
Students Perceptions of Distance Learning, Online Learning and the Traditional Classroom

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Abstract

Until the late 1980's, the primary educational delivery model for collegiate professorial staff was essentially the traditional lecture. Student populations consisted of single, residential 18-23 year olds although working, non-traditional students had begun to increase dramatically. As we approach the year 2000, the student population has continued to change to married, employed, and non-residential students [1]. Due to new technologies, knowledge delivery modules have also changed to include on-line (education access through the Internet) and distance education (interactive learning). Often these new educational technologies are implemented without fully understanding their impact. Based on a study done at a medium sized state university, we have found that distance learning and on-line learning technologies are perceived by students as having some benefits although they are not necessarily knowledge related.

Introduction

The traditional delivery system for higher education has been a classroom setting with a professor giving a lecture and students listening and writing notes. Interaction between the professor and student has been viewed as an essential learning element within this arrangement. However, innovations in educational delivery mechanisms have challenged this paradigm. Advances in information technology (IT) are enabling little used educational delivery methods such as distance learning (DL) to gain new life. In addition, the advances in IT have ushered in a new paradigm, on-line learning (OL).

The result is that many institutions of higher learning have adopted distance and on-line education as the next logical step in educational delivery systems. These systems are being promoted as the educational pedagogy of the future. Some experts have gone as far as to predict that the "residential based model," that is, students attending classes at prearranged times and locations will disappear in the near future (Blustain, Goldstein, and Lozier 1999 and Drucker 1997). However, one overriding question that must be addressed is how will these new educational delivery approaches that move away from the basic face to face relationship between a professor and students impact student learning and student perceptions of learning.

At many institutions, the effectiveness of distance and on-line learning methodologies has not been well researched prior to adoption. To better understand

how these learning technologies impact student perceptions of learning, a study was conducted at a medium size state university in the southeastern part of the United States. The goal of this research is to better understand student perceptions of the effectiveness of these two teaching methodologies. In addition, this paper investigates dimensions of distance and on-line learning that we believe are perceived by students as providing advantages over the traditional teaching methodology.

This paper is structured as follows. The initial sections develop a theoretical basis to better understand student perceptions of DL and OL. This is followed by the research methodology which includes the design of the survey instrument. The results of the survey are then discussed. Finally, conclusions are drawn and opportunities for further research are presented.

Background

Typically we perceive that higher education has always used the lecture method to deliver material. In reality, this is a relatively new phenomenon. For centuries, knowledge was passed from a master to a pupil in a one-to-one or one-to-few arrangement (apprenticeship form of education). This method is still used in most Ph.D. programs today. Over time, the lecture method of arranging a meeting at a given place and time with many students was adopted and has now become the primary educational delivery method. However, classroom lecture has not singularly been used for educational delivery in the twentieth century. Distance learning through the use of closed circuit television has existed for over 25 years. In addition, correspondence courses have existed for over 50 years. Generally, these methods have not been perceived as providing the same learning impact as the lecture method.

In the United States, formal education fifty years ago was basically the province of a privileged few in our society. However, as the American economy has changed from an agrarian mode, then to the industrial mode, through the information age, and now in the telecommunication age, formal education, which includes exposure to the liberal arts and technology, has become essential for the economic success of individuals, organizations, and countries. The undergraduate student population three decades ago was basically single, residential, full-time, and 18-23 years old. As we enter the telecommunication age, with its vastly expanded employment skill sets, the undergraduate student population has changed to include older (Beller and Or 1998), married, employed, and non-residential students. The American work force must continuously be retrained as a result of technological changes. Also, employees now must manage their own careers as new skill sets are required and companies demonstrate less loyalty to their employees.

Another factor influencing higher education is increased competition for students. Universities are banding together to form consortiums to offer additional degrees and flexibility in course offerings. In addition, business firms such as Motorola are offering courses to their employees to upgrade their skill and knowledge sets.

The changing demographics of students, new required skill sets, and new educational competitors are driving the adoption of new educational delivery systems that bridge the time-place gap that traditional courses have created. Interactive distance teaching (DL) and world wide access of educational instruction through Internet services (OL) offer non-residential education services which may be more compatible with student

lifestyles and needs. Educational delivery through the Internet is also encouraged by the dramatic reduction in the cost of personal computers and the increased capabilities of telecommunications. Reductions in state appropriations for higher education are driving administrators to find new ways to reduce expenditures. Although institutional start-up costs for OL and DL may be substantial, many administrators believe that as more students use such services, cost per credit hour will dramatically decrease.

