

CONSIDERATIONS FOR TEACHING COURSES ONLINE

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Teaching an online course requires more planning than teaching traditional face-to-face courses. Online instruction involves more than simply having students do readings from a web site or a textbook and then taking exams. Considerations for teaching an online course include the age, technology experience, and learning style of the students, methods of communication, the site/platform for the course, course materials, level of interaction between students and between the students and the instructor, types of assignments, and the amount and type of testing.

One cannot assume that a student taking an online course has extensive computer experience or has the most up-to-date computer equipment. Many students take online courses due to time limitations: these time limitations include working full-time and having a family. Some students use computer equipment available at their place of employment while others may have access to computers at home; for either, the computers may be two or more years old. Some have PC's while others have Mac's: not all software is available for both PC's and Mac's and not all aspects and resources available in all course managements systems are fully-functional for Mac users. Internet connection speeds can vary: some may have internet access through dialup, DSL, cable, and/or FIOS at home while others may have access to high-speed internet connections available through their place of employment or through educational institutions. The computer type, computer age, and connection speed must be considered when selecting resources for online courses. Students' past computer experience may have been limited to reading and sending email, shopping online, bidding and buying on eBay, and downloading movies, music and/or video games. They may have limited experience downloading and installing software as well as downloading, installing, and updating browser plug-ins. This limited experience can make students uncomfortable in using course managements systems, doing online research, and using online texts and resources such as applets designed for concept and method exploration.

Online courses are not for everyone. A successful online learner must be able to work independently without reminders as well as be self-motivated and not procrastinate. In order to learn well in the online environment, one must have good reading skills, like to read, and must be able to pay close attention to details and follow written directions; many students taking online courses feel overwhelmed by the volume of written material including course readings, resources, announcements, discussions, and emails. Learning well online requires one not to be distracted by online and offline diversions. In addition, successful online learning requires a high comfort level with technology and openness to learning to use new technology. One of the most important factors in learning online is

not missing the face-to-face social aspects of the traditional classroom environment. The online learner must embrace online interaction through email, instant messaging (IM), and discussion boards. Finally, the successful online learner must be able to learn from written sources since most online classes do not use video instruction.

This dependence on written instructional materials makes learning style an important factor in online learning. The three most widely-known learning styles are visual, auditory, and kinesthetic: visual learners learn through seeing and watching; auditory learners through listening and hearing; and kinesthetic learners through doing, moving, and touching. Video lectures, PowerPoint slides providing step-by-step instructions and examples, video demonstrations, and interactive tools and applets can provide the visual aspects that are crucial for the visual and active learner. The auditory aspects of video lectures, narrated PowerPoint slides, and by-phone communication/interaction can be helpful for auditory learners. Video demonstrations, interactive tools, and applets provide the hand-on aspects for kinesthetic and active learners. Simulating the in-class interaction involved in traditional face-to-face classes is important for active learners who benefit from discussing and explaining concepts and methods. The online environment can be a great benefit to reflective learners since all course readings, resources, and tools are available for rereading, reviewing, and comparing. For sensing learners, facts, real-world problems, and solving problems using established methods (even plug-and-chug methods) are comforting while intuition, making connections, observing relationships, abstraction, and formulas are strengths on which to draw for intuitive learners. Providing a well-rounded overview to demonstrate how concepts fit together as well as how course material can be used is important for global learners, and providing information in a structured, sequential (linear) manner benefits the sequential learner. For all learning types, making all course material available at the beginning of the course and keeping all information available throughout the course allows the student to compare methods, review material, and use available readings and resources to make connections.

