

A Dynamic Model for Delivering Distance Learning Curriculum
via Interactive Peripherals

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Abstract

Distance learning programs are evolving on the basis of a centralized broadcast location delivered to off campus sites and locally administered by facilitators. Students that attend distance learning or distance education classes consider their participation helpful as they experience education or learning away from the traditional “bricks and mortar” classroom. This simple, yet effective model, is not without design considerations. A common problem with the current model is that the overall system of curriculum transmission, local facilitation, and student participation is not in full membership with the academic community. In addition, the impact of user interface design and a new consideration representing modes of assessment all are new and determining factors applied to the distance education process. This presentation will discuss current practices and make recommendations associated with the administrative and instructional and facilitative design parameters. It is believed that distance learning programs are a viable and alternative learning environment that may be used to achieve college level learning available to juniors, seniors, and adult community citizens.

Introduction

Design constructs associated with distance learning curriculum delivery have become an assessment variable within the system of electronically mediated curriculum. A consensus of literary reviews have focused their efforts on the design of distance learning curriculum associated with “lesser or no structure”. Those who have authored distance education course materials take issue with this statement and admittedly describe their efforts in curriculum design as requiring more effort, knowledge, and multiple skill levels associated with delivering distance learning. Contained within the technology of distance learning systems are those interactive peripherals that enhance the overall process. Peripherals or support processes include both input and output software and hardware. A successful distance learner and course designer

has acquired levels of competency that enable communication using PDF files, attachments to e-mail, conversion between file formats, organizing and downloading resource materials, use of chat rooms, use of e-mail distribution lists, remote access to distant sites, web site design and implementation, and other features combined in software and hardware applications.

In order to gain an insight and more definitive answers to these questions and design variables this discussion will enter into descriptions and conditions unique to distance education course construction and student participation with distance learning programs.

The Growing Need for Distance Learning

A review of literature listed on campus web sites would suggest that a large percentage of campus curriculum offerings involve distance learning practices. Percentage approximations of course work offered through distance education have produced results that exceed 84% (Market Data Retrieval, 2002). This number varies from campus to campus, but a growing trend in distance education course offerings continues to support additional course development and delivery. The types of distance learning packages differ, however, students are frequently choosing distance learning over traditional methods. The United States Distance Learning Association (USDLA), found at: <http://www.usdla.org>, is a useful resource to provide distance learning course development and delivery principles.

Considerations of Distance Learning Assessment Techniques

Research studies have mixed findings used to determine that distance learning classrooms report similar effectiveness results as compared with traditional instruction methods. Often, these issues revolve around such questions as, "will technology help students learn the material more efficiently?" and "will technology make the teaching and learning processes less expensive?" In this special circumstance involving distance education, it would appear there are yet other considerations in addition to statistical distributions of significance to help determine the success of distance learning. Questions should be asked if distance education promotes a different kind of learning and not just an amount of learning. Traditionally, assessment practices have only measured a quantity of learning as determined by content associated with domains of knowledge. It has been observed and determined that people are not always equally described in their accomplishments based on quantitative levels of mastery.

The Significance of User Interface Design

The advent of distance education curriculum would suggest it is important to match the mode of assessment with the mode of learning. One such instance of a compared assessment using computer-based assessment in a first-year module on numeracy and statistics in Biology, used on-line assessment to replace marked multiple-choice tests. Analysis of student results after the first year (Ricketts & Wilks, 2001) showed that students using on-line assessment did not perform as well as those using marked multiple-choice questions. The difference in performance could not be attributed to a weaker student cohort. Nevertheless, on-line assessment was reasonably popular with the students. More detailed analysis of the students feedback suggested that the interface was not as user-friendly as it could be, which might have affected the students' performance. During the second year of on-line assessment the interface was changed to present one question at a time. Student performance improved dramatically, and the acceptability also increased. These results suggested that a naive introduction of online assessment may disadvantage students, unless care is taken with the student-assessment interface.

