Training trainers in the application of new information technologies within a virtual learning environment

Pei-Chun Shih, Dolores Muñoz, Flor Sánchez and Amparo Caballero
Facultad de Psicología. Universidad Autónoma de Madrid. Spain

Abstract

The widespread use of the Internet in the work context is determining the type of skills that professionals currently being trained in universities will require in the future. The introduction of the Internet has led to an increase in distance learning, and has changed the teaching methods and technologies used in training.

As a consequence of this, in the organisational context, trainers must be experts in the design, implementation and evaluation of training projects, as well as being capable of using new technologies for developing training processes to create new learning environments in which e-mail, chats, forums, etc. are incorporated into the learning process, in order to complement face-to-face training.

Participants in this study were 121 university students on a face-to-face course for trainers. Prior to beginning their Web-based environment learning, participants filled out a questionnaire designed to assess their computer literacy level.

Results show that participants attained a high level of satisfaction with the Web-based experience, rating it as motivating and highly effective for training personnel trainers to implement projects based on the Internet.

1. Introduction

A few years ago, some specialists predicted that assure that the Internet training is going to be a fleeting fashion, that it was not possible to train through this means and that the phenomenon would disappear quickly (Gil, 2001). They were not right. The explosion of the Internet and the new economy means deep transformation in the world of business and its impact implies the creation of new processes and methods in the organisations and the demand of new professional competencies.

New companies, concerned about a market that evolves in a very quick and discontinuous way, see new technologies as possibilities to reduce the time and the costs that their employees use in formation and, at the same time, they provide them with a permanent training adapted to each person’s profile and needs.

On-line training is already a reality in the working world. The study carried out by the English agency Datamonitor on the investments in formation by European companies in the period 1997-2002 shows that the percentage assigned to conventional training is diminishing, whereas network projects have been tripled (Gil, 2001).

At this moment it is necessary to consider that the professional trainer has to develop new professional competencies and roles to adapt himself to the new ways of training using new technologies. University is the main platform to create future trainers. It must make an effort to change and to play new roles, accepting new challenges (Teare, 2002).

The use of the Web in university training is a resource to motivate students and simultaneously provide them with the access to a great set of resources inside and outside the institution, which otherwise they would not have (Waschull, 2001). The inclusion of the Information and Communication Technology (ICT) in university education has the objective of improving the quality of teaching and revaluing students for their professional development (Directors of Spanish Universities Conference, 2000).

The new professional trainer must be competent to operate with electronic resources as a user, as well as a trainer. He must be an expert on designing, implementing and assessing training projects, in which new technologies contribute to the educational objectives. In this sense, university educators will have to change...
their learning objectives, to equip their students with resources to learn in an independent way, which is essential to guarantee their continuous training (Waschull, 2001; Sangster, 1995).

Students who have always learned in conventional situations are used to obtaining permanent and extraordinary aid when they have to face a complex problem (Eldredge and cols., 1999). The use of these new tools in the training process can change the way people think and learn (Hokanson and col. 2000; Collins, 1998). It would motivate the development of information searching, analysing and creating abilities.

This study is focused on a specific web-based learning experience. We are interesting to know how student value virtual tools and their subjective perception of learning.

2. Method

2.1. Participants

In this study participated 121 students enrolled in the face-to-face course that signed on voluntarily in the Virtual Classroom Project.

2.2. Virtual Classroom

The virtual classroom corresponded to a training module about the ICT applications. It was structured in five topics. Each topic had an information outline and several practical exercises. In addition, the student had to answer some questions that allowed the tutor and himself to check his performance progress.

<table>
<thead>
<tr>
<th>List of Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Characteristics:</td>
</tr>
<tr>
<td>Thinking about main features of</td>
</tr>
<tr>
<td>using the ICT in training projects.</td>
</tr>
<tr>
<td>2. E-Mail:</td>
</tr>
<tr>
<td>Using e-mails clients.</td>
</tr>
<tr>
<td>3. Design:</td>
</tr>
<tr>
<td>Designing a ICT training project.</td>
</tr>
<tr>
<td>4. Examples:</td>
</tr>
<tr>
<td>Visiting and testing other ICT</td>
</tr>
<tr>
<td>training programs.</td>
</tr>
<tr>
<td>5. Evaluation:</td>
</tr>
<tr>
<td>Evaluating a ICT training project.</td>
</tr>
<tr>
<td>6. Forum:</td>
</tr>
<tr>
<td>Participating in the electronic</td>
</tr>
<tr>
<td>forum.</td>
</tr>
<tr>
<td>7. Models:</td>
</tr>
<tr>
<td>Thinking about web-based learning</td>
</tr>
<tr>
<td>and teaching models.</td>
</tr>
<tr>
<td>8. Navigation:</td>
</tr>
<tr>
<td>Using web browsers.</td>
</tr>
<tr>
<td>9. Initial evaluation:</td>
</tr>
<tr>
<td>User’s prior network experience</td>
</tr>
<tr>
<td>survey.</td>
</tr>
<tr>
<td>10. Final evaluation:</td>
</tr>
<tr>
<td>User’s virtual classroom assessment</td>
</tr>
<tr>
<td>questionnaire.</td>
</tr>
</tbody>
</table>

The classroom had a very simple design (Figure 1), where all the navigation elements were always accessible. Three group of tools were easy to locate. First, Electronic Library, FAQs and Favourites Links tried to facilitate the student the search of information. Second, Help, Where am I? and Activities provided user with a immediate access to all the contents and activities of the classroom. Finally, the communication tools were available in the tool bar with the E-Mail and Forum buttons.

