

**Acceptance of Distance Learning Programs at the Graduate Level  
A Pilot Study**

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**Abstract**

The number of Americans seeking college degrees is expanding at a rapid pace. To meet the challenge of the non-traditional student, one, who because of other commitments, cannot attend courses in a traditional campus setting, colleges and universities have instituted distance learning programs. There is little disagreement on the value of these programs in providing a service to students who cannot attend traditional classes. But at locations where students do have an option of attending a traditional course, or taking one through a distance learning approach, which will a student select? The study expanded the perceptions of the traditional versus distance learning approach to higher education, and the choice students would make if given the option. The results of the study revealed that students would significantly favor courses utilizing the traditional delivery approach versus a distance learning approach. The study also found that students at a university which does not have a distance learning program favor this approach to a significantly higher degree than students at a university which has a distance learning program. The study also found that students are almost equally divided on the perception of quality of the distance learning delivery approach, versus a traditional delivery approach.

## **Acceptance of Distance Learning at the Graduate Level: A Pilot Study**

The ever-increasing number of Americans seeking college degrees has challenged educational institutions to engineer solutions which will meet the need of today's lifestyle with all of its constraints. Increasing the quantity of courses or programs offered within the traditional campus setting may not always be the clear solution, since the vast majority of new students represent what one would identify as the "non-traditional" consumer. Many are older than their campus counterparts, and married with families which they support by working full time jobs. Some are women who perceive college degrees as a necessity in today's job market. While others, both military and civilian, are in positions which require frequent or at least intermittent relocations. Attending class on a regular basis is a virtual impossibility. One visible solution to this dilemma has been to offer courses utilizing a distance learning approach. While the actual approach may vary from school to school, the end result appears to be the same; offering accredited courses which do not require traditional attendance.

This study sought to examine the perceptions of graduate students towards distance learning delivery systems. Specifically, it solicited the opinions of graduate students attending Embry-Riddle Aeronautical University and the University of West Florida. Embry-Riddle currently has a distance learning program in place, while the University of West Florida does not.

The study attempted to solicit the

perceptions of Embry-Riddle students who had taken classes through their distance learning program. This proved unsuccessful since only three of the students surveyed had taken a course through their distance learning program.

The study then asked questions pertaining to the students preferred delivery method perceptions as to the quality of the learning experience. The data received from the survey gathered from the Embry-Riddle students were then compared to the data from the West Florida students to determine if any significance exists.

"The American Council on Education (ACE) reports that higher education in the United States is evolving. A number of customer-oriented models are being cultivated at a handful of schools across the nation" (Goforth, 1995, p. A08).

Campus borders are dissolving into cyberspace as colleges increasingly turn to interactive television and computers to meet a growing demand for higher education. They are finding that it is cheaper to deliver education to distant students in virtual classrooms -- a practice called distance education -- than to build more classrooms on campus. (Graves, 1995, p. B07)

"There is no question this distance learning is the hottest topic in higher education today, and the fastest growing," said Robert B. Leiter, Dean of the Division of Continuing Education at Mississippi State University"

(Graves, 1995, B07).

The overall goal of a distance learning program is an extremely basic one, to provide access to education for people who otherwise would not have that opportunity. Examples of what is being accomplished in the distance learning arena are numerous.

In Fort Collins, Colorado the National Technology University, founded 11 years ago, has awarded nearly 800 degrees, and has a student body of 1,500 in master's degree programs in 13 disciplines. While it lacks a traditional faculty and corresponding classrooms, it does, have state of the art technology. And today it appears that if you want to operate a college, that could be enough. Education today is often more feasible when it is brought to the consumer (Vigoda, 1995).

Technology is utilized by nursing professors at Texas A&M/Corpus Christi, to operate two remote-control cameras, while teaching students 300 miles away. It is used at the University of Akron and Cleveland State University, located 40 miles apart, as cost-saving partnership in which social-work students at both schools are combined into one class through interactive video. It is also used by the New Jersey Institute of Technology in Newark, in their bachelor's program in information systems, which is believed to be the first on-line bachelor's degree offering in the country where students can register for classes, order course materials, and take instruction without ever setting foot on campus (Vigoda, 1995).

