Category: IT Education

Issues in Using Web-Based Course Resources

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INTRODUCTION

Education over the Internet is going to be so big it is going to make e-mail usage look like a rounding error.

John Chambers, Cisco Systems, New York Times, November 17, 1990

Web-based courses (Mesher, 1999) are defined as those where the entire course is taken on the Internet. In some courses, there may be an initial meeting for orientation. Proctored exams may also be given, either from the source of the Web-based course or off-site at a testing facility. The Internet-based course becomes a virtual classroom with a syllabus, course materials, chat space, discussion list, and e-mail services (Resmer, 1999). Navarro (2000) provides a further definition: a fully interactive, multimedia approach. Current figures indicate that 12% of Internet users in the United States use the Internet to take an online course for credit toward a degree of some kind (Horrigan, 2006). That number is indicative of the rapid proliferation of online courses over the past several years.

The Web-enhanced course is a blend with the components of the traditional class while making some course materials available on a Web site, such as course syllabi, assignments, data files, and test reviews. Additional elements of a Web-enhanced course can include online testing, a course listserver, instructor-student e-mail, collaborative activities using RSS feeds and related technologies, and other activities on the Internet.

One of the biggest concerns about Web-based courses is that users will become socially isolated. The Pew Internet and America Life Project found that online communities provide a vibrant social community (Horrigan, Rainie, & Fox, 2001). Clearly, students are not concerned or feel that other benefits outweigh the potential drawbacks. According to government research (Waits and Lewis, 2003), during the 2000-2001 academic year alone, an estimated 118,100 different credit courses were offered via distance education (with the bulk of that using Internet-based methods) by 2- and 4-year institutions in the United States. Over 3 million students were registered in these courses.

Navarro (2000) suggests that faculty members are far more likely to start by incorporating Internet components into a traditional course rather than directly offering Web-based courses. These Web-enhanced courses might be considered the transition phase to the new paradigm of Internet-based courses. Rich learning environments are being created, with a shift from single tools to the use of multiple online tools, both to enhance traditional courses and to better facilitate online courses (Teles, 2002).

BACKGROUND

A 1999 research study showed that 27.3% of the faculty members thought they used the Internet for the delivery of course materials, but only 15.6% actually did so. Of this group, the major use was simply the substitution of a Web page for the printed page. Most faculty members (73.8%) updated their sites so infrequently that the sites only served to replicate printed handouts. In a follow-up study at the same university, the number of faculty who used Web pages to enhance their courses showed a decrease from the previous year (Garrett, Lundgren, & Nantz, 2000). In the same study, 22% of the faculty were never planning to use a Web site for delivery of any portion of their courses. Less than 5% were truly incorporating Web technology into their courses in a meaningful way. Lee Raines, Director of the Pew Internet and American Life Project notes that the role of experts, such as teachers, has changed. The Internet has empowered amateurs. New teaching models and methods have developed as educators try to adjust to changing student attitudes (Rainie, 2006). The new educational model becomes "the net-savvy, well-connected, teacher-independent end-user" (Castells, p. 20).

Overall, Internet penetration for U.S. adults is up to 73% as of April 2006, up 9% in just one year. In addition, "… the 40% in home broadband adoption from March 2005 to March 2006 is double the 20% rate of increase that occurred from March 2004 to March 2005" (Horrigan, 2006). For college age degreed adults, 91% go online regularly (Rainie, 2006). Researchers at Ball State University found that 30% of a waking day is spent with media as the sole activity with an additional 39% spent with media combined with some other

activity ("Average…", 2005). Fully one third of all Internet users in the U.S. say that the Internet has greatly improved the way they pursue hobbies and interests (Madden, 2006) and each day 44% of all Americans are online at some point, up from 36% in 2002 (Horrigan & Rainie, 2006).

Part of the expectation of the current college population is that two-way technologies are the norm (instant messaging, Weblogs, and online journaling, for example) and that online communities provide a rich environment for information sharing. According to Pew data, almost half of Internet users access listservs, RSS feeds, and bulletin boards to stay engaged. This shift to more collaborative tools provides new opportunities but creates numerous challenges. Learning management systems (LMS) are adding collaborative tools to reflect the changing habits of Internet users. All of the popular LMS tools, such as WebCT, Blackboard, and Moodle provide for online discussions, information posting, group assignments, synchronous chats, interactive quizzes, and a closed e-mail system. Students perceive collaborative activities, both synchronous and asynchronous, as cutting edge. Castell and Wellman refer to this synchronous and asynchronous environment as "networked individualism" (Castells, p. 20). In Figure 1, Garrett (2006) presents a breakdown of the myriad tools available in various combinations of synchronous/asynchronous and interactive/non-interactive. With these tools available in an almost endless variety of combinations, classroom experiences can be tailored to suit the content as well as the student learning styles (see Baggaley, 2003, for some examples).

Clearly, there are many compelling reasons to use Web-based resources in a course including greater efficiency in the delivery of materials, providing up-to-the-minute content, enhanced status for the course and faculty, fostering student-to-student collaboration, and the use of technologies with which the students are increasingly familiar and comfortable.

Despite the quantum leap in Internet technology adoption, some of the familiar problems still exist. Faculty still must adapt to a looser teaching environment. No longer are lectures delivered from a raised lectern, enough. The expectation by students is that the classroom paradigm has shifted, and faculty must adapt to a looser, more flexible teaching environment. Some of the issues inhibiting the use of Web-based resources include: lack of faculty knowledge of Web page design, html, server sites, and file transfer protocols (Nantz & Lundgren, 1998); perceived need for Web glitz to provide entertainment along with content such as highly interactivity, animation, audio, and video streaming; lack of accessibility to Web resources for both faculty and students (Rao & Rao, 1999); sufficient training for faculty (Rups, 1999); and compensation for cyberprofs who typically spend twice as much time developing and teaching Web-based courses for no extra pay (Navarro, 2000).

Carr notes that the high drop rates in online courses may result from faculty inexperience with the new classroom paradigm (Carr, 2000). Also, the need to continually retool to stay even with the student use of technology is daunting.

Illinois State University identified five major issues driving Web-delivered courses:

- Technology needs to be driven by sound pedagogical goals.
- Technology tools need to address a specific pedagogical task with technical expertise available.
- Faculty want and need to interact with peers who are doing similar tasks.
- Hardware must support teaching without frustrating students and faculty.
- Faculty need recognition for technology adoption ("Average…". 2005).

A Course Web Site Classification

Courses using Web-based resources can be classified in six different levels. At the top levels are the Internet-based classes (i.e., the course was created and organized to be Web delivered). The middle levels involve a Web class that uses the Internet for delivery of content and communication among the course registrants, but also uses face-to-face meetings for some classes, orientation, and testing. At the lowest level,

Figure 1. Instructional Communication (Adapted from Garrett, 2006)

	Non-interactive	***Interactive***
Synchronous	Lecture Web casts Videos	Discussion Managed Meetings IRC Chat Internet Messaging (IM) Webinars
Asynchronous	Podcasts / Vodcasts Webcasts Wikis	Discussion Boards Weblogs RSS Feeds / Syndication Cellular Text Messaging (SMS)