2.3. Procedure

The classroom was open for two month. During this period, the students could use the classroom freely as often as they wanted to, based on their personal time and computer availability.

The students’ task to carry out the activities included in the virtual classroom. Before finishing their participation in the virtual classroom, the students had to fill out an assessment questionnaire about the Web-based course.
3. Results

More than half of the participants (58%) never or hardly ever used the electronic mail. A similar proportion (54%) never or hardly ever used the Internet. And although only 25% had the Internet at home, every student declared to have easy access to a computer connected to the Internet. Only four students had visited a virtual classroom previously.

The assessment questionnaire was filled out by 81 students. Most of them considered the classroom effective to learn (mean = 7.2). Only 2 students described this dimension with an inferior score to 5 (in a scale from 1 to 10 points). Also the assessment of the classroom for Clarity, Motivation and Control dimensions were positive (Table 1).

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>7.2</td>
<td>81</td>
</tr>
<tr>
<td>Clarity</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>6.7</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Virtual classroom assessment dimensions.
The students were able to perform a high percentage of the activities proposed in the classroom. Almost 80% of the students fulfilled more than half of the activities. \textit{(Figure 2)}.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure3.png}
\caption{Frequency of activities finished.}
\end{figure}

Nevertheless, as it can be seen in Table 2, the activities did not have an equal participation by all the students. Every activity was carried out by more than half of the students. No activity was solved by all the participants.

Finally, the participants assessed the characteristics of the virtual classroom in a positive way. Three fourths of the participants agreed that navigation was easy. 90% of the students considered the menus and tools useful. In general, they also assessed in a positive way the design of the classroom: the multimedia elements, the exercises and activities, their contents and structure \textit{(Table 3)}. Nevertheless, 44% of the students considered that the exercises and activities needed to be improved and 75% of them thought that more information on the progress achieved was necessary.

\begin{table}[!h]
\centering
\begin{tabular}{|l|c|c|}
\hline
N = 121 & Complete activity (%) & \\
\hline
& Yes & No & \\
1. Characteristics & 81.0 \% & 19.0 \% & \\
2. Mail & 73.6 \% & 26.4 \% & \\
3. Design & 68.6 \% & 31.4 \% & \\
4. Examples & 58.7 \% & 41.3 \% & \\
5. Evaluation & 64.5 \% & 35.5 \% & \\
6. Forum & 66.1 \% & 33.9 \% & \\
7. Models & 68.6 \% & 31.4 \% & \\
8. Navigation & 66.1 \% & 33.9 \% & \\
9. Initial Evaluation & 79.3 \% & 20.7 \% & \\
10. Final Evaluation & 67.8 \% & 32.2 \% & \\
\hline
\end{tabular}
\caption{Percentage of the activities finished.}
\end{table}

\begin{table}[!h]
\centering
\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
& Excellent & Correct & Unsatisfactory & Defective & N & Mean & \\
\hline
Navigation & 31 & 32 & 17 & 1 & 81 & 3.15 & \\
Tools & 30 & 42 & 9 & 0 & 81 & 3.26 & \\
Design & 13 & 42 & 25 & 1 & 81 & 2.83 & \\
Multimedia & 13 & 44 & 21 & 1 & 79 & 2.87 & \\
Activities & 11 & 47 & 20 & 3 & 81 & 2.81 & \\
Contents & 26 & 40 & 13 & 2 & 81 & 3.11 & \\
Structure & 23 & 39 & 16 & 3 & 81 & 3.01 & \\
\hline
\end{tabular}
\caption{Frequency of users' answer about different dimension of the virtual classroom.}
\end{table}
4. Conclusions

The students learned some basic concepts concerning the application of new technologies for training programs. Simultaneously they were trained in the use of some basic resources and support tools for learning. The results showed that the virtual classroom had been effective: the students learned to handle some new technologies, such as the electronic mail, the discussion forum and the web browsers.

Nevertheless, the students missed the presence of the tutor and they sometimes felt lost because they did not feel sure about what they could do or about the outcome of their performance. But the students developed alternative strategies to learn: most of them carried out the activities in the classroom without the teacher’s aid.

In general, the results showed a high satisfaction of the participants in a virtual classroom, as a complementary activity to the conventional course. They considered the Web training motivating and highly effective to teach students to develop training projects using new technologies.

For future virtual training projects, we acknowledge the importance of providing tools that allow students to have a continuous source of information about their performance, replacing the tutor’s permanent feedback in experiences of conventional training.

5. References


pei_chun.shih@uam.es
http://www.uam.es/atic/index.html