

Distance Education: An Assessment of Its Effectiveness

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Abstract

Distance Learning (DL) education is defined as a planned teaching and learning experience that uses a wide spectrum of technologies to reach learners at a distance and is designed to encourage learner interaction (Filipczak, B., 1994).. The developments in telecommunications already available or currently under development will result in a useful and friendly workstation in every home within the next 10 years (Daniel P., 1995). “The implications for education and training are immense; learning can be independent of time and place, and available at all stages of person's life. The learning context will be technologically rich. Learners will have access not only to a wide range of media, but also to a wide range of sources of education” (Bates A., 1993). Peterson’s 1999 catalog of Distance Learning lists hundreds of institutions that offer distance learning classes and programs (Peterson, 1999).

Much has been written about the types of distance education available, the richness of the media, new commercial products available, and personal testimonials of the experiences of individuals. However, much less has been written about the effectiveness of distance learning technologies. This is becoming increasingly important as more and more institutions are offering classes which do not have a set number of contact hours, and schools have to consider what courses should be transferable and what criteria must be met to satisfy accreditation.

This paper will address the question of effectiveness. It will focus on the newest format in which distance learning takes place, over the Internet. For the purposes of this paper, the following terms are synonymous: Internet based education, cybereducation and virtual education. None of these terms has been universally accepted by the distance learning establishment. This paper includes an in-depth review of the literature and questionnaire data retrieved from the directors of distance education programs

Keywords : distance education, assessment tools

Introduction

Virtual courses are expanding very rapidly, with both institutions of higher education and private companies trying to jump on board. However, given the new teaching paradigm, there is minimal and mixed evidence about the effectiveness of the new delivery systems. (Bluenstyk and McCollum, 1999) Some academicians are resisting these technological trends. One group believes that universities will import the best lectures from around the world, having little use for the instructor who is not a good performer (Boettcher, 1999). A recent study (Merisotis and Phipps, 1999) found that the implementation of distance learning programs is moving faster than

understanding of its uses. Those programs that have been evaluated rely heavily on student performance measures. A study by Spooner, et al, 1999, found no differences in performance between traditional and distance education. Another study identified problems using student evaluations (Cresswell and Hobson, 1996) to evaluate courses. A study by Sonner, 1999, compared overall performance of students upon graduation. He compared those who had taken at least one distance learning course with those who had taken none, and found no difference in achievement. Most research indicates no significant difference between student learning dependant on course setting. Distance learners tend to older and have more business experience. Tom Russell (1999) has developed a web site that keeps track of studies which have evaluated Internet based courses. He found that the vast majority (over 90%) reported that student performance was as good as or better than student performance in traditional classrooms.

Online classes are being offered throughout the world. For example, Latchem, et al, 1999, discusses failures and successes of distance learning in Asia. He questions whether the Western model is best for Asia for distance learning. Others report problems with keeping up with technology (Maropeng, 1997)

The effectiveness of cybereducation

Merisotis and Phipps (1999) examined several hundred articles on distance learning effectiveness. They found only forty out of several hundred articles which examined this through experimental research. The general result of these forty articles is that distance learning compares favorably to traditional classroom based instruction. Students and faculty have a positive attitude towards the new medium of education. However, they go on to point out several problems with the reported research. These include:

- lack of control of extraneous variables
- studies do not use randomly selected subjects
- validity and reliability of instruments used is questionable
- lack of control for feelings and attitudes of those involved

All these factors limit the generalize ability of the results

More research is being reported about the importance of evaluation. Middleton (1997) found that no specific criteria had been developed to evaluate these courses in a survey taken of distance courses. Phelps and Ross, 1999, talk about the importance of evaluating such a course before launching it. The criteria suggested are usability, content, and perceived pedagogical worth. Before offering their virtual courses for the first time, all were significantly modified. Many faculty members must be retrained to effectively use the new technology. It is important that guided support is made available for faculty teaching Internet based courses (Eastmond and Lawrence, 1998). Many institutions have developed course evaluation form specific to Internet based courses. (Cheung, 1998) Others talk about their University's experience with on-line

education, which are generally positive (Hitchcock, 1999). See the appendix for the instrument used at the University of Massachusetts Lowell. Questionnaires are good ways to see if what customers are getting and what they want and a good feedback mechanism to the providers (Tricker, et al, 1997).

Hawkes (1996) provides an interesting taxonomy for evaluating Internet based courses. He suggests that evaluation criteria can be broken into four major areas: technical, instructional, organizational, and ethical criteria. It very well may be that an institution does a good job in satisfying three of the criteria, but not all four. Individual factors are listed below:

- 1) Technical criteria: ease of use, access speed, graphical realism level, and audio/video output flexibility.
- 2) Instructional criteria: interactivity, integrative capacity, learner control, learner/instructor attitudes, and learner achievement
- 3) Organizational criteria: technical maintenance, space and time feasibility, support systems availability, staff development, and community partnerships
- 4) Ethical criteria: technology access (Hawkes, 1996)

Techniques available to evaluate virtual courses include observations, interview, focus groups, case studies, document review, use of logs/journals, surveys, the use of expert reviews, standardized tests, and experiments. (Hawkes, 1996) Unfortunately, in the race to get new programs online, these techniques have not generally been employed.

Another set of literature evaluates cyber courses based on course characteristics. Boshier (1997) examined 127 web courses and found the best courses were attractive, accessible, and highly interactive. (Mailgram, et al, 1997) describe a set of tools or an infrastructure for the delivery of virtual classes. This system, called the GEOTEL system provides an interactive, adaptive, tutor-aided, Web-based learning environment for learners grouped in virtual classrooms. It describes the general characteristics of the system and of the accompanying courseware, highlighting aspects related to the monitoring of the activities of the learners and to the adaptability of the system.

