

The Postgraduate Learning Experience: The Impact of Information and Communication Technologies on Student Satisfaction and Degree Completion

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ABSTRACT

This study provided new knowledge in understanding how the online learning (OL) (N=22) postgraduate environment differed in program satisfaction and completion rates from the traditional learning (TL) (N=18) postgraduate environment. The key findings derived from this study were: (a) There was no evidence to support that individuals who graduated from online postgraduate programs had any difference in satisfaction levels with their program than those individuals who completed TL postgraduate programs; and (b) The estimated completion rate of individuals participating in the survey indicated that individuals studying in OL postgraduate programs completed their programs at a lower rate than individuals who studied in TL postgraduate programs.

Keywords

Doctorate, postgraduate, online learning, traditional learning, internet technology

INTRODUCTION

It has been proposed that Internet technology builds and supports learning environments that enable students to successfully manage the challenges of the new century. Internet technology is supposed to increase the student's ability to work and learn from others who are in different geographical locations, time zones and, more importantly, hold experiences different from the student's own. Technology can support and expand those socio-cultural links which help to form intellectual identity. Shared understandings of the students' different worlds may be created much easier in the online learning (OL) environment than in the traditional learning (TL) environment of the classroom or in an institutional setting (Riel & Fulton, 2001). In addition, the OL environment has the ability to cater to students who wish to study while simultaneously engaged in full time employment (Long, Tricker, Rangecroft, & Gilroy, 1999).

Increasingly, the OL environment is utilized for postgraduate studies and has established itself as the most common alternative to traditional courses of higher education (Long et al., 1999). In a study of 1,100 colleges and universities conducted by The Sloan Consortium (Allen & Seaman, 2004) – an organization that is self described as the Consortium of Institutions and Organizations Committed to Quality Online Education -- 56.2% of doctoral or research institutions “agreed strongly” (6 or 7 on a seven point scale) that online education would be critical to their long-term strategy (p. 2-3, 13). Postgraduate and research institutions were expecting a 20 percent growth in their online course enrolment between Fall 2003 and Fall 2004 (Allen & Seaman). Information and communication technologies (ICTs) are used by the postgraduate students and their chairs as a way to track the student's work (Morgan & Ryan, 2000) and to enhance learning when there is physical distance between the student, postgraduate peers, and the faculty (Davies & Quick, 2001).

In the traditional learning environment, it is known that only approximately 50 percent of students entering postgraduate programs complete the programs (Bowen & Rudenstine, as cited in Leatherman, 2000). Additionally, postgraduate students completing all but their dissertation have about an 80 percent probability they will finish their dissertation and complete their postgraduate program (Bowen & Rudenstine, as cited in Leatherman, 2000). The doctorate learning experience has been described as one that is filled with isolation and extreme unpleasantness – a situation that appears to be an embedded part of the postgraduate learning experience (Johnson, Lee, & Green, 2000). To date, there is a marked paucity in the literature relating to the effects of online learning to the experience and completion of postgraduate studies.

The purpose of this research was to investigate the effects of online learning on the postgraduate experience. Specifically, this study examined the postgraduate's self reporting of their satisfaction levels during the postgraduate student learning experience. In addition, it also compared postgraduate degree completion rates of traditional and non-traditional degree programs.

METHODOLOGY

The purpose of this causal-comparative study was to determine the impact of information and communication technology on student satisfaction and degree completion.

Participants and Procedures

Quantitative and qualitative research methods were used to test these two hypotheses by collecting data from recent graduates of terminal degree programs. The quantitative research tool used for collecting data was the *ICT Satisfaction and Completion Questionnaire*. The *ICTSC Questionnaire* was developed using pertinent questions from the *Academic Engagement Form (AEF)* and the *Course Experience Questionnaire (CEQ)*. Academic engagement, as measured by the AEF, and perceived academic quality, as measured by the CEQ, have been identified as determinants of student satisfaction. In addition to the items measured by AEF and CEQ, the researchers have added open ended qualitative questions covering recent terminal degree graduate perceptions on academic engagement and quality. Due to its rapid turnaround and economy in data collection, a web-based survey was the preferred type of data collection as opposed to a face-to-face interview.

