

The ABCs of Online Course Design

Gary C. Powell

Even during the 1997–1998 academic year, 66% of the USA’s two-year and four-year postsecondary education institutions offered distance education courses, and another 20% planned to start offering such courses (primarily via the Internet) by 2001. Currently, at least 45% of these institutions offer full college courses via the Internet. Within 20 years, online classes with as many as 1,000 students will replace traditional lecture courses. Distance learning is poised for a 33% annual growth over the next several years. The number of college students enrolled in distance-learning courses will reach 2.2 million in 2002. By 2002, 85% of two- and four-year colleges will offer distance-learning courses. Online course design and facilitation is still uncharted territory for many faculty. To ensure that Web-based courses are adequately developed and facilitated, we must carefully critique them. This article presents a checklist of 25 course design principles faculty can use to critique or evaluate their online course sites prior to launch.

Web-based (online) courses are innovative approaches to distance education, where the learning and teaching process takes place via the technologies and methodologies of the World Wide Web, rather than the traditional classroom. Whether around the corner from campus or even around the world from it, increasing numbers of college students are registering for classes that no longer meet in a predetermined space (e.g., a lecture hall) and time. These classes are meeting at a “distance” from the brick and mortar university campus.

Both historically and currently, the terms “distance education” or “distance learning” are applied interchangeably by many differing researchers and practitioners in a great variety of settings and global locations. “Its hallmarks are the separation of teacher and learner in space and/or time, the discretionary control of learning by the student rather than the distance instructor, and noncontiguous communication between student and teacher, mediated by print or some form of technology” (Sherry, 1996).

Vol. 41, No. 4, July-August, 2001, P. 43-47

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According to a report by the National Center for Educational Statistics (NCES) (1999), which collected information during the 12-month, 1997–1998 academic year, 66% of the nation’s two-year and four-year postsecondary education institutions offered distance education courses, and another 20% of the institutions planned to start offering such courses within the next three years. There were an estimated 1,661,100 enrollments in all distance education courses, and 1,363,670 enrollments in college-level, credit-granting distance education courses, with most of these at the undergraduate level.

For the purposes of the NCES study, distance education refers to “education or training courses delivered to remote (off-campus) location(s) via audio, video (live or prerecorded), or computer technologies, including both synchronous and asynchronous instruction” (1999). The distance education technologies included video (two-way video with two-way audio, one-way live video, and one-way prerecorded video), audio (two-way audio transmission and one-way audio transmission), and Internet-based technologies (Internet courses using synchronous computer-based instruction, such as interactive computer conferencing, and Internet courses using asynchronous computer-based instruction, such as e-mail, listservs, and Web-based courses). Of the institutions offering and/or planning to offer distance education in the next three years, the technology of choice was Internet-based technologies. This finding suggests that Internet technologies will be a growing mode of delivery among postsecondary institutions.

Another indicator of the growth of online Internet courses comes from forecaster William A. Draves of the Learning Resources Network, a distance learning industry group. According to Draves, within 20 years, online classes with as many as 1,000 students will replace traditional lecture courses on campus (Carnevale, 1999). He also believes that universities should slash tuition for online courses to increase access to those in lower income brackets. He does not believe that online education will drive traditional education out of business; rather, it will replace most lecture-based courses on campus. Traditional classes will cater mostly to small-group discussions.

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Growth is also predicted by the International Data Corporation (IDC). “Distance learning, where student and teacher are connected by technology rather than participating in a classroom, is becoming a viable option to traditional teaching methods, and is poised for major growth [33% annually] over the next several years” (IDC, 1999). According to IDC’s research, the number of college students enrolled in distance-learning courses will reach 2.2 million in 2002, up from 710,000 in 1998. The number of higher education institutions offering distance-learning programs is also growing dramatically. According to the IDC, by 2002, 85% of two-year colleges will be offering distance-learning courses, up from 58 percent in 1998. Eighty-four percent of four-year colleges will be offering distance-learning courses in 2002, up from 62% in 1998.

Despite the established base of online courses, online course design and facilitation is still uncharted territory for many college and university faculty. Many faculty members struggle with how to successfully use the available tools and technologies to organize instructional content into well-crafted teaching systems that support learning. Integrating technology into instruction remains the single most important information technology challenge confronting American colleges and universities over the next two to three years, according to data from the Campus Computing Project (1999), a national survey of information technology in US higher education. Thirty-nine percent of the institutions participating in the survey identified instructional integration as their single most significant instructional technology (IT) challenge, up from 33.2% in 1998 and 29.6% in 1997.

