Distance Learning: Promises, Problems, and Possibilities

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Introduction

Distance learning and its relationship to emerging computer technologies have together offered many promises to the field of education. In practice however, the combination often falls short of what it attempts to accomplish. Some of the shortcomings are due to problems with the technology; others have more to do with administration, instructional methods, or students. Despite the problems, many users like technologies such as compressed video and see continued growth in the area. This paper will examine some of the current research and thought on the promises, problems, and the future possibilities in modern distance learning, particularly types that are delivered via electronic means.

History of Distance Learning

Before any discussion of distance learning, we need to look at the way the term has been defined in the past and how it is currently defined in the literature. The term can be used to describe any of a number of instructional situations. Although it is thought of as a new term, distance learning has been around for well over 100 years. One of the earlier forms of distance learning was done through correspondence courses started in Europe. This stayed the primary means of distance learning until the middle of this century when instructional radio and television became more popular (Imel, 1996). As technology has changed, so has the definition of distance learning. Videotaped lectures have been a standard in university and professional courses for the last two decades (Moore & Lockee, 1998). Audiotapes and lessons sent through the mail have been used in correspondence courses to teach subjects such as foreign language for quite some time (Teaster & Blieszner, 1999). Today, the Internet and compressed video have taken distance learning in new directions, allowing distance learning to occur in real time. Live video instruction is the most popular and fastest growing delivery mode in the United States (Ostendorf, 1997).

Definitions of Distance Learning

With the history of distance learning encompassing so many different learning environments, we need to find a definition that fits in all situations. There have been many definitions put forward in modern literature. Greenberg (1998) defines contemporary distance learning as "a planned teaching/learning experience that uses a wide spectrum of technologies to reach learners at a distance and is designed to encourage learner interaction and certification of learning" (pg. 36). Teaster and Blieszner (1999) say "the term distance learning has been applied to many instructional methods: however, its primary distinction is that the teacher and the learner are separate in space and possibly time" (pg. 741). Desmond Keegan (1995) gives the most thorough definition. He says that distance education and training result from the technological separation of teacher and learner which frees the student from the necessity of traveling to "a fixed place, at a fixed time, to meet a fixed person, in order to be trained" (pg. 7). From these

definitions we can see that the student and teacher are separated by space, but not necessarily by time. This would include compressed video, which is delivered in real time. As stated earlier, this type of live video instruction is the fastest growing means of distance learning today. Because of this, much of the discussion here will be dedicated to the promises and problems of this technology.

The Promises of Distance Learning

Many of the promises of distance learning are financial in nature. Universities hope to save money by delivering education to students that are unable to attend classes because of time or distance. The theory is that class size increases while the overhead remains the same. In a 2001 article by Burton Bollag and Martha Ann Overland, they say that developing countries are turning to state run distance education programs to take the place of ever increasing enrollments and a lack of physical building space. Places such as Beijing, Jakarta, and South American countries such as Brazil and Argentina have all begun to use distance-learning techniques to reach those that would by any other means be unreachable. Bollag and Overland say countries like China are moving from "elite to mass education," and that "traditional universities cannot meet the demand" (pg. A29). China uses a radio and television delivery system to serve 1.5 million students, two-thirds of which are in a degree program.

In Australia, Curtain University uses compressed video conferencing to reach remote students in Western Australia, and to enhance classes in Business Studies by connecting with students in Singapore. Other examples can be found in the UK and Norway where several sites have been linked together (Keegan, 1995). Of course there is also wide use in the United States, both in the public and private sectors. It should be obvious by these examples and by the definition of distance learning, that it can meet the promise to deliver classes to a geographically broad and diverse population. Not only that, but the need seems to be strong for such programs. According to the American Council on Education, the number of students in distance learning doubled from 1995 to 1998 totaling 1.6 million (Devarics, 2001). Another market forecast says that by the year 2002 there will be 2.2 million students in distance education program, a full 15 per cent of all U.S. college students (Rochester, et.al., 1999, cited in Dibiase 2000). Many Universities are feeling the pressure to control their costs, improve quality of instruction, focus on customer needs, and respond to the competitive pressures (Horgan, 1998, p.1). Distance learning technologies have the potential to assist in solving these problems. In 1994, Basom and Sherritt surveyed higher education administrators and state politicians to find out what they thought would be the major problems facing American higher education in the next millennium. The answers they most often received were: "meeting increased demands at a time of decreased resources, increasing or maintaining access, using technology more efficiently, and sharing resources across state lines so that colleges won't have to be all things to all people" (Pg. 4). Distance learning seems to address all of these issues. Administrators hope that distance learning methods will help make higher education more cost-effective (Dibiase, 2000). This type of answer may be seen as a quick fix for many administrators. If not approached seriously however, the distance programs can quickly become second rate.

