Pedagogical Pillars for eLearning Design in Vocational Education & Training (VET)

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Abstract— The Leonardo da Vinci European Program contributes to the implementation of the vocational training policy for the Community supporting and enhancing the actions of European countries. Its aim is to promote new practical approaches in vocational training procedures (measures). The global necessity is to raise the quality, innovation and European dimension of vocational training systems and practices by means of transnational cooperation and modern techniques. Hence, the one of the main challenges is how to use the advantages of digital communication technologies, and eLearning systems, and how to integrate them with the traditional vocational training. The aim of this paper is to present the European context of vocational training approach using eLearning techniques within the Leonardo da Vinci Program, and moreover to illustrate the Romanian place inside the field – in particular through Romanian coordinated projects. An evaluation of pedagogy pillars of web site and eLearning courses design will be presented and the general gain of the eLearning vocational training context will be determined. The analysis of pedagogical components will map out four pillars: learning goals and content presentation, interactions between learners, assessment and measurement in distance education, and learner support systems and services. Finally, the study has allowed to gain some qualitative information about the pedagogical aspects regarding eLearning VET developments in Europe.

Index Terms— VET (Vocational Education and Training), European financed project, assessment, e-learning components.

I. INTRODUCTION

The role of technology in the instruction delivery in the vocational training field has been truly explosive. Opportunities to receive coursework via the Internet exist routinely at most training centers while the opportunity to pursue an entire degree program is becoming a reality at more and more institutions worldwide. The wedding of technology and vocational training is set, and it appears that it will enjoy some longevity.

However, despite all of the economic promise, the convenience and expanded accessibility, little has been researched on the quality of educational opportunities that Internet-based distance learning presents. While there are several studies [1], [2], [3] which examined telecommunication-based courses versus traditional formats, there is very little data concerning the delivery of distance learning in one of the fastest growing modes today: over the Internet.

As vocational training teachers struggle to determine how to use new technologies appropriately, they must grapple with understanding the advantages (and disadvantages) of traditional, in-classroom activities versus taking those activities online. This is especially true for the conduct of class discussions, where vocational training centres can choose between in-class discussions or online threaded discussions (the issue of chat discussions is not included as eLearning technique). At least two questions need to be answered for centres to make good decisions on which tactic to use and when:

- what are the differences between face-to-face vs. online discussions and which setting might be better for which learning objective?
- what evidence exists that higher-level thinking occurs in online discussions?

Our study has been based on the Romanian promoted pilot projects targeting eLearning or developing, among other tangible training outcomes, eLearning, too. These projects are characterised through an important transnational cooperation and expertise component, so even if the considered case study projects were strongly supported by Romanian organisations, the European state of art and tendencies in eLearning might be noticed.

II. ASSESSMENT OF eLEARNING RESULTS

The General Directorate for Education & Culture, responsible, among other European financing initiatives, for the Leonardo da Vinci Programme, has established a set of results / outputs assessment indicators. Among these indicators / descriptors, one might select / adapt those appropriate indicators for eLearning resources as pilot projects’ results / outcomes, as follows:

- Communication & media used – quality of interaction between material and target group / course participant, choice of media with respect to content, stated objectives and target group / course participant, pertinence and integration with respect to specific features;
- Evaluation – assessment criteria and procedures, ongoing and final assessment tests, quality of feedback with respect to answers to self-assessment questions, measurement of pathway target group / course participant level of satisfaction (presence of activities aimed at assessing pathway target group / course participant satisfaction, presence of activities aimed at assessing qualitative dimension of 1
course teaching staff or of ODL’s pathway tutors);

Technology

1. audio-video support: material organisation (credits, modularity, passage from one module to another), aesthetics (image definition, shot, montage, audio definition, synchronicity / complementarity between sound and image);
2. electronic support: material organisation, aesthetics (image definition, image composition, rhythm of images, audio definition, synchronicity / complementarity between sound and image, technical quality of drawings / photographs / graphic animation, quality of typography features and text readability, use and features of reminding symbols), ergonomics and use of media, produced information etc.

