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Cleborne Maddux

Rhoda Cummings

Leping Liu

John Newman

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Aids and Cautions in Planning, Developing, and Delivering Online Instruction in Higher Education

by Cleborne Maddux, Rhoda Cummings, Leping Liu, and John Newman

The topic of online education has recently inspired a great deal of discussion on higher education campuses in the United States and around the world. Although the extent of growth is controversial (Zemsky and Massy 2004; see also [Exhibit 1](#)), clearly the number of online course and program offerings in higher education has increased significantly (Garnsey 2002).

While distance education includes more than computer technology, most of the enthusiasm and growth in distance education centers on online education via the World Wide Web. As public demand for alternatives to face-to-face, on-campus instruction has increased, regents and state legislatures have pressured institutional administrators, and in turn large numbers of higher education faculty members, to develop and offer online courses and programs (Bower 2001; Garrison 1998).

Such pressure is relatively new. Until the last few years, online courses generally were the province of faculty early adopters and the technically elite (Betts 1998). Currently, less technically oriented faculty members have felt pressure to become more actively involved in the online efforts of their institutions. Many of these faculty members have never before produced or offered a totally online course and find the prospect of doing so intimidating. The purpose of this article is thus to present some aids and cautions for first-time developers of online courses.

The advice in this article comes from the experiences of four professors who have developed and are currently teaching completely online courses for both undergraduate and graduate students, including a required undergraduate technology course that enrolls more than 200 students each semester. The institution that offers these courses provides very little technical support for such activities. Specific pedagogical or design issues are beyond the scope of this article; we focus on pragmatic suggestions for first-time online course developers and hope that these suggestions will apply across a wide range of technical and pedagogical contexts.

The Planning Phase

The planning phase is critical in online education. At the beginning of this phase, instructors should bring up the topic of online instruction in a department meeting. Faculty members should have input about which courses are and are not suitable for online delivery, and ideally, they should agree on guidelines for online courses and put these expectations into writing.

On many campuses, a college or office of extended studies or continuing education has administrative authority over online courses and programs. Since our courses are offered to some students who are not in the residential program, for example, continuing education handles a wide range of services for online students at our institution, and it is important to be aware of these activities. Before planning the specifics of an online course, instructors should schedule a meeting with personnel in the appropriate office to determine university, college, or departmental approvals necessary for online courses; monetary or other incentives for online instructors; available technical or pedagogical support; and other pertinent information. Instructors might find it helpful to obtain a copy of the packet of materials that the unit routinely sends to students who have enrolled in online courses. Additionally, potential instructors need to determine if online courses remain the intellectual property of the instructor or if course content will be owned by the university.

During this meeting, prospective instructors should also determine whether online courses require [WebCT](#), [Blackboard](#), or some other specific course application software. Such software runs on a university server, and while these programs are not highly difficult to learn, they do require that instructors take time to become accustomed to a non-Windows interface with built-in safeguards to prevent problems such as the accidental deletion of files. Sometimes, potential instructors who are proficient at hard coding in HTML or in the use of a sophisticated HTML editor (such as [Dreamweaver](#)) consider building, offering, and maintaining an online course without learning to use the campus course application software. We recommend against that course of action, since many tasks can be accomplished easily with course application software that are much more difficult and time-consuming to accomplish without it. WebCT, for example, makes it very easy to include communication tools such as course e-mail, chat rooms, and bulletin boards. Likewise, this type of software simplifies tasks such as administering and scoring quizzes and tests and recording and providing grades to students.

Instructors should request that the operator of the course server set up a practice course in his or her name. Instructors can then spend several months learning to operate the course application software before beginning to build an actual course. We further recommend that instructors request access to one or more existing exemplary online courses and talk with experienced online instructors.

In order to complete all course materials before offering a new online course, instructors should begin planning that course at least one academic year before offering it for the first time. In our experience, instructors have very little time to make major modifications or additions to course content once a course begins. Instead, instructors of online courses devote their time to communicating with students via e-mail, the bulletin board, and the chat room; to solving technical problems; to printing and grading assignments; and to performing other technical and organizational chores involved in the day-to-day operation of an online class. These activities require instructors to spend significantly more time and effort developing and conducting an online course than they would spend on the same class offered in traditional, face-to-face format. Leping Liu, for example, kept a log of tasks and time spent teaching a recent online course that enrolled 30 students. During the first semester in which she offered the course, she replied to 720 discussion board messages, sent more than 2,600 e-mails, graded 420 assignments, and met with online students who resided in the area for an average of three to four hours per week.

Because of these requirements, instructors should inquire about minimum and maximum enrollments for each online course and determine whether enrollments are under the instructor's control. Instructors who can control enrollments should consider setting a relatively low enrollment cap ([Exhibit 2](#)). While it is time-consuming to grade and write comments on 25 essays submitted in a face-to-face course, it is probably two to three times as time-consuming to download, save, print, and provide electronic feedback on 25 essays sent electronically.

Another decision that should be made during the planning phase is whether students may proceed through the course at their own pace or whether they must adhere to a course schedule for lectures and assignments. Students often say that they prefer self-pacing; this approach can work particularly well for graduate students. However, self-pacing can be disastrous for students with poor self-discipline and a tendency to procrastinate. Enrollment of such students in completely self-paced, online courses may be one reason for the high drop-out rates documented in online courses (McVay 2000; Lynch [2001](#)). Self-pacing can also be problematic for instructors. In 2001, John Newman received 1,600 pieces of homework to grade during the last full week of a self-paced, undergraduate course with more than 200 students. Since that time, Newman has modified the course to require specific due dates spread over the entire semester.