Time and Place Dimensions

A two-dimensional, four cell matrix can be employed to categorize the above educational delivery systems (Figure 1). The first dimension is time and the second dimension is place (Duderstadt 1997). The time dimension has two levels, synchronous, which is when both delivery and receipt of course material occur at the same time, and asynchronous, when delivery of the course material precedes receipt of such material by the student (Graves 1997). There are two levels of place: same where both the instruction and student reception of instruction occur at the same place and different where the location of the instruction and student receipt of instruction are different. These cells can be further described as current primary delivery (synchronous and same), distance learning (synchronous and different), on-line (asynchronous and different) and recorded (asynchronous and same).

Figure 1. Instructional Mode Matrix

		Place	
		Same	Different
Time	Synchronous	Current Method	Distance Learning
	Asynchronous	Recorded	On-Line

It appears that many institutions of higher learning are rushing into the new educational delivery systems without fully understanding how "place" and "time" factors impact student learning. In essence, does place, defined as the location of both the instructor and student, impact learning? In a like vein, does time, defined as when the instructor delivers course content and when the student receives course content, impact student learning? There appears to be little research available to help faculty and administrators in determine the "learning impact" on students of these two critical variables.

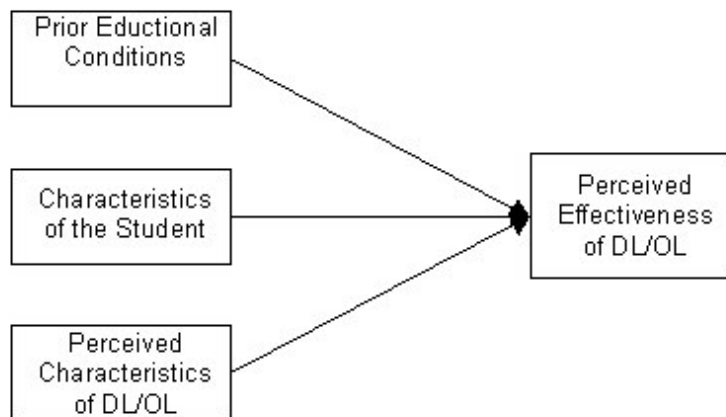
Theoretical Basis

One purpose of this research is to investigate student perceptions of the effectiveness of distance and on-line learning. Perceived effectiveness was chosen because of (1) the difficulties of measuring learning (must have a control and experimental group over time in a controlled setting), (2) student perceptions may be more important than reality, i.e., decisions, many times, are based on perceptions, and (3) perceived learning will contribute to our knowledge of learning effectiveness. The second purpose of this paper, as previously stated, is to investigate how students perceive those dimensions of OL and DL that might provide an relative advantage when

compared to the traditional teaching methodology.

This research is based on Everett Rogers' model of the diffusion of innovation (Rogers 1995). Rogers' modeled five stages in the innovation decision process: Knowledge, Persuasion, Decision, Implementation, and Confirmation. Our study centers around the first two stages of Rogers' model, Knowledge and Persuasion. For these two stages, we adapted Rogers' three constructs, prior conditions, characteristics of the decision-making unit, and perceived characteristics of the innovation, to match our research domain. We call our modified constructs (1) prior educational conditions, (2) characteristics of students, and (3) perceived characteristics of distance and on-line learning. We believe that these three constructs influence student perceptions regarding the effectiveness of DL and OL which is shown in the Student Perception Model (Figure 2).

Figure 2. STUDENT PERCEPTION MODEL



There are multiple facets for each of the four constructs in Figure 2. For example, for prior educational conditions, there are facets such as previous educational practice, student felt needs, and sociological changes. For characteristics of the student, facets include socioeconomic characteristics, personality variables, and communication behaviors. For perceived characteristics of distance and on-line learning, facets include relative advantage, student compatibility, and course compatibility. Finally, grades and schedule are facets of perceived effectiveness of distance and on-line learning.

Methodology

In order to study the four constructs in our model, a questionnaire was developed based on indicators found in Rogers' (1985) research and work done by Moore and Benbasat (1991). The indicators (questionnaire items) were modified to directly tap into each of the facets of our constructs.

Once the full set of indicators was developed, two independent experts reviewed the indicators. Based on their recommendations, indicators that were ambiguous were either eliminated or reworded to clarify the ambiguity. Items that did not tap the constructs in the model were eliminated. In addition, a set of demographic variables was added to the survey. This resulted in a survey with 128 items. A seven point Likert scale with strongly agree and strongly disagree as anchoring points was used.