The design of distance learning course materials must represent a significant level of user interface practices as opposed to a course that merely mimics what happens in the traditional classroom. Neal (University of North Carolina, Chapel Hill) wrote in *The Chronicle of Higher Education* (June 19, 1998):

"...We have little empirical evidence to show that using electronic technology actually does improve learning, and teachers have a right to ask if their investment of time and effort in learning how to use the technology will produce significant benefits for their students. Much of the comparative research on teaching with technology focuses on students' reactions ("they liked it"), secondary characteristics ("the program had students working in small groups, so they must have learned something"), or students' mastery of simple factual content.

"Instead, we should be asking...: What did the students learn, and how well did they learn it? Did they simply acquire factual information, or did they learn to analyze, synthesize, and exercise critical judgment about the subject matter? Did they learn to write clear, grammatical, logical prose? Did they learn tolerance for other viewpoints and how to defend their own opinions in a rational way? Can they apply what they know to other

areas of their work and life? Did their learning last beyond the end of the course?"

In addition, research studies often point out that students' attitude about distance learning are generally positive. Associated with this growing demand for distance learning instruction is a recent study conducted with participating two and four year accredited institutions that resulted in a calculated 84% percent of the 4,865 campuses participating with distance learning curriculum (Market Data Retrieval, 2002). This data had increased by 70% from the previous year. Campuses across the nation are involved in distance education as a means to better serve a traditional audience and to expand their enrollments.

Distance Education and Life Long Learning

Today's student is confronted with a barrage of new learning material that demonstrate recursive values of learning over short periods of time. A student who successfully completes a course of instruction involving software applications will typically need to acquire additional new learning in as little as 18 months. A distance education student has the ability to "learn" using various resource processes that differ from the traditional lecture method. Ehrmann(1998) stated that a students' ability to learn the same information through distance learning or at a less cost than regular classroom instruction is not just a singular question. But, rather, "did the student learn something - anything - that happened in this particular learning environment"? Or, "was the education effective". This might be an instance where assessment practices need to include questions regarding the ability of distance learning students to acquire skills in independent thinking, information search strategies, and enhanced computer literacy skills. Suggesting that their ability to arrive at solutions without the specific instance of a teacher providing an exact answer at the moment of the question might enhance the ability of a student to arrive at self sought resources.

Instructional Design Constructs

Distance learning is not merely converting a traditional lecture based course to a set of notes and lecture outlines that are electronically turned by a software program. Face-to-face (F2F) learning has procured a level of preparation required of the instructor as evidenced

through correct principles of pedagogy and curriculum design. While the pedagogy of curriculum design must remain valid and reliable for the discipline, the electronic delivery of mediated learning involves yet other constructs (Cohen, 2003). The USDLA has established State Chapters, in participating states (<http://www.usdla.org/html/aboutUs/chapters.htm>) , to facilitate the organization, design, and facilitation of distance learning principles. Distance learning support is readily available through other organizations, such as: Online Journal of Distance Learning Administration (<http://www.westga.edu/~distance/jmain11.html>) , The International Distance Learning Course Finder (<http://www.dlcoursefinder.com>) , ednet - Utah Education Network (<http://www.uen.org/ednet>) , and many more. The process of asynchronous based learning involves a significant level of design constructs that have been identified as:

- Process of teaching and learning
- Community of learners
- The instructor
- The student
- Implementation of the course
- The use of technologies

Construct Basics

Educational organizations are constantly faced with finding solutions to “learning” problems. Distance learning systems are not without similar constraints or limitations. Initial design considerations in all learning environments must understand certain basic student needs. A Needs Assessment must answer the question of “what is needed to improve performance”. This question cannot be answered without input to satisfy the condition of, “what is actually happening”, “what should be happening”, “how do the participants, both students and faculty, feel about distance learning”, “ why does the problem exist”, “what are the options to remedy a solution”. Rossett, 1995, has suggested five steps of the Needs Assessment Process, they are:

- Step 1 - Determine purposes based on initiators
- Step 2 - Identify sources
- Step 3 - Select tools

- Step 4 - Conduct the needs assessment in stages
- Step 5 - Use findings for decision making

The Rossett model suggests that Step 1 includes three typical situations that form the initiators, they are:

- . Performance problems
- . New Systems and Technologies
- . Automatic or Habitual training

Performance problems are often attributed to the design of the curriculum materials. A well crafted course should have meaningful assignments that are supported by strong instructional approaches involving meaningful discussion groups and supportive faculty. Basically, this analysis process might simply consider - what is the best way to teach students in a distance learning environment and what factors would facilitate each students' learning experience. In the absence of distance learning standards, certain principles or bench marks have demonstrated effective teaching of distance learning courses. Graham, Cagitary, Lim, Craner and Duffy (2001) have listed seven guidelines that typify effective pedagogical practices. They are:

1. - Instructors should provide clear guidelines for interaction with students. This includes types of communication, standards of communication protocols, and timelines for responding.
2. - Well designed discussion assignments that facilitate meaningful group coherency. Discussions should be focused on a task, and each task should result in a product or measurable outcome, and tasks should engage learners in content.
3. - Students should present course projects. Students learn from seeing and discussing peer's work.
4. - Instructors need to provide two types of feedback, frequently and continuously.
5. - Online courses need deadlines and intermediate deadlines to maintain progress.
6. - Challenging tasks, sample cases and praise for quality work communicate high expectations.

7. - Allowing students to choose project topics incorporates diverse views into online courses.

Implementing a Host Site Distance Learning Program

Given the essentials of strong course design principles, the remaining constructs are encompassed within the areas of “Implementation of the Course” and “Use of Technology”. Often times these final development areas of delivery are limited within the resources and infrastructure of a school district, University, state, organization, or other such entity designated to support the dissemination of the distance learning process. Onsite, the “bricks and mortar” infrastructure support include the facility and equipment necessary to compile and transmit the course materials. On-site teachers are certified through a completed certified teacher education program. Each on-site teacher enters their area of expertise with a confident and practiced training acquired through their university teacher education programs.

The distance education programs involves a team of professionals and para-professionals. Those teachers at the delivery site are credentialed teachers. The host site is facilitated by para-professionals who are experienced with students and classroom procedures but are not necessarily credentialed or certified. The host site is also responsible for electronic setup of television and VCR equipment, administering of tests, classroom discipline, grade recording, parent - teacher conferencing, and generally all other duties of a regular classroom.

Distance Education Infrastructure

Distance learning programs are evolving on the basis of a centralized broadcast location delivered to off campus sites and locally administered by facilitators. This simple, yet effective model, is not without design considerations. A common problem with the current model is that the overall system of curriculum transmission, local facilitation, and student participation is not in full membership with the academic community. Infrastructure at the receiving or terminal end of system delivery must include the necessary equipment to manipulate and manage the course materials. Equipment at the receiving end may vary.

Student Enrollment Considerations

Students completing work on-site to the organization would probably have use of computing equipment, scanners, copy machines, various office supplies, etc. Students working at home might only have a computer. In either case, the ability of the course materials to be successfully received is also limited by the software installed to support the curriculum content.

Student profiling of distance education participants has resulted in a list of personal or academic attributes that may also be considered a limiting factor of successful completion of distance learning coursework.

1. Distance-learning students sometimes neglect their courses because of personal or professional circumstances. Having a compelling reason for taking the course helps motivate the student to stick with the course.
2. Some students prefer the independence of Distance Learning; others find the independence uncomfortable and miss being part of the classroom experience.
3. Distance-learning courses give students greater freedom of scheduling, but they can require more self-discipline than on-campus classes.
4. Some people learn best by interacting with other students and instructors. Others learn better by listening, reading and reviewing on their own. Distance-learning courses provide less opportunity for group interaction than most on-campus courses.
5. Distance Learning requires you to work from written directions.
6. It may take as long as two to three weeks to get comments back from your instructor in distance-learning classes.
7. Distance Learning requires at least as much time as on-campus courses. Students surveyed say that distance-learning courses are as hard or harder than on-campus courses.
8. Most people who are successful with Distance Learning find it difficult to come to campus on a regular basis because of their work, family or personal schedules.

