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Abstract

As many institutions of higher education further incorporate online courses into their curriculum, it is important to understand the characteristics of courses that affect students' preference for either traditional classroom environments or online environments. As technological advancements and penetration into society increases, it has become more apparent in higher education institutions that all classes are not as adaptive to the online format as others. Indications of this can be seen in the attrition and retention rates of classes offered online. This study explores the characteristics of courses that affect students' preferences towards online and traditional settings. The results indicate five statistically significant course characteristics.

Keywords: online course, traditional course, course characteristics, class format

Introduction

The number of students taking online courses has increased considerably, from 1.6 million students in 2002 to 2.3 million students in 2004 (Allen and Seaman, 2005). The increase in online course offerings and enrollment can be tied to necessity. Higher education institutions have faced changes in their student demographics in recent years as more students no longer fit the traditional profile of a young, full-time, in-residence student. As the demographics change, so do the education needs. There is a higher demand for more flexible and convenient methods in obtaining a higher education. As technological advancements and penetration into society increase, it has become more apparent in higher education institutions that all classes are not as adaptive to the online format as others. Indications of this can be seen in attrition and retention rates of classes offered online.

Online courses can produce higher enrollment numbers, but can also suffer from higher attrition rates (Moody 2004). For example, in one case study, it was found that a statistics course had an attrition rate of 43% for an online format versus the 13% of its traditional format counterpart; a managerial marketing course had a 24% attrition rate for the online format versus a 9% rate for the traditional format (Terry 2001). This same study also found an international economics course to have a 3% attrition rate for its online format versus a 2% attrition rate for its traditional format. Studies such as these indicate the likelihood that course characteristics affect students' preferences towards online or traditional courses.

Advancements and adjustments have been made to course curriculum and teaching formats as online courses have grown in popularity to satisfy higher education needs. This popularity can be attributed to the perceived benefits online learning can provide students. However, some students do not perceive these benefits for their learning needs. As such, adoption of online learning for certain subjects or course content is not a preferred learning choice. Instead, these subjects seem to be better fit for a traditional learning environment. Through an understanding of these perceptions of needs and student satisfaction,

higher education institutions should be better able to offer appropriate courses in various formats for learning environments that best suit their student population.

As many institutions of higher education consider further incorporating online capabilities into course curriculum and formats, it is important to understand which courses students are more receptive to in a traditional classroom environment and which courses are suitable for an online environment. To investigate this issue, this study examines the following research question: Which course criteria influence students' preference for online courses? The purpose of this study is to explore the area of course characteristics and its effect on students' preference for online versus traditional courses. To accomplish this purpose, this study first examines the current literature related to online courses. The data collection methodology is then described and followed by an analysis of the data. This study concludes by providing suggestions for institutions and instructors considering setting up online courses and providing suggestions for future research.

Literature Review

When online courses were beginning to be offered in the mid-1990s, the perceptions of online learning environments were of sterile environments that did not differ very much more than correspondence courses upgraded from a post-office to an e-mail box, and their educational value was suspect (Rudich 1998). However, the advancement of the Internet and technology has enabled students and educators to interact in a new environment. Many higher education institutions now offer a smorgasbord of courses in an online environment. It is important that as technology and its applications advance in the education sector, both educators and students become more aware of their possibilities and how they are best used (Wang 2004). As the trend for online course development expands, more teachers are becoming adept at utilizing technology to offer their courses to a wider audience than their physical classroom environments can serve.

Online courses provide many benefits to institutions and their students. They provide the convenience and flexibility for different learning needs to be met. This allows for a variety of students to have needs met that are not possible through traditional class formats (Anstine & Skidmore 2005; Bentley 2003; Cooper 2001; Rudich 1998). Students may take courses from a location that is convenient, such as at home or in an Internet café. The convenience of online courses provides students the opportunity to take courses they would otherwise be unable to take (Anstine & Skidmore 2005; Flowers 2005). One study found that convenience, flexibility, and self-regulated learning were advantages of online courses while a lack of interaction and the instructor design were disadvantages (Ku & Lohr 2003).

Despite the benefits, there is still some contention as to the validity of online courses as quality educational formats. For example, Anstine and Skidmore (2005) found that the online class environment had significantly lower educational outcomes with students than their traditional class environment counterparts. Their study controlled for similar factors, such as previous knowledge, test scores, and time spent studying. However, a limitation of this study was that although the same professor taught the same class in both the online and traditional environment, the professors had little experience in teaching in both environments prior to the study. In addition, there is no indication of previous experience with online courses as a determinant factor in self-selection of the class environment format by students. Additionally, it was found that significantly different educational outcomes occurred in one course but not the other courses studied, and that there were factors that did allow online students to perform on par with traditional class environment students. Other studies have found that there is no inherent inferiority in the quality of education opportunities in online courses versus their traditional, face-to-face counterparts (Shachar & Neumann 2003; Shank 2005; Vroeginday 2005; Wyatt 2005). In fact, online courses at times have been found to be more challenging than a traditional course format for students due to the more independent learning that the online format demands (Wyatt 2005; Yang & Cornelius 2004).