The survey was then administered to students at the participating university in a variety of business courses including management, accounting, finance, and information systems courses. A total of 128 questionnaires were collected. Approximately 54% of the respondents were female and 46% were male with an average age of 23.6 years. The majority of respondents (64%) had taken an OL course and a large minority (48%) had taken a DL course. A slightly larger percentage (67%) of the respondents had taken a course that combined traditional and OL methodologies. In a similar vein, 49.2% of the respondents had taken a course that combined traditional and DL methodologies.

The students ranged from sophomores to graduate students with juniors accounting for 62.5% and seniors representing 29% of the respondents. The remaining 8.5% of the respondents were either sophomores or graduate students. No freshmen filled out the survey, which was expected as freshmen do not generally take business courses at the university where the questionnaire was administered. The sample appears to be reasonably representative of the business school student body.

Results

The survey contains 31 paired items (total of 62 items) where the same question was asked regarding OL and also of DL. An analysis of these 31 paired items revealed that for 19 of the pairs, the average answer for OL was significantly (.05 level) different from the average DL answer. The probability of randomly having 19 or more significant differences out of a total of 31 paired items is 14.05%. Thus, it appears that students do not perceive that OL and DL are the same. Therefore, we decided to do a separate analysis for OL and DL.

OL Analysis

The first goal of our study is to determine student perceptions of the effectiveness of OL. Five indicators in the survey that relate to effectiveness of OL are shown in Table 1.

Table 1. Effectiveness of OL

Item Number	Questionnaire Items	t-value*	Alpha
1	Most people believe that OL is more effective than traditional methodologies.	.343	.732
2	In a course with both traditional and OL methodologies, I learn better through the OL portion.	1.761	.081

3	I prefer OL courses to traditional courses.	.272	.786
4	I believe that I can learn the same amount in an OL course as in a traditional course.	-1.386	.168
5	I believe that I can make the same grade in an OL course as in a traditional course.	-2.606	.010

* - a negative value indicates that students agree with the statement while positive values indicate that a student disagrees with a statement.

Students appear to be ambiguous regarding the effectiveness of OL when compared with traditional methodologies. Students believe that they can make the same grade in an OL course (item #5). However, when asked if they believe that OL is more effective than traditional courses (item #1), they slightly although not significantly disagreed. When asked if they learn better through an OL portion of a combined course (item #2), they agreed with the statement but again it was not significant. In addition, students do not seem to prefer OL to traditional courses (item #3). Finally, although students tended to agree that they could learn the same amount in an OL course, the finding was not significant (item #4).

The second goal of our research is to determine what dimensions of OL provide advantages relative to traditional methodologies. Table 2 lists 13 indicators of OL benefits. Items #1, #2, #5, and #13 seem to indicate that OL is beneficial to students. It appears that most of the relative advantage of OL is related to saving time (item #8), scheduling (item #9), and taking more courses (item #12). In addition, the direction for item #10 seems to indicate that OL may enable students to attend more classes although the finding is not significant. Alternatively, based on students perceptions that it is difficult to contribute to class discussions in an OL course (item #11) and that OL requires significant changes by the student (item #3) one can see that OL does have some negative features. While students agree that they feel comfortable taking courses on-line (item #7), item #6 indicates that they may not be sure about how comfortable they are doing so.

Table 2. Relative Advantages of OL

Item Number	Questionnaire Items	t-value*	Alpha
1	I would benefit if there were more OL courses.	-3.907	.000
2	OL does not offer any advantages to me.	5.595	.000
3	OL requires significant changes by a student.	-4.552	.000
4	I believe that I can learn more or would learn more through on-line material than through lectures.	1.396	.165
5	I prefer on-line courses to traditional courses.	2.246	.027

6	On-line courses make me uncomfortable.	1.816	.072
7	I would feel comfortable taking courses on-line.	-3.381	.001
8	OL saves me time.	-6.054	.000
9	OL works well with my schedule.	-8.851	.000
10	OL enables me to attend classes more frequently than traditional courses.	-1.207	.230
11	It is difficult to contribute to class discussions in an OL course.	-4.075	.000
12	OL enables me to take more courses than the traditional methodology in a year.	-4.248	.000
13	I would like to have more courses taught using the OL methodology.	-2.980	.003

* - a negative value indicates that students agree with the statement while positive values indicate that a student disagrees with a statement.

DL Analysis

In regards to DL we had similar research objectives. Table 3 provides the results of the DL analysis.