Sample and Measures

Participants for this study were chosen on the basis of their convenience and availability. While this purposive sample was less desirable than a random sample (Creswell, 1994), a survey of all postgraduate students at all postgraduate universities in the United States was not practical for time and financial reasons. Instead, the authors used contacts made through networking and used the Internet to identify universities where postgraduate studies in management, leadership, organizational development, and similar degrees are conducted in the TL and the OL. Furthermore, an electronic mailing list from a leading academic organization was utilized to contact potential survey participants. Postgraduate alumni associations were also contacted to identify recent graduates of these targeted degrees.

Dependent and Independent Variables

For the purpose of this study, the dependent variables were defined as (a) postgraduate student satisfaction with program experience, and (b) degree completion.

For the purpose of this study independent variables were identified as postgraduate degree programs in the (a) traditional learning environment, and (b) online learning environment.

RESULTS

The purpose of this research was to examine the impact of information and communication technologies on postgraduate student satisfaction and degree completion. By the cut-off date for collecting preliminary data on December 23, 2006 a total of 46 respondents had completed the online survey. Because six participants had skipped the questions pertaining to student satisfaction and/or degree completion their responses were deleted from the survey. This left a total of 40 responses included in the data set.

Quantitative Data

Population

Eighteen or 45% of the respondents reported that less than 30% of their course work was completed online. Within the context of this study, completion of 29% of the course work or less online qualifies as Traditional Learning (TL). Two participants corresponding to 5% of the surveyed population estimated that 51% to 70% of their coursework was completed online. Twenty of the respondents or 50% declared that more than 70% of their course work leading to a terminal degree was completed online. According to the definition used for this study 30% or more of the course work completed online qualifies as Online Learning (OL). Thus, for the purpose of further statistical analysis, the TL population is made up of 18 survey participants. The OL population is made up of 22 survey participants.

A breakdown of this statistic revealed that all 18 respondents who completed a degree in the TL environment hold a Ph.D. degree. Of the 22 respondents in the OL category, 21 or 95.5% reported to hold a D.M. degree and one participant corresponding to 4.5% of the surveyed population holds a Ph.D. degree.

A vast majority of 30 individuals or 75% described their degree specialization as management and/or leadership. Six participants or 15% of the population described the emphasis of their terminal degree as Industrial and Organizational Psychology, Two respondents or 5% of the respondents reported Human Resources or sub-sets of it and two respondents or 5% declared other specializations. Of the individuals who completed their degree in

the OL environment, 21 or 95.5% reported a management and/or leadership specialization and one corresponding to 4.5% of the respondents had completed an HOD specialization.

Of the 40 respondents, 36 or 90% reported to have studied at a University in the United States and 10% had studied outside of the US. One hundred percent of the respondents who learned in the OL environment had studied in the United States.

Seven of the respondents or 17.5% were between 26 and 35 years old. The majority of respondents between 26 and 35 years old had studied in the TL environment, namely 5 participants. Seventeen or 42.5% of the respondents were between 36 and 45 years old. Of these, the majority of 11 participants had studied in the OL environment. Eleven respondents or 27.5% were between 46 and 55 years old. Seven of them had studied in the OL environment. Four respondents or 10% of the surveyed population were between 56 and 65 years old. They were equally distributed within the OL and TL environment. Finally, one respondent or 2.5% was over 66 years of age and had studied in the TL environment.

The ratio with regard to male versus female respondents was 47.5% or 19 men and 52.5% or 21 women. Of the 40 respondents 29 had graduated recently in the year 2003 or later. Within the OL environment all respondents but one had graduated recently.