Since certain types of courses are better suited for an online environment, it is important to consider the various characteristics that affect a student's preference for an online course. Online courses from the perspective of educators can be a worthy tool to advance students' education (Smith, Ferguson, & Caris 2002). It is not necessarily the format that is the main factor that hinders education quality but the participants (i.e. students and professors) and course design are likely to be the most influential factors (Arbuagh 2001; Shank 2005). One study found that the instructor's willingness to keep up with technological changes, course content, and the motivation of students are also important factors (Medlin, Vannoy, & Dave 2004). Another study found that technology, instructor, course, and student characteristics all affected student perceptions (Gregory, 2003). Although various characteristics affect student perceptions, this study focuses on the examination of course characteristics since they are tangible characteristics higher education institutions can use to judge whether a course should be offered as an online or traditional course.

Previous literature was not found that identified course characteristics that are important to online courses. Thus, based on discussions with several professors, ten course characteristics were selected to examine in this exploratory study. These

characteristics can be seen in Table 2, which also shows the results of this study. The research model is shown in Figure 1 below; tencourse characteristics are examined in this study to find which affect a student's preference for course format.
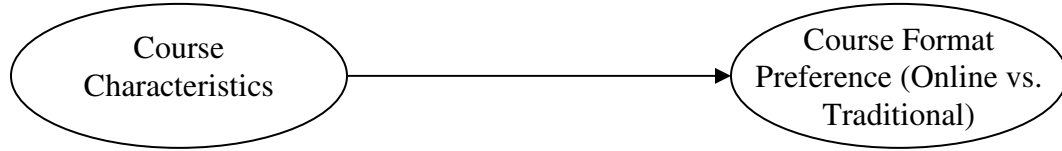

Figure 1: Research Model

Methodology

A direct survey was used to collect the data for this study. The survey questions were compiled from previous study questions pertaining to online courses as well as suggestions from students and researchers (Changchit et al. 2006; Demb et al. 2004; Luarn & Lin 2004; Moore & Benbasat 1991). These questions were designed to gather data on students' perceptions of course characteristics and demographic information. To validate the clarity of these questions, three professors and three students read through the survey questions. Revisions to the survey were made based on the feedback received.

Table 1: Subjects' Demographics

Age (in years)					
Under 18	18-29	30-41	42-49	Over 49	No Answer
0(0.00%)	166(92.22%)	11(6.11%)	1(0.56%)	0(0.00%)	2(1.11%)
Gender					
Male: 82(45.55%)		Female: 97(53.89%)		No Answer: 1(0.56%)	
Ethnicity					
African	Anglo	Asian	Hispanic	Native American	No Answer
4(2.22%)	94(52.22%)	5(2.78%)	69(38.33%)	4(2.22%)	4(2.22%)
Computer Knowledge (Scale 1 thru 7)					
1 (Very poor)	2	3	4	5	6	7 (Excellent)	No Answer
2(1.11%)	0(0.00%)	9(5.00%)	28(15.56%)	60(33.33%)	47(26.11%)	29(16.11%)	5(2.78%)
Own a Computer					
Desktop	Laptop	Both	Neither	No Answer
61(33.89%)	62(34.44%)	51(28.33%)	5(2.78%)	1(0.56%)
Internet Access at Home				
Dial-up	High speed (i.e., DSL,)	None	No Answer
12(6.67%)	16(8.89%)	150(83.33%)	2(1.11%)
Distance from Home					
<10 min.	10-30 min.	30-60 min.	1-2 hours	>2 hours	No Answer
70(38.89%)	71(39.44%)	26(14.44%)	7(3.89%)	4(2.22%)	2(1.11%)
Commute to the University			
Car	Bus	Walk	No Answer
147(81.67%)	3(1.67%)	29(16.11%)	1(0.56%)
Employment Status			
Full Time: 56(31.11%)	Part Time: 73(40.56%)	Unemployed: 50(27.78%)	No Answer: 1(0.56%)
Took an Online Course Before		
Yes: 83(46.11%)	No: 96(53.33%)	No Answer: 1(0.56%)
Currently Taking an Online Course		
Yes: 30(16.67%)	No: 148(82.22%)	No Answer: 2(1.11%)

A total of 26 items were used in the survey. The first question asked students to identify one specific course that was taken in the previous semester. In order to minimize the bias toward the best or the worst course, students were asked to identify the course with the highest course number. The next ten questions were asked to measure students' perceptions of the characteristics of the course they identified, using a Likert-scale from 1 to 5 with 1 being "strongly disagree" and 5 being "strongly agree". The next question asked whether the student would have preferred to take the course as an online course or traditional course, if the option is available. The remaining 14 questions collected demographic data.