Table 3. Effectiveness of DL

Item Number	Questionnaire Items	t-value*	Alpha
1	Most people believe that DL is more effective than traditional methodologies.	3.489	.001
2	In a course with both traditional and DL methodologies, I learn better through the DL portion.	3.438	.001
3	I prefer DL courses to traditional courses.	4.437	.000
4	I believe that I can learn the same amount in a DL course as in a traditional course.	-.582	.562
5	I believe that I can make the same grade in a DL course as in a traditional course.	-2.352	.020

* - a negative value indicates that students agree with the statement while positive values indicate that a student disagrees with a statement.

The first three items strongly indicate that students do not perceive that DL is effective. In each case, students significantly disagree with the statements. Students do not believe that they learn better through DL (item #2) and they do not prefer DL courses to traditional courses (item #3). They also do not believe that DL is more effective than traditional courses (item #1). In regards to learning, the students slightly agree that they can learn the same amount in a DL course but the finding is not significant (item #4). The students do believe that they can make the same grade in a DL course which may be more a result of student self confidence than in the capabilities of DL methodologies.

Table 4 lists nine indicators of DL benefits. Items #4 and #5 indicate that DL potentially has two relative advantages compared to traditional courses. Our findings indicate that DL works better with student schedules than do traditional courses (item #5). Item #4 indicates that some students may find that DL saves them time although the finding is not significant. Item #1 indicates that students do not seem to benefit in an overall sense from DL courses. DL does not seem to offer many advantages to students (item #2) and it does require significant changes by a student (item #3). In addition, students do not believe that DL enables them to attend classes more frequently (item #6). Difficulty in contributing to class in a DL environment also seems to limit the relative advantage of DL (item #7) and it does not appear that DL enables students to take more courses in a year than traditional methodologies (item #8). Finally, students do not seem to want more DL courses to be offered (item #9). Thus from our study, students do not generally find that DL methodologies have much of an advantage over the traditional methodology.

Table 4. Relative Advantage of DL

Item Number	Questionnaire Items	t-value*	Alpha
1	I would benefit if there were more DL courses.	.36	.160
2	DL does not offer any advantages to me.	.134	.894
3	DL requires significant changes by a student.	-3.093	.002
4	DL saves me time.	-.812	.419
5	DL works well with my schedule.	-2.310	.023
6	DL enables me to attend classes more frequently than traditional courses.	2.257	.026
7	It is difficult to contribute to class discussions in a DL course.	-4.475	.000
8	DL enables me to take more courses than the traditional methodology in a year.	.540	.590
9	I would like to have more courses taught using the DL methodology.	1.234	.220

* - a negative value indicates that students agree with the statement while positive values indicate that a student disagrees with a statement.

Conclusions

We had two primary goals for our research: first to find out if students believe that OL/DL teaching methodologies are as effective as the traditional methodology and second what dimensions of OL/DL provide benefits to students. The results of a survey of 128 students indicated that students do not perceive that OL and DL are similar so separate analysis were conducted.

Our research indicates that students perceive that OL has a significant relative advantage to traditional methodologies. These advantages include saving them time, fitting in better with their schedules, and enabling students to take more courses. They do not believe that they learn more in OL courses and have concerns related to being able to contribute to class discussions. Interestingly, the students seem to be ambiguous when comparing OL to traditional methodologies. They prefer traditional courses to OL courses although they want more OL courses.

Students seem to have much more negative beliefs about DL than OL. Generally, students do not perceive that DL is as effective as traditional methodologies. The only perceived benefit of DL is that of working well with their schedules. In addition, students do not want to take more DL courses.

Limitations

This study surveyed students in business courses only. Results therefore cannot be generalized to non-business students. In addition, students surveyed were at one university and these results cannot be generalized to students at other universities. In regards to the DL findings, it may be that the university where the students are surveyed is not effectively using DL methodologies although instructors do receive extensive DL training. It may also be that the technology used is not enabling effective DL.

Future Research

Future research should include non-business students and students from other universities. Doing so would enable one to generalize the findings more broadly. It would also be useful to test the linkages between the dependent and independent variables in Figure 2, the Student Perception Model. Finally, the use of structural equations modeling would provide interesting insights into the theory used to develop the model.

Distance and on-line learning appear to be the teaching methodologies of the future. Our findings suggest that researchers and administrators need to view OL and DL as separate methodologies. Students seem to prefer OL to DL and the traditional methodology to DL. There are more benefits to OL than DL, at least from the students' perspective. As universities move more courses to OL and DL, administrators need to consider student perceptions. It may be that students would be willing to take courses at another university rather than take OL/DL courses at their present institution.

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