The convenience of time and space is a big promise made by distance learning. Students do not have to physically be with the instructor in space and, depending on the method used, they do not have to be together in time as well. This is a great advantage for non-traditional students who cannot attend at regular times. Satellite campuses such as the ones Arkansas State University have recently opened are drawing out a "hidden market" of adult students in small towns and recent high school graduates who don't want to go away to a bigger city to get an education. The satellite campuses could conceivably help the school's enrollment to grow tenfold (Savoye,

2001).

Problems of Distance Learning

Despite the promises and obvious advantages to distance learning, there are problems that need to be resolved. These problems include the quality of instruction, hidden costs, misuse of technology, and the attitudes of instructors, students, and administrators. Each one of these has an effect on the overall quality of distance learning as a product. In many ways, each of these issues relates to the others. We will examine each of these issues separately.

Quality of Instruction

The first issue is the quality of instruction that is given through distance learning programs. Much of the quality of instruction depends on the attitude of the administration and the instructor. Data collected in a 1999 study by Elliot Inman and Michael Kerwin showed instructors had conflicting attitudes about teaching distance education. They report that after teaching one course, the majority of instructors were willing to teach another, but that they rated the quality of the course as only equal or lower quality than other classes taught on campus. Many times it seems that the administration believes the technology itself will improve the quality of the class. Palloff and Pratt (2000) remind us that "technology does not teach students; effective teachers do"(pg. 4). They make the point that the issue is not technology itself, but how it is used in the design and delivery of courses. Too often instructors do not design their lessons to take advantage of the technology presented. This affects the quality of the instruction. Research suggests that the effectiveness of distance learning is based on preparation, the instructor's understanding of the needs of the students, and an understanding of the target population (Omoregie, 1997). Sherritt (1996) found in her survey of higher education administrators that many of the decision makers view distance programs as second rate, a "necessary but deficient form of education" (pg.2). She writes that this attitude also was found in academic departments that "have no strong mandates to adjust their curriculum and instruction to fit distance learning beyond cursory cooperation" (pg. 2). There are no rewards for doing so and the effort takes away from research time. Sherrit also cites a study by Caffarella et al. done in 1992, which found off campus instructors to be "a demoralized bunch, perceiving poor working conditions, isolation, personal and professional deprivation" (pg.3). This attitude hardly seems conducive to an effective learning environment for the students. If the administration and instructors are lacking in true commitment, it is bound to have a negative influence on the entire distance learning experience.

Cost Effectiveness

The second issue is the true cost and the cost effectiveness of distance learning programs. Are they actually cost efficient? A study by Phelps et al. (1991) found that "the potential cost-effectiveness of using online technologies in distance education is still uncertain" (pg. 303). The study further showed that the concepts of costs and effectiveness are not as simple as they first appear. Atkinson (1983, cited in Ng, 2000) notes, "it is possible for a program to be efficient but not cost effective if the outputs which are actually produced do not contribute to the program objectives: that is it may be efficient at doing the wrong things" (pg. 306). Ng also comments on the cost of human capital. He states, "Human capital and the costs of conversion are expenses that can easily be underestimated" (pg. 306). Ng notes that the cost of online courses is affected by how they are implemented: as an enhancement or as the primary teaching medium. If it is implemented as a primary teaching medium, it is considerably more expensive. The teaching purpose of the different approaches needs to be taken into account. If this is not

factored in by administration, there may be costs that are not apparent at first glance. Caffarella et al. (1992) found in a study at the University of Northern Colorado that when electronic distance delivery costs were compared with those of instructor travel directly to the site, the least costly alternative was the live instruction with the instructor traveling to the remote site compressing the class into fewer weeks. This alternative was one-third the cost of any other alternative. Starting a compressed video distance-learning program is not cheap. Southern Arkansas University-Magnolia decided to try compressed video as an alternative to other methods. The startup equipment for the unit was approximately $80,000. Establishment of a permanent T-1 telephone line was another $1,200 per month (Weber, 1996). These costs are startup only and do not reflect any of the human capital costs as discussed earlier. Carr (2001) discusses a report by the California State University System that looked at cost savings in distance learning programs. The report found that only in really large courses with many sections would cost savings be possible. Courses in excess of 500 students would benefit from this setup, while it was still more cost effective to teach smaller groups in a traditional setting. The startup costs, maintenance costs, and personnel costs should also be factored in to arrive at a true cost for a distance-learning program. The minimum number of staff required for delivery of a compressed video class would be one instructor and two technicians, one at each site. This means a minimum of three people is needed to deliver the same class as one instructor does in a traditional setting. The costs associated with training technicians and instructors should not be overlooked. For effective distance education to take place, the staff delivering the instruction should be well trained.

