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FACTORS INFLUENCING THE QUALITY OF WEB-BASED COURSES

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Abstract

The growth of Web-based courses and degree programs over the past few years has been significant. Many institutions of higher education have already developed and are currently offering such courses and degree programs. It is essential to identify factors influencing quality and to utilize these factors in the development and delivery of online courses and degree programs. Two of the major stakeholders for quality of Web-based courses and degree programs are faculty and students. Analyses of data collected for this study reveals that both students and faculty who responded to the surveys were satisfied overall with the quality of online courses. The top two factors that were identified by students and faculty as highly correlated with the quality of Web-based courses were: i) the ability of students to get to know the instructor better than he/she would in the corresponding face-to-face class, and ii) the ability of the instructor to get to know the students better than he/she would in the corresponding face-to-face class.

Keywords: Quality of web-based courses

Introduction

In order to reduce or eliminate the obstacles of time and place for some students, many institutions of higher education are offering courses and degree programs primarily via the Web. In particular, for place-bound and working individuals, online education may be the only option available for a college degree. This particularly applies to those who live in rural areas and away from campuses.

Numerous factors have been cited in the literature as reasons for the significant growth of Web-based courses and degree programs. Tsichritzis (1999) and Rahm and Reed (1997) indicate competition for students as a major reason behind this growth. Others, such as Confessore (1999), contend that life long learning and continuous professional education and growth are major reasons behind the wide spread availability of online courses and degree programs. Regardless of the reasons behind the growth, it is essential to identify factors that influence the quality of Web-based courses and degree programs.

Various technologies have been used to enhance the quality of distance education. Group Decision Support Systems (GDSS) have been shown to improve learning (Alavi 1994). "Virtual classrooms" and "hypermedia virtual classrooms" (Rana et al. 1996) have also been indicated to be effective in supporting asynchronous learning (Hiltz 1994; 1995). Hadidi (1997) and Carver et al. (1999) suggest the use and indicate the benefits of using multimedia and hypermedia in distance education. They contend these technologies are going to have a major impact on improving teaching and learning in areas such as student performance, access, communication, multimedia richness, collaboration, active and life-long learning, effectiveness, and efficiency.

Leidner and Jarvenpaa (1995) have analyzed various learning models including the "constructivist," "collaborative," "cognitive" and "sociocultural" learning models and concluded that overall student performance could potentially be improved by replacing or complementing regular face-to-face instruction with the use of the Web for course delivery, online discussion and conferencing

tools, and e-mail. Leidner and Jarvenpaa (1995), Serwatka (1999), and Tsichritzis (1999) highlight that in using technology for course delivery, the emphasis should be placed on "transforming" rather than "automating" teaching and learning.

A possible approach to facilitate this transformation is to allow the learners to control the pace of learning and instruction. For some learners, learning emerges through interaction with other learners. For these learners, the instructor's role is to facilitate interactions among learners instead of controlling the content and the delivery process. Various Web-based technologies, such as conferencing tools, support this type of learning style. Other learners may prefer individualized instruction. The ability to get to know the instructor via more frequent interaction using e-mail, conferencing tools, and instant messaging may facilitate their learning. The ultimate goal should be to provide quality education regardless of the type of technology used in teaching and learning and the learning style of the learners.

Several studies are available (Russell 2000) which report on the assessment of the quality of, and satisfaction with, distance learning in general, and Web-based teaching and learning in particular, at different levels, in various disciplines, and for different genders. A study conducted by Koch (1998) reports no significant difference for course satisfaction in distance education between male and female students. Based on their study, Schulman and Sims (1999) concluded that students who enroll in online courses are likely to be better prepared for the courses than those who enroll in face-to-face courses. Smeaton and Keogh (1999) did not find any significant difference in learning in undergraduate courses when they used virtual lectures.