Student Satisfaction

For the purpose of this study Hypothesis 1 stated that student satisfaction with online learning postgraduate education programs is higher than student satisfaction with traditional learning postgraduate education. To test this directional claim, questions 8 through 41 of the ICT Satisfaction Survey were submitted to statistical analysis. A first review of descriptive statistics revealed differences in the means between the OL and TL population.

Following this initial comparison the Chi-Square parametric test was applied in order to investigate whether any of the differences apparent in the descriptive statistics were significant. Statistical significance at the $p < 0.05$ level was determined for questions 19, 32, and 35. In addition, the correlation coefficient was calculated in order to determine the strength of correlation between the OL and the respective question. Table 1 shows the values as calculated.

Question	(χ^2)	df	r
19. The postgraduate program stimulated my enthusiasm for further learning.	0.024	3	0.406
32. The people in my postgraduate program were like a family.	0.044	4	0.450
35. Working with my committee and mentor added real value to the quality of my dissertation.	0.030	4	0.569

Table 1: Significant Findings for Higher Satisfaction of Online Learning versus Traditional Learning

Degree Completion

For the purpose of this study Hypothesis 2 stated that students of postgraduate online learning programs have a significantly different program completion rate than students of traditional learning postgraduate programs. Quantitative questions relating to degree completion included Question 44, 47, and, 48.

Of the 40 respondents 26 or 65% reported to never have considered dropping out of the postgraduate program. In total, 14 respondents or 35% of the surveyed population reported to sometimes have thought about dropping out of the program. Nobody reported to frequently have had thoughts of dropping out of the postgraduate program. Within the TL environment, 72.2% or 13 respondents never considered dropping their studies and 27.8% thought sometimes of dropping. Within the OL environment, 59.1% or 13 respondents never considered dropping and 40.9% sometimes thought of dropping the program.

Twelve of the respondents or 30% reported to have completed their postgraduate degree in less than 36 months. All of them had studied in the OL environment. Fifteen participants or 37.5% had completed their studies within 37 to 49 months. Of these fifteen respondents seven or 46.7% had studied in the TL learning environment. Seven or 17.5% of the survey participants had completed their degree in 49 to 60 months. Of these four or 57.1% had completed their degree in the TL environment. All three or 7.5% of the respondents who reported to

have taken 61 to 72 months had studied in the TL environment. The remaining three students who reported to have taken more than 85 months to complete their degree had also studied in the TL environment.

To the best of the respondents' knowledge, seven or 17.5% reported that less than 20% of the cohort has completed postgraduate studies to-date. Eleven participants or 27.5% reported that 21-40% have obtained their degree. Six participants corresponding to 15% of the total population reported that 41-60% of their colleagues have finished their degree. Eight respondents or 20% of survey participants reported that 61-80% respectively 81-100% of their fellow students have completed work toward their degree.

Within the TL environment a majority of seven respondents or 38.9% reported that 61-80% of the students who started the program at the same time as the respondent have completed the program to-date. A further five respondents reported that 80-100% of the cohort have completed their studies. Four respondents or 22.2% estimated that 41-60% of students have finished work toward their degree. Only one respondent or 5.6% each reported that only 21-40% or less than 20% of students have finished work to-date.

In the OL environment the majority of respondents, namely 10 or 45.5%, reported that based on their estimation 21-40% of the cohort has finished their degree work up to-date. Six or 27.3% of respondents reported that less than 20% of their colleagues have received their postgraduate degree to-date. Two respondents or 9.1% reported that 41-60% of students have completed the program to-date. One participant or 4.5% reported that 61-80% of students have finished the program. Only three or 13.6% of survey participants who studied in the OL environment reported that 81-100% of their cohort has finished the program to-date.

Initial statistical analysis compared the mean responses for the OL and TL environments. Further statistical analysis including Chi-Square testing after Pearson and the correlation coefficient revealed that the average time to degree completion was significantly lower for the OL population than the TL population. However, there was a significant statistical difference in the opposite direction of Hypothesis 2 when comparing completion rate of former students in the OL environment versus TL environment. These findings are shown in Table 2.

