STUDENT EVALUATION OF INSTRUCTIONAL EFFECTIVENESS OF WEB-BASED LEARNING STRATEGIES

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ABSTRACT

Many Information Technology departments are developing programs and courses using online or web-based delivery, i.e. the "virtual classroom". Faculty who are teaching or "facilitating" online courses are discovering that placing lectures and assignments on the Internet does not constitute an online class. Trying to enhance students learning environments through the use of the Internet is an ever-important question. The focus of this research is to answer the question: What learning strategies and other components of an online course do the students find to be effective in promoting their learning of the course material? What learning activities and components are NOT effective? The answer to these questions will help facilitators design their courses and include those learning activities and components that students find effective in promoting learning.

Keywords: Web-based learning, online learning, instructional effectiveness, distance learning

INTRODUCTION

The widespread availability of the Internet today has precipitated a vast change in higher education, and especially so in the delivery of instruction. Once lumped together with other forms of distance education, such as television, correspondence courses, and video-conferencing, Internet-based, or online learning is now becoming the preferred format for instruction at a distance (7). Because the widespread use of the Internet for course delivery is so new, much of the initial literature in this area focused on the "how to" of online learning (6).

As the field begins to mature, however, a few research studies on the effectiveness of online technology for course delivery are beginning to emerge. One recent study examined how students differ in their preferences towards course format, i.e. Internet-based compared to traditional lecture (8). The results were not surprising; students tend to enroll in the type of class format according to their attitude and preferred learning style. The study re-enforced what many online instructors have been saying, "matching course formats with students' attitudes and learning strategies enhance learning performance." (8)

A second study focused on which factors influence student satisfaction with online courses (1). They feel that student satisfaction is an important aspect in evaluating the effectiveness of distance education because satisfaction relates to student performance by affecting motivation, commitment to learning, and retention of the material. A strong correlation was found between expected grade and student satisfaction with the online course, i.e. students who expected a B or

better were more satisfied with the class. In addition, both access and age also influenced overall satisfaction with the class. This meant that students who could not have taken the class had it not been offered online were more satisfied than other students, and generally older students liked the class better than younger students. Of interest to administrators might be the fact that almost half (47%) of the respondents to the survey indicated that they would not have been able to take the course had it not been offered online. This supports perceived notions that online courses provide opportunities to tap into an under-served student market.

Another recent study investigates the question that this paper addresses, i.e. what are student attitudes toward certain aspects of Internet-based courses (3).   Their questionnaire, however, did not address individual learning strategies and activities of an online class, but rather asked questions about online courses in general. Their results indicate that students prefer to have course materials, such as course assignments and presentations, available online.   Not surprisingly, students with more computer experience felt more favorable toward the Internet based class.   The students surveyed were enrolled in traditional classes that were using the Internet to augment traditional classroom instruction and not fully online classes. The survey appeared to be the results of the students perceived attitudes toward an Internet-based class.

None of these studies addresses the questions that we pose here: What learning activities and other components of an online course do the students find to be effective in promoting their learning of the course material?   What learning activities and components are NOT effective? We feel that these are very important questions that need to be answered as more and more courses are being placed online.   This will help facilitators to design their course around those learning activities and components that students find effective in promoting their learning of the course material.

COMPONENTS OF AN ONLINE COURSE

Instructors of online courses have discovered that learning activities must be developed so that the student becomes more involved with their own learning, in part by interacting with other students in the class and with the course facilitator (2).   Students must also interact with the course material in such a way that learning takes place without the familiar face-to-face lecture environment.   To this end, the course facilitator must depart from the familiar and think about new strategies to engage the student and facilitate learning (5).

Northwestern State University (NSU) is a 4-year public university of about 9,000 students that serves a mostly rural population in northwest Louisiana.   Given the large geographical service area, NSU has become a leader in the state in online education. It was one of the first institutions to have courses included in the Southern Regional Electronic Campus of the Southern Regional Education Board (9).   Our institution currently offers approximately 60 online courses to over 2000 students.   Others are being developed and plans are underway for the development of complete online associate degrees in Computer Information Systems and Business Administration.

We have been involved with the development and delivering of online courses for approximately four years.   The list that follows outlines the types of the major learning strategies/activities that

we have developed for Internet-based instruction at our institution.   These activities are discussed in greater detail in (4).

Group projects – collaboration on a project with other students via telecommunications
Discussion questions – questions that are answered and discussed in a bulletin board forum. Student interaction with one another is encouraged.
Internet research – questions that are explored and answered using resources available on the Internet.
Guest Lecturers – a "guest lecturer" posts a lecture on a relevant topic, and then answers students' questions/postings.
Interactive chat – "town meetings" or informal discussions with small groups
Interactive tutorials – either prepared by instructor or may accompany the textbook
Textbook readings and assignments – similar to those assigned in a traditional class
Online quizzes and examinations – similar to traditional assessments, except that they can be administered remotely or students can be required to physically report for exam.
Announcements – information posted by the facilitator for all students to view
Personal messages - from the facilitator answering specific questions, addressing problems, etc.

