

Issues in Delivering Course Material Via the Web

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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. 2002 figures suggest that over two million students are taking at least one Web course (Thornton, 1999). According to *E-Learning* (2001), more than 3,000 universities will offer substantial Web courses by 2004.

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, and other activities on the Internet. Navarro (2000) defines this type of course as a "digitized text" approach.

Navarro (2000) suggests that faculty 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.

BACKGROUND

A 1999 research study showed that 27.3% of the faculty members think they use 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 are not ever planning to use a Web site for delivery of any portion of their courses. Less than 5% are truly incorporating Web technology into their courses in a meaningful way.

Clearly, there are many positive reasons for using a Web site in a course including greater efficiency in the delivery of materials, providing up-to-the-minute content, enhanced status for the course and faculty, and of course the seemingly inevitable trend to use more technology in education.

Some of the issues inhibiting the use of Web sites 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 high interactivity, animation, audio and video streaming; lack of accessibility to Web resources for both faculty and students (Rao & Rao, 1999); sufficient training for faculty (Rupp, 1999), and compensation for cyberprofs who typically spend twice as much time developing and teaching Web-based courses for no extra pay (Navarro, 2000).

A Course Web Site Classification

Web classes can be classified in six different levels. At the top levels are the Internet-based classes—those 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, some course materials are simply presented in a hypertext format that replaces traditional printed handouts. Table 1 shows the classification levels of academic Web pages by typical content and maintenance levels.

The six levels presented above indicate progression from the most basic Web-enhanced course to a course delivered fully on the Internet. Faculty would likely proceed through the levels to reach Level 4 for traditional classes unless limited by resources, expertise, and admin-

Table 1. Classification of academic Web pages

Level	Description	Typical Content	Maintenance Level Required
1	Traditional Course Presentation, Basic-Level Course Materials on Web—Internal Links	Instructor data (name, phone, office hours, e-mail address) Course materials (syllabus, generic schedule, assignments); non-interactive	Low—static pages after initial upload. Low-volume e-mail correspondence.
2	Traditional Course Presentation—Intermediate-Level Course Materials on Web—External Links	All Level 1 Some external links, such as textbook and reference sites; non-interactive.	Low—mostly static pages with occasional updates and checking of external links. Low-volume e-mail correspondence.
3	Traditional Enhanced Course Presentation—Intermediate-Level Course Materials on Web and Web Content Delivery	All Level 2 All traditional course materials posted. Web access in class used for delivery of some course content. Some assignments/requirements involve interaction, e.g., e-mail submissions, listserv postings.	Weekly updates to schedule, FAQ, course materials, notes to students. Medium-volume e-mail correspondence.
4	Traditional Enhanced Course Presentation—Complete Web Content and Materials	All Level 3 Course presentations and lectures dynamically available on Web. Data files, links, programs on Web for students. Forms for student “reply” assignments, course evaluations, etc. Link to course grades.	2-3 times per week. Regular updating of grades. Medium-volume e-mail correspondence.
5	Web-Delivered Course with Orientation and Testing Meetings	All Level 4 plus any additional materials to allow for full Web delivery of course including audio and video augmentation; multimedia CDs. Few or no regular classes—orientation meeting may be necessary. Testing may be proctored off-site or unproctored on the Web.	Daily maintenance and access by instructor. High-level e-mail correspondence. Regular updating of grades and course materials.
6	Virtual Class	All Level 5 plus online testing and orientation. Discussion, chat groups, listserv, e-mail, and other interactive tools. Teleconferencing. No class meetings.	Substantial daily maintenance (average 1-3 hours) by instructor including all course aspects. High-level e-mail correspondence.

istrative factors. Levels 5 and 6 require significant changes in the academic structure and considerable support of the academic computing environment. The following table summarizes the resources that would be involved in the process of moving courses to the Web.

Although Table 2 shows a summary of the typical resources faculty need to develop Web course materials at varying levels, there are other elements that will be just as important in achieving a specific level of Web course expertise. The following list defines show of the issues. For a more comprehensive discussion, see Nantz and Lundgren (2003).

Issues Inhibiting Web-Enhanced Courses and Recommendations

- Be realistic about your own level of expertise and the instructional support you have available. Convert print-based materials to HTML using Word or some other familiar software. Once a comfort level is achieved, incorporate other HTML code using simple programs like Netscape Composer. Cut and paste code from sample Web pages. Extend knowledge to knowledge of common gateway interface

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