Question	(χ^2)	df	r
47. How many months did it take you to complete your postgraduate program from start of course until your dissertation signed off?	0.001	4	0.569
48. To the best of your knowledge, how many percent of the students who started the program at the same time as you have completed the program to-date?	0.002	4	0.539

Table 2: Significant Findings for Completion Rate of Online Learning versus Traditional Learning

Qualitative Data

When asked why respondents considered dropping out of the postgraduate program, participants from the TL environment almost exclusively reported external factors such as "unnecessary hurdles, lack of support from faculty." Internal factors such as "I questioned if I had the ability or was interested in pursuing an academic career" were mentioned only twice. Respondents who had studied within the OL environment exclusively reported external factors such as "Ignorance of legitimately communicated concerns" or "family and work balance."

Being asked why they decided to remain in the doctorate program there was one main reason which could be identified for those respondents who were part of an OL community. This one reason may be described as personal commitment to achieving a goal. Some exemplary answers which were given include: "I had a goal to achieve," "I was committed to completing the degree," and "Personal goal to complete the degree, desired success, motivated by fellow learners and committee."

Similarly, the answers cited by respondents who had studied in the TL environment also referred to goal achievement. However, reasons also included the postgraduate program as such. For example, answers included: "Received tremendous value from my program" and "personal tenacity."

Factors which aided most in completing the postgraduate degree can be summarized into two main categories for the survey respondents who studied in the TL environment. These are a) support from family, faculty and

fellow students and b) freedom of research. Some sample answers include: “A strong and positive relationship with my major professor....” and “free to research what I wanted.”

For the respondents who reported experience with an OL environment, the factors might be summarized into a) support from family, faculty and cohort, b) personal commitment and, c) flexibility of the distributed learning environment. Example answers include: “Support of the cohort....also support from my committee,” “Personal effort and dedication,” and “Multiple possibilities using a variety of communication tools and devices.”

Finally, the question what has caused most dissatisfaction for you during the course of your postgraduate experience might be summarized into four different areas from the perspective of the former OL student. These areas are: a) quality of faculty, b) fellow students, c) the doctoral program and, d) dissertation process. Some sample answers are: “Faculty who failed to show genuine interest in doing their job,” “The lack of participation and responsibility demonstrated by some team members,” “I wish the program included more thorough instruction on research and statistical analysis,” and “Not understanding the Dissertation process, in the early stages of the process.”

For the TL environment survey participants reported two main factors: a) faculty issues and, b) the doctoral program. Selected answers include: “Occasionally not being able to get the necessary 1 on 1 time with faculty” and “Bibliography resources.”

An interesting observation made by the researchers is the amount of written comments made by survey participants in response to the open-ended questions included in the questionnaire. These were questions 42, 43, 45, and 46. Overall, the comments made by students in the OL environment took about twice as much space as that of students in the TL environment.

Summary

While the analysis of preliminary data yielded some areas in which the perceived student satisfaction was higher in the OL environment than in the TL environment overall, Hypothesis 1 was rejected. Thus, Hypothesis 1 Null was accepted. Therefore, the analysis of the data indicated that student satisfaction with online learning postgraduate education programs was, for most questions, not higher than student satisfaction with traditional learning postgraduate education programs.

Similarly, Hypothesis 2 was rejected and Hypothesis 2 Null was accepted. The analysis of the data determined that students of postgraduate online learning programs have a significantly lower program completion rate as students of traditional learning postgraduate programs.

With respect to the qualitative data collected there were some differences in categories observed between the comments made by former students within the OL environment and the TL environment.

Limitations

This study was limited to measuring perceived student satisfaction as measured by the *ICT Satisfaction Questionnaire*. The *ICT Satisfaction Questionnaire* was developed by using pertinent questions inspired from the AEF and CEQ questionnaires and adding open ended qualitative questions.

