TECHNOLOGICAL DEVELOPMENT FOR e-LEARNING NETWORKS

Liviu MOLDOVAN
"Petru Maior" University of Targu-Mures

Abstract: In this paper some of the more positive directions I see for the technology, the institutions and the people involved in learning communities are presented. Possible futures for educational practice that may be enhanced by or emerge from new technological developments are shown. New directions in technology for learning networks consists in interface integration, multimedia, graphics, animation, hypermedia, hypertext, group memories, class management tools, discussion management, assignments.

1. Introduction

The first and foremost impact of learning networks an institutions of higher education is that they will no longer be able to count on a geographical edge. With the growing cost of a university education in Romania, students and parents are becoming far more concerned about the quality of education that they receive. With the continued increased in the percentage of the university-level population that is working or returning to school to try for a second career, there is considerably more discrimination by the students in choosing universities programs. Learning networks are able students to select the best program for their needs, with considerable savings in transportation and living costs and increased convenience for access to degree programs.

A student could live in Bucharest and take a degree program from the "Petru Maior" University in Targu-Mures (PMU). A distance education program such us muster degree in quality management at PMU, is demonstrating this phenomenon with postuniversity education in the technical field using only asynchronous courses [2].

The introduction of distance education programs will give a competitive edge to those institutions that adopt them.

Distance education affect educators themselves. Multidisciplinarity and interdisciplinary views of a subject area are facilitated in the distance education. Different courses can be mixed together when they have overlapping subject areas.

From almost any perspective, the potential impacts of distance education on universities are tremendous. Their introduction has begun. The economic factors are in place to ensure that the driving force in this direction.

Distance education using learning networks make possible the ability to place together enough learners who are geographically dispersed to have the critical mass for justifying the support costs in supplying the network and an expert in their field.

Professionals can use learning networks to stay abreast of developments in the field and to gain access to peers and resources relevant to their work [1].

2. Community Learning

Cable television introduced an array of channels carrying a variety of educational programs.

Networked neighborhoods, linked by modems and telephone lines, offer an even wider range of publicity available educational and interactive opportunities. It is possible that in future the learning networks to support a wide range of seminars and conferences

of interest to different groups. These will no longer be the single meeting but an online discussion on a particular topic of interest.

Another area of network learning in a community context involves personal quality of life on the part of individuals and interest groups. With learning networks it is possible for small local groups to learn more about their hobbies and local recreation activities as well as plan and execute events efficiently.

3. Corporate Training and Organizational Development

The typical corporate program usually takes people away from their job from some period of time for training, after which there is rarely contact with the instructor or with the educational program until learner needs more instruction. In a large sense the corporate educational program itself is somewhat isolated from the rest of the organization and the mainstream of what is taking place.

Learning networks bridge the gap between training and application and facilitate the integration between theory and practice, learning and work.

4. New Directions in Technology for Learning Networks

Technology can provide far greater enhancement to learning networks than is currently available to teachers and learners.

Consideration of new directions in technology for learning networks should begin with educational principles and needs. There is a need of new models of interaction between teachers and learners and new forms of scholarly communication. Models have to solve active and interactive learning, research and problem solving. Many technological innovations being studied and developed promise to offer significant and profound changes in this direction. In the following paragraphs there are possible futures for educational practice and scholarships that may be enhanced by or emerge from new technological developments.

4.1.   Interface integration

An integrated interface would provide a comprehensive communication capability on a computer, methods to enable humans to communicate with another as individuals and as groups as well as providing communications with any other computer resource.

An interface as a virtual and comprehensive front door to all educational resources, is a primary goal. The educational process ultimately dictates the integration of all computer resources into the communications environments.

The development of integrated interfaces to the complete collection of tools needed by the instructor and the students in the most significant technological goal for the success of learning networks.

4.2. Multimedia, Graphics and Animation

In the present the majority of network systems are still text based. However there is clearly a need for communication involving graphics material as well.

