

Key Factors for Determining Student Satisfaction in Online Courses

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Abstract

The purpose of this study was to investigate key factors influencing student satisfaction of online students. The Biner instrument (1993) was modified to accommodate questions relating to online courses. A total of 105 respondents from a sample of 303 online learners completed the online survey. The results indicated student satisfaction in online courses is influenced by 3 constructs: (a) instructor variables, (b) technical issues, and (c) interactivity. Results indicate the modified survey is a valid measure of student satisfaction in the online learning environment.

Introduction

Distance learning is defined as instruction where "students and teachers are separated by distance and sometimes by time" (Moore & Kearsley, 1996, p. 1). Many higher education institutions today are either offering online courses and degree programs or are planning such initiatives. In 1997-98, 34% of postsecondary educational institutions offered distance education courses and 20% planned on offering distance courses by 2000. Of these institutions, 77% indicated they used the Internet as one of many instructional delivery modes (National Center for Education Statistics [NCES], 1999). Enrollment in these courses has increased in the 1990s (Neeley, Niemi & Ehrhard, 1998). In the academic year 1994-95, formal online student enrollment was 758,640 (NCES, 1998). By 1997-98, that number had increased to 1,661,100 (NCES, 1999). The growth in distance education is largely credited to the availability of technology-enhanced instruction (Hobbs & Christianson, 1997).

Others argue online courses are being forced upon students and professors by administrators of colleges and universities because of cost-saving measures and students are not particularly happy about the online course initiatives at some universities (Jaffee, 1998; Noble, 1998). Others are voicing concerns about online courses being

the answer to challenges such as increasing educational costs and a changing student body (Feenberg, 1999; Hara & Kling, 2000; Rahm & Red, 1998).

Historically, retention of distance learners has been problematic with dropout rates disproportionately high compared to traditional course settings (Richards & Ridley, 1997; Wetzel, Radtke & Stern, 1994). A dropout rate of 30 to 50 percent was not uncommon (Moore & Kearsley, 1996). Students may experience feelings of isolation in distance courses compared to prior face-to-face educational experiences (Shaw & Polovina, 1999) because of limited contact with instructors and fellow students. The result of this isolation can be unfinished courses or degree (Keegan, 1990).

Moore and Kearsley (1996) point out three generations of distance learning exist: (a) the traditional correspondence and independent study courses, (b) the introduction of Open Universities in the 1970s which incorporated multimedia tools, and (c) and the use of broadcasting and teleconferencing tools in connection with computers. Today, distance education courses are very similar to courses delivered in the traditional classroom environment (Dede, 1996).

Instructors and students are still separated by time and space but telecommunications hardware and software create opportunities for communication and collaboration. Some of these tools used in Web-based courses include: (a) e-mail, (b) chat rooms, (c) threaded discussions, (d) bulletin boards, (e) file transfer protocol, and (f) digital audio and video (Belanger & Jordan, 2000). Now, computers and multimedia make it possible to have real time interaction between instructors and students.

Student satisfaction in traditional learning environments has been overlooked in the past (Astin, 1993; DeBourgh, 1999; Navarro & Shoemaker, 2000). Student satisfaction has also not been given the proper attention in the distance learning environment (Biner, Dean and Mellinger, 1994). Richards & Ridley (1997) also suggest further research is necessary to study factors affecting student enrollment and satisfaction.

Prior studies in classroom-based courses have shown there is a high correlation between student satisfaction and retention (Astin, 1993; Edwards & Waters, 1982). Studies in which distance learners were the target population have yielded the same results (Bailey et al., 1998).

Many studies comparing distance education to traditional face-to-face instruction have focused on factors such as attrition, effectiveness, locus of control, different media, and student achievement (Bailey, Bauman & Lata, 1998; Navarro & Shoemaker, 2000; Richards & Ridley, 1997; Sankaran, Sankaran & Bui, 2000; Schutte, 1996; White, 1999; Wideman & Owston, 1999). The debate if media can actually influence learning has been continued for decades and experts cannot agree on this issue (Clark, 1993, 1994; Jonassen, Campbell, & Davidson, 1994; Kozma, 1994). The purpose of this study was to identify factors influencing the satisfaction of students in online course.

Review of Literature

Student Satisfaction

Student satisfaction can be defined as the student's perception pertaining to the college experience and perceived value of the education received while attending an educational institution (Astin, 1993) and is an important issue. Most college students spend considerable time, money, and effort in obtaining a quality education and should perceive their postsecondary educational experiences as being of high value (Knox, Lindsay, & Kolb, 1993). Satisfaction is an important "intermediate outcome" (Astin, 1993, p. 278). Student satisfaction is important because it influences the student's level of motivation (Chute, Thompson, & Hancock, 1999; Donohue & Wong, 1997) which is an important psychological factor in student success (American Psychological Association [APA], 1997). Satisfaction is also good predictor of retention (Astin, 1993; Edwards & Waters, 1982).