Furthermore, this study was limited by difficult access to survey participants and availability of public information with regard to postgraduate degree completion. There was a myriad of schools in both the OL and TL environment, as well as alumni associations which were contacted to gain access to the former student population. Most schools did not answer at all or declined to provide access to their data base out of concern for student privacy. However, these schools and associations also did not agree to send out an email asking for participation and including a link to the online survey, which would have eliminated the factors associated with compromising student privacy.

Practical Implications of Findings

Through this research it became evident that satisfaction with online postgraduate education programs was reported as, for the most part, not higher than satisfaction with the traditional postgraduate education programs. However, there was a significant difference in reported completion rates. Once started, the probability to complete studies is higher within the TL environment. Yet, those students within the OL environment who completed their studies did so in a significantly shorter amount of time.

This is valuable information for those individuals seeking to apply to postgraduate programs. If a potential postgraduate student is currently employed and a TL postgraduate program does not permit the balancing of full time employment, they can be reassured that their OL experience, if finished, will result in the similar or, in

some areas higher levels of program satisfaction as his or her TL postgraduate student counterpart. At the same time, the potential student in the OL environment can look forward to a shorter amount of time which has to be allocated to postgraduate studies than those students in the TL environment. However, the potential student in the OL environment also has to be aware that the danger of never completing the degree is higher than for those students who choose to study in the TL environment.

This information is also valuable to leaders in academic institutions charged with including or creating an OL environment in their postgraduate program. The results of this study can be used to educate potential postgraduate students that the OL environment can be just as satisfying as TL postgraduate programs and that time needed to degree completion is less than in a TL environment. The results of this study should also alarm academic institutions to ensure higher completion rate of their OL postgraduate programs. Initiatives such as the Ph.D. Completion Project of the U.S. Council of Graduate Schools need to be expanded for inclusion of OL environment and terminal degrees other than Ph.D. Academic institutions within the TL environment may want to further increase postgraduate student satisfaction with respect to those areas where student satisfaction in the OL environment was higher than in the TL environment.

The results of this research may also convince more academic professors to request training to effectively teach in the OL environment and for those institutions to provide that training to professors. If more TL professors learn of the results of this study it may assist in convincing them that OL should be accepted as another method of successfully delivering postgraduate educational programs.

Theoretical Implications of Findings

The results of this research add new knowledge to the area of student satisfaction. If satisfaction is defined as “. . . the state that reflects an individual’s perception of, liking for, and pleasure related to specific aspects of the environment” (Nord, 1997), then this research has demonstrated that postgraduate students can achieve the same perception of liking and pleasure for the OL environment as they can in the TL environment. It is interesting to note that this same level is achieved through dramatically different educational delivery methods.

This research does support Knowles (1980) contention that for learning to be effective for adults, it needs to focus on the adult students’ needs. Perhaps in each discrete environment, whether it is OL or TL, that environment meets the needs of that particular adult. Thereby, OL and TL students are satisfied in their respective methods of educational delivery, yet each may be satisfied in different ways.

SUGGESTIONS FOR FUTURE RESEARCH

Throughout this research study a marked lack of information with regard to the average length of studies in either the OL or TL learning environment became apparent. Similarly, there is little or no information to be found which relates to the completion rate of programs in either the OL or TL environment. In order for potential students to make informed decisions about the likelihood of finishing a program and the length of time needed to invest until degree completion this information must be researched and made publicly available.

Future research should include a greater number of participants to make the data more meaningful. This statement holds true also for a better inclusion of Ph.D. students who have studied in the OL environment, respectively of D.M. students who have completed their degree in the TL environment. In addition, graduates of other terminal degrees should find greater representation in future research.

Furthermore, variables other than those identified for the purpose of this study such as variables in the practice of online learning should be included into future research. A more qualitative approach to a research study on the impact of information and communication technology might serve to better disaggregate issues about the impact of ICT from other issues such as full-time and part-time commitment.

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