



ORIGINAL ARTICLES

Distance Learning: An Option for Your Future?

Barbara Ann Messina, PhD, RN, ANP

Distance learning programs are proving to be very popular for advancing nursing education from both a continuing education and academic degree perspective. Whether one is exploring opportunities to maintain perianesthesia certification or to pursue an advanced academic degree, distance learning technologies offer many feasible options. The following article provides prospective distance learning students with a brief description of distance learning, including its history and evolution. Distance learning technologies are reviewed and key elements that can determine student satisfaction and success are discussed.

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DISTANCE LEARNING provides opportunities for students who may not be able to pursue an academic degree or participate in continuing education programs because of difficulty accessing a traditional educational setting. By using a variety of technologies, including correspondence education, distance education, virtual classrooms, computer-mediated communication, and computer-mediated instruction, distance learning connects students and faculty without the constraints of having to be physically present at a conference or on the university or college campus. Programs offered through this medium include continuing education classes and undergraduate and graduate college degrees. Such programs are proving to be very popular for advancing nursing educa-

tion in both the academic and professional setting.

The Growth of Distance Learning

Distance learning is not new. The Cleveland Institute of Electronics (Cleveland, OH), the University of Wisconsin Extension (Madison, WI), and the International Correspondence School (Stamford, CT) have provided distance learning education for more than a century.¹ Traditionally, however, distance learning has not resulted in an academic degree, but has generally been limited to continuing education opportunities. Today, many major universities offer courses or entire degree programs via the distance learning format.

Distance learning offers many distinct advantages to individuals who may find it inconvenient or even impossible to attend traditional educational institutions because of location, work schedules, and/or increasing family obligations. Student enrollment in distance education courses has risen 70% since 1995.^{2,3} In 1998, more than 1.6 million students were enrolled in distance learning programs throughout the United States.³

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In an attempt to meet this increasing demand for distance learning education courses, the number of colleges and universities offering these courses has risen dramatically. Only 33% of 2-year and 4-year public institutions of higher education offered distance learning courses in 1995. By 1998, however, the number of 2- and 4-year public institutions of higher education offering distance learning courses had grown to 44%, representing a 14% increase in the number of 2-year public institutions offering distance learning courses, and a 17% increase in the number of 4-year public institutions offering distance learning courses.⁴ During this same time span, the number of 4-year private institutions offering distance learning courses almost doubled, with only 12% of private 4-year institutions offering distance learning courses in 1995, as compared with up to 22% by 1997/1998.⁴ The evolution of computer technology has only served to spur this growth.

Distance Learning Technologies

Technologies used to connect students and faculty can vary between courses. Several different technologies may be used simultaneously during a single course to provide students with synchronous (live) interaction, as well as asynchronous interaction between faculty and fellow classmates. Asynchronous course presentation or asynchronous faculty and student interaction is an important component of distance learning interaction because it allows students the opportunity to engage in course work independently, at a time that is convenient for them, and corresponds to their individual learning pace and style.⁵ The technologies used in distance learning may include any of the following, either singularly or in combination.

Interactive Television

Interactive television classes may be in a live (synchronous) or prerecorded (asynchronous) format. Although prerecorded classes are one way and allow for very little live student/faculty interaction, live (synchronous) programs can provide interaction between the faculty and outlying sites via phone contact or live, 2-way

video feed between the 2 sites. Entire courses or specific lectures and/or demonstrations may be presented via interactive television.

Closed-Circuit Satellite

The closed-circuit satellite format is very similar to interactive television and allows faculty to present lectures from distant sites. Traditional universities and colleges often affiliate with other academic or health care institutions within the region to provide students with a central meeting place to attend lectures.

Prerecorded Video and/or Prerecorded Audiotapes

Prerecorded video and/or audiotapes are very popular for continuing education programs and are also used for some courses in the academic setting. This format may be used to present an entire course or to supplement other distance education or traditional classroom programs.

Telephone Conference Calls

Telephone conference calls allow multiple individuals to interact simultaneously during a single telephone call. This technique provides students with direct interaction with faculty and each other, and provides a close simulation to a live classroom discussion.

Database Discussion Board

Database discussion board technology is similar to a chat room on the Internet. It provides students and faculty the opportunity for class interaction and discussion. The database discussion board may be synchronous (live) or asynchronous. Synchronous chats require that all participants be present on-line simultaneously. If an asynchronous database discussion board is used, faculty or students post a question or topic for discussion and students are given a specific time frame in which they are to respond to the question or topic presented.