However, a problem exists with measurement of this important outcome (Williams and Ceci, 1997). Course evaluations, which usually intend to measure the student's satisfaction with a course, may not be valid instruments. For example, in a study students rated the instructor's content knowledge based on perceptions of enthusiasm and on presentation style. They rated the course based on how much they thought they had learned, which did not actually correlate with the amount they had learned. The researchers also reported the overall course rating was strongly correlated with the final grade received in the course. Despite these problems, surveys administered to distance learners after a course has been completed can give evaluators valuable information pertaining to satisfactory or unsatisfactory aspects. In turn, this information can then be used to improve the course or program (Chute et al., 1999).

Distance Education

Many advantages and disadvantages exist for distance learners. A key advantage is convenience and flexibility for learners. This is particularly true for adult learners who must schedule coursework around family and career obligations. Distance education courses are often self-paced. With the use of asynchronous communication tools, learners have access to content, instructors or classmates at all hours (Belanger & Jordan, 2000). Another advantage for online learners is they have more time to reflect and formulate their responses in chat rooms or threaded discussions compared to learners in a classroom-based course (Moore & Kearsley, 1996). This particularly benefits students who may be reluctant to speak in a classroom setting.

Students with limited access to higher educational opportunities also benefit from distance education. Learners who live in remote or rural areas or who are restricted in mobility can access online courses. Others may need access to specialized courses, degree programs, or professional certificates not available in the area in which they live. Some students may not want to attend the local colleges or universities, and distance education gives them a choice of institutions to attend. Another advantage includes the increased access to experts in the field via telecommunications (Belanger & Jordan, 2000; Hara & Kling, 2000).

Disadvantages for the learners are loss of direct interaction with the instructor and possible loss of motivation to complete the course or program (Belanger & Jordan, 2000). When students are not familiar with the technology used in the course, it can be difficult for them to catch up with the rest of the group (Vrasidas & McIsaac, 1999). It can also be difficult to enable effective group collaboration and discussion. Access to resources such as the campus library can be problematic as well. In addition, the potential for disruptive technical problems is an important factor (Belanger & Jordan, 2000).

Software programs used to facilitate collaborative learning have been used successfully in online courses. Navarro (2000) reports many students are highly satisfied with online courses. Hiltz (1993) reports that communication software increased the quality of instructions, raised students' level of motivation due to greater access to their instructors, and increased their satisfaction with outcomes. Powers, Davis, and Torrence (1999) also report high student satisfaction with their level of involvement in a graduate instructional technology course.

Factors Contributing to Student Satisfaction

In traditional settings, areas associated with student satisfaction are student characteristics, quality of relationships with faculty, curriculum and instruction, student life, support services, resources, and facilities. A study with undergraduate students by Astin (1993) identified the following factors as most important: (a)

contact time with faculty members and administrators, (b) availability of career advisors, (c) student social life on campus, and (d) overall relationships with faculty and administrators. Bean and Bradley (1986) concluded the best predictors of student satisfaction are: (a) academic integration, (b) institutional fit, (c) quality and usefulness of education, (d) social life, and (e) difficulty of the program.

However, the Web-based environment is different from the traditional environment. The focus here is on technological aspects, the course Web site, and virtual relationships because distance learners do not necessarily attend a physical campus location or form face-to-face relationships with one another; therefore, researchers who plan on conducting research studies with this student population must include these factors into the investigation of student satisfaction.

Instructor issues. The instructor is the main predictor in course satisfaction (Finaly-Neumann, 1994; Williams & Ceci, 1997). Student satisfaction is highly correlated with the performance of the instructor, particularly with his or her availability and response time (DeBourgh, 1999; Hiltz, 1993). Instructors must be available if students have questions and must be flexible (Moore & Kearsley, 1996). The instructor not only becomes a facilitator of learning but also a motivator for the student.

The instructor's feedback is the most important factor in satisfaction with instructions (Finaly-Neumann, 1994). Feedback on assignments must be in a timely manner to keep learners involved and motivated (Smith & Dillon, 1999). Communication must be on a regular basis (Mood, 1995); otherwise, students can experience a great level of frustration (Hara & Kling, 2000). In addition, feedback gives students the opportunity to revise assignments which acts as reinforcement of concepts introduced in the course.

