Aiming for Effective Student Learning in Web-Based Courses
Insights from Student Experiences

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With the rapid advancement of Internet technology and the popularity of distance education programs, many colleges and universities are transitioning courses from traditional, face-to-face (FTF) classroom settings to Web-based learning environments. Higher education institutions are reaching out to attract students who are place-bound or those who live in geographically remote locations. In 1996, Barron reported that approximately 800 off-campus courses were offered by accredited library and information science schools in North America (Barron 1996). Although the off-campus courses are delivered through a variety of different delivery vehicles, such as instructors with mobility, asynchronous audio/video recordings, and synchronous audio/video conferencing, many of these courses are being offered through the Internet (Barreau 2000).

Because Web-based courses (i.e., courses offered or delivered entirely through the World Wide Web) are becoming more popular, many researchers are conducting studies to compare the effectiveness of traditional FTF learning and Web-based learning. Most of the research studies suggest that Web-based courses are as effective as conventional FTF courses in that the two different types of delivery methods showed no difference in students’ learning outcomes (Capper and Fletcher 1996; Carter 1996; Moore and Thompson 1997). According to Lockee (2001), however, researchers should focus not only on learning outcomes but also on students’ attitudes, which can influence their satisfaction with Web-based courses. Although some studies have reported that learners were very satisfied with their online courses (Wayland, Swift, and Wilson 1994; Wegner, Holloway, and Garton 1999), other studies describe less satisfying student experiences with the Web-based learning environments because of technical problems, limited and slow feedback, and ambiguous instructions (Hara and Kling 1999). Anecdotal data gathered while teaching Web-based courses led us to question whether students’ dissatisfaction might be related to their perceptions or mental models of Web-based courses.

Many of the learning theories that have emerged from research regarding FTF learning environments can be applied to Web-based learning environments. Adult learning theory is essential for understanding student experiences in Web-based environments. Adults have been described as learning in a separate or connected manner (Belenky et al. 1986; MacKeracher 1994). A separate manner is associated with autonomy, separation, certainty, control, and abstraction. A connected manner, which is empathetic in nature, emphasizes relationships and stresses cooperation rather than competition.

As designers and implementers of Web-based courses, we must determine how to create effective learning environments so students will have an enriching experience as well as intellectual development. To meet this challenge, it is imperative to understand students who are taking Web-based courses. Why do students take Web-based courses? What are the characteristics of students enrolled in these courses? What do they expect from Web-based courses? How do they perceive and experience the courses? How satisfied are they with Web-based courses? This study is an attempt to gain insight into these questions.
DESCRIPTION OF STUDY

An exploratory study was conducted to understand what attracts students to Web-based courses, how students experience learning in a Web-based course, and what aspects should be considered to improve their learning experience. Thirty-eight individuals participated in this study. All of the participants were graduate students, taking at least one Web-based course from the School of Information Science and Learning Technologies, University of Missouri–Columbia.

A questionnaire, made available on the Web, was used to gather information from the participants. Through the questionnaire, we collected demographic and other information, such as experience with different technologies and Web-based courses.

The composition of participants was rather nontraditional in terms of age. One-third of the participants (32 percent) were in their 20s. The remainder of the participants were in their 30s (21 percent), 40s (26 percent), and 50s (31 percent). The majority of the participants were female (85 percent). Most of the students (approximately 90 percent) considered themselves as intermediate or advanced users of the Web and Internet, and 10 percent were novices. Approximately three-fourths of the students (74 percent) had previous experience with Web-based courses.

RESULTS

Initial Perceptions

The data suggest that students' initial perceptions regarding the degree of difficulty of Web-based courses can affect their overall satisfaction with the course, if it is different from the learning experience that was expected. As the number of courses taken increased, the level of difficulty students experienced decreased. This may indicate that participants are becoming more accustomed to the look and feel of Web-based learning environments and more adept at the strategies necessary to be successful in online classrooms.

Students enroll in Web-based courses for a variety of reasons, including distance and time constraints, conflicts with personal schedules and family responsibilities, and the lack of availability of a course in a FTF classroom setting (Frederickson et al. 2000). Participants in the study paralleled these reasons: required course (20 percent), distance from campus (20 percent), conflicts with schedule (13 percent), course not offered off-line (10 percent), and family responsibilities (11 percent). Other reasons reported were interest in technologies, the Internet, or both (26 percent).

Many students have significant misconceptions concerning Web-based courses, such as correspondence courses with little or no interactivity. The students assume that they will set their own schedules, work individually, and only turn in assignments by the end of the course. Experienced instructors and students of Web-based learning environments are aware that a perception of no or little interaction with other students is inaccurate. The majority (70 percent) of the students without previous experience in Web-based courses were surprised that there was much more interaction with other students and the instructor than expected. Interaction occurs frequently with group work and discussion boards, which are typical components in Web-based courses.

Another misconception appears to be that Web-based courses require less work than FTF courses. However, students quickly learn that there is at least the same amount of work, if not more, for both students and instructors. The time required for success in an online course is increased because of the nature of electronic communications (i.e., e-mail, discussion boards, chat rooms). Composing e-mail or posting to a discussion board tends to be more time intensive than expressing thoughts verbally. In written communication, students usually want to make sure they are appropriately and clearly communicating their ideas. Furthermore, it takes longer to discuss a topic online because students do not have
immediate responses available, as they do in face-to-face class settings. For example, an in-class discussion that takes 10 minutes could easily expand to four or five days because of the nature of online communication and because of the structure of asynchronous discussion forums.