Internet

Internet contributions to distance education continue to evolve. Entire courses can now be provided with Internet technologies and reach students around the world without geographic

limitations. Students may also be directed to references on the Internet or the class may design their own chat room to facilitate faculty and student class discussions.

Course Formats

Several technological formats can be used to disseminate course information for distance learning programs. Course materials may be printed on paper, placed on a computer-mediated disc (CD), or disseminated via the Internet. All of these formats provide students the necessary information to successfully complete the course.

Written Course Format

With a written course format, students are generally provided with the course syllabus, lectures, course assignments, and examination information in a bulk print format, similar to the purchase of course materials from a student bookstore for a traditional course. Assignments are returned to faculty by mail for review. If an examination is required, students provide faculty with the name and address of a colleague who will serve as an examination proctor. Upon completion of the examination, the proctor returns the examination in a return envelope that has been provided.

Computer-Mediated Disc Format

The CD format is similar to the written course format except the course information is written on a CD and students work from their own personal computer. Courses presented on CD usually require students to have access to an Internet service provider, and assignments are generally submitted to faculty via the Internet. If an examination is required, it is either incorporated onto the CD or mailed to a proctor designated by the student. Courses presented on a CD may be either synchronous or asynchronous.

Internet Format

In an Internet format course, all course materials are provided via the Internet. Thus, the students are required to have a personal computer, as well as an Internet service provider. Lectures, student/faculty interactions, assign-

ments, and testing occur via the Internet in both synchronous and asynchronous formats.

Evaluating a Distance Learning Program

Students considering a distance learning program should take the time to conduct a careful evaluation of both the program and student resources before enrollment. Many universities and colleges offering distance learning programs are most commonly recognized for the quality of their traditionally based programs of study. However, the quality of a traditional academic program is not always reflective of the quality of a distance learning program.^{6,7}

Faculty support, training, and education in distance learning course construction, implementation, and teaching methods are essential. The campus teacher who can hold a class of hundreds spellbound in the traditional classroom setting may not be able to do so in the distance learning arena because of a lack of technological skills needed to teach in this new medium.⁵ The following components are considered to be key elements in the determination of student/faculty satisfaction, success, and achievement in distance learning programs.

Class Size

Distance learning, particularly in an on-line format, requires significantly increased faculty effort. To match the feedback given to students in the traditional classroom setting, faculty must communicate at length in writing. Hence, it is recommended that class size should not exceed 25 to 35 students.^{3,7}

Course History

It is important to determine if the course has been taught previously in a distance learning format, or if the course has been piloted with sample populations.⁸ The transition of a course from a traditional format to a distance learning format is not always smooth because the media are so different. It is helpful to be aware of the course history before making a commitment.

Student/Faculty Communication

Communication is often taken for granted in the traditional classroom setting; however, this will not be the case with distance learning courses. Important questions that should be asked include the following:

- What mechanisms are in place to foster communication between faculty, students, and each other?
- What is the frequency of contact between the professor and student?
- What types of feedback strategies are used?
- Are students able to speak directly to the professor?

Communication in distance learning programs can take place in multiple formats including e-mail, first-class mail, teleconference, or virtual office hours.⁸⁻¹⁰ It is crucial that the prospective student determine the style of interaction, if they have the technology to support the interaction, and if this style of student/faculty interaction will meet the student's learning needs.

Student Interaction

The educational process is, at a minimum, a 2-way sustained interaction.¹¹ The desire of students to interact with each other, and a significant portion of student learning occurs not only from interaction with faculty, but from student interactions.¹²⁻¹⁵ It is important to determine if the distance learning format used by the college or university permits students to communicate and work in groups with each other.^{10,12,16}

Accessibility of Library and/or Research Materials

Distance learning is geared to a population of students that are typically outside of the physical and/or geographic range of the university or college.¹⁶ Hence, it is imperative that distance learning students have Internet access to the college or university library. Also, if additional resource materials are required in a particular course, one should determine what mecha-

nisms have been instituted to provide students with the required resource materials.¹⁰

Student Services

Student services can often be critical to the successful completion of an academic program. As such, one should ask if the same level of services provided for the traditionally based campus student (ie, student financial services, counseling, registrar) are available to the distance learning student.⁷

Computer Skills

It is crucial to determine the level of computer skills required to successfully complete the distance learning program.^{8,9} Questions that one should ask include the following:

- Is the program accessible to all students regardless of their level of computer skills and expertise?
- Are students required to have knowledge in the use of other computer programs as well?
- Are students required to submit assignments via attachments in a computer program that is different from the program the distance learning course has been written in?