Misuse of Technology

Besides the cost of the technology, there is the possibility of not utilizing all its potential. Some of these problems arise from a lack of training, some from the instructor's attitudes about using the technology, and still others by hardware problems. It seems to be self evident that instructors need to be trained to use distance learning technology, but too often they are not. Once again, it appears that administration may feel that the technology itself will improve the course. Advancement in technology does not lead to effective distance education. The best distance education practices depend on creative, well-informed instructors (Greenberg, 1998). Bates (1995) suggests that newer technologies are not inherently better than old ones and many of the lessons learned from the application of older technologies will still apply to any newer technology. Again, the instructor should be trained to take advantage of both their experience and being able to adapt that experience to the new environment of distance learning. The instructors must be trained "not only to use technology, but also to shift the way in which they organize and deliver material" (Palloff & Pratt, 2000, pg. 3).

The Role of the Technicians

One overlooked factor in the success or failure of distance learning programs is the role that the technicians play in distance learning. Of course they play a large role in the technical delivery, but little is known about the non-technical activities of the technicians that could have an influence on the instructional process. In a 1995 study, Olenski et al., found that technicians could indirectly influence the learning environment by "orientating participants to the technology, reducing the anxiety of the participants" (including the instructor), "and by advising the instructor on instructional techniques"(pg. 3). This type of role, if viewed negatively by the instructor, can have a huge impact on the quality of the presentation, yet many times the instructor and the technicians do not meet until the initial class meeting. Olenski also found that the technicians felt the instructors were given inadequate orientation to the equipment and really could not operate it until they had hands on experience. The technicians also saw a difference in

the instructors who could adapt their styles to the technology, and those who could not. Those who adapted were, in the opinion of the technicians, superior in conducting the classes. So we see not only does the instructor need to adapt to the educational environment, they must also adapt to another person in the room that can help or hinder the delivery of the lesson. Much of the outcome depends on the attitude of the instructor.

Problems with Equipment

Equipment and hardware malfunctions can be a great detriment to the effectiveness of distance learning. When a problem occurs in a class everything comes to a standstill and the learning environment is interrupted. If there are too many instances, the entire course can be affected. For instance, if an overhead projector goes out during an instructor's presentation, an alternate way of delivering that information can easily be found. However, if a compressed video presentation has problems, the entire class must be stopped until the problem is resolved. If the instructor goes ahead with the lesson, one site will miss out on that information. Carter (2001) did a study of students taking courses by compressed video in the Mississippi Gulf Coast Community College program. One of the questions he asked pertained to the equipment and technology operating correctly. His results from three groups spread over the different sites showed that only 42% agreed with the statement that the equipment and technology operated correctly. A program studied by Teaster and Bliesner (1999) found that unanticipated technical problems with the system shortened the class time and discussion that negatively affected the overall quality of the presentation. In one presentation the connection was lost twice prior to the students arriving and ten times during the actual instructional session. During this particular session there was never more than a four-minute period before the connection to one of the sites was lost. This may be an extreme example, but according to the instructor involved in the presentation, the course experience was "better, but similar to past experiences" (pg. 743). At Southern Arkansas University-Magnolia, they discovered that using compressed video as a single medium of delivering distance education was not as effective as was first hoped. Because of this they developed a different concept of an "electronic classroom" that did not rely on just one mode of delivery (Weber, 1996). Their experience was that compressed video had connection problems and did not work well broadcasting information delivered by lecture. The failure of the hardware can be a very frustrating thing for all involved in distance learning. For the instructor, it means they can be well prepared for the class only to have a bad connection or camera failure cause the entire lesson to go bad. For the technician, the frustration and inability to keep the class running smoothly may affect the instructor's view of their competency, causing friction. For the student, an inability to get a flow to the class and feel like progress is being made can hinder the learning process. Those students used to the traditional face-to-face instruction and who do not have a tolerance for ambiguity will have a difficult time.

