

Distance Learning

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ABSTRACT Distance learning focuses on the student and the processes or means and results of an educational program, as compared with the concept of distance education. A variety of distance learning programs, methods, and ideas are explored in this paper. Distance learning is particularly valuable for people with disability and accordingly, rehabilitation training programs have taken some leadership roles in this development.

DISTANCE LEARNING

Many people can not attend schools, universities or other formal institutions. Distance learning is an alternative form of education that offers opportunities to learn. It can and usually does involve a family of instructional methods, e.g., print, audio, video, and electronic devices and systems which are used for multi way communication among instructors and learners and in which there exists a physical separation among participants during the learning process (Garrison, 1989). It is the separateness of instructor from learner that is emphasized in definitions relating to distance learning (O'Brien and Shiro Geist, 1995).

HISTORY AND GEOGRAPHY

Distance learning has existed for many years in the United States, beginning with correspondence education claimed to be available in the 1830's (Holmberg, 1989). Land grant universities in the United States have always had an obligation to provide educational opportunities to rural people. The co author recalls correspondence education undertaken in the mid 1950's with members of the agricultural faculty at Cornell University. The value of lessons on pasture, dairy and livestock management to a rural farmer too distant from the campus (and too young to be admitted) was enormous.

It was post World War II however, that strong interest in distance learning began, and in the 1960 to 1980 period, rapidly spread around the world. The British approach to distance learning focused them to design and create the well known Open University (Paine, 1988). Greater accessibility of education for all in the United States, and a much more diffuse development led to numerous distance learning activities in the United States without any one clear center of excellence (Sewart, Keegan and Holmberg, 1983; Moore, 1990; Verduin and Clark, 1991).

But distance learning also developed in Europe (Holmberg, 1989), Canada (Moran, 1991), Australia (Keegan, 1986; International Council for Distance Education, 1986) and in many, if not most, developing countries. For example, a UNESCO conference in 1962 led to recommendations for more and better distance education in Africa. These goals were at least partially achieved over the next decade (Kabwasa and Kaunda, 1973). More recently, the Asian Development Bank (1987) reviewed the programs and possibilities in the Asia Pacific region, including satellite transmission of information. Increasing attention to high technology (Rajasingham, 1987) began to reduce the historical barriers created by continental divides and the split between developed and developing parts of the world. Of course, the Internet has further removed such divisions and distance learning now appears set for a gigantic step forward again as the Millennium approaches.

What is Distance Learning?

The recent use of the term "distance learning" rather than the more familiar term "distance education" is intended to give appropriate importance to the learner in the process, although many definitional possibilities exist (Keegan, 1986). Before the emergence of electronic

technologies, print was the dominant vehicle for distant delivery of educational content over long distances. Although still a principal delivery component for distance learning, print is joined by many other options for the communication of information and the possibilities for interaction with the instructor and among participants. Examples are videotapes, videoconferencing, audio conferencing, electronic communications using the Internet or various electronic meeting software packages and CD ROM.

In a fashion similar to that elsewhere around the world, the extramural studies program at Massey University in New Zealand grew from obligations felt by academics to serve those who could not attend a university in person. Owens (1985) traced a 25 year history of the Massey University program, outlining how none of the existing universities in the country wanted to deal with students exempted from attending lectures for various reasons. Similar resistance has been found elsewhere (Paine, 1988). However, the national desire to extend educational opportunities to all students overrode opposition, and Massey University, the newest, least established university, found itself the recipient of pressures to take on the job. Fortunately, this university quickly built a strong reputation for extramural education, making what some regarded as a political or academic liability, a major strength. Modern distance learning opportunities are many and promise to expand rapidly given the advent of the Internet.

A primary intent of distance learning, of course, is to make information accessible to those who would otherwise find it difficult to acquire. For some, e.g., those who work, care for family members, or live some distance from educational resources, it is a matter of convenience; for others, e.g., those with physical disabilities, it can minimize various physical and psychological obstacles to participation. Participation involving current technologies is highly dependent upon learner ability to use such delivery mechanisms.