Surveys were distributed to 225 students enrolled in a mid-sized university. The participants were given the survey and allowed class time to complete the survey. All participants were informed that participation in the study was voluntary and that individual responses would be kept anonymous. One hundred eighty (180) participants completed and returned the survey instruments. Table 1 summarizes the demographics of the respondents.

Analysis and Discussion

In order to determine if there were significant differences between the groups of students who prefer online courses (online group) and those students who prefer traditional courses (traditional group), t-tests on the means were conducted. The responses from participants were divided into two groups based on the item "If I have an option, I will take the class ___ ", in which respondents could either mark "online" or "traditional". Table 2 below shows the factors exhibiting a significant difference between the two groups.

Table 2: Group Differences

Questions	Mean		p-value
	Online	**Traditional**	
I have to memorize a lot in order to do well in this class.	3.52	3.62	NS
I understand the contents in this class more when the instructor writes on the board.	3.05	3.18	NS
Using PowerPoint slides to explain the materials in this class is appropriate.	3.59	3.43	NS
This class is a lecture-based class (i.e., not a hands-on class).	3.51	2.96	**
The professor explains the material very well in this class.	3.59	3.97	*
I understand all the material in this class.	3.25	3.50	NS
I spend a lot of time reading the textbook for this class.	2.92	2.53	*
This class is well-organized.	3.81	4.02	NS
Computer skills are important in order to do well in this class.	3.37	3.92	**
Mathematics knowledge is important in order to do well in this class.	2.56	3.33	**

NS – Not Significant, * Significant at the *p < 0.05* level, ** Sig nificant at the *p < 0.01* level

As shown in Table 2, five of the ten course characteristics displayed statistically significant results between the students who preferred to take the course as an online course versus those who preferred to take the course as a traditional course. The first significant variable is regarding whether the class is lecture-based. This result indicates that overall, if a course is setup as a primarily lecture-based class, then students have a greater preference for the class being online. On the other hand, a non-lecture class, such as a hands-on lab class would be preferred as a traditional class.

The second significant variable is that the professor explains the material well. If students feel that the professor explains the material well, then a traditional course is preferred. Material that is not explained well is perhaps viewed as less valuable or a waste of time and thus students may prefer an online course in that case because they do not have to sit through a lecture which is not making sense to them.

The third significant variable is the amount of time spent reading the textbook. Overall, students who feel they spend a greater amount of time reading the textbook prefer an online course. This may be because of the different learning styles of

students. Since some students prefer and learn better through reading rather than listening, their preference is likely to be favorably disposed for online courses. Furthermore, if learning primarily comes from the textbook, students may prefer an online course because the traditional course will add little value since they can read the material on their own.

The fourth significant variable is the importance of computer skills. Students who think that computer skills are more important for a course prefer to take the course as a traditional course. There are several reasons for this finding. First, if computer skills are required, the course will generally be a hands-on course, which has already been shown in the first significant variable that students prefer online courses if the course is lecture-based. Second, for students that have low computer self-efficacy, they will probably prefer a traditional course format even if computer skills are important to the course as they can ask questions easily in class and receive immediate feedback from the instructor. A third reason is that

courses requiring computer skills tend to require projects. Students may prefer interaction with other students as they work on projects and thus prefer traditional courses.

The last significant variable is the importance of mathematical knowledge. Students who felt that knowledge of mathematics was important for the class preferred a traditional course. This is likely a phenomenon of the course material. Whether or not the course is a math course, students prefer courses that require math skills to be traditional probably because these courses generally are more interactive and need more in-depth explanation. If a student does not know which keys to punch on a scientific calculator or how a certain solution is obtained, immediate feedback can be obtained in a traditional course.

Conclusion

Despite the benefits of online courses described in the literature review, online courses are not preferable for every student or every course. Clearly, as shown through the results of this study, course criteria affect students' preference towards online or traditional courses. This study provides several contributions. First of all, course criteria can definitely affect student preferences. Universities considering the expansion of online course usage need to consider course content and course characteristics as they examine if the courses are suitable for an online format. A second contribution is an understanding of individual course characteristics that influence students' preference. Some individual characteristics that affect students' preference are whether a class is lecture-based, whether an instructor explains the material well, whether there is a large reading requirement, and whether computer skills and knowledge of mathematics are relatively unimportant for the course. If so, then the course is better suited online.

There are several directions for future research. First, since the purpose of this study is to explore course characteristics, ten course characteristics were selected rather than a comprehensive list. To increase the value to instructors considering development of such courses, the results of a comprehensive list of course factors that affect student preferences for online courses would be useful. A second area of future research would be to examine the technology, instructor, and student characteristics that affect a students' preference towards online courses. There are various technology platforms that universities use for online courses as well as differing technologies that individual instructors use within a university, such as some instructors loading videos of lectures to an online site while other instructors only posting documents online. Furthermore, the examination of instructor and student characteristics could be useful for universities setting up online courses.

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