9. Print materials are the primary source of directions and information in distance-learning courses.
10. Students who do well in distance-learning courses are usually comfortable contacting the instructor as soon as they need help with the course.

Student Self Appraisal Used for Distance Learning Preferences

How well would distance-learning courses fit your circumstances and lifestyle? Circle an answer for each question and score as directed below. Students who tend to be most successful are those individuals who are self-directed and self-motivated in their learning and study habits. Answer honestly - no one will see this but you!

(This questionnaire is adapted from "Are Telecourses for Me?" from PBS-Adult Learning Service, The Agenda, Spring 1994.)

1. My need to take this course now is:
 - a. High - I need it immediately for a specific goal.
 - b. Moderate - I could take it on campus later or substitute another course.
 - c. Low - It could be postponed.
2. Feeling that I am part of a class is:
 - a. Not particularly necessary to me.
 - b. Somewhat important to me.
 - c. Very important to me.
3. I would classify myself as someone who:
 - a. Often gets things done ahead of time.
 - b. Needs reminding to get things done on time.
 - c. Puts things off until the last minute or doesn't complete them.
4. Classroom discussion is:
 - a. Rarely helpful to me.
 - b. Sometimes helpful to me.
 - c. Almost always helpful to me.
5. When an instructor hands out directions for an assignment, I prefer:
 - a. Figuring out the instructions myself.
 - b. Trying to follow the directions on my own, then asking for help as needed.
 - c. Having the instructions explained to me.
6. I need faculty comments on my assignments:
 - a. Within a few weeks, so I can review what I did.
 - b. Within a few days, or I forget what I did.
 - c. Right away, or I get very frustrated.
7. Considering my professional and personal schedule, the amount of time I have to work on a distance-learning course is:
 - a. More than enough for an on-campus course.
 - b. The same as for a class held on campus.
 - c. Less than for a class held on campus.

8. Coming to campus on a regular schedule is:
- Extremely difficult for me - I have commitments (work, family or personal) during times when classes are offered.
 - A little difficult, but I can rearrange my priorities to allow for regular attendance on campus.
 - Easy for me.
9. As a reader, I would classify myself as:
- Good - I usually understand the text without help.
 - Average - I sometimes need help to understand the text.
 - Slower than average.
10. When I need help understanding the subject:
- I am comfortable approaching an instructor to ask for clarification.
 - I am uncomfortable approaching an instructor, but do it anyway.
 - I never approach an instructor to admit I don't understand something.

Scoring

Add 3 points for each "a" that you circled, 2 for each "b," and 1 for each "c." If you scored 20 or more, a distance-learning course is a real possibility for you. If you scored between 11 and 20, distance-learning courses may work for you, but you may need to make a few adjustments in your schedule and study habits to succeed. If you scored 10 or less, distance learning currently may not be the best alternative for you; talk to your counselor.

Conclusions

It is believed that distance learning programs are a viable alternative to achieve college level learning for those students that are prepared to use this style of learning. The author's experience with distance education would caution students as they consider enrollment to evaluate their personal profile with the questions previously listed. It is important that students realize that distance learning is a very "doable" program of learning but it must be approached on the basis of those unique attributes described within the distance learning system of education. Distance learning students assume certain conditions of independence in their quest to learn. They have a certain tenacity to achieve a level of competency that is personally driven in their capacity to participate in distance learning.

Distance education can also be a significant advantage to college students who have a conflict in their time schedule. The convenience of flexible scheduling may permit "on-line" courses to complement their otherwise fixed class schedule. Finally, students may elect to complete on-line course work when circumstances occur such that course material is similar in content to their past experiences, preparations, or similar in content to a corporate or military level skill competency.

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