Distance learning approaches can empower learners (Davie and Wells, 1991) and enhance the educational process by promoting learners' thinking skills and cognitive performance (Salomon et al., 1991). Although the in person contact between learners and instructor is compromised with distance learning, there are

many interactive activities that can be incorporated which require learner initiative, discussion and reflection (Davie and Wells, 1991).

Current Practices

Distance learning practices involve various approaches. Massey University in New Zealand offers extramural courses to more than 18,000 learners annually. These distance learning courses, characterized by study guides, books, written assignments and a formal examination system, are especially popular for those who live in remote areas, working people upgrading their skills, adults who were unable to attend universities earlier, and those with restrictions on their time. The extramural courses are supplemented with "vacation courses" on campus which are held during the breaks in the academic year for internal students. The on campus segments of courses in programs such as psychology, social work, or rehabilitation often involve activities that could not otherwise be taught via distance methods, for example, interpersonal skill development. Interviewing and counseling are better taught through close interaction. Of course, the campus courses also offer opportunities for students and instructors to get acquainted, share ideas and information, and engage in classroom learning activities.

A similar approach, used by Boston University, offers an off campus program in psychiatric rehabilitation. The program requires three intensive on campus sessions where students learn clinical technical skills and counseling skills. Between on campus sessions students complete assignments which involve audiotaping sessions with their clients and individualized feedback from instructors by telephone. The program also uses audiotapes and videotapes for class lectures, fax machines for short written assignments, and conference calls for interaction (McNamara et al., 1995).

Other rehabilitation programs educate professionals using distance learning approaches. At Utah State University, a graduate program in rehabilitation counseling delivered by distance is evolving for working professionals. The program uses videotapes, satellite broadcasts, audio conferencing and telephone support. The program creates training modules involving

videotape and print materials. There are generally 10 learning modules for each course involving half hour videotapes. The videotapes and print exercises are sent in advance of a scheduled satellite transmission. The satellite transmission and accompanying toll free telephone line enables one way video and two way audio interaction between the instructor and students. Clinical courses involving counseling skills and testing and evaluation skills are offered with travelling faculty and local professionals having the appropriate credentials. Advising is conducted by telephone and electronic mail (Eldredge et al., 1994).

San Diego State University offers follow along distance learning activities to support existing training activities. In addition, it is developing life long learning opportunities, academic based courses, and regional electronic opportunities for interaction. Planned delivery strategies include satellite communications, interactive audio, interactive video, and computer simulations (McFarlane et al., 1994).

According to Keegan (1986) and O'Brien and Schiro Geist (1995) Australian universities use various combinations of correspondence study, video and/or audio conferencing, radio broadcasting and broadcasts over public television. Distance learning approaches are supplemented with periodic meetings involving intensive, short term, face to face interactions.

The University of Washington conducts a rehabilitation related program that uses the Internet for delivering instruction to people with disabilities. It is called DO IT (Disabilities, Opportunities, Internetworking and Technology). High school students with disabilities are selected to be DO IT scholars. The scholars are loaned computer systems and modems to use in their homes. Many require adaptive hardware and software. The students are also provided with Internet connections. After a brief orientation to the technology, the students use this electronic medium to communicate with each other and mentors. They are also encouraged to join world wide discussions. Instruction, communication and information access using the Internet occurs year round; however, students attend a residential summer session as part of the program. Program information is sent to students electronically. In addition, the University is conducting an adaptive computer

technology course for credit. With this course, videotapes are involved in addition to use of the Internet (Burgstahler, 1995).

At the University of Northern Colorado a variety of technological resources are being used. This distance learning program delivers rehabilitation leadership content to practicing rehabilitation managers. The program uses videotapes that are available through cable television, satellite or rental, participant manuals, CD ROMs and the Internet for content delivery. Participant interaction is fostered through various electronic tools including audio conferencing, electronic correspondence on the Internet, electronic meeting software and videoconferencing (Bitter, 1995).