While it has been nearly a quarter of a century since the appearance of the first desktop computers on college campuses, the major challenges involve human factors—assisting students and faculty to make effective use of new technologies in ways that support teaching, learning, instruction, and scholarship. Fortunately, most campuses have IT development programs (74.5%) and campus support centers (66.6%) to assist faculty in bringing technology resources into their courses. However, the report does not indicate the extent to which faculty actually avail themselves of this assistance and support.

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In spite of the apparent learning curve, higher education's interest in using the Internet to provide instruction and courses steadily increases. According to the Campus Computer Project survey (1999), since 1998, the percentage of all college courses making use of electronic mail or Web resources increased to 53.4% and 38.6%, respectively. Twenty-eight percent of college faculty utilizes a course Web page. Forty-five percent of the participants in the 1999 survey reported that their institution offered one or more full college courses online via the Internet and the World Wide Web.

Clearly, distance education technologies—and specifically online college courses—are expanding at an extremely rapid rate. Far too often, college faculty become enamored with these technologies, and are quick to offer available Web-based courses (or Web-enhanced traditional courses) without adequately addressing the design, infrastructure, or substance of their course sites, much less other underlying issues, such as the new roles of teacher, site facilitator, and student in the distance learning process. Perhaps this is due to the proliferation of tools (e.g., FrontPage, Blackboard/CourseInfo) which dramatically decrease the time and effort required to create and publish Web documents. Unfortunately, quick development time does not guarantee a well-crafted course site.

Course Design Principles

To ensure that Web-based Courses are adequately developed and facilitated in a manner that will secure and maintain student interest, motivation, satisfaction, and success, we must carefully critique them prior to actually going “live.” This article will present a checklist of factors that faculty can use to critique or evaluate their online course sites prior to launch.

Authority. Look at your Web resources (e.g., links to other Web sites) with a critical eye. What is the basis of the authors' authority? That is, how have they established themselves as someone with legitimate expertise in whatever area their site is about? You should first consider if the author is a well-regarded name that you recognize. If not, then you should check to see if the online document has some kind of bibliography, that is, a list of references used to develop the information. Next, look for the author's biography, if there is one. Is the author affiliated with an educational institution, research laboratory, governmental agency, or other reputable organization related to the topic of the document? Finally, consider e-mailing the authors and tactfully ask them how they came to be “authorities” on the topic.

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Bias. Bias applies to two situations here. First, make sure your text and graphics are not biased or insensitive. Are there indications of gender or racial biases and stereotyping in text or graphics? You also want to check for bias in your included Web resources. Information is biased when it provides only one option or point of view. It is not uncommon for a Web search on a particular term (such as multimedia development) to result in hundreds of “hits” consisting primarily of commercial sites or other for-profit entities. Rather than providing unbiased information—what you expect from, say, an encyclopedia—they provide words that try to persuade or sell. Check to see what organization is sponsoring the page, and follow the link to that organization if there is one. Finally, check to see if the page is actually an advertisement or opinion thinly disguised as a scholarly source of information. Many commercial sites include “white papers” or case studies that appear to be unbiased research studies, but only serve to try to increase sales of their product.

Citations. Have you included full citations, and in the proper format? If you post a document, such as a scanned journal article, be sure to include a full citation. See <http://www.apa.org/journals/webref.html> for the APA’s recommended electronic formats.

Dates. Every credible Web site includes the date it was created and the date of the last update. Also consider the date (age) of your Web-resources and other posted information. Naturally, it should be current; however, you should avoid discarding seminal works just because they have an “older” publication date.

Error messages. If an error occurs, learners should be informed what the error is, why it occurred and what they can do to fix it. Communicate in the user’s vocabulary. It is a good idea to utilize server software that allows you to customize the error messages. For example, if an online learner at Okanagan University College (<http://www.onlinecourses.ouc.bc.ca/>) mistypes his/her log-on ID, the error message reads:

This server could not verify that you are authorized to access. Typical causes of this are you misspelled your LoginID or Password, you used spaces or punctuation in your LoginID or Password, you entered your LoginID or Password in the wrong case (upper or lower) or in mixed case, you clicked on the wrong course or the wrong section of your course. Return to the Course List and try again.

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Frames. Frames can be great for separating navigation components from content. Are your frames neatly arranged, or do they muck up the screen, potentially confusing the learner? Depending on which course management system you utilize, such as Blackboard/CourseInfo, you may have no choice about using frames, and likewise, an inability to provide a no-frames version of your site.

