Redesigning the Learning Environment for Distance Education: An Integrative Model of Technologically Supported Learning Environments

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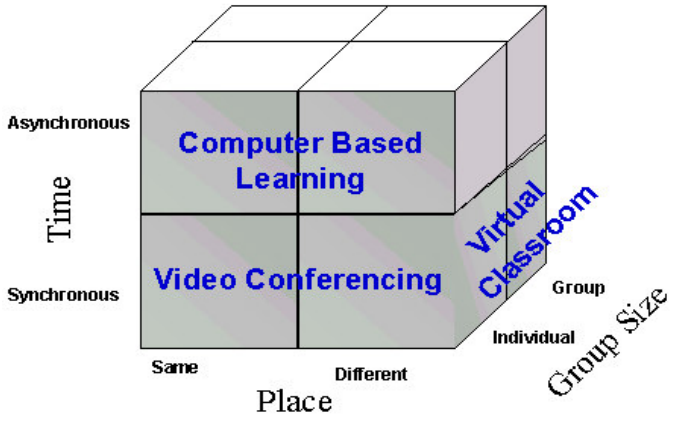
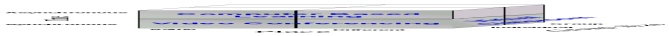
A technologically enhanced learning environment has many different factors which can increase the pedagogical effectiveness of course content at a distance. Using e-mail, group support tools, compressed video, and web-based instruction, learners can receive instruction that otherwise would not have had it available to them. However, a major problem in the design of distance education and technologically supported education is that sometimes we simply will try to apply the traditional pedagogical tools into a technologically enhanced environment in order to deliver distance education. Hammer (1990) indicates that in the redesign of business processes, that one cannot simply "pave over cowpaths." This would simply speed up inefficient ways of performing business processes. Business process redesign (BPR) follows the tenant that essential processes must be reexamined and thoroughly redesigned in order to achieve the efficiency and possibilities that technology has to offer.

The increased effectiveness that technology can provide to both geographically distance and non distance learning environments cannot be achieved through "force-fitting" traditional learning paradigms into the technologically supported ones. This article provides an integrative model to enhance the learning environment through technology and provide a framework for redesigning instructional processes to achieve highly efficient and effective learning environments that supersede the geographic distance barrier.

Model of Distance Education





The model of distance education is based on three dimensions: Time, Place, and Group Size. The primary technology component is the computer mediated communication system (CMCS) in conjunction with compressed video or a video conferencing system. A computer-mediated communication system is the use of the computer to structure, store, process, and distribute human communications (Hiltz and Turoff, 1985; Kerr and Hiltz, 1982). The most common forms are electronic mail, computerized conferencing, and bulletin board systems. A CMCS is frequently used for "asynchronous" text-based communication, meaning that the participants are distributed in time and space. It can also include graphics or digitized voice, as well as real-time (synchronous) exchanges (Turoff, et al., 1993).

The model shown below depicts the various dimensions of the learning environment found in a distance learning situation. The **Place** dimension distinguishes the distance learning situation from the traditional classroom. The instructor interacts with students directly in the originating classroom, and through compressed video or video conferencing in the distant location(s). Interaction with the distant group(s) provides a challenge because it is more difficult to see and hear the individuals, and because the individuals sometimes are shy in dealing with the equipment. CMCS tools allow the place variable to

The **Group Size** dimension indicates that instruction can flow from instructor to individual in the form of lectures, assignments and tests, and it can flow among groups where students contribute to group activities, discussions, etc., and learn from others. In addition, the group activities can contribute to other social needs of the group members and this can increase a student's sense of belonging, affect his/her attitude toward the class, etc. In the distance learning situation, it is sometimes difficult to develop good group activities that involve the members at the distant site, and this can lead to a sense of dissatisfaction with the learning experience.

The **Time** dimension is similar in both the distance learning and traditional environments. Portions of the model learning environment take place in real time, and portions take place at the student's discretion. In the technology supported environment, however, some options are available for both the synchronous and asynchronous situations that is not used in the traditional environment.

The different dimensions of the learning situation provide a variety of opportunities for presenting materials, and for involving the student in the learning process. The approach taken in the model attempts to take advantage of these various opportunities in order to compensate for some of the inherent problems encountered in the distance learning environment, and to otherwise make the course more attractive to the students at both the local and distance sites.

Objectives of the Model

There are two primary objectives that the model attempts to introduce into the learning process. First, the model attempts to promote active as opposed to passive learning in the learning environment. Second, the model attempts to promote a sense of community without regard to geographic distance.

The traditional lecture format used in many classes in the traditional paradigms tends to promote a passive learning style on the part of the student. In the distance model, the three components act together to promote active learning on the part of the student. Therefore, the virtual classroom component of the model attempts to engage the learners in the learning process. Using asynchronous and synchronous tools associated with CMCS such as live interactive chat sessions, asynchronous bulletin board assignments, and web-based computer assignments, active learning is promoted. With these tools, the student becomes a contributor to the course content and not just a passive observer.

The model also attempts to create a virtual community of learners without regard to geographic distance. This is accomplished through the virtual classroom which again uses the tools of the CMCS to support learner communities. Tools which promote student collaboration allow for learning communities that transcend the traditional geographic barriers. With straight videoconferencing, the students have little opportunity to interact when geographic barriers exist. CMCS tools tend to alleviate this problem.

Conclusion

This model attempts to give a course designer the basic framework for redesiging course materials and content with the distance learner in mind. Using a combination video conferencing and CMCS tools, enhanced learning environments tend to result. Simply applying basic distance learning technologies (i.e. videoconferencing) on to the traditional teaching methods will result in inappropriate and ineffective learning environments. However, by using appropriate combinations of tools to reengineer the learning process, breakthrough performance gains can be accomplished.

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