III. ANALYSIS OF PEDAGOGICAL COMPONENTS

In accordance with the quality criteria and regulations established in the frame of the Leonardo da Vinci Programme, a number of pilot projects with Romanian promoters were financed, respectively 8 projects in 2000 exercise and 6 projects in each 2001, 2002, 2003 and 2006, 3 in 2004 and 2 in 2006. The analysis of pedagogical components will map out the four pillars defined in [4].

A. Learning goals and content presentation

The identification of the learning goals and objectives provides the basis for the instructional design, development, delivery, and assessment of an eLearning system. These defined goals serve as the agreement between the teacher and student, defining what is to be trained. Communicating these learning goals is an important step in assuring an effective learning experience.

Learning goals should be defined as part of the instructional design plan and specific instructional activities should be directed toward providing learners with the necessary skills, knowledge, or experiences to meet the goals and objectives of the course.

To identify courses with learning goals and content presentation, all project web servers were searched for relevant course. Hence, out of 32 developed courses (i.e. six in 2000, six in 2001, 2002, and 2005, five in 2003, 1 in 2004, and 2 in 2006) have online course content presentation and a description of learning objectives (see Figure 1)

B. Interactions

Whether learners interact with one another, or with an instructor, new information is acquired. Such interactions form the basis of the community of learners. The challenge for distance educators is to design into the eLearning environment strategies and techniques for establishing and maintaining "learning communities" among learners separated by space and/or time.

Following the analysis of this kind of criterion, the results are depicted in Figure 2. We can notice that the percentages of web site and course interactions have decrease in 2001 and 2002 (from 62% in 2000 to 50 % in 2001 and 30% in 2002) and have increased after this period (67% in 2003, 67% in 2004, 83% in 2005 and 100% in 2006).

C. Assessment and measurement

In a distance education model, assessment and measurement become even more critical in the absence of the face-to-face interactions, enabling teachers to estimate student response, feedback, and progress toward goals. Creativity in design and approach to assessment and measurement strategies can serve both elements.

In this case, out of 22 IT courses (i.e. 5 in 2000, 4 in 2001, 2 in 2002, 3 in 2003, 2 in 2004, 4 in 2005 and 2 in 2006) have online course assessments (see Figure 3). It was unexpected the low percentage linked to projects started in 2002, but this was only a particular aspect.
D. Learner support systems and services

Among the most important components in the design of distance education programs are those that establish the organizational and administrative infrastructures to ensure that such programs can be efficiently and effectively developed, managed, and executed. The learner support systems must be complete, quick to responding, and customer-oriented. In most cases, these services may be the only link the learner has with the institution apart from the instructional activities.

In this particular case, we have 26 projects that have fulfilled this criterion, i.e. 5 in 2000, 2 in 2001, 5 in 2002, 4 in 2003, 3 in 2004, 5 in 2005 and 2 in 2006.

Finally, a global evaluation had been completed (Figure 5) regarding the accomplishment of all four pedagogical requirements linked to on-line course development. It appears from this case study that a higher percentage was obtained in the first year of Leonardo da Vinci Programme (II) (2 projects in 2000) and has slowly decreased in 2001, 2002 (1 project). After this period, the number of projects has increased (and their relative percentage): 3 in 2003, 1 in 2004, 3 in 2005 and 2 in 2006.

IV. CONCLUSIONS

Taking into consideration the analysis of the pedagogical components one might notice a decrease tendency from a year of selection to another and in a certain extend some unfulfilled criteria.

Our first question following this assessment was whether the study was too ambitious or whether we expected too much from the Leonardo da Vinci pilot projects. We are tended to conclude that regarding the pedagogical components of eLearning, the Leonardo da Vinci projects explored some new pedagogical methods, but a huge demand is for improvement into this field.

Secondly, the continuous decrease of the project number and financing might explain to a certain extend the decrease tendency noticed into criteria fulfillment. Considering the pilot projects for the 2003–2006 exercises, some progress based on the current pillars was obtained in terms of more eLearner customer oriented, more user-friendly and interactivity.

REFERENCES


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