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MODERN COMPUTER TECHNOLOGY AND THE ON-LINE CLASSROOM IN EDUCATION

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ABSTRACT

In this paper I discuss the way modern communication technologies reshape the process of distance education. I also look at the challenges that the new era brings for the educators. These changes involve more than the simple addition of new technologies to the traditional ways of teaching and learning. Furthermore, the new electronic tools promote a paradigmatic shift in the organization of the educational process. The computer network in this model serves as a mediator rather than as an information processor. This creates a favorable environment for an active learning process, with opportunities for the students to solve some authentic problems. Nevertheless, emerging technologies may look different depending upon who builds them. Educators must clearly articulate and promulgate their goals. Their new visions of distance learning must drive the decisions about the uses of technology, not vice-versa. Throughout the history of human communication, advances in technology have powered paradigmatic shifts in education. Technology changes both what we can do and what we decide is best to do; big shifts in culture cannot occur until the tools are available. Although before the invention of the printing press, people could read and write, it was the press that enabled widespread literacy, and an almost total accessibility to the written word. This spread of literacy changed both class structure and the educational system, with consequences that still shape our attitudes today.

INTRODUCTION

The impact of the printing press upon students of the time has been analyzed and reanalyzed. The press made it possible for all people to accumulate knowledge, to record it, and to preserve it. But always, as new technology enables shifts at the level of delivery, old technologies are augmented, not totally replaced. Today, although many of us have access to inventions such as radio, television, and computers, we still use and will continue to use books, speech, and pen or pencil. Just as the printing press caused change in the system of educational delivery but did not result in a complete abolishment of either the written word or the oral/aural connection (witness the popularity of lecture classes even now), so too the new electric and electronic technologies will find their level before settling comfortably and permanently into the education scheme.

Schooling is only a part of education. Much of education takes place outside of schooling, both as planned activities and as unplanned learning. We may not understand the instructional goals of the Music Television (MTV) channel broadcasts, and those goals may differ from those of educators, but that doesn't mean MTV viewers don't learn anything. Ultimately we must consider what kind of world we as educators want to help build. If we envision computers and telecommunications

merging as a new tool for teaching and learning, now is the time to clearly articulate and promulgate our goals in order to shape future uses of instructional technology.

LIFE LONG LEARNING

Changes in our environment involve more than just adding new technology to old ways of organizing teaching and learning (Moore, 1993). The paradigm shift is from a teaching environment to a learning environment. Another notion current in educational circles is the need to develop motivated, skillful, life-long learners. As knowledge in many fields increases exponentially, aspiring professionals must acknowledge that during formal schooling, they can acquire only a small segment of the knowledge base they will need in their careers. Teaching and learning in their fields that may have been static for decades are now undergoing extraordinary change. We can teach students to become life-long learners with the aid of technology that can help them locate the resources to continue learning.

DISTANCE EDUCATION

A seemingly indisputable plus resulting from technology is the ability to deliver distance-education. Although there are some differences between distance education and classroom education, the significant issues concerning the use of computer networking and other emerging technologies to promote learning in both are similar.

Distance educators are beginning to focus on a related set of notions: (a) that there are different learning styles, (b) that students create their own meaning when learning new things, and (c) that what makes a difference in content retention and transfer is not so much what is done by teachers, but what students as learners can be encouraged to do.

Historically, we have not done a very good job of implementing the concept of learner-centered education in distance education. One of the reasons for this failure has been that the tools were not available to do much besides deliver education (as opposed to enable learning) at a distance. Now, improvements in computers and telecommunications allow for a more interactive, integrated learning environment.

The notion of practice-centered learning is also important to distance learning. CMC mergers of computers and telecommunication technologies give us new tools to support teaching and learning by using computer systems and networks to transfer, store, and retrieve information between humans. The computer network in this model serves as a mediator rather than as an information processor. CMC provides electronic mail capabilities, delivers instruction, and facilitates student-to-student and student-to-teacher interactions across a desk or across the world--a truly valuable tool for distance-education. CMC promotes paradigmatic shifts in teaching and learning from distance education to distance learning to merging informal dialogues, invisible colleges, oral presentations, and scholarly publications. But our new visions of distance learning must drive our decisions about our use of technology, not vice versa.

While major cultural shifts do not occur without the tools that make them possible, once those tools are at hand, the shifts are inevitable. Emerging technologies such as interactive television and the "superhighway" for information exchange may look different depending upon who builds them (e.g., telephone companies; cable-television companies; federal governments), but we may be assured that they will be built by someone. How we as educators will participate in this enterprise is a vital issue.

Another potential benefit of CMC is in promoting multicultural awareness. With the demographic makeup of many countries changing so rapidly, it is becoming increasingly important to develop communication skills for a culturally diverse community and world. On the other hand, because the bulk of CMC is conducted in English and in the written, rather than spoken word, it may perpetuate some cultural hegemony. Technical benefits to using CMC include the ease of circulating and archiving files and documents (e.g., teacher messages, student work, and assignments). On the other hand, the learning curve can be steep with regard to learning the system and technical how-toss of the computer and telecommunications system. The cost of buying and supporting systems, or accessing other networks is a significant "overhead" item in schools and colleges today, as is the cost and inconvenience of repairing or replacing hardware. Further, systems are not 100% reliable, which adds to inconvenience and wasted time. With so many systems to learn and sources to tap, information overload has become a problem as some users struggle with the lack of criteria to help them in deciding what to keep and what to discard from the swiftly flowing stream of incoming information.

CONCLUSION

All these factors--the idea that teachers, information designers and instructional developers can use CMC to promote collaboration, cooperation, sharing of ideas and as an equalizing medium--mean that the roles of students and teachers will change. No longer experts and information providers, teachers become facilitators and guides. Conversely, students are no longer passive learners, attempting to mimic what they see and hear from the expert teacher. They become participants, collaborators in the creation of knowledge and meaning. A problem exists with the gap between technology haves and have-nots that reflects, to some degree, the world of the culture that created it. We must be aware of this fact, and strive to create and use CMC innovations which allow for multiplicity, for change, for difference.

There is increased pressure on universities and instructors to provide instructional delivery systems that go beyond the traditional chalk-and-talk form of lecture. Computer-mediated conferencing has emerged as a tool for instructional communication not bound by prescribed meeting times or by geographic proximity. Successful integration of CMC into the curriculum, however, depends on our ability to design and use CMC applications which meet course goals, delivery goals.

CMC should be used for what was impossible or very difficult to do without it. CMC can provide an efficient way for students to turn in and receive back their homework, reduce the cost of

classroom handouts, cut travel costs for students and teachers. Some instructors have used CMC to create a virtual laboratory to allow teaching and learning to transcend time and place, while expanding access to the very best instructors.

CMC helps to motivate students to write, establishing a meaningful audience and context, encouraging writing practice and collaboration across the curriculum, using models of the writing process.

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