navigation bar.</p> <p>Creating a Meeting The window displayed allows you to invite participants to the meeting by using the meeting creation tools. The meeting creation space is comprised of 5 spaces:</p> <ol style="list-style-type: none"> 1. Meeting Description (shown in figure number 1) 2. Date and Time (shown in figure number 2) 3. Activities Selected (shown in figure number 3) 4. Participants Selected (shown in figure number 4) 5. Invitation Messages and Reminders (shown in figure number 5) <p>“Create a Meeting” Window <u>Screen capture (file 22) with the numbers shown</u> Every time you add or modify information in the meeting creation zone, don’t forget to save these modifications by clicking Save (6) (shown in figure number 6). In this lesson, you will learn how to create a meeting and how to modify the settings of the meeting before it is held.</p>	

Table 1 presents an example of a design component that was elaborated for the learning object “Creating a meeting” and this was done in relation to the “Introduction” page of the table of contents. Throughout the creation of the content for these learning objects, online research is done to find content (text, images, sounds and videos) that are pertinent to the learning object. A validation of the design and creation of each learning object is assured by at least three members of the team.

The mediatization phase allows the technical team to produce the textual, visual and audio contents that are required for each learning object. Depending on

what is appropriate for each case, there is textual treatment in html, filming and editing of video clips, recording of audio elements, production of Flash animations, the treatment of photos and illustrations, PowerPoint productions, etc. After a linguistic revision of the texts, there is the integration of all the components of the learning object into the platform Personn@lisa. For example, the learning object "Creating a meeting" includes animated PowerPoint presentations that allow a better understanding of the different concepts. The learning object also includes a video demonstration that explains how to create a meeting plus a self-correcting exercise to validate the acquired knowledge.

The phase of online publication has generally two steps: testing the learning objects and their revision. We have added two more steps directly linked to our research: codifying the learning objects in a virtual directory and their integration in the Web environment Form@tion. Testing requires the establishment of the objectives and the criteria for evaluating the learning objects. It also requires choosing the type of evaluation instruments that are needed, as well as creating, testing and correcting these instruments. Last but not least, it requires contacting and informing the people of the targeted audience of the object being tested, and making the necessary material for testing available. The trainers must consult and manipulate the learning objects and complete an evaluation grid for each learning object. Analyzing the results of the testing often demands revising the learning objects.

Once the learning objects have been revised, the team then completes the general, pedagogical, technical and relational descriptors for each learning object, which in turn allows for their indexation into a virtual directory so they can easily be found with Web search engines.

Preparing the virtual workshops

After creating the learning objects, the research team arranged the content of the virtual workshops to be 30 minutes in duration. The designers took care to include the same contents offered by the learning objects in the demonstration mode of a multimedia presentation. These workshops have been integrated into the scenarios with synchronous and intermediary modes of the Form@tion program in the form of a learning process.

Conclusion

An eight-month testing period of the Form@tion program (<http://formation.savie.ca>) started last April, including close to one hundred trainers. Preliminary

test results are expected by the end of the year. We hope this study will allow us to have a better understanding of the obstacles and the resistance to technological change found among trainers in a community workplace or in regular teaching environments. We also hope that this study will contribute directly in improving skills and in the acquisition of new skills among the trainers through online learning situations. Finally we hope that it will help trainers in developing cutting edge practical training methods through the application of ICTs (hybrid technological model, synchronous and asynchronous) and highlight the conditions for success in lifelong learning at the work place.

References

- ¹ Sauv , L. and St-Pierre, C. (2003). *Impact de la formation des agents de formation en milieu communautaire sur le d veloppement de leur employabilit *. Rapport int rimaire. Qu bec : SAVIE, d cembre. 15 pages.
- ² RQuODE (2006) *Enqu te sur les moyens de communication et d'information des organismes membres du RQuODE*. Montr al : Document interne.
- ³ Piette, J., Pons, C.M. and Giroux, L. (2007). *Les jeunes et Internet: 2006. (Appropriation des nouvelles technologies)*. Rapport final de l'enqu te men e au qu bec. D partement de communication, Universit  de Montr al et Minist re de la Culture et des Communications Gouvernement du Qu bec, mars.
- ⁴ Heer, S. and Akkari, A. (2006). Int gration des TIC par les enseignants : premiers r sultats d'une enqu te suisse. 2006 - *Revue internationale des technologies en p dagogie universitaire*, 3 (3), 38-48.
- ⁵ Larose, F., Grenon, V., Pearson, M., Morin, J.-F. and Lenoir, Y. (2004). « Les facteurs sociologiques et p dagogiques qui affectent les pratiques des enseignants du primaire au regard de l'informatique scolaire ». In J.F. Desbiens, J.F. Cardin et D. Martin (dir.). *Int grer les TIC dans l'activit  enseignante : Quelle formation? Quels savoirs? Quelle p dagogie?* Qu bec : Presses de l'Universit  Laval.
- ⁶ Paquin, M. (2007). Effet d'activit s de formation sur l'utilisation des mus es virtuels d'histoire et de leurs objets d'apprentissage chez des enseignants en d but de carri re. *Revue de recherche appliqu e sur l'apprentissage*, 1 (1), 1-12.
- ⁷ Carugati, F. and Tomasetto, C. (2002). Le corps enseignant face aux technologies de l'information et de la communication dans les pratiques d'enseignement. *Revue des sciences de l' ducation*, 28 (2), 305-324.
- ⁸ Quignard, M. (2001). Mod lisation cognitive des dialogues argumentatifs :  tude de dialogues d' l ves en situation de r solution de probl me. In *Cognito 20*, Automne 2001, 35-42. <http://www.loria.fr/~quignard/publis/incognito02.pdf>.