Graphics. Have you chosen the proper format for your graphics? The best rule of thumb is to use JPEG for pictures (i.e., photos) and GIF for graphics, charts, clip art, etc. Also, do not save your images with more than 256 colors and 75 DPI. Set graphics to interlacing such that they become more focused as they load. This gives the learner something to watch and he or she is less likely to become impatient with a slow download. Finally, provide an alternative text that appears while an image is loading, when the 'show images' option on the browser is turned off, and in text-only browsers.

Help. Is "help" available for those requiring it? While we strive to create Web sites that are intuitive and user friendly, we should still provide assistance for those who require it. Include access to help on how to use the site. The help should explain what all the features, buttons, and sections of the site are. Frequently asked questions (FAQs) are valuable as well. If you have a help section or a FAQ, consider how helpful it really is.

Icons. An icon is a symbol or graphical representation of a concept, such as an image of a house representing the home page. Do the icons clearly represent what is intended to others besides you? Make sure your icons are consistent, well defined, and comprehensible (across cultures).

Join. Have you provided information on how interested students can join your class? Provide specific detail on the enrollment and registration process. Occasionally, Web surfers will locate your class and want to join it, even if they are not enrolled at your university.

Keeping records. Does your site keep records of student performance? Whether records are kept in a student accessible online grade-book, or quiz scores are automatically e-mailed to you, check the functionality of these features.

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Links. Check your site for links that are outdated, gone, or simply inaccurate. Are all the links clearly visible, accurately labeled, and understandable? You should check your site at least once per semester for unreliable links, or what is called 'link-rot.' A reliable link, on the other hand, is up-to-date, active, and does not reference a site that has moved (with no indication of the new URL). Be sure to inform learners when clicking on a link will 'surf' them off the source site to a separate Web site, rather than to another page on the course site. Links to documents and files should be annotated, informing learners of the type of file or information they are linking to (e.g., video, sound, text, etc.). Finally, check all links on the site for relevance and appropriateness.

Multimedia. Does the use of animation, video or audio clips contribute to the understanding of the information? Given bandwidth constraints and limitations, make sure any media you embed is really necessary. Music playing in the background of the home page is probably a 'bell and whistle' you can do without. Is file size information included for all downloadable media clips (e.g., *combustion.avi [1947k]*)? Finally, if you include streaming media on your site, be sure to either offer learners the means to choose connection speed (e.g., 28.8K, 56K, T1), or stream your media at a low data rate. This will enable those with low connection speeds to view your content.

Navigation. Learners should always be informed where they are within the hierarchy of pages on the course site, and how to get to their next destination. Check that all of the locations (e.g., pages) within the site are labeled. Have you provided clear, simple ways to get to other parts of your site? Learners will find navigation links, site maps, search mechanisms, indices, and tables of contents quite useful. Your first task is to provide navigation control on every page. Don't rely solely on the navigation controls in the browser. Does each page provide a way to return to the home page? Check the number of steps required for navigating from one place to another. It should be kept to a minimum. Check the length of your pages. If scrolling is necessary to read a single page (as you might expect if you placed an entire 500-line syllabus on one page), provide links within the long pages by using targets. Try to keep your navigation hierarchy as flat as practical. There should be no more than five levels and preferably fewer than three. Check for dead-ends, which are links to destinations that provide no means to return back. Finally, be sure to indicate the distance and placement of the learner with instructional sequences (e.g., page 5 of 15, page 6 of 15, etc.).

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Organization. Are your online documents and other information well organized? Course management systems such as Blackboard/CourseInfo impose some organization upon you, with an area for announcements, an area for assignments, etc. The goal is to keep related information grouped in an orderly fashion. For example, one natural approach is to place different information (e.g., office hours, reading list) on separate pages, and to use proper headings within pages.

Printing. Learners may want to print all or some of your Web pages. Some information is appropriate for printing and some is not. For example, a page designed to present streaming audio or video cannot be printed in a meaningful fashion because the data are not amenable to the print medium. On the other hand, text that users may want to keep as reference material is appropriate for printing. If students will want to print the Web pages, which is highly likely, design them so that they format well in printed and on-screen form. To do this, be mindful of page width and length. To facilitate printing multiple pages as a collection, you should provide a means for students to do so. Simply supply a link to one long page that is comprised of all the text from the course site. This way, the print command can be issued just once.