The Pennsylvania State University

utilizes technology to reach as many as 20,000 students in 55 countries, and has just begun offering instruction to business students in Russia. In West Point, Pennsylvania, 85 workers at a Merck & Co. plant spend an hour or more each week in a room specially equipped for distance learning, complete with a large screen television participating in graduate courses beamed in from Lehigh University located in Bethlehem, Pennsylvania. Drexel University, is experimenting with synchronous education, in which classes have no pre-established times or lectures (Vigoda, 1995). Carnegie Mellon University now offers a program in corporate finance that includes long-distance learning through teleconferencing (Brown, 1995).

Distance education is dramatically changing the way colleges conduct business. Some educators believe we need to reverse the idea of the university as a place you go to obtain knowledge, instead we must package the knowledge and bring it to the student.

"Mel Elfin, executive editor of America's Best Colleges, a popular guidebook published by U.S. News & World Report, promotes a computerized future for liberal arts colleges, which he says are slipping into unaffordability. The average yearly cost of a liberal arts education is about \$21,000" (Holmstrom, 1995, p. 12).

Elfin is signalling colleges to collectively create an interactive multimedia core curriculum. This curriculum, which would be shared among colleges, "... would define a new-old liberal arts education for

students in a society rapidly turning to computers to deliver information and experience" (Holmstrom, 1995, p. 12).

Elfin believes the concept of distance learning, utilizing television monitors in a classroom to offer courses from distant locations, is already yesterday's technology due to the advent of laptop computers, and access to vast on-line global resources. Faculty members are now becoming individual tutors. At some colleges entire courses are computerized. Even the concept of going away to college may be replaced in the future with the offer of a less expensive path to a degree (Holmstrom, 1995).

National Technology University, for example, contracts with professors of 47 participating colleges. Instructors conduct a regular class on their home campuses, while a camera broadcasts their lectures across the country. At each of the 150 organizations which use the program, an on-site coordinator proctors examinations and manages the audio and video tapes. Those students who cannot attend a particular class can view the tapes at their convenience. Any questions or comments can be faxed, e-mailed, or called in to the instructor either during or after the class session.

Most distance learning classes are conducted in a similar fashion, with variations depending on the sophistication of the equipment.

Established in 1964 as an experimental college by a group of college presidents, Union Institute, the 'university without walls' instructs its students - mostly adults who are full-swing into their careers - through

seminars and meetings.

Union students design their own curriculum, relying on the school's worldwide network of adjunct professors. The students learn by working one-on-one with an expert in the field. The school's Center for Distance Learning enables students to take classes by using a personal computer.

Headquartered in Walnut Hills, the Union Institute has an enrollment of 1,800 in its programs in Miami, Los Angeles, San Diego, Sacramento, California, Washington D.C. and in 17 counties (Goforth, 1995, p. A08).

Through distance education, Eastern Oregon State College trains nurses and Oregon State University offers a liberal arts program to various locations within the state (Graves, 1995). The use of a satellite system, referred to as Ed-Net, links Oregon's eight colleges and universities and 16 community colleges. "Next year, the higher education system expects to offer 150 to 175 courses over the network" (Graves, 1995, p. B06). This "... does not include all the Eastern Oregon State College students who use computers to meet by electronic mail or virtual classrooms for discussions, lessons, and assignments. One in four Eastern students earns his or her degree through electronic studies" (Graves, 1995, p. B06). At the present time Oregon colleges and universities, which enroll 60,000 students, expect an additional 20,000 students to seek admission during the next decade (Graves, 1995).

"Washington State University is using the same strategy for its branch campus in

Vancouver. The campus will include several electronic classrooms linked to a telecommunications network based in Pullman, Washington. The university already uses the system to teach students in Spokane, Tri-Cities and Wenatchee" (Graves, 1995, p. B06). Distance education is so widespread and developing so rapidly that, one expert predicts, by 2050 most colleges will be replaced by distance-learning consortiums, some run by educators and some by corporations such as IBM and Disney (Vigoda, 1995).

Arthur Levine, president of the Teachers College, Columbia University, in New York states that there are about 3,000 colleges in the country now, and he expects that by the middle of the next century it will decrease to the hundreds (Vigoda, 1995). Levine, attributes this to the fact that the 18 to 22-year-old, who has long been considered the typical college student, now comprises less than one-quarter of the college population. The largest growth has been in the group which consists of people over 25 who attend part-time because of jobs and families. Levine believes that this group does not want to spend time on campus. Instead, they want to show up for classes and leave. What they are really seeking is great service, coupled with low cost and high quality, and they want it to be conveniently packaged. (Vigoda, 1995). They will seek those institutions which can meet their needs, regardless of the existence of a physical structure to warehouse the programs.