There are many course/learning management systems available. Some such as Blackboard, WebCT (recently merged with Blackboard), Angel Learning (<http://www.angellearning.com/> - recently acquired by Blackboard), and eCollege (<http://www.ecollege.com/index.learn>) are for-purchase, others such as Moodle (<http://moodle.org/>), Sakai (<http://sakaiproject.org/portal>), and Open (<http://www.psych.utah.edu/learn/olms/>) are open source; there are many others (http://www.edutools.info/item_list.jsp?pj=4). Publishers offer course/learning management systems with their texts as well: Pearson has MyMathLab (<http://www.coursecompass.com>), Hawkes Learning Systems, originally known as Quant Systems offers courseware (<http://www.hawkeslearning.com/>), and McGraw-Hill offers ALEKS (<http://www.mhhe.com/aleks/>); WebAssign (<http://webassign.net/>) is homework and testing system that offers material from a variety of textbooks from publishers such as Prentice Hall, McGraw-Hill, Brooks/Cole, W. H. Freeman, and John Wiley and Sons. Course/learning management systems provide tools for whole-class email communication and course announcements, online communication and interaction such as Blackboard's virtual chat and virtual classroom, discussion boards, assignment file submission systems,

and online quizzing and surveys as well as web site capabilities for posting course materials and resources. If costs are an issue for students and if one's college/university does not have a course/learning management system then an open web site can be used just as well; in this case, email can be used for assignment submissions and IM for virtual chat, and a combination of email and instructor-postings can be used for a members-only discussion board (other discussion board options are available as well).

With any of these systems or an open web site, the organization of the information as well as the clarity of the main menu makes the system or the site user-friendly. For example, an unmodified Blackboard menu may contain entries for Announcements, Course Information, Staff Information, Course Documents, Assignments, Communication, Discussion Board, External Links, Student Tools, and Student Tutorial as well as a tools box with entries for Communication, Course Tools, My Portfolios, and Course Map and a views control box with entries for Refresh and Detail View; of course, there is a Control Panel entry on the instructor's menu as well. A large number of general entries can make a menu difficult to use and, thus, make information on a site tricky to find/access. Figure 1 and Figure 2 provide examples of unmodified and



Figure 1: An unmodified Blackboard menu.

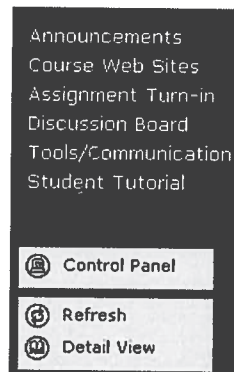


Figure 2: A modified Blackboard menu.

modified Blackboard menus. Regular access is an important consideration when teaching online. While a locked-down limited-access server may be desirable for those who do not want to share course material, students may encounter problems with access due to server problems. Posting course information and general resources on a separate open site eliminates many access problems and saves the instructor time due to the elimination of the many pull-downs and OK buttons on systems such as Blackboard while providing enjoyable design opportunities as well. Careful site design and menu creation are more important on an instructor-designed web site since the site is not standardized and, thus, the users are not familiar with the content. Using an open site in addition to a course/learning management system can be beneficial since the combination can be used to separate resources and to gather

the most frequently accessed resources on the most dependable server.

For an online course, communication must be carefully established and well defined. Announcements pages and current topics pages provide a forum for publicizing course activities such as current readings, assignments, quizzes, and discussion forums; as with any course, it is best to announce all examinations at the beginning of the course. IM, virtual chat tools, and virtual classroom tools provide methods for live online interaction. Since transcripts for each can be saved, all members of the class can benefit from as well

as review virtual class meetings; this is beneficial to reflective learners. To facilitate email and IM communication, it is important to get all email addresses and IM screen names at the beginning of the course; it is important to remind students to update their email address on college/university systems since it is these email address that will be provided by the college/university. Spam and meaningless subject lines make email communication complicated: requiring the use of a course-coded subject line followed by a meaningful reason for the email communication enables the instructor to find class emails rapidly, and requiring each student to set up her/his email accounts to display her/his name as sender helps the instructor to find emails from individual students. Banning the use of text messaging abbreviations and requiring signed communication encourages meaningful emails.