Current distance learning practices, then, involve a range of approaches. Some include well known techniques like printed material that is mailed or faxed, audio and video tapes and broadcasts, and audio conferencing using the telephone. Others involve more recent technologies, e.g., the Internet, videoconferencing, CD ROMs and electronic meeting software. In brief, the recent technologies involve the following:

Internet. The Internet is an efficient and effective way for people to engage in various interaction activities. The Internet involves communication between people using computers. Using any one of a number of software packages, messages can be sent between individuals or to groups of individuals anywhere in the world. To send a message requires four things: (a) access to the network; (b) a mail account, (c) an e mail software program, and (d) the address of the person, or group, being sent a message.

Discussion groups are common on the Internet. Creating a discussion group necessitates establishing a "listserv," i.e., a list of e mail addresses for people in the group on a computer server (machine). The listserv enables one to subscribe, unsubscribe and control the flow of mail. Once subscribed to a list, participants receive mail from others as they contribute comments. The software routes messages to every subscriber. Usually, discussion groups focus on a specific topic or activity. This is an excellent way to promote participant interaction in distance learning. Many typical classroom activities can be conducted through interaction using electronic messages. Examples are

discussion, brainstorming, simulations, case studies, and role playing.

Videoconferencing. Most people are familiar with audioconferencing. A video conference is similar, except that participants can both hear and see other participants. Like audio conferences, several sites can be bridged together, although sophisticated equipment and special telephone lines at each site are required. The number of sites that can be bridged at one time is continually increasing. Although this form of communication may someday be common in offices and homes, at the present time it is necessary to go to specially equipped videoconference sites. Such sites may be equipped with graphic cameras which allow participants to show still pictures, graphic art, drawings and slides. A current limitation of videoconferencing is the delay in transmission due to reduced picture scanning rates over telephone lines. Rapid movements, like sweeping hand and body motions, cause moving objects to blur. However, the continuous improvements in video conference technology, along with reduced costs, make video conferencing a productive distance learning tool.

The Internet may soon be used in this way as well, as technological developments continue.

CD ROM. CD ROM, which stands for "compact disc read only memory," resembles audio compact discs used for listening to music. However, CD ROMs are created for use in a personal computer and can play back visual and audio information in various formats. In distance learning, a CD ROM enables an instructor to convey enormous quantities of information with text, animation, video and sound. It also permits the learner to interact with the material. For example, an instructor may present various options and ask the learner to make a choice. Feedback for the selection is then given. Nearly all new PCs come configured with a CD ROM disc player, a sound card, speakers and sufficient Random Access Memory (RAM) to accommodate the vast amount of information on a disc.

Electronic Meeting Software. Various software packages for electronic meetings are on the market, some more sophisticated than others. The software permits input and interaction among meeting participants similar to what happens in a structured discussion around a table. For example, brainstorming

related to a topic can occur in both settings. In a voice format, one person speaks at a time but all know who is speaking. With an electronic meeting, all participants contribute simultaneously and anonymously using a computer terminal. Some software packages enable people to participate from remote locations; thus, the technology has value for distance learning sessions.

Evaluative Analyses

Education is no longer constrained by traditional parameters, structures, roles and strategies (McFarlane and Turner, 1995). The availability of technologies for access to information has created new opportunities and new solutions to age old obstacles related to competing priorities for learners, e.g., jobs and family, the lack of or unavailability of nearby educational programs, particularly in rural areas, and the accessibility of learning for those with disabilities. Distance learning in the electronic age helps address those obstacles.

Advantages. With the emergence of electronic technologies distance learning has acquired many advantages. An important advantage is that it makes education accessible to those who, as a result of time limitations, location or disability, find it inconvenient or difficult to participate in face to face educational programs. Massey University, for example, enabled a large number of students to participate who would have otherwise been entirely excluded from advanced education. In particular, those who were not able to attend a university upon graduation from secondary school, rarely ever return to further education, whereas the Massey program has provided a "second chance" to thousands (Owens, 1985; Pech, 1994).

Numerous authors have celebrated the accessibility of educational opportunities for people with disabilities resulting from distance approaches. People with disabilities can gain tremendous opportunities for education and personal growth. Adams (1995) claims that distance learning affords those with disabilities an opportunity to fully participate with others, perhaps for the first time. Similarly, Christensen (1995) suggests that current approaches to distance learning provide for a more interactive and functional process, particularly for those

with disabilities. As an illustration, he considers the ability to review taped material as many times as necessary to be a helpful resource. Certainly, the learner can choose to a greater extent, the time at which the materials are studied, whereas traditional education necessitates standardization of times for both learners and instructors. For those with small children, disabilities or time constraints, distance learning is a blessing.