Attitudes Towards Distance Learning

Despite problems with hardware that may or may not get worked out with new advances in technology, we must come back to instructors and their attitudes towards teaching in a distance-learning environment as a major potential roadblock to effective distance education. As in any educational situation, the instructor can set the tone for learning in the educational environment. That instructor must be properly trained and motivated to be effective. An instructor must have technological skills and confidence to use all of the various electronic devices in order to be truly effective in the electronic classroom. Instructors must also change the manner in which information is delivered. While lecture does not work well, multimedia presentations are successful (Weber 1996). Of course this means more preparation time for the instructor and the motivation must be there. (Walcott 1994, cited in Carter, 2000) found in a

study of adult distance learning that "to effectively bridge the gaps between classroom and distance teaching, faculty need to look at the distance teaching from the students' point of view" (pg. 249). The faculty must also be aware of getting instructional materials, handouts, tests, and other class items to both sites simultaneously. It is important for the instructors to develop a sense of community between the sites, achieve maximum participation, and get the participants to buy in to the process. The idea of learning as a collaborative process is very important when students are separated by distance. According to research by Palloff and Pratt (2000), "collaborative learning processes assists students to achieve deeper levels of knowledge generation through the creation of shared goals, shared exploration, and a shared process of meaning making" (pg. 6). It is up to the instructor to be aware of this in the distance learning environment and to encourage collaborative learning and a sense of community among the students.

Another important consideration for the instructor is their view regarding the goal of distance education. There are two main thoughts on this. Schlosser and Anderson (1994, cited in Imel, 1998) put this thought forward in a review of distance education literature. They submit that the goal of distance education in the United States is "to offer the distance student an experience as much like that of traditional, face-to-face instruction as possible" (pg. 3). This would mean that distance learning pedagogy would not differ much from that used in an ordinary classroom. Bates (1995) has a different idea. He suggests that instead of using technology to replicate traditional methods, it should be used to improve instruction. Holmberg (1989) also discusses these two schools of thought and concludes that distance education as a mode of education in its own right has very different consequences (than viewing it as a substitute for face-to-face instruction). The instructor must decide which attitude they will adopt because it has a profound impact on their approach to instruction.

Instructors also have adaptations they need to make to the technology. An instructor used to visual cues may find it difficult to adapt to a situation such as compressed video. The students at the remote site are not always in clear view of the instructor. West (1994) calls adapting to the lack of visual cues a major adaptation for the instructor. Part of this can be alleviated by good communication with the technician, but as we have seen earlier, that communication is not always present. McKnight (2000) contends that proximity and eye contact are important factors in education that are limited in the distance learning environment. She says that we inherently recognize the connection these provide, but in the distance learning environment they are "both severely and sometimes permanently compromised" (pg. 2). She asserts that professors are unable to observe the emotions of the students and cannot detect "moments of anxiety," thereby limiting their ability to respond to student needs. This puts a burden on the instructor and causes the students to respond differently than they might in a traditional classroom setting. As we saw earlier, creating a community is an important factor for the instructor to have an effective class. The instructor must do all he can to overcome the limits of the technology and involve the students in an environment of interaction, which can work to create the feeling of a true class (Hiltz & Wellman, 1997).

Instructor Concerns

Instructors have other concerns about distance learning, primarily how it will change their role in education. Clark (1993) found in a national survey of attitudes of higher education faculty that there was a moderately positive attitude about distance learning in general, but moderately negative attitudes about their own use of it. Writing about geography educators, Gober (1998) worries that if they rely too much on distance-learning techniques, the discipline would "risk losing our collective soul in the rush to convenience, cost-effectiveness, and accountability" (pg.

130). Instructors worry about putting their course materials online because once there, the knowledge and course design skill in that material is out of their possession. This puts the administration in a position to hire less skilled, and cheaper, workers to deliver the technologically prepackaged course (Noble, 1998 cited in Dibiase, 2000). Instructors are not always convinced that administration is behind distance learning. The rewards are not always there for the good distance-learning instructor. "Tenure and promotion usually does not recognize excellent off campus teaching which, in fact, takes valuable time from research agendas" (Sherritt, 1996, pg. 4). This puts the instructors behind when trying to publish to get their department recognized. The increased amount of time necessary to adequately prepare for distance learning takes away from the activities they will be evaluated on, such as grant writing and publishing. Many of the instructors concerns are valid and should be addressed by administration as distance learning becomes more common, as is predicted to happen.

