

E-Learning Methodological Models and Typologies

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INTRODUCTION

Since the beginning of the new millennium the term e-learning has received growing attention in the area of technology-enhanced education. The term, which literally means “electronic learning”, can be defined as “an innovative approach for delivering well-designed, learner-centered, interactive, and facilitated learning environment to anyone, anyplace, anytime by utilizing the attributes and resources of various digital technologies along with other forms of learning materials suited for open, flexible and distributed learning environment” (Khan, 2004).

Besides this wide definition, it can be identified different e-learning methodologies from a pedagogical perspective. More specifically, in the field of formal e-learning a broadly accepted classification introduced by Mason (1998, 2002), distinguishes between three main models: Content + Support, Wrap Around, and Integrated (Anderson & Elloumi, 2004; Bellier, 2001; Calvani & Rotta, 2000; Khan, 1997, 2004; Ranieri, 2005)

This article aims to examine these different e-learning models and discuss some recent evolutions in this field due to the development of online learning communities (Palloff & Pratt, 1999) and the diffusion of social networking practices that have emerged in the Web in recent years (Bonaiuti, 2006).

A REVIEW OF E-LEARNING MODELS

Content + Support Model

The Content + Support model is the more common solution for online courses. It may also be inexpensive if the multimedia and interactivity levels of the instructional contents are not complex. This model is based on contents delivery (i.e., printed materials or Web pages) with minimal support of the e-tutor (by e-mail or computer conferencing). It is characterized by

the separation of content and support and is oriented towards individual learning.

In this model the Internet is mainly considered a channel to transmit learning contents. The theoretical framework involved in this approach is teaching by merely transferring information. In addition, the learning goal is already defined and participants do not contribute to the process of defining objectives, through negotiation and knowledge construction.

The contents delivery may be either synchronous or asynchronous.

A – Synchronous Delivery (Live)

Typically, a synchronous delivery system is represented by an audio/videoconferencing where both the sender and receiver share the same temporal mode for interaction.

The specific value of a synchronous delivery system is that it allows the interaction between people in different locations in real time. For example, a subject expert may give a lecture at a distance, and remote students may arrange for a session during which they pose their questions which are then answered by the experts. Without this minimal interaction between expert and students the conference could be considered just a simple streaming. Furthermore it must be observed that this delivery system may encounter problems of accessibility. For example, full dual communication and interaction by videoconferencing is limited by the band constraints, which may prevent a certain number of people from participating in live events. It is much easier instead to manage a full dual communication with only audio and static images transfer (e.g., synchronized slideshows). Technologies such as Centra, for example, enable easy management of full dual communications.

In all ways, this e-learning model allows a low interaction level being limited by the same constraints of traditional F2F classrooms, such as:

- a. Students having to meet at the same time; meaning that there would be just one session for students who may have the most diverse needs;
- b. Limited time available for discussions; meaning that not all may have the opportunity to interact.

The Content + Support model foreshadows the so-called t-learning solutions based on digital TV. However, even if interactive television could be used, interaction will be limited to just a few people because of the typical inherent limits of synchronous delivery systems.

There are some cases where the delivery of a live session during a course could be useful with the purpose of animating a community—a class or a group—which demonstrates socialization problems.

It would be possible to obtain positive results by integrating live events with asynchronous communication tools system: for example, an e-tutor launches a discussion in a Web forum; the students pose questions that are collected, and then in a live event an expert answers the questions and eventually the students achieve their tasks (producing a paper, creating a product, and so on) working in an asynchronous way.

B – Asynchronous Delivery

This kind of delivery system is characterized by the supplying of instructional, structured units of learning. In this case, the main issue is to provide learners with something other than printed materials. But at the same time, the production of instructional content with high multimedia and interactivity levels is very expensive. Moreover, this type of instructional material often encounters accessibility problems, and at times can only be used off-line.

However, as in the case of multimedia contents, it is essential to follow the methods and the recommendations of the multimedia learning in order to ensure good instructional communication (Clark & Mayer, 2003; Mayer, 2001). Even if this aspect has been widely investigated, it continues to be a critical issue. A casual and linear relationship does not exist between interactivity and learning in that more interactivity entails a higher level of learning. In certain cases, a superfluous use of multimedia can produce cognitive overload, thus interfering with the learning process.

The greatest strength of this approach may consist in the opportunity to combine a variety of instructional units and components to support individual instructional goals.

The learning object's philosophy involves a similar view. It aims at providing small instructional components that can be reused a number of times in different learning contexts. The notion of small, reusable chunks of instructional media, which can be reassembled in different ways, suggests an arguable interpretation of the nature of knowledge as being auto-consistent. This is a very critical issue contrasting with the real nature of learning and knowledge. As research points out, learning is a situated process and knowledge does not consist at all of a composition of auto-consistent objects (Fini & Vanni, 2004).

The growing interest in learning object philosophy comes along with a growing attention for tracking systems which have received too much attention in the last years.

As noted previously, the Content + Support model is oriented towards instructional materials. They should be adequately comprehensive in order to reduce the human actors support. Therefore the Content + Support approach could provide economic benefits in a course with numerous students by reducing the e-tutoring costs. In this case, the e-tutor's role is of the "pull" kind, the e-tutor intervenes on-demand, like a "call center" operator. In addition the e-tutor normally applies techniques and devices for the efficient management of messages (e.g., FAQs).

Wrap Around Model

Whereas the Content + Support model is that which "common sense" normally envisions when thinking of e-learning, practitioners coming from the educational field demonstrate a strong reluctance toward this model. It is content oriented and presupposes that teaching consists in transmitting knowledge and learning or, otherwise stated, in merely memorizing and processing information. Hence there is no attention to the crucial dimensions of learning such as critical thinking and metacognitive skills.

Instead, from Piaget's theory on the more recent constructivism, learning is seen as an active process by which learners construct new ideas or concepts based on their present and past knowledge and experiences. As Cunningham and Duffy outline (1996, p. 172), all

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