A Ten Level Web Integration Continuum for Higher Education: New Resources, Partners, Courses, and Markets

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Introduction

Owston (1997, p. 27) pointed out that, "Nothing before has captured the imagination and interests of educators simultaneously around the globe more than the World Wide Web." Web developments have converged to dramatically alter most conception s of the teaching and learning process (Bonk & Cunningham, 1998; Harasim, Hiltz, Teles, & Turoff, 1995). From every corner of one's instruction there lurk pedagogical opportunities--new resources, partners, courses, and markets--if one were to emp loy the World Wide Web as an instructional device. Nevertheless, teaching on the Web is not a simple decision since most instructors typically lack vital information about the effects of various Web tools and approaches on student learning. Of course, s uch information impacts the extent to which faculty are willing to embed Web-based learning components in their classes.

What Web-related decisions do college instructors face? Dozens. Hundreds. Perhaps thousands! There are decisions about the class size, type of assessments, amount and type of feedback, location of students, and type of Web courseware system use d. Whereas some instructors will want to start using the Web with minor adaptations to their teaching, others will feel comfortable taking extensive risks in building entire courses or programs on the Web. Where you fall in terms of your comfort level a s an instructor or student will likely shift in the next few years as Web courseware stabilizes and is more widely accepted in teaching. Of course, significant changes in the Web-based instruction will require advancements in both pedagogy and technology (Bonk & Dennen, 1999). Detailed below is a ten level Web integration continuum of the pedagogical choices faculty must consider in developing Web-based course components.

The Web Integration Continuum

Advances in communications and distributed learning technology have increased the levels and means for incorporating the Web in one's instruction. Instead of lofty promises about world renown researchers to coming to your classes via Web-based videoconferencing, this paper will address ways to incorporate the Web in instruction from low end course advertising and information resources to high end shifts in one's overall teaching practices and program offerings. Using this Web integration cont inuum, instructors can decide on the degree of instructional risk they are willing to take as well as reflect on the risks already taken.

To denote the different levels for incorporating the Web in one's instruction, we have designed a ten level Web integration continuum of the pedagogical and technological choices faculty have in developing Web-based course components (see Table 1) (Bonk & Dennen, 1999). In effect, the lower end of the continuum--Levels 1-5--primarily represent informational uses of the Web. For instance, the Web can be a tool used to market a course or share syllabi with potential students and colleagues. In addition, the Web, at times, symbolizes the idea that students need time to explore the vast stores of knowledge in which a field is based. It can also be used as a way to recognize student efforts by creating course legacies or posting previous student s' work. The Web can also be used by instructors as a vehicle for posting their own work, including course handouts and supplemental course resources. When such student or instructor Web resources are deemed valuable enough, one may decide to repurpose them for instructors and students in similar courses. The repurposing of Web resources, Level 5 of the continuum, may, in fact, be the most exciting and potentially explosive part of Web-based instruction.

At none of these first five levels is the Web a required component of a course. Instead, the Web might be viewed initially as an information source or place to share resources and prior work. Only when we enter the latter five levels does the Web entail graded components of a class or program. At that point, the atmosphere surrounding Web integration may change since students are held more accountable for their efforts.

Insert Table 1 about here

Not only are students more accountable at the higher end of the continuum, but there is a greater time commitment on the part of instructors at this end of the continuum. For example, when it is no longer just a free information source, instructor s have to be more selective in what is linked to their course Web site. They also are charged with updating it and making sure that there are few, if any, unusable or dead Web links. As Web integration moves to Levels 6 and 7, instructors begin to exper iment with online debates, electronic class discussions, and perhaps even virtual role play activities.

An instructor in such situations needs to reflect on his or her role. Will you dictate the content covered or will you be a coach or consultant for student learning? The answer here is not particularly easy since it may depend on the task, timing within the semester, and level of students in the class. What makes it even harder is that we lack comprehensive guides regarding how to be a mentor or facilitate student learning on the Web. In response, we have published an initial set of guidelines to scaffold student learning electronically (Bonk & Kim, 1998; Bonk, Malikowski, Angeli, & East, 1998; Bonk, Malikowski, Supplee, & Angeli, 1998). While these guidelines, based on the work of Gallimore and Tharp (1990), provide some brief exa mples of how to question, offer feedback, structure an electronic task, and push students to articulate and explore, they are just a first step in rethinking the role of the instructor when teaching on the Web. Additional inroads into Web-based instructi on and pedagogy are vitally needed.