#### Concerns

Many educators have experienced concern over the use of distance learning education. One of the criticisms of distance education is that it is impersonal and removes close up and personal contact, rapid give-and-take, and other forms of communication that can only be achieved with human contact.

Miller, a philosophy professor at Salisbury (Maryland.) State University, summed up that perception when he referred to interactive video as the most marketable counterfeit for face-to-face instruction as we are ever about to achieve. He focused on the ramifications of living in a culture that is composed almost entirely of counterfeits, and of the ability to distinguish them from the real thing - the excitement, the fear, the facial expression of success when a student solves the problem on his or her own. This personal reaction can only be appreciated or reinforced in real classrooms.

Some presidents of liberal arts colleges view the computer as almost an anathema to the ethos of the liberal arts experience.

'I think this is a vision of a future with autodidacts as opposed to a future of students,' says Richard Warch, president of Lawrence University in Appleton, Wisconsin. 'Part of what a liberal arts college does is train student in the kinds of social skills and negotiations that become totally absent in the kind of world [Elfin] described,' he says. 'We would just be sitting in front of our Powerbooks'. (Holmstrom, 1995, p. 12)

Many believe electronic lessons lack a necessary personal touch. 'It just ain't the same,' concluded one Southern Oregon State College professor. Sometimes teachers drive to remote

sites just to meet the students they see on their video screens" (Graves, 1995, P. B07).

"I think there's certainly a degree of resistance from traditional faculties to this,' states ACE's Dave Merkwitz. "And I think there are important questions that arise about student-faculty interactions, about the liberal arts, about the social interaction of the university. But you would expect that in a time of innovation" (Goforth, 1995, p. A08).

Numerous proponents of distance education acknowledge that not all disciplines lend themselves equally to being taught electronically. Technological fields, that are lecture-oriented appear to be especially well-suited. They respond to the concern about video classes being impersonal with another question: How much more impersonal can one get than a having lecture hall crammed with 500 students (Vigoda, 1995).

Professors also point out that some students, who might never utter a word in a traditional class suddenly become cyberspace chatterboxes. Students also find that it may be easier to contact professors by e-mail than during office hours (Vigoda, 1995).

#### Statement of the Problem

Would university/college students, if given the opportunity to choose, select a program which utilizes a distance learning approach over one which uses a more traditional delivery system (e.g. courses

taught by a live professor in a classroom). With the development of increased communication and computer technology, college and universities could, at some point in time, consider a change in their delivery system from a more traditional one, to one which utilizes various levels of technology. Before this decision is made, however, the desires of the market must be considered. Would, for instance, a student choose a course taught by video tape/computer if another university is willing and able to provide the more traditional type of classroom instructions? Would enrollment decline since there will be no need for the presence of the university/college administrative support staff at locations where the programs currently exist (e.g. military installations), thus no one available on site to market the programs? While there is little disagreement on the value of distance learning programs in providing a service to those students who are at locations where they cannot attend traditional classes, what would be the impact at those locations where students would have a choice?

#### Purpose

The purpose of this study is to ascertain whether students will choose a more traditional delivery system, versus a video tape/computer distance learning approach, if both were available.

#### Scope of the Study

While the University of West Florida has a limited number of undergraduate courses available utilizing a distance learning approach, Embry-Riddle Aeronautical University began offering a Master's degree

through its Independent Study Program in 1993.

Distance learning, courses are presented to students utilizing video tapes of actual classroom presentations, course study guides, textual materials, and interactive communication with the faculty members. Communication between students and faculty are provided via an electronic bulletin board. This communication enables students to review assignments, and provide feedback to students via the interactive communication network. The electronic bulletin board supports message, delivery between students and faculty and on-line conference capability (Gallogly, 1995, p. 2).

The initial program utilizes an in-house bulletin board system called Skytalk, which was developed, maintained, and operated by Embry-Riddle personnel. To make the program accessible to students located overseas, an alternate computer communication system was required, and CompuServe was selected. CompuServe provided the Independent Study program with the ability to connect, not only DOS users, but Windows and MAC users as well.

A study by Gallogly (1995) compared the qualitative and quantitative data for selected Embry-Riddle graduate courses utilizing both the distance learning and traditional classroom delivery methods. The study found there is no significant difference in delivery methods where outcomes are compared.

The scope of this study however, only addressed the delivery system utilizing the Embry-Riddle Independent Study Program. Embry-Riddle has also experimented with distance learning classes utilizing the U.S. Army's T-Net System and other video conferencing sources, but these approaches are currently in the developmental stage, and an entire degree program is not presently available utilizing these delivery systems.