THE SURVEY

We administered exit surveys to students in an online CIS course, which is our Introduction to Information Technology course.   This is the introductory course for CIS majors, and provides broad coverage of the Internet, hardware and software, IT in business, communications, and social/ethical issues in IT.   Short units in word processing, desktop publishing, spreadsheet, database, and visual programming are also covered.

Data for the survey questionnaire was collected via Blackboard, an online course management system.   Student responses were anonymous and available only to the researchers.   Participation in the survey was voluntary.   The questionnaire included items concerning student demographics, course administration, availability and reliability of technology, delivery format, and instructor effectiveness.   Blackboard collected and compiled percentages to each item, but no correlation analysis could be performed, as we did not have access to the raw data via Blackboard.

In addition to demographics, the students were asked to rate the effectiveness of the components of the course listed above, so that we could determine this information from the student's point of view.   Here are the results of our analysis of responses (138 total respondents).   The activities are listed below in order according to the sum of the percentages for the Very Effective and Somewhat Effective categories:

Class Announcements:

Very effective	72%
Somewhat effective	21%
Neutral	7%
Not effective	0%

Personal email from instructor:

Very effective	73%
Somewhat effective	18%
Neutral	5%
Not effective	4%

Online exams/quizzes:

Very effective	54%
Somewhat effective	33%
Neutral	6%
Not effective	7%

Tutorials (in textbook):

Very effective	46%
Somewhat effective	40%
Neutral	10%
Not effective	4%

Discussion Board Assignments:

Very effective	39%
Somewhat effective	36%
Neutral	20%
Not effective	5%

Group Projects:

Very effective	25%
Somewhat effective	38%
Neutral	22%
Not effective	22%

Town Meetings:

Very effective	22%
Somewhat effective	29%
Neutral	34%
Not effective	15%

Student comments:

"The tutorials were great for this class. I did not like the group projects and the town meetings."

"The most helpful and effective aspects to this course were the instructor's willingness to help and answer any questions that arose. She responded promptly and courteously."

"I found the combination of the tutorials, emails, and posted information to be very helpful. Being able to work with online classmates helped a lot also. I thought I knew a lot about the Internet, this taught me even more than I already knew."

"Announcements and correspondence with the instructor helped the most. I found group projects to be worry-some and time consuming trying to contact others."

CONCLUSIONS

Students rated *Class Announcements* and *Personal email from the instructor* very highly, both in the survey and in their comments.   Tutorials and online exams/quizzes were also rated very effective or somewhat effective. Most students did not find the group projects or town meetings (interactive chat) to be helpful to their learning in the class. We have found that students dislike online group projects for the same reasons that they do not like traditional group projects, i.e. difficulty in getting the group together for meetings and disparity in the amount of effort put forth by members of the group.   We hope that these results will help those faculty who are considering online delivery of a course to decide on which components can be used effectively.

REFERENCES

(1) Bower, Beverly L. and Kamata, Akihito.   "Factors Influencing Student Satisfaction with Online Courses", *Academic Exchange Quarterly*, Fall 2000, vol. 4, i3, p52.

(2) Frizler, K. "Designing Successful Internet Assignments", *Syllabus*, 12:6, February 1999, pp. 52-3.

(3) Lundgren, Terry D., Garrett, Norman A., and Lundgren, Carol A. "Student Attitudes Toward Internet Course Components", *Journal of Computer Information Systems*, vol. XXXX, no. 2, Winter 1999-2000.

(4) Pollacia, Lissa, ", Russell, Jack and Hanson, Thomas. "Facilitating an Online CIS Course: A Case Study", *Proceedings of ISECON 2000* (Information Systems Education Conference), Philadelphia, Nov. 9- 12, 2000.

(5) Pollacia, Lissa and Simpson, Claude.   "Web-based Delivery of Information Technology Courses", *Journal of Educational Technology Systems*, vol. 29, no. 1, 31 – 40, 2000-2001.

(6) Pollacia, Lissa, Simpson, Claude, Tarver, A. R., and Hanson, Thomas.   "Distance/On-Line Education: Do's and Don'ts", with *Proceedings of International Association for Computer Information Systems* (IACIS) 2000, Las Vegas, Nevada, Oct 4 – 8, 2000. Re-published in *Issues in Information Systems.*

(7) Porter, L. R. *Creating the Virtual Classroom – Distance Learning with the Internet*, New York: J. Wiley, 1997.

(8) Sankaran, Siva R., Sankaran, Dalila, and Bui, Tung X. "Effect of Student Attitude to Course Format on Learning Performance: An Empirical Study in Web vs. Lecture Instruction", *Journal of Instructional Psychology*, March 2000, vol. 27, i1, p. 66.

(9) Southern Regional Electronic Campus (http://www.srec.sreb.org/)