Computer Requirements

The vast majority of education programs from middle school through advanced academic degrees require that students have access to computers and a wide array of computer software. Before embarking on a distance education program, students should determine if they have the computer resources, or if they can afford to purchase the resources needed to successfully complete the program. Questions that need to be answered include the following:

- What computer resources and hardware (eg, speed, memory, modems, Internet access service, printers, scanners) will be required to access and participate in the distance learning program?
- Will the purchase of any additional soft-

ware be required to access the distance learning program?

- Are any additional software applications necessary for the submission of assignments or to read or access particular portions of the distance learning program?

Student Training

Prospective students may also want to determine if training is available before the implementation of the course of study.⁸ Depending on their level of computer expertise or access to computer experts, the answers to the following questions will need to be closely evaluated:

- Does the university or college have a formalized orientation program for distance learning students?
- What does that orientation consist of, and will you have to travel a long distance to attend?
- Are practice sessions included for students to provide hands-on experience navigating through the program?
- Will the orientation be offered more than once? Are installation and troubleshooting guides provided for students?
- Is instruction provided on installation and troubleshooting of computer software?

Technical Support

Distance learning students often engage in their course work in the late evening hours after the children are in bed or on weekends when they are free from work.⁸ The availability of technical support, and particularly their hours of operation should be closely evaluated. It is important to determine if the hours of operation meet your needs, if there a toll-free number, is someone always available to talk with, or if you have to leave a message and wait for a return call. These issues will need to be evaluated in the context of your computer expertise and lifestyle.

Table 1. Distance Learning Resource Sites

Student Resources	<ul style="list-style-type: none"> ● Provides links to distance-education resources for K-12 students, college students, and researchers ● http://www.boyle.com/distance.htm
Distance-Learning Education Resources and Information	<ul style="list-style-type: none"> ● http://www.ed.gov/Technology/distance.html
Library of Congress Catalog	<ul style="list-style-type: none"> ● Searchable catalog of approximately 12 million records representing books, serials, computer files, manuscripts, cartographic materials, music, sound recordings, and visual materials. ● http://www.crc.ricoh.com/~rowanf/ref.html
American Association of Colleges of Nursing	<ul style="list-style-type: none"> ● http://www.aacn.org
Free Virtual Classroom Space	<ul style="list-style-type: none"> ● This free site provides space to create a virtual classroom with threaded discussions, site sharing, and private messages ● http://nicenet.org
GeoHealth Web	<ul style="list-style-type: none"> ● http://geohealthweb.com
Healthcare Education Learning and Information Exchange (Helix)	<ul style="list-style-type: none"> ● Offers online continuing education as well as a schedule for health care professionals ● Sponsored by Glaxo-Wellcome Inc. ● http://www.helix.com
Indiana University School of Nursing Telecourse Program	<ul style="list-style-type: none"> ● Provides information about teaching at a distance ● http://www.iupui.edu/~nursing/adapt.html
Lippincott's Nursing Center	<ul style="list-style-type: none"> ● Offers interactive continuing education programs ● http://www.nursingcenter.com
Nurseweek's Continuing Education Home Page	<ul style="list-style-type: none"> ● Offers complete continued education listings for nurses ● http://nurseweek.com
Oncology Education Services, Inc.	<ul style="list-style-type: none"> ● Offers oncology-specific continued education programs for nurses ● http://www.oesweb.com
United States Distance Learning Association	<ul style="list-style-type: none"> ● http://www.usdla.org/Pages/define.html

Course Presentation

The course presentation (synchronous, asynchronous, or both) can affect the quality of the course, as well as the success of the student.⁸ Synchronous presentations are valuable and add richness to the course; however, a synchronous presentation requires that the student be at a facility or on-line at a specific date and time. Asynchronous courses allow students to work at times that are convenient to them without being "locked" into being present at a specific location, date, or time. Courses taught in both synchronous and asynchronous formats allow

for a combination of the best of both worlds. The choice is dependent on the student's lifestyle and learning needs.

