

E-Learning in New Technologies

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INTRODUCTION

E-learning and the impact of new technologies across contemporary life is a very significant field to education. The challenge of the technology to conventional learning patterns cannot be ignored and in itself raises a host of questions: can online learning facilitate deep learning? How well does video conferencing alleviate the challenge of distance? In what ways can collaborative learning communities be developed and sustained using current and new technologies? At the same time, new communications technologies are impacting on the ways in which we understand ourselves and the worlds in which we live. Relating to this, the aim of today's education is not to learn certain contents, but rather learn to learn in the course of a whole lifetime.

The study of the learning process can help us to find the relevant points to set up some interesting characteristics of a really functional e-learning system.

THE LEARNING PROCESS

The learning process consists of a modification of our conduct that, by extracting knowledge from acquired experience, enables us to tackle problems (Pedreira, 2004a). This definition highlights the two basic aspects of all learning processes: knowledge acquisition, and the experience that leads to it.

Most studies on the nature of knowledge agree on the fact that knowledge is at the top of the hierarchical structure called information. According to this vision, data represent facts or concepts in a formalised way that allows their communication, interpretation or elaboration by human beings or by automatic means (syntactic level of the information). The so-called "news" is the

meaning that an intelligent being attaches to data based on the conventional rules used for their representation (semantic level). Knowledge implies the judgement of facts and situations, and consists of inferred data and news, tacit relations between objects, concepts, events and situations, and of the necessary control actions to manage all these elements in an effective way. As such, knowledge concerns the pragmatic aspect of information because it combines the received news with the knowledge that the observer already possesses.

EDUCATION IN KNOWLEDGE SOCIETY

In recent years, so many changes have affected education that education itself needs to be updated. The amount of knowledge that we deal with is much bigger than before, the interrelations between different forms of information are much more complex, and the sources are dispersed. Such being the case, the linear model, in which each question has a place and a moment, is no longer adequate for today's information. Logical hierarchies are replaced by multiple and simultaneous media that respond to the needs of the knowledge process. The inevitable increase in complexity and quantity of the information that is available and necessary has led to a need for continuous learning.

Furthermore, in modern society, knowledge is not exclusively related to education. We live in what is called the "information or knowledge society", where the possession of knowledge is a determining factor.

Knowledge handling requires a profound transformation of learning and teaching methods: from a model in which the teacher is the monopolising agent and the authorised representative of knowledge, we must move towards a model that offers the student room for

individual exploration and self-learning. The student needs to build relations, discover the process from within, and feel stimulated to draw his own roadmap (Piaget, 1999).

This kind of learning can only be obtained through action strategies that are not perceived as restricting obligations but rather as interesting learning options. Contents, for instance, should be represented not as an object of study but rather as necessary elements towards a series of objectives that will be discovered in the course of various tests. Computer games apply the same strategy by making their users learn to proceed from one phase to another based on obtained experience and improved dexterity. This way they keep users entertained for hours in a row by trial and error.

Besides, students come from different environments and have different ages and education backgrounds, which make it more complicated to integrate them into one single group. Real personalised attention would require many more teachers and much more time. Add to that the increasing demand for continuous education, with flexible timetables and subjects, and it becomes clear that the current programmes are much too rigid.

The advantages of e-learning include convenience and portability (physical and temporal flexibility), cost and selection (wide range of courses and prices, different levels), individualisation and a higher level of student implication (WorldWideLearn, 2007).

However, if the contents of the learning platforms remain the same as those of traditional systems, even if their presentation format is adapted, they do not substantially contribute to the improvement of the learning process (Martínez, 2002). The same happens with the use of computational systems that support ex cathedra teaching and improve the acquisition of certain skills, such as simulators and games. Simulators can only be used when certain concepts are already clearly understood, and in most cases, their interface is quite complicated. Computer games are mostly used for concrete aspects and in elementary courses.

Instructional Design for e-Learning has been perfected and refined over many years using established teaching principles, with many benefits to students, but it is necessary to go on with the studies on this area because the results are still not as good as desired.

NEW TECHNOLOGIES PROPOSAL

Even so, current communication technologies, including Artificial Intelligence, allow the implementation of learning strategies based on action (e.g. videogames), the incorporation of systems that improve knowledge management (Wiig, 1995), the recuperation of the one-to-one learning model (master-apprentice becomes teacher-student), and the implementation of a new learning model (“many teachers for one student”). A computer model including all these characteristics can be a solid basis for the improvement of the learning process and the existing e-learning systems. It could teach the students more than just certain contents: it could teach them how to learn, by selecting and sharing the adequate information in each moment.

In this point, we will remark some pedagogical characteristics of e-learning computer models which are known to improve the learning process. For each of these characteristics we propose a feature that can be implemented by using New Technologies.

Pedagogical Characteristic 1

Dealing with *information of different sources* will allow the students seeing different points of view of the same realities, making easy its understanding and its conservation in mind.

New Technologies Feature 1

In the Institutional Memory of a *Knowledge Management System*, we will find all the information concerning every thematic unit, different levels and its associated tasks. The fact of being able to solve different tasks and having the access into information of different sources allows the learner to acquire the information by different means, so that his knowledge will be more complete and everlasting.

Pedagogical Characteristic 2

An e-learning model should provide an *individual attention*, taking into account the student’s preferences about learning strategies, different kind of materials, their previous knowledge, etc.

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