Finally, the planning phase is a good time to search for useful existing Web pages that deal with course concepts. Each week, students should have access to URLs of recommended and related pages on the Web. Linking to such pages allows first-time instructors to avoid devoting a great deal of time and effort to making pages that contain information someone else has already posted.

The Development Phase

We recommend that the first week of an online course be dedicated to student exploration of course Web pages. Additionally, instructors should require each student to send an introductory e-mail to the instructor and to post an introduction to the entire class on the bulletin board, demonstrating each student's ability to navigate the course Web site and to communicate with both the instructor and other students. We start actual course content one week later and require all work to be submitted at least one week before the end of regular, face-to-face courses. Online instructors must have time to receive and grade assignments, some of which may be sent by surface mail, and to calculate and report final course grades.

We have found that in totally online courses, students benefit from a high degree of redundancy of critical information. Important dates, for example, should appear in the syllabus, in the assignment pages themselves, in the course calendar, and in any other sites that students visit often. Instructors should double-check carefully each of these postings to eliminate contradictory information. This can be a special problem when preparing a course that has been offered before; an obsolete date, for example, can cause a great deal of confusion for students.

Instructors should also consider including a link to a page of *technical and organizational tips*. On such pages, we try to anticipate technical problems and provide solutions. We include information such as the phone number and e-mail address of the university computer help desk, as well as URLs where students can download required software or obtain necessary browser plug-ins. We also include critical directions, such as disabling pop-up blockers in browsers, and emphasize the importance of checking with Internet service providers to determine whether they limit e-mail attachment sizes.

For bulletin boards and chat rooms, we often set themes or topics for discussion. In our experience, students do not use online course communication tools unless they are required to do so. If the course includes chat rooms, instructors should set specific times and must be available in the assigned chat room at the assigned time.

The Delivery Phase

During the first week of an online course, we recommend sending an e-mail survey to students to determine their entering knowledge of course content, their computer skills, and their previous online learning experiences. We sometimes create a *meet the class* icon that leads to a page containing student names, and with permission, photographs of the instructor and of each class member.

We suggest early and frequent e-mail to students advising them of important upcoming dates, such as the last day to drop a class with a grade of incomplete. Further, we suggest e-mailing everyone at least once each week. A good strategy is to require responses designed to demonstrate whether students are checking e-mail regularly and are able to respond as directed. We immediately e-mail an offer of assistance to any student who seems to be doing poorly or misses due dates.

Each week, instructors should visit the Web sites they have recommended to students as related to the next week's topics. Instructors should check sites to be sure they are still active and exemplary in content. If students sense that recommended sites are not helpful or are obsolete, they will quickly stop viewing them.

Chat rooms present special problems. We have found it entirely too easy to forget to go to chat rooms at appointed times, and we therefore set a weekly computer calendar alarm to remind us when it is time for each regularly scheduled chat. Additionally, we have found it necessary to close the office door when chatting in order to discourage other faculty members from wandering in and interrupting. To further facilitate focused discussion, we recommend restricting chat rooms to no more than eight students at any given time. Even then, very active chat rooms may need rules. For example, instructors might require students who wish to comment or ask a question to first type an exclamation point or a question mark and then wait to be

recognized before entering discussion. Another serious challenge of chat room discussion is the potential for misunderstandings or hurt feelings ([Exhibit 3](#)). For this and other reasons, we have found chat rooms to be less valuable than bulletin boards. Students find it even easier to forget to enter a chat room than instructors do. Furthermore, chat rooms are often dominated by expert typists and those who think quickly on their feet. Bulletin boards, on the other hand, are not dependent on fast typing or quick responses, allowing students to think through their contributions before submitting them.

Providing students with rapid feedback on assignments or tests is especially important in an online course. This response is relatively easy if students submit assignments as Word or Excel files consisting mainly of text. Instructors can download such files, append comments in red, and send them back immediately by e-mail attachment. Mathematics, statistics, or other assignments that require unusual symbols, equations, or handwritten components such as drawings are more problematic. For such assignments, a traditional fax or e-fax may be the best alternative. A toll-free fax number makes traditional fax more economical. Instructors may also choose to use the U.S. Postal Service.

To encourage students to keep up-to-date in their reading and studying, we incorporate frequent quizzes and weekly assignments. WebCT and other course application software include utilities for writing, administering, and scoring quizzes or tests and for reporting quiz and test results. However, students frequently complain that some instructors make errors in preparing such examinations. We cannot overemphasize the importance of double-checking everything in an online course.

Conclusion

Although we have focused on practical suggestions for the development of new online courses, pedagogy and course design are critical factors in online instruction. Indeed, the future of online education almost certainly depends on these variables. Zemsky and Massy ([2004](#)) suggest that the future of e-learning requires (a) the creation of a catalog of lessons already learned; (b) a compilation of the obstacles that must still be overcome; and (c) the development of designs needed to advance e-learning in each of four innovation cycles (enhancements to traditional course/program configurations, course management systems, imported course objects, and new course/program configurations).

Whether we accomplish these goals remains to be seen. However, we believe that online instruction is likely to become more important in the future. Instructors across many disciplines, many of whom are not especially interested in technology or proficient in its use, are beginning to plan, develop, and deliver online courses and programs. We hope that the recommendations in this article will help to make their experiences less traumatic and more efficient and enjoyable.

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