Student Evaluations

Student input and evaluations should be valued and encouraged, and as such, formal student evaluations should be conducted at the conclusion of each course of study.^{8,17}

Evaluation of Student Learning Styles

Prospective distance learning students must closely and critically evaluate their own learning style. The distance learner must be self-disciplined and able to work independently. Students must also ask themselves if they prefer direct, personal contact and interaction. If so, the distance learning method of instruction may leave these students feeling disconnected and isolated.^{16,18}

Resources for Prospective Distance Learning Students and Educators

Extensive resources are available on the World Wide Web regarding distance learning. A gen-

eral Internet search will provide a wide variety of listings. However, because anyone can post information (regardless of qualifications), not everything found will be accurate. Accordingly, discretion should be exercised when searching for information. Table 1 provides a list of distance learning resource sites.

Conclusion

Distance learning offers many distinct advantages and many students have reported distance learning to be a positive experience.^{10,17,19} However, it is imperative that prospective distance learning students investigate programs before enrollment as thoroughly as they would before enrolling in traditionally based university or college programs. Additionally, prospective distance learning students need to assess their personal learning styles. Careful selection and analysis before enrollment can prevent unforeseen disappointment and assist students in the achievement of their goals.

References

1. Chial MR, Sobolevsky R, Flahive MJ: Utopians, luddities or just plain realists? *ASHA Leader* 6:4-9, 2000
2. Boehle S, Dobbs K, Stamps D: Two views of distance learning. *Training* 37:34-36, 2000
3. Armstrong L: Distance learning. *Change* 32:20-28, 2000
4. US Department of Education, National Center for Education Statistics: Distance Education at Postsecondary Education Institutions: 1997-98. Washington, DC, National Center for Education Statistics, 2000, NCES publication 2000-013
5. Gomez EG, Heldt E, Murray PJ, et al: The impact of the national information infrastructure of distance education and the changing role of the nurse. *Oncol Nurs Forum* 10:16-20, 1998
6. Mulligan R, Geary S: Requiring writing, ensuring distance learning outcomes. *Int J Instructional Media* 26:387-396, 1999
7. Peterman TW: Elements of success at a traditional/virtual university: Lessons learned from three years of growth in cyberspace. *J Acad Librarianship* 26:27-36, 2000
8. Dwyer F, Li N: Distance education complexities: Questions to be answered. *Int J Media Instruction* 27:25-29, 2000
9. Carr S: As distance education comes of age the challenge is keeping students. *Chronicle of Higher Education* 46:39-42, 2000
10. Petracchi HE, Patchner ME: A comparison of live instructional and interactive televised teaching: A 2-year assessment of teaching and MSW research methods course. *Research on Social Work Practice* 11:108-188, 2001
11. Garrison DR: An analysis and evaluation of audio tele-
12. conferencing to facilitate education at a distance. *Am J Distance Education* 4:16-23, 1990
13. Ponzurick TG, France KR, Logar CM: Delivering graduate marketing education: An analysis of face to face versus distance education. *J Marketing Education* 22:180-191, 2000
14. Barker B: *The Distance Education Handbook. An Administrator's Guide for Rural Remote Schools.* Washington, DC, Office of Educational Research and Improvement, 1992
15. Beare P: The comparative effectiveness of videotape, audiotape, and telelecture in delivering continuing teacher education. *Am J Distance Education* 3:57-66, 1989
16. McNeil DR: *Computer Conferencing Project: Final Report.* Washington, DC, Academy for Educational Development, Inc, 1991
17. Au M, Chong CY: The evaluation of the effectiveness of various distance learning methods. *Int J Instructional Media* 20:105-122, 1993
18. Freddolino PP, Sutherland CA: Assessing the comparability of classroom environments in graduate social work education delivered via interactive instructional television. *J Social Work Education* 36:115-122, 2000
19. Ryan M, Carlton KH, Ali NS: Evaluation of traditional classroom teaching methods versus course delivery via the World Wide Web. *J Nurs Educ* 38:272-277, 1999
20. Harnar MA, Brown SW, Mayall HJ: Measuring the effect of distance education on the learning experience: Teaching accounting via pictoretel (c). *Int J Instructional Media* 27:37-50, 2000