Communication. Moore and Kearsley (1996) mention three important types of interaction in distance learning courses: (a) learner-content, (b) learner-instructor, and (c) learner-learner. Instructors should include all type of interactions in their distance learning courses when possible and when appropriate. Distance learners can experience feelings of isolation, and high levels of frustration and anxiety, if communication and interaction between the different parties are lacking (Mood, 1995). One way to overcome the feeling of isolation is to establish a sense of community for learners in the beginning by giving them an informal *warm-up period* with the use of structured exercises (Wegerif, 1998).

Mood (1995) reports course goals and objectives should be clearly communicated to the students at the beginning of the course. If students know what to expect and what is expected of them, their levels of anxiety can be reduced. Instructors should encourage student participation, provide updated information, and monitor student progress. Students should also have opportunities

to become self-directed learners and structure their own learning experiences (Wegerif, 1998).

Technology. Students must have access to reliable equipment (Belanger & Jordan, 2000). Students with limited access are at a considerable disadvantage to learners who have unlimited access (Wegerif, 1998). Access is one of the most important factors influencing student satisfaction (Bower & Kamata, 2000). Online learners must be familiar with the technology used in the course in order to be successful (Belanger & Jordan, 2000). Students who experience frustrations with technology in the course experience a lower satisfaction levels (Chong, 1998; Hara & Kling, 2000).

Course management. Moore and Kearsley (1996) point out administrative support is instrumental for distance learning students. The authors suggest students should have one contact person who will be able to assist them. Access to other resources such as course textbooks, libraries, technical support, and a toll-free number to reach the university are also important to the distance learner (Mood, 1995). Accessible technical support or a student help desk at convenient hours is also important for online learners. Students without technical support have also experienced high levels of frustrations in the online environment (Hara & Kling, 2000).

Course Web site. Learning should be meaningful, relevant, and interesting (APA, 1997). Good course Web sites present information in a logical order and their design must be attractive and consistent (Belanger & Jordan, 2000). Text must be easy to read and downloading times should be kept to a minimum in order to be considerate to learners who do not have the newest computer equipment available to them. In addition, pages should not be too cluttered with information (Harrison, 1999).

Navigational components are also important issues in the online environment. Learners should be able to move within the course Web site without getting lost (Aggarwal, 2000). External hyperlinks should only be provided if they give students access to necessary information. Irrelevant information will only confuse learners. These links must also work properly or students will experience frustrations (Harrison, 1999).

Interactivity. Learning environments in which social interaction and collaboration is allowed and encouraged lead to positive learning outcomes (APA, 1997). Collaborative learning tools can improve student satisfaction in the online learning environment (Bonk, 1998; Gunawardena & Zittle, 1998). These tools allow for group work and immediate feedback. Students are able to share viewpoints and discuss them with one another in a virtual environment, thereby gaining insights and perspectives they otherwise would not have been exposed to. This type of environment allows for social interaction and creates meaningful, active learning experiences (Bonk, 1998).

General information. Distance learners should be motivated, organized, and committed. They must become

responsible for their own learning (Belanger & Jordan, 2000). Palloff and Pratt (1999) warn not all students will be successful in the online learning environment. Students with a positive attitude were found to be more satisfied with the online experience. These individuals spent more time being actively engaged online (Hiltz, 1993).

Other attributes associated with academic success are ability and past performance measured as GPA or SAT scores, age, gender, ethnicity, and existing computer skills (Bean & Bradley, 1986; Hiltz, 1993). Expected grades by students in a course positively affect student satisfaction in the online environment (Bower & Kamata, 2000). Students reported they enjoyed the convenience of online courses and convenience was more important than the actual face-to-face interaction with instructors and peers (Card & Horton, 2000). Maki et al. (2000) also found students perceived the convenience of the online course as a benefit and they enjoyed the flexibility of the online learning environment.

Methodology

Sample

The sample used in this study was drawn from a pool of all graduate distance learners (507 students) enrolled in multiple instructional technology courses at the University of West Florida in Pensacola, Florida. A total of 303 students were randomly selected to participate in this study. One hundred five (34%) who had completed at least one online course responded to the online survey. Of the respondents, 71% were female. The majority of learners (59%) were in the 30 to 49 year age groups. All but three respondents were education majors.

Data Collection

The graduate instructional technology program was selected because it provided the researchers with a large number of online learners; however, the instrument may be used to evaluate any online course. Participants were sent e-mails with instructions on accessing and completing the online survey. Students were assigned a code to discourage anyone unauthorized to participate in the study. The estimated time for participants to complete the survey was 20 minutes.