### Hypothesis

The research hypothesis states that there will be a significant difference in the number of students favoring the traditional delivery approach, versus those who select a video tape/computer approach, if the option is available. The null hypothesis states that there will be no significant difference in the number of students who would select a traditional educational delivery system versus those who would select a video tape/computer approach, if given the option, as measured at the  $\alpha=.05$  level of significance.

The study will also seek to determine if there is a significant difference in the acceptance level of a distance learning program at a university where there is currently one being offered, as compared to a university where a distance learning is not an option. This will be accomplished by comparing the perceptions of the Embry-Riddle Aeronautical University and University of West Florida Students on the value of distance learning.



### Population

The sample population will be composed of graduate students enrolled in courses at the University of West Florida, and Embry-Riddle Aeronautical University.

### Methodology

Graduate students enrolled in courses during the Embry-Riddle Aeronautical University Summer 1996 term at Eglin AFB, Tyndall AFB, Pensacola NAS, NAS Whiting Field, and Hurlburt Field, Florida, and the University of West Florida students enrolled in the Summer 1996 semester were surveyed utilizing an author developed questionnaire (Appendix A) on whether they would select a program with a traditional (live instructor) versus non-traditional (video/computer) delivery method if a choice was available. A two-dimensional Chi-Square test was performed, where appropriate, to determine if a significant difference existed between the Embry-Riddle and West Florida graduate students.

### Results

Questions 5-7 were examined and the data quantified, where appropriate, utilizing a two-dimensional non-parametric Chi Square test. The results are shown on Table 1-3.

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Table 1

Question 5: If Given the Option, (Assume Having the Same Instructor, and no Conflicts With Vacations, Business Trips, and Military Temporary Duty Assignments), I Would Prefer to Take a Course by the Traditional Approach/Distance Learning Approach

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Approach	Traditional Approach		Distance Learning	
Embry-Riddle	68	(91.8%)	6	(8.1%)
West Florida	154	(72.%)	60	(28%)
Two-Dimensional Chi Square			12.363	
Degrees of Freedom (df)			1	
p Value at .05			3.841	

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Table 2

Question 6: Since, in Reality, the Cost for a Distance Learning Class is Approximately 33% Higher in Cost than Traditional Classes, Would the Answer You Selected for Question 5 Change? Yes/NO

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	Yes		No	
Embry-Riddle	6 of 6	(100%)	0	(0%)
West Florida	37 of 60	(61%)	23	(38%)

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Note: The data reflect the total number of individuals identified in Question 5 who stated they preferred the distance learning approach, and the number who would change their response if the cost was increased. None of the respondents who indicated that they preferred the traditional approach indicated they would change to the distance learning approach if this cost increased.

Table 3

Question 7: When I Hear That a Student Has Taken a Course Through a Distance Learning Program (i.e. Never Having to Attend a Formal Class. I perceive it to be, Academically Speaking, One of Lesser Quality

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Embry-Riddle	6 (8.1%)	28 (37.8%)	14 (18.9%)	25 (33.7%)	0 (0%)
West Florida	29 (13.5%)	70 (32.7%)	42 (19.1%)	55 (25.7%)	18 (8.4%)
Two Dimensional Chi Square				9.3	
Degree of Freedom				4	
p Value at .05				9.488	

### Discussion

A total of 74 graduate students enrolled in courses offered by Embry-Riddle Aeronautical University, and 214 graduate students in courses taught by the University of West Florida were surveyed. Data for the Embry-Riddle students revealed that, 1 was in the MBA program, 72 in the Master of Aerospace Science Program, and 1 in the "other" category. The 214 University of West Florida students were all enrolled in the MBA program.

Since only 3 of the 74 Embry-Riddle students had ever taken a course utilizing the on-line and video tape distance learning approach, the data for questions 1-4 could not be quantified, and is reported for information only purposes.

Question number 1 was used to determine if students who have participated in both methods rated the educational experience as better for distance learning. Two stated it was about the same, and one replied distance learning was worse.

Question number 2 asked which system students learned more from. Two students agreed they learned just as much through distance learning, and 1 disagreed.

Question number 3 asked if the educational experience was lacking in the distance learning class due to the lack of face-to-face student interaction. One student had no opinion, and two students disagreed, indicating the experience was not lacking.

Question number 4 asked if the educational experience was lacking in the distance learning class due to the lack of face-to-face student teacher interaction. One student had no opinion, and two students disagreed, indicating the experience was not lacking.