The technology has grown faster than tools to effectively deliver the courses. Many institutions do not have adequate staff to maintain the servers and provide immediate feedback to both students and faculty on technical problems. There is no consensus on whether we should use the same mechanisms that you would use with any regular class including evaluation and assessment (Dasher-Alston and Patten, 1998). Technology has been developed which helps in individual instruction other than face to face (Collies and Smith, 1997). Others have developed criteria to evaluate Web tools that are being developed for the purpose of building distance education systems. (Mailgram, et al, 1997).

Others have investigated methods of helping to improve the chances of success of Internet based courses. Some suggest that although Internet based courses do a good job of reaching more students, they lack the richness of traditional classrooms. One study shows the positive impact of groupware for a distance-learning class to emulate a traditional class (Foegen, et al, 1998). Some have found that is good to present material in small steps with immediate feedback and that peer evaluations be used. (Henderson, et al, 1997) Schrum, 1998, provides recommendations for both institutions and users of this new technology. His study covers a variety of issues including stimulation of interactivity, organizational issues dealing with timing, ongoing evaluation, faculty incentives, and technical support needed for virtual courses to be successful. Powers (1997) suggests that we must look at what the students needs are up front. A key characteristic of any virtual program is to learn from classes already offered. If a template works for one class, there should be no hesitation to duplicate it in another. (Collins, 1997, Fukerth (1998) talks about the need to build assessment tools into courses. He suggests a step by step approach for developing an online course. Hsu, et al, (1999) among others provides a good structure for the development of virtual courses.

Other issues of Internet based education arise. There is a question of accessibility. The difference in accessibility between the haves and have-nots is broadening. Wealthy students have a greater opportunity since they have access to technology (Blair, 1999). Shelle and Grinnell(1999) predict that access to virtual education will become universal to all, access to content and information will grow, but there will still be the have and have-not's, because it will cost money to get at better information.

A common misperception of both students and faculty is that an Internet course will be easier since no actual class time is involved. One study found traditional students had a harder time balancing their time in a cybercourse and that faculty found it much more time consuming with a distance learning course (Small, 1999). This is probably because the teacher is no looking over the students shoulder forcing them to get things done, and faculty underestimate the time requirements to answer individual questions posted through email and written assignments.

Much has to be done to understand the effectiveness of virtual education. Some of the missing links are listed below:

- current research tended to examine outcomes in specific courses rather than in programs
- current research does not take into account differences between students, that is which types of students are more likely to be successful in a virtual environment
- current research does not explain why dropout rates are consistently higher in distance learning courses
- current research does not talk about how learning styles relate to technology
- current research focuses on individual technologies rather than interaction between technologies

- current research does not include a conceptual framework
- current research does look at the impact of digital libraries (Merisotis and Phipps, 1999).

None of the studies mentioned above have requested information from the directors of these programs. Two hundred Internet based programs were identified from the 1999 edition of Petersons' Distance Learning Directory. Questionnaires were sent to these directors on November 5, 1999, eliciting their opinions about how they feel their specific programs are performing and how they could be improved. A copy of the questionnaire is found in the appendix. Results and conclusions from this survey will be presented at the IAMOT 2000 meeting in February.

Conclusion

It is the view of this researcher that all forms of distance learning, from two way video to Internet based education is here to stay. (Boettcher, 1999) suggests that we should go from a teaching to a learning paradigm and not worry about the delivery mechanism. We must be prepared to adjust our delivery systems and use appropriate mechanisms to evaluate the new delivery systems. "Education will change to where you need it...universities will not enjoy the monopoly that they had" according to Cwiklik (1998). New models will emerge. For example, one model proposes single visits to campus, perhaps 2-4 weeks in length, so that students and professors get to know each other (Dominguez and Ridley, 1998). Another model, which the author will use in the spring, is for three to four class meetings sprinkled throughout the semester, and rest of the class being taught online. Students are forced to take a more responsible role, and their chances of failure are much higher. This is the world into which we are moving.

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Appendix

Survey of Distance / Cyber Education Programs

Please complete the following survey about the distance learning / cyber education programs at your school. Results will be summarized and returned to each participant.

Name of Institution:

Section 1: General Program Information

Please fill in the following information and also review and update the already completed questions. The information was derived from the Peterson's web site.

1. Courses have been offered since _____.
2. The program currently serves _____
to the following population _____
3. The MBA program is accredited by the _____
4. The delivery media employed by the courses in the distance learning program typically includes: (Check all that apply)
 - o The Internet for
-- posting class materials _____
 - live chat _____
 - bulletin board _____
 - email between students and with the professor _____
 - o Videoconferencing _____
 - o Video-taped classes through standard VHS format _____
 - o Telephone contact with the professors X
 - o Email contact with the professors X
5. What is the student profile of the students in your program?
(e.g. age, working, etc.)

Section 2: Program Administration

6. In what ways has your administration been particularly supportive in running your distance learning program in general or the distance learning (For example, does administration give you enough staff and budget to operate the program)? (Please rank in order of importance.)

7. In what ways could your administration be more supportive? (Please rank in order of importance)

8. How does student performance compare to day classes?

9. What type of course/program evaluation is in place? How do you measure outcomes?
How do you measure effectiveness?

Section 3: Faculty/Student Reaction

10. What do students like about the distance learning program? (Please rank in order of importance.)

11. What do students wish to improve about the distance learning program? (Please rank in order of importance.)

12. What do the instructors like about the distance learning program? (Please rank in order of importance.)

13. What do the instructors wish to improve about the distance learning program? (Please rank in order of importance.)

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Track 14: Education and MOT/Evolution of the Discipline