Instrument

The Telecourse Evaluation Questionnaire constructed by Biner (1993) has a total of 42 questions. This instrument measures student attitudes toward televised distance education and addresses three factors: (a) instruction and instructor, (b) technology, and (c) course management. With permission, the researchers modified the survey to address issues related to the online environment and student satisfaction. The final version of the survey had a total of 60 questions. Forty-two questions were Likert-type scale items and addressed: (a) instructor, (b) technology, (c) course management, (d) course Web site, (e) interactivity, and (f) general issues. In order to eliminate neutral responses, participants were asked to

indicate their level of satisfaction on a 4-point Likert-type scale ranging from 1, *strongly disagree* to 4, *strongly agree*.

Reliability and validity. The Telecourse Evaluation Questionnaire is an established survey and has been used in several research studies (DeBourgh, 1999). Biner (1993) established the content validity in a study. Questions added to the survey were directly derived from existing literature pertaining to student satisfaction and course evaluations. Because this survey was significantly modified to adapt the technology used in Web-based courses, the researchers performed a reliability analysis after the data collection phase.

Statistical Assumptions

The data was examined for statistical assumptions (e.g. sample size and missing data, linearity, multicollinearity, singularity, univariate and multivariate outliers). None of the cases had missing values, and no univariate or multivariate outliers were detected. In order to examine for linearity, several bivariate scatterplots were generated and examined. All of the scatterplots revealed abnormalities between the variables due to the instrument being a 4-point Likert-type scale.

The Pearson correlation coefficients were examined in a correlation matrix in order to determine if multicollinearity existed. Many correlation coefficients exceeded .50 and the highest correlation coefficient detected in this matrix was .91. The collinearity diagnostic demonstrated variance proportions were below .64 and this leads to the conclusion that no multicollinearity existed between any of the dependent variables. Each dependent variable was an independent measure, therefore, ruling out singularity.

Statistical Analysis

Descriptive statistics. Table 1 displays the means and standard deviations of the scores. The standard deviations, a measure of variability of the scores around the mean, were relatively minor. Variables with a correlation coefficient between .60 and .80 are considered to have a strong relationship, whereas variables with a correlation coefficient between .80 and 1.0 have a very strong relationship. There were many relationships with a correlation coefficient at or higher than .60 and several relationships were above .80.

Factor analysis. A confirmatory factor analysis with varimax rotation was performed to subtract factors relevant to student satisfaction as identified in the literature and to examine the construct validity of the satisfaction survey. The researchers expected six factors with high subscale loadings for the online course satisfaction survey. An initial examination of the data revealed four dimensions which had eigenvalues greater than 1. The examination of the scree plot on the initial extraction indicated the instrument has only three components, however. These three components are (a) instructor, (b) technology, and (c) interactivity.

The factor loadings on the instructor/instruction satisfaction dimension were satisfactory and explained 64.48% of variance. The other two components had several complex loadings. A possible explanation is students associated many of the interactivity aspects with instructional issues, and the online learners might have associated technology aspects with factors outside the course. The three extracted components explain 72.73% of variance. These results indicate the online course satisfaction survey is a true measure of satisfaction.

In order to determine the instrument's internal consistency reliability, the Cronbach alpha coefficient was used. The total scale reliability was high (.99). The subscale reliability was high for all six dimensions. The Cronbach alpha coefficients were as follows for the six subscales: (a) .98 for instructor, (b) .93 for technology, (c) .94 for course management, (d) .96 for course Web site, (e) .83 for interactivity, and (f) .88 for general issues. These results indicate the Online Course Satisfaction Survey is a valid measure of student satisfaction even though only three factors were confirmed in this study. This survey was used for determining student satisfaction in an instructional technology graduate program but may be used for any online course in the online environment in order to determine the level of student satisfaction.

Conclusion

Moore and Kearsley (1996) warn student satisfaction is not correlated with actual student achievement; however, the fact that satisfaction is a contributing factor in motivation and motivation is a predicting factor of student success. This theoretical framework is reason enough to be concerned about the levels of satisfaction students experience in online courses and degree programs. The increase in numbers of online courses offered at postsecondary educational institutions and the increasing number of student enrollment in online courses and programs should give educators and administrators a reason for investigating this important aspect further.

Student satisfaction surveys can be used to evaluate courses, programs and, to a certain degree, predict student attrition. The importance of student satisfaction cannot be overemphasized. Other researchers may want to replicate this study with a larger sample in the future to validate the research of this study. In addition, researchers may use this survey in other courses and programs.

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