The data for questions 5-7 compared the responses of the Embry-Riddle students to the West Florida students. Question number 5 was used to determine which format students would register for if both systems were offered. Sixty-eight of the Embry-Riddle students preferred the traditional approach, while six chose the on-line/video tape distance learning approach. The data from the West Florida students revealed 154 selecting the traditional approach, compared to 60 preferring the distance learning approach. A two-dimensional non parametric Chi Square test was conducted and found that a significance difference exists between the two groups (Table 1). A significantly higher number of West Florida students preferred the distance learning approach as compared to the Embry-Riddle students.

Question number 6 attempted to determine if cost was a factor in choosing either system since, in reality, the on-line/video tape distance learning approach would be 33% more experienced than traditional classes. The six Embry-Riddle students (100% who selected the distance learning approach answered yes, indicating their answer to question 5 would change if on-line/video tape distance learning classes were more expensive. The remainder of the students answered no, indicating they would prefer the traditional, lower cost approach.

Thirty-seven (61%) of the 60 West Florida students who stated that they would prefer the on-line/video tape approach indicated that they would change their response if cost was a factor (Table 2).

Question number 7 measured student perceptions towards on-line/video tape distance learning approach courses pertaining to quality. Five Embry-Riddle students Strongly Agreed that on-line/video tape distance learning approach courses, academically speaking, are of lesser quality, 28 Agreed, 14 had No Opinion, 17 Disagreed, and none Strongly Agreed. The West Florida students responses revealed 29 in Strong Agreement, 70 Agreed, 42 No Opinion, 55 Disagreed, and 18 Strongly Agreed.

### Conclusions

The data collected from question 5 clearly revealed the traditional approach is preferred over the distance learning approach when students have the opportunity to choose. When the results from the two universities were compared, the University of West Florida students, to a significant degree, would select the distance learning courses. The results are interesting in that the University of West Florida does not have a distance learning program currently in place while Embry-Riddle does.

In question 6, when cost is factored into the equation, all of the Embry-Riddle students who had initially indicated that they preferred the distance learning approach, opted for the traditional approach. Comparatively, 61% of the West Florida students who had previously indicated a

preference for distance learning in question 5, would select the traditional approach, given the increased cost factor.

satisfy those needs.

Question 7 revealed that approximately 46% of the Embry-Riddle students believe a course taken through a distance learning program to be one of lesser quality. Approximately 19% had no opinion, and the remaining 34% of students disagreed that distance learning programs were of lesser quality.

#### Recommendations

While there has been recent emphasis in expanding the distance learning approach to various areas as of the market place, universities must be concerned with the needs and desires of the specific market which they are attempting to target. Assuming that the market would be willing to accept a certain portion of their courses utilizing a distance learning approach may lead to a reduction in the total market share. For this reason the authors recommend that before considering a modification or change a current system in an established market, an in-depth study be conducted to ensure that the proposed change will not result in a loss of market share. Universities must be aware that, in many cases, it is still a buyer's market, and if their needs are not taken into consideration, the buyer is always free to seek another university who will

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### **Educational Delivery Systems**

#### Traditional versus Video Tape and On Line Distance Learning

The following survey is being conducted by Dr. Marian Schultz of the University of West Florida and Drs. Jim Schultz and Steve O'Brien of Embry-Riddle Aeronautical University. It is intended to measure students attitudes towards educational delivery systems and to determine, if given the opportunity to choose, whether a student would select a program which utilizes a distance learning approach, over one which uses the traditional delivery systems.

#### **Traditional Delivery System**

For the purpose of this survey a traditional delivery system is defined as having an instructor in the classroom with the students, producing a personal interactive environment. This is the common approach to education and the one most familiar to students.

#### **Distance Learning System**

Another approach to education is generally referred to as Distance Learning, where students and the instructor are not together in a class room. For the purpose of this questionnaire, distance learning courses are presented to students utilizing video tapes of actual classroom presentations, course study guides, textual materials, and interactive communications with a faculty member. Communication between students and faculty are provided via an electronic bulletin board. The electronic bulletin board supports message delivery between students and faculty and on-line conference capability.

#### **Assumptions**

1. Cost per credit hour are the same.
2. Tests, graded assignments, study guides, and textual materials would be identical.
3. The length of the semester and the grading criteria would be identical.

Please feel free to make any additional comments pertaining to this survey below. Thank you very much for your participation.