Goldberg (1997) concluded that students who have access to both face-to-face and online instruction realize a higher level of achievement. Based on analyses of data collected for their study, Hadidi and Sung (2000) reported that there was no significant evidence to indicate that students' evaluations of the online course pedagogy were any lower than evaluations of the face-to-face pedagogy. Their study also indicated that when in-class students are given access to the instructional materials available to online students in addition to face-to-face instruction, their performance might not be significantly higher than that of students in online classes.

A group of sixteen University of Illinois professors (Regalbuto et al. 1999, p.2) conducted a yearlong study of "Teaching at an Internet Distance." The group concluded, "online teaching and learning can be done with high quality if new approaches are employed which compensate for the limitations of technology, and if professors make the effort to create and maintain the human touch of attentiveness to their students." To maintain good online teaching, the group affirms that a low student-to-instructor ratio is required. The group further suggests that technology should not replace professors and that professors should be the owners and have full control of the content of the online courses.

A group of researchers used the "Seven Principles of Good Practice in Undergraduate Education" (Chickering and Gamson 1987) to evaluate four online courses. This group made a number of recommendations. Among them is that the size of the discussion groups in online classes should be small and online discussions need a specific focus. They also recommended that learning tasks should result in an outcome (Graham et al. 2001).

The purpose of this paper is to report findings based on analyses of data collected from two major stakeholders, faculty and students, regarding factors these stakeholders perceive as influencing the quality of online courses and degree programs.

Methodology

The instruments used were two survey questionnaires, one for faculty and one for students. The faculty survey consisted of three parts and twenty-two questions. The first part is related to the respondents' background information, demographics, years of teaching experience both online and face-to-face, and subject matter. The second part includes questions related to the respondents' opinions about online instruction such as time spent on development and delivery of the online courses. The third part contains questions related to the opinion of respondents about factors influencing the quality of online courses such as ability to give more frequent feedback to students, amount of faculty-student and student-student interactions, and ability to get to know the students.

The student survey consisted of three parts and twelve questions. The first part is related to the respondents' background information, their major, demographics, and number of online courses taken. The second part includes questions related to the respondents' experience with and opinions about online courses taken, their expectations and satisfaction with the online courses, and the amount of time they spend on online courses compared with face-to-face courses. The third part contains questions related to the opinion of respondents about factors influencing the quality of online courses including their evaluation of tools and technologies used in the online courses, and their assessment of interactions with faculty and students in online classes. Both

instruments consist of close-ended questions. A five-level Likert scale is used to determine the level of agreement with the stated assertions.

The faculty subjects in this study were the entire full-time and part-time faculty (about 200) who teach on a campus of a major state university during spring 2001 semester. Ninety-four faculty responded to the survey. Thirty-six of these have taught online courses. The student subjects were the students who took online courses during the spring 2001 semester on the same campus. The student surveys were sent to the faculty teaching online courses for distribution to their students. It is unknown to us how many of these faculty distributed them. A total of 43 students responded to our survey. This resulted in 79 responses combined. There were 32 females (40.51%) and 47 males (59.49%). The survey respondents included 28 (38.36%) from the College of Business and Management, 26 (35.62%) from the College of Liberal Arts and Sciences, and 19 (26.03%) from other colleges. Six of the respondents did not indicate college affiliation.

This study did not attempt to randomly assign students to online or face-to-face courses. The students decided on their own to register for the online classes. The faculty who teach online courses also were not randomly assigned for online instruction. It was the decision of individual faculty to do so.

Data Analysis

For the purpose of this study, the data from the two survey questionnaires were analyzed to determine the level of the respondents' agreement with or perception of specific assertions. The overall survey responses for faculty and students were analyzed to determine whether significant differences exist in the quality factors identified by both groups. Analysis of variance was used to identify differences within each group based on discipline, role, and gender. Analysis of correlation was used to identify the factors that affect judgments of course quality.

Faculty and students were asked to rate the quality of their online courses compared with the quality of corresponding traditionally offered face-to-face courses. They used a five-level Likert scale for this purpose. Their judgments did not differ significantly overall or by gender, role or discipline (Table 1).

