Chapter IX

Pedagogical Methodology in Virtual Courses

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Recent technological changes have propelled a change in the way modern universities think about their educational delivery systems, and have significantly impacted on the nature of modern education (Eisenstadt and Vincent, 1998; Imel, 1996; Latta, 1996). Until recently only limited and often terribly expensive means existed for the conveyance of education to students via interactive mediums (Fires and Monahan, 1999). This chapter discusses the implementation of course delivery technology in a traditional university setting. Despite the traditional setting, students expect that technology will be used to facilitate their needs and desire for greater educational convenience (Mende, 1998). In addition, the university is demanding that faculty incorporate a higher degree of technological sophistication in their courses as administrators realize the vast numbers of potential students who can only be reached through technology (Kelley, 1995). This chapter discusses the related literature, defines categories of implementation, explains adaptable technologies to meet students' needs, predicts significant pedagogical changes, and reports on relevant on-going projects.

BACKGROUND

Learning involves the development of new knowledge and understanding through individual assimilation and group and peer interaction. This suggests that an important

component in the learning process is communication. Clear communication and effective tools that facilitate communication are important prerequisites for learning. New technology-driven communication tools are being introduced into the classroom, and traditional teaching and learning methods are being challenged by them (Branch and Fitzgerald, 1999).

Although certain types of high technology educational delivery systems, such as one-way video delivery and teleconferencing, have been in place for many years (Imel, 1998), today's instructional technology is creating fuzzy boundaries between traditional, open, and virtual delivery methods. For example, traditional, face-to-face instructor-student delivery is regularly enhanced by the use of technology such as overhead projectors and PowerPoint presentations in the classroom, and e-mail communications outside of class meeting times. Moreover, complex expert systems and computer-aided instructions are being used increasingly to enhance traditional instructor-student delivery methods (Odom & Pourjalali, 1996; Lawton and Barnes, 1998). For example, computer simulation games have been used for years in capstone business strategy courses to give students the chance to solve real business problems. These simulations are normally utilized in addition to the regular face to face classroom session.

Multimedia learning combines several technologies: some simple and some more complex. Traditional books, audio tapes, lectures and training videos are still used, but they face competition from new materials being produced on CD-ROM and disc-interactive media. Makers of these products suggest that well-designed multimedia demands more action, involvement, and attention from students and instructor than do traditional methods. According to the Interactive Multimedia Association, this type of interactive training can result in learning gains up to 50% greater than traditional methods consisting of lecture and one-way video alone (Boland, 1996).

There are many questions regarding the effectiveness of technology-aided instruction. For example, the increasing use of technology-aided instruction as pedagogical tools suggests research needs to be done to determine how well these methods impart learning, as compared to traditional classroom delivery methods (Fucaloro and Russikoff, 1998; Lindner, 1998; Rowntree, 1998). A recent study of three teaching methods (traditional instruction, expert systems, and a combination of the two) showed that the method of instruction and user personality traits do affect learning (Odom and Pourjalali, 1996). Many other studies have compared the learning effectiveness of various technological delivery devices, such as video and computers, with traditional classroom instruction (Sampson, 1998). Results suggest that the type of teaching methods used by instructors are more important than the media itself in the learning process (Clark, 1990). Successful learning via technology-aided delivery in the classroom appears to depend on the extent to which instructional priorities are established, administrative support is forthcoming, and teachers are integrally involved in the process (Klingenstein, 1998; Meltzer and Sherman, 1997).

A second area of effectiveness that merits study is how well technology-aided instruction responds to demands for increased user convenience. Student users want more convenience, and demand that universities and other educational entities provide degree and non-degree programs at times and places that create a better fit with their increasingly complex personal and professional schedules (Marquardt and Kearsley, 1999; Mende, 1998). In the past, the innovation was offering night classes to meet these needs. However in today's increasingly competitive environment, working students in particular often find it difficult to consistently attend night classes. Working students are expected to travel

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