Student Concerns

Finally, there are the students and their concerns with distance learning classes. Not all students are suited to this type of learning and not all subjects are best taught via this medium. More mature students are the most likely to find success with distance learning. The successful student needs to have a number of characteristics such as tolerance for ambiguity, a need for autonomy, and an ability to be flexible (Threkeld & Brzoska, 1994). Hardy and Boaz (1997) found that "compared to most face-to-face learning environments, distance learning requires students to be more focused, better time managers, and to be able to work independently and with group members" (p.43). Many distance learners are different from traditional undergraduates in that they are already in professions. They have well defined goals and are more motivated (Dibiase, 2000). As we saw earlier, distance education students need to feel a part of a community. Greenburg (1998) describes this as a virtual learning community.

Students in these communities often feel less pressure to perform individually, and more pressure to collaborate and be part of the team (Kantor, 1998 cited in Greenberg, 1998). Being involved in a collaborative learning process is an important part of forming the foundation of a learning community. When this is not encouraged, participation is generally low and dialog is absent (Palloff & Pratt, 2000). Students also need the attention of the instructors. This may be truer in a distance situation than in a traditional classroom. In a situation where eye contact and proximity are limited, students cannot be disciplined nor affirmed by eye contact and body language (McKnight, 2000). Students may also have a difficult time reading the reactions of the remote location class members. This lack of interaction can cause problems when there is a dissenting opinion that cannot be picked up on with non-verbal cues, and is misperceived as a verbal attack. This type of miscommunication can cause the community problems as the class progresses. It is fair to say that compressed video can magnify the strengths and weaknesses of the instructor. Students are prone to pick up on a lack of organization and direction and respond with apathy and absenteeism (West, 1994).

Conclusions

What may we conclude from the promises and problems of distance learning? Are there possibilities for improvement in the future? The technology will undoubtedly keep improving and the price will drop, as technology is prone to do once it comes into general use. Already we see improvement in the delivery systems of compressed video and computer assisted instruction. Despite student problems with distance learning, studies indicate they are relatively satisfied with what they are receiving. A study of students at Indiana University of Pennsylvania found 75% were very satisfied with the instruction they received and 90% rating the technology as

satisfactory (Fergusin & Wijekumar, 2000). Another study by Harner et al., (2000) was done on a distance learning accounting course at the University of Connecticut. They found that 57.5% would take another such course. Two other findings were generally favorable and included comments on how the course could be improved. The first suggested the instructors needed to be comfortable with the medium, and that the students needed to have more guidance on how to fully take advantage of the presentation (Teaster & Blieszner, 1999). The second showed that students were highly satisfied with the instructors and the course, but that direct interaction with the instructor played no role in the students' satisfaction (Inman & Kerwin, 1999).

It would seem one element that needs immediate improvement is with instructors. The literature indicates a need for instructors to adapt their teaching methods to the distance learning format. Keegan (1995) shows many excellent ways that instructors can better prepare for the classroom including multimedia use, speaking voice, and even font size considerations. Instructors also need to realize that the technician is an integral part of the experience of distance learning and treat them as such. Many times opinions and communication between the technician and the instructor are not shared either because the technician's role is unclear, or there is a shared perception of a difference in status between the two (Olenski et al., 1995). Instructors must be motivated to prepare adequately for classes. Part of the responsibility for motivation must lie with the administration and their support of the program. "Because teaching a distance learning class involves a new role for instructors, administrators must provide them with the time, the tools, and the training to meet these new responsibilities" (Inman & Kerwin, 1999, p.586). Administration needs to train and educate instructors on this role and how to meet the challenges. Sherritt (1996) found in her survey of higher education administrators that "for whatever reasons, higher education administrators and politicians understand the need for technology. But, lacking the heart for distance education, they cannot bring themselves to support it with adequate personnel, simple supplies, and a reasonable operating budget" (pg. 4). This sort of attitude from administration can do nothing but trickle down into the instructors and the students. Administrators need to carefully weigh their goals and objectives when taking on a distance education program.

Despite the need for improvement, the future of distance learning seems bright. Increasing numbers of students enrolling in distance learning classes underscore the need for "comprehensive and thoughtful evolution of distance education if it is to become the educational model of the future" (Harnar, et al., 2000, pg. 37). Despite the cost, coordination, and training that must be put into a program, it has "great potential to deliver and receive educational programs to and from remote sites" (Weber, 1996, pg. 219). Perhaps Keegan (1995) puts it best when he says "the challenge is to design cost-effective and educationally-effective systems for use in the new millennium of the new technologies that permit for the first time in history (electronic) teaching of students face-to-face at a distance" (pg. 53).

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Back to Journal of Distance Learning Administration Contents