House (1995) says that technology may accomplish more for equal opportunity than legal systems, and Oestreich (1995) suggests that it may reduce disabilities to a nuisance. Burgstahler (1995), who implements distance learning programs for people with disabilities at the University of Washington, indicates that programs like hers demonstrate the successful use of electronic technologies for people with disabilities for communication, instructional delivery and information access.

Educationally, distance learning has other advantages. According to McLaren (1995) distance learning can enhance the powers of analysis, sharpen the capacity to think, improve writing skills and increase the ability to develop independent judgements. House (1995) emphasizes that the electronic technologies involve the learner in the process, and the technology also influences the learning outcomes. Foster (1995) feels that an advantage of on line resources is access to the databases of many libraries and is further helped by the ability to perform complex searches. Moreover, Mason (1995) suggests that distance learning can both reduce costs for training and increase the frequency of offerings.

Disadvantages. O'Brien and Shiro Geist (1995) are of the opinion that distance learning still suffers from an unjustified pejorative view of nontraditional forms of education by some educators and professionals. They feel the advantages of distance learning are the focus on barrier removal, the focus on the student and the synthesis of technology and education. Oestreich (1995), while noting that technologies like the Internet make learning more accessible to those with disabilities, fears that such technologies can also isolate the learner. In fact, people with disabilities and/or other attributes could easily be excluded from educational systems by being relegated to distance learning modes only. For example, females outnumbered

males by about 30% since 1970 at Massey university. Such factors as workforce participation may play a key role in such statistics and covert societal pressures may also be involved.

People with disabilities, as well as others, might well be disadvantaged by such exclusion. Thomsen (1995) agrees that students with a disability can be isolated by technology and suggests that it is important to match the right students with distance learning. It is important to go beyond academic preparation for people with disabilities to provide social integration and maximum visibility.

Emener (1995) cautions that the overuse of technology could deemphasize the personal aspects of human service professions. McNamara, Nemec and Farkas (1995) feel the personal connection between faculty and students is important to learning. And Wong (1995) wonders if courses that require clinical intervention, personal interaction and direct professorial observation, e.g., counseling techniques, can be taught effectively by distance. However, Gaines (1995) is of the opinion that human service professionals must become educated to use these technologies in order to expand their knowledge and productivity. Ulicny (1995) suggests that educators validate technological delivery methods as being more effective and identify the best ways to present information.

IMPLICATIONS

Distance learning via technology opens new vistas for education and for learners. With the availability of electronic communication education became more accessible, particularly for those with disabilities and those in rural areas. Access to information, through databases and libraries, has mushroomed. Potentially, costs for access will diminish and increasingly more learners will avail themselves of the opportunities for lifelong learning. Fixed staffing ratios may break, offering inexpensive education that will reach thousands if not millions who would not otherwise be included.

Just as information alone is not education, facts assembled without themes or patterns do not represent wisdom. An education, whether by distance or not, necessitates attention to gathering, understanding, analyzing, using, and

evaluating information. Distance learning advocates must remain aware of this requirement. Educators must also be mindful of the need for interaction among learners and for professional and personal contact with instructors. A holistic approach to learning, with careful attention to instructional design and individual learner needs, is necessary. The value of interaction with peers for learners must be recognized, and used appropriately, as one strategy in enhancing learning. Many additional policy issues will emerge as the effects and implications of the new technology are felt.

CONCLUSION

In the past, distance learning was a way to create opportunities for those who could not participate in a formal education for various reasons. In the future, however, distance learning is likely to be the way in which we all learn. Traditional face to face learning will doubtlessly continue, but is likely to be re evaluated due to cost, travel requirements, time constraints, quality considerations, the increasing availability of data bases, interactive learning modules and the networks of people and information through Internet. Of particular note, people with disabilities and rural people living in inaccessible locations, will be enabled to participate as equals.

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