The first level of need in many subject areas is the use of special symbols that occur in just about every technical field. This can be handled as extended icon symbol sets in some editors.

Full graphics is the next desirable requirement, that necessitates somewhat more powerful software packages. It may also require that everyone involved with a specific learning network have adequate hardware to support the graphics requirements of the fields involved.

The area with the most significant potential for learning improvement is animation. Animation is a relatively new area, and good animation systems are still in the research stage. Implications for education are important and exciting. The learning of the thinking process is aided by the way in which the steps involved are presented and explained. This dynamic timing and sequencing is almost impossible to explain in a comprehensible manner by using plain linear text.

4.3. Hypermedia, Hypertext and Group Memories

The terms hypermedia and hypertext refer to the use of the computer to organize, in a nonlinear way, text and other media as bits of information. Typically multimedia are containing word, pictures, graphics, tables and illustrations.

High-density, rewritable and portable optical storage media will be one day be commonplace. This will make each instructor capable of publishing her or his own extensive background and lecture-type material for course. Programs of study that have extensive visual-material libraries will be able to publish this library on an inexpensive set of optical disks so that each student will have one. In this way the library can be brought to the students' homes.

One of the most significant enhancements to the learning process would be collaborative knowledge-building structures incorporating hypertext for direct utilization within the class discussion. This means that a person reading a node of text can branch off to many different alternative nodes of text. One reader might wish more detail on a subtopic, while another prefers a more global or summarized explanation. A single node of text can have many different types of linkages to different aspects of the subject. Hypertext is extremely easy to use and allows learners to follow their own interests and concerns while navigating through a large collection of knowledge broken into small-package or screen-size nodes, with numerous linkages among them. A typical hypertext set of choices available for branching off while reading materials might be:

- Provide more detail
- Explain related global concepts
- Define terms
- Present alternative viewpoints
- Provide references.

The evolution of standards for multimedia and hypertext will play an important role in creating an atmosphere in which educational institutions and individual learners can share large bodies of knowledge.

4.4. Class Management Tools

As the number of students and instructors increases, everyone can quickly become a victim of information overload.

A group of students can be taught using simple bulletin board or a simple conferencing system. It is even more complicated to manage a complete learning network made up of tens of teachers and hundreds of students.

A host of tools for instructors and students aid in reducing the amount of communications traffic that is not a productive part of the learning process. One is the

electronic grade book, which reduces the amount of communication the instructor must manually generate to keep students informed about their performance. An extension to that concept is an analysis package, which provides the instructor with a summary of the communications activity for each student. The package would provide information on the number of new discussion threads each student has started, how many replies or responses they have made to the contributions of other students and the frequency of their interaction and participation in the system. With large populations of students such analysis support could be critical to aiding the instructor in recognizing which students may be falling behind or having trouble in keeping up.

4.5. Discussion Management

Managing and facilitating the class discussion is the prime responsibility of the teacher. Many tools are available to the instructor to support the guidance of the discussion. Many of these tools reflect techniques used in face-to-face classes, but they may perform differently and in some cases better in a computer context. For example the process of asking a discussion question can be set up on the computer so that students cannot see others' responses until they have made their own answer. Each student thus has to think through an answer and avoid being swayed by the thoughts of other students. It is also possible to set up in levels so that after viewing the initial responses of other students, they then are asked to comment and reflect on whether those have caused any changes in their viewpoints. These secondary responses could also be hidden from the students until they have made their secondary response. At some level, the process can be opened for general discussion.

Most of the current research in group support systems is associated with how to design specialized communication structures for large groups of people to deal with a complex problem more effectively than they could ever do in a face-to-face meeting

4.6. Assignments

Learning networks give the rise to new approaches to the organization of assignments given to students. For example it is possible to give unique assignment to each member of the class. A simple software tool that allows the instructor to list assignments alternatives and allows students in a course to choose one of the alternatives is a valuable feature. Each student can view the list at any time to see what has been taken or what is available for choice.

REFERENCES

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