Quick and dirty. “Quick and dirty” means cheaply made or done, or of inferior quality. Does your site look quick and dirty? Does it appear as if you created it one hour before the arrival of your first online student? Carefully check your site for misspellings, improper diction and syntax, missing data (e.g., graphics), etc.

Required plug-ins. If Java, ActiveX extensions, or plug-ins are employed, do they actually improve the site? Make sure required plug-ins or other helper applications are clearly identified, preferably right on the home page.

Structure. Structure refers to the arrangement and organization of the elements of the course site, and the relationship of those parts to each other. In other words, how well is your site constructed? Do your Web pages follow good graphic message design principles? Do the graphics serve a function, or are they merely decorative? Are backgrounds or other visual elements distracting or cluttered? If there is an element of creativity does it add to or detract from the document itself? Does the visual design enhance usability and understanding, or is it distracting? Make sure that essential instructions appear before interactive portions. Assure that all the parts of the site, such as Flash animations, work. Is the site intuitive, or are parts likely to be misunderstood? Check the structure of the site for stability. Features should not disappear and reappear between visits. Any interactions that involve private information should be secure. How well do the features of the site work for learners with older browsers? The site design should be appealing to and appropriate for the intended audience. How long does it take for your pages to load? The pages should consistently load without problems; stability is important. Overall, your goal is for the design elements and features—such as searchable databases, animations, graphics, sound files, and transitional pages—to enhance and not hinder the accessibility and enjoyment of the site.

Text. Does the text follow basic rules of grammar, spelling, punctuation, and literary composition? Is attention paid to the needs of the disabled, who often require a larger font to read the materials? Is the text concise, or does it ramble on, resulting in excessive scrolling (which should be avoided anyway)? The text should be easy to read, and not cluttered by distracting graphics, fonts, and backgrounds. Check the text for sufficient contrast, and adequate print size. Is the text, including heading, clear and descriptive, or does it use jargon meaningful only to you?

User friendly. Does the site look and feel user friendly? Is it easy to find your way around and locate a particular page from any other page? Can the learner interact in satisfying ways? The information on the site should be easy to find and easy to use. User should be able to maneuver around the site easily. All interactive features should be explained clearly.

Virus-free. Does your course require students to download files from the site, such as executable programs or Word documents? If so, virus scan them to assure they are clean. (Author's note: I regularly receive uploaded assignments from online students that have viruses, especially Word documents.)

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Who are you? Your site should indicate who you are (your name), where you work (the institution with which you are affiliated), what your credentials are (position/title), and how your students can get in touch with you (e-mail address, phone number, and mailing address). If other individuals, groups, or organizations provided assistance in the creation of your course site, make sure you give credit where credit is due. Finally, if the development of the site was funded or otherwise supported by an individual, group, or organization other than you, again, say so.

Copying. Make sure you have a back-up (a printed copy and disk copy) of your Web pages and other online material and documents. In the event lightning strikes your server, do you have a back-up of your files, or will you be 'up the creek without a paddle'?

Yo-yo effect. When viewing an instructional sequence, such as steps in a process, do learners have to repeatedly return to a higher-level page before examining the next item in what seems like a logical sequence to them? Consider a lesson on the 3 to 5 steps to change a light bulb. Rather than incorporating a logical navigational structure where the learners can click on back or forward arrows to navigate through the lesson, the yo-yo effect forces them to first return to the main menu in order to select the next task. This 'up-and-down-up-and-down' should be avoided.

Zero. Now that you've reached the end, you should have zero faults with your course site!

References

- Carnevale, D. (1999, December 2). Online courses of 1,000 students will become common, industry group says. *The Chronicle of Higher Education*; <http://www.chronicle.com/free/99/12/9912020lu.htm>
- Distance education at postsecondary education institutions: 1997-98* (1999, December 17). Washington, DC: National Center for Education Statistics; <http://www.nces.ed.gov/pubs2000/2000013.pdf>
- Distance learning takes off, fueled by growth in Internet access.* (1999, February 9). Framingham, MA: International Data Corporation; <http://www.idc.com/Data/Consumer/content/CSB020999PR.htm>
- Sherry, L. (1996). Issues in distance learning. *International Journal of Educational Telecommunications*, 1(4), 337-365.
- The 1999 National Survey of Information Technology in US Higher Education.* (1999, October). Encino, CA: The Campus Computing Project; <http://www.campuscomputing.net/pdf/1999-CCP.pdf>

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