Learning Preferences

We asked two questions relating to learning preferences: (1) Do you prefer to work alone or in groups and (2) In what type of learning environment do you learn best: lecture, seminar, or independent study. The majority of the students (80 percent) preferred to work alone. This may be related to some students being solo performers, preferring to work independently. Or it may be attributed to students’ prior experiences with group work, which is often frustrating. In addition, even positive experiences with group work may be exacerbated in online environments because of problems created by electronic communication media (Barreau 2000).

The majority of the students (79 percent) preferred an environment in which they actively control their learning rather than having the control in the hands of the instructor. This finding correlates with the work of Wegner, Holloway, and Garton (1999), who found that students in Web-based courses assume control of constructing meanings from course material rather than relying on the instructor to interpret the content for them. Web-based courses require students to be more proactive, which can be difficult for those students who prefer passive learning environments (i.e., students as receptors of knowledge transmitted by an instructor). In an online learning environment, the instructor acts as the facilitator or coach who guides the student through learning experiences.

Perceptions of Satisfaction in a Web-Based Course

The majority of the participants (87 percent) were satisfied with their learning experience in the course. However, there were a few students who were not satisfied with the Web-based learning experience. One person did not like the required interaction with other students via the discussion board and group work. This person preferred independent learning and preferred to work alone. Another student complained that there was more work than in FTF courses; the student assumed that teachers create busy work to replace the activities that occur in a FTF setting. In Web-based environments, the instructor and student do not have the typical visual cues, which can assist with the immediate exchange of negotiated meanings. Many students fail to realize that Web-based learning requires more written communication (e.g., e-mail, discussion forums, and assignments) for the instructor to assess learning.

In our study, student satisfaction with Web-based courses could be explained by a combination of two variables. One variable was the number of Web-based courses taken before the current course. The higher the number of Web-based courses students have taken, the lower the level of student satisfaction. We speculate that as students become more experienced with Web-based courses as well as the online instructional design, they become more critical of the learning environment and its influence on their learning. The other variable was the level of interaction with classmates. The more students interacted with other students, the greater their level of satisfaction with the course.

Approximately 38 percent of the participants, most of whom were experienced computer users, perceived Web-based courses as more effective than FTF courses. Over half of the participants (52 percent) indicated that Web-based learning was almost the same as the learning in FTF, and 10 percent indicated that Web-based learning was less effective. Negative perceptions were influenced by the following factors: (1) initial perception that the course would be difficult, (2) preference to work alone, (3) first experience in a Web-based course, and (4) resentment that the same course is not offered in a FTF setting. The first two
factors influenced the negative attitude toward Web-based learning. Inexperience in a Web-based learning environment, the third factor, must be addressed regardless of learning preferences. For novices, there must be an appropriate orientation to the Web-based environment, which is especially important for adult learners returning to school and who may have relatively little experience using the computer and the Internet. An introductory course or seminar that orients novices to Web-based learning could dramatically affect their learning experiences. The fourth factor (unavailability of the course off-line) can be an administrative and political issue that is not within the control of the instructor. An alternative would be to offer each Web-based course as a FTF course once a year. However, this strategy may cause a department to trade significant numbers of online students for a limited environment of local students.

WHAT HAVE WE LEARNED?

We found that the main reasons for taking Web-based courses tend to be external ones, which implies that the level of students' motivation toward learning through the Web is not likely to be high. Instructors of the Web courses should take this into account and might need to put extra efforts on providing students with rewarding experience that can motivate students and change their rather neutral or negative attitude toward the Web-based course.

It seems that students' previous experience plays an important role in their perception of Web-based learning. Students' experience with computers and Web-based courses influence their expectation and appreciation of the courses, which seems logical. In Web-based courses, almost all instructions are delivered through the computer and the Internet. Students in Web-based courses must deal with computer and other information technologies on a regular basis, and they must be able to successfully use them. Their experience with these technologies would definitely help lower their technology anxiety. Because not all students would come with computer competencies of desired level, it is important to provide orientation sessions to students before the course begins so that students would not be doubly burdened (i.e., new content and technology).

It was interesting to find the relation between the level of interaction with classmates and satisfaction with the Web-based course. Apparently, many students perceive a Web-based course as an independent study or correspondence course that allows students to learn at their own individual pace, with little or no interaction with other students. They also tend to think that Web-based courses are easier than traditional FTF courses. We believe that it is essential to inform students that Web-based courses are designed more like a traditional FTF course without the simultaneous FTF meeting/communication components. Different from independent study or correspondence courses, Web-based courses require a great deal of interaction with the instructor and students. We should also let students know that they should be focused, organized, and proactive. Instructors should assist and scaffold students to become autonomous learners who take responsibility for their learning, understand their own learning habits, set realistic goals and adjust their goals in light of feedback (Linn 1996). A student's mental model of Web-based courses can greatly affect their learning behavior and experience. We strongly suggest that a short course or an orientation should be given before students take Web-based courses so that they can be prepared for the demands of online learning environments. Suggested topics for an orientation include the following:

- How Web-based and FTF courses are similar and dissimilar.
- How to learn in a Web-based course.
- How to be proactive and self motivated.
- How to manage time and tasks.
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- How to prepare your computer for Web-based courses.
- How to use the Web-based course management tools (e.g., Blackboard, WebCT, FirstClass).
- How to communicate effectively through discussion boards, e-mail, chat rooms, and so on.

Educators must ensure that students in Web-based courses have enriching, successful learning experiences. This means preparing both instructors and students for this rapidly changing and innovative instructional delivery medium. Although our tendency has been to tout the successes and strengths of Web-based learning, we also need to explore the weaknesses and the critical issues that relate to students’ affective and cognitive learning experiences.

REFERENCES