Discussion boards are a useful tool for online interaction, problem solving, group interaction, and presentations. In order to achieve an appropriate level of interaction among students, it is helpful to define the amount and extent of interaction as well as the number of required responses. Requiring the use of complete sentences of more than one word as well as requiring the use of proper spelling and nontrivial responses ensures that students make comprehensible, meaningful main posts and responses. Presentation and dialogue about practice exercises on discussion forums provides an opportunity for student interaction as well as class problem solving. However, in order to encourage an open discourse, it is important to have well-defined rules of engagement that discourage flaming – flaming is the posting of hostile, insulting, offensive, negative, hurtful, disrespectful, or threatening materials or such comments online. Since one cannot hear verbal intonation or see facial expressions online as one can in face-to-face interactions, readers of online communication and discussion board postings have no way to determine when the sender/poster is joking. So, careful communication is important for online communication and discussion postings: negative communication and the use of hurtful, disrespectful, hostile, or insulting language can destroy a nurturing, safe learning environment. An encouraging, protected environment is crucial to online learning since some students feel isolated and are reluctant to communicate their questions or to demonstrate a lack of understanding to other students and even to the instructor.

The graded components of the course such as assignments, quizzes, and examinations must be carefully considered. Unfortunately, if all graded materials are submitted online, there is the possibility that graded components are being completed by others and not the registered student(s). In addition, free response questions demonstrate the student's understanding of course materials better than objective questions. Requiring students to take exams on campus (or proctored for those who cannot come to campus) with verification of identity, ensures that the registered student is taking course exams and allows the instructor to view the student's work/calculations, analysis, and full explanations. By-hand assignments submitted by mail provide an opportunity for students to make connections between concepts/methods as well as to apply what they have learned to more involved/complicated problems/situations. Online paired/group assignments for which pairs/groups must work on group discussion boards as well as Cc the instructor on all group communication, enables monitoring of pair/group interaction

and progress on assignments. Monitored practice exercises is very helpful for students taking online courses; these are possible with text-associated course systems such as MyMathLab, ALEKS, Hawkes, and WebAssign which provide a variety of exercises that are similar to those available in the textbook. Having a view-a-similar-exercise and give-me-a-hint option provides helpful guidance and facilitates learning. Graded/monitored exercises and quizzes that involve more than objective questions help students to learn concepts and to practice methods; these can be administered via email if resources to create them using a course system are not available. Including a grade component for discussions helps students to value their online interaction as well as motivates them to invest the time necessary to learn course concepts and methods applied in the exercises utilized discussion forums. Just as for traditional courses, using a variety of testing opportunities, exercises, and assignments as well as encouraging class interaction accommodates a variety of learning styles and test-takers.

Extra help is as important in an online course as it is in a traditional course. Due to the solitary nature of online courses, students need to know that their questions are valued and welcome. They must feel free to ask questions as well as believe that their questions will be answered, and they must have the assurance that guidance is available when they feel lost or when they feel that they are falling behind. In order to accommodate a variety of learning styles, the instructor must be willing to communicate and interact in a variety of ways. IM, virtual chat tools and virtual classroom tools enable students and instructors to communication in real-time online: this is beneficial to the active learner as well as to those who may be kinesthetic learners. By-phone communication is beneficial to auditory and active learners, and face-to-face appointments are beneficial to visual and auditory learners as well as for those who need the personal touch. While many instructors of online courses may feel that email communication is sufficient, it does not meet the needs of the variety of learning styles that one encounters: it is only immediate if the instructor replies to a message in the moments following the student's sending a message and the student receives the reply directly after that.

Due to the lack of physical meetings, the online learning environment is perceived differently by students. Learning online may feel isolating and overwhelming, the former due to the student's not seeing her/his classmates and the latter due to the volume of reading. Posting on the discussion board may be a challenge for some students who are concerned with being wrong or anxious about being ridiculed. The absence of the structure provided by regular face-to-face meetings may be problematic for students who tend to procrastinate. However, regular communication via email as well as periodic announcements and current topics listings can provide sufficient organization to help students to keep up-to-date. Online interaction and problem solving through discussion board postings and virtual class meetings provide guided instruction as well as group problem-solving experience. Providing a structured learning environment that is not self-paced is the key to managing online learning. Being available to students as well as regular communication and interaction, enable instructors to provide valuable direction. Consideration of learning styles and the frequency of communication and interaction makes it possible to meet student learning needs and to encourage student learning.