Table 1. Judgments of Course Quality (N = 79)

Overall		Mean	Standard Error
		3.08	0.10
Gender	Female	2.87	0.14
	Male	3.23	0.14
Role	Faculty	2.91	0.14
	Student	3.32	0.15
College	Business & Management	2.96	0.12
	Liberal Arts and Sciences	3.08	0.17
	Others	3.28	0.30

Students and faculty were given several assertions with which they were to indicate strong agreement to strong disagreement based on a five-level Likert scale. Subjects' responses to those assertions were correlated with the responses to the "judgment of quality" question. The correlation coefficients are indicated below in Table 2.

Those assertions that were not significantly correlated with quality of Web-based courses had to do with only three characteristics:

- Freedom from having to come to campus every class period;
- The increased amount of time that online courses require; and
- Lack of familiarity with the hardware and/or software.

In other words, not having to come to campus every class period did not contribute to or detract from course quality nor did additional time required to grade or send in assignments. Apparently, neither faculty nor students consider freedom from having to come to class every class period an advantage. Likewise, neither students nor faculty see the additional time required due to the nature of online courses as either an advantage or a disadvantage. Unfamiliar hardware and software also did not affect judgments of quality.

Table 2. Correlation of Course Characteristics with Judgments of Course Quality (All Subjects)

Assertions	r	P-value	0
Students get to know instructors better in online courses	0.75846	<0.0001	A
Instructors get to know students better in online courses	0.70484	<0.0001	B
Lack of group (face-to-face) meetings does not negatively affect online course quality	0.56286	<0.0001	C
Lack of the "human touch" does not negatively affect online course quality	0.49405	<0.0001	D
Lack of enough time to respond adequately to all discussion questions during the synchronous and asynchronous sessions does not negatively affect the online course quality	0.48985	0.0001	D
Lack of immediate feedback (as in face-to-face delivery) does not negatively affect the online course quality	0.48529	0.0001	D
Students in online courses can get more individualized attention	0.46831	0.0001	D
Students in online courses can get feedback at any time	0.36562	0.0014	E
The privacy of online courses allows students to open up more	0.33067	0.0043	E
Limitations of the hardware does not negatively affect online course quality	0.31728	0.0059	E
Students' lack of familiarity with the hardware or software does not negatively affect online course quality	0.23795	0.0412	E

*Correlation Coefficients with the same letter are not significantly different from each other.

Summary and Conclusions

Two of the major stakeholders for quality of Web-based courses and degree programs are faculty and students. A group of faculty and students involved in online courses and degree programs were surveyed to identify factors they see influencing the quality of online courses. Both students and faculty who responded to the surveys were satisfied overall with the quality of online courses. Both cited in particular their belief that instructors and students get to know each other better in online courses, that lack of face-to-face meetings and the "human touch" do not detract from quality, nor do time demands or lack of immediate feedback. Perceptions that students in online courses get more individual attention, their privacy is greater than in face-to-face classes, and feedback is available at any time correlate with perceived quality of online courses. These judgments did not differ significantly overall or by gender, role or discipline.

We would like to emphasize and clarify the major finding of this study, namely that the statistical analysis indicates that students and faculty consider getting to know each other well as an important contributor to course quality. However, "knowing the student/ teacher well" is not the same proposition in an online course as it is in a face-to-face course, where interactions may in fact be deeper in the sense that each party gets to know the personal characteristics of the other, such as sense of humor, talkativeness, and other matters of personal style. In an online course, certain interpersonal clues (and thus, impressions) are unavailable to participants, so other factors come into play to compensate. These factors may be related to opportunities to chat, to conduct group and private discussions, and so on. In other words, the more opportunities professors and students have to interact, even though some interpersonal signals may be missing, the more highly both are to judge the quality of the online course.

Further study is required to explore the specific behaviors that contribute to positive and negative judgments of online course quality. This study indicated a few characteristics related to judgments of course quality, some of which are contrary to expectations many may have of the advantages or disadvantages of such courses. Finer grained analyses should clarify further the delicate interaction between students and faculty in online courses, thus helping to improve the quality of online instruction.

Acknowledgements

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