In addition to instructor facilitation, the ten level Web continuum also serves as a reminder that the forms of student participation and interaction are keys to student online success. What forms of interaction are you going to rely upon? Will y our students work alone, individually read electronic lecture notes, be placed in small groups, correspond with Web buddies or critical friends, or form satellite interest groups? Perhaps your instructional approach will be one that effectively mixes suc h techniques.

Careful planning does pay off in online learning. In fact, part of the excitement of Web-based instruction is seeing how quickly ideas move to reality. Unlike other arenas of the academy, teaching, especially online teaching, provides an immediat e sense of accomplishment and a means to exercise one's creativity. One can see the effects of structured

student interactions such as the use of debate teams or role play. Our research confirms that carefully planned out online discussions of course re adings can significantly impact the depth of processing and help create a sense of a learning community within the regular class (Bonk & King, 1998; Hara, Bonk, & Angeli, in press). As these online discussions grow beyond a single classroom setti ng, the need for task clarity and simplicity multiplies (Bonk, Malikowski, Angeli, & East, 1998).

At the top three levels of the continuum, Levels 8-10, the Web is no longer a resource or add-on feature for a course, but, instead, it plays a central role within the course. It is the course! Whereas most students in a course at Level 8 of the continuum are residential, thereby allowing for some face-to-face meetings (see Bonk, 1998; Cummings, 1998), at Level 9 they might be located anywhere on the planet. In contrast, Level 10 involves the coordination of entire Web programs. At this level, instructors need to consider how their course activities, interface, and expectations match with the other courses in the program.

To understand how one's course efforts fit along the ten level continuum, elaboration of each level is provided below along with some course and program examples. This section is divided into Web examples, student issues, and instructional design guidelines. For additional clarification of continuum, the first author's homepage interactively demonstrates each level (see http://php.indiana.edu/~cjbonk).

Level 1: Marketing/Syllabi via the Web

At the lowest level of course integration, the Web can be a marketing tool to promote one's courses and teaching ideas to those in other locales through electronic fliers, syllabi, and announcements. This is the easiest way to start using the Web for educational purposes. Consequently, this form of using the Web is fairly common. For example, Indiana University has accumulated a fairly extensive list of Web syllabi (http://bacs.ucs.indiana.edu/~courses/). Sim ilarly, the University of Michigan School of Information has complied a list of faculty course syllabi and placed it online (http://archimedes.si.umich.edu/cfdocs/tcyun/ladybugs/home/splash.cfm Third, the UCLA Humanities Department created the E-Campus (http://ecampus.humnet.ucla.edu/). However, the most complete listing

of college syllabi is located at the World Lecture Hall (http://www.utexas.edu/world/lecture/). As syllabi on display at these locations indicate, there are huge variations in how th e Web is used for instruction.

As with traditional forms of college learning, marketing a Web course or an entire degree program requires gaining the attention of potential students and advisors. Prior to advertising the availability of a course, it is necessary to identify and target the appropriate audience for whom the program will be directed. Similar to print or television advertising, the message should be creative and presented with sufficient frequency to capture the attention of the potential student so that he or she will seek additional information on the course or degree program.

For example, after some low technology ratings by Yahoo and others, administrators at UCLA became worried that they did not effectively market their courses. In response, they decided to place the syllabi of all their humanities courses on the Web . However, they apparently used a top down process that initially lacked faculty buy-in and understanding. In addition, when student fees that were billed separately for this cost, there was extensive dissension and protest. Requiring syllabi and perha ps some lecture notes to be placed in prespecified formats on the Web does little to really enhance learning. It places administrators in control of faculty instead of allowing faculty creativity to flourish. In addition, it raises questions regarding w ho owns the intellectual property that faculty produce for a Web site predesigned by the university; the individual faculty members or the university?

Despite efforts by UCLA and other universities, it is hard to locate courses in a given subject area delivered over the Web, or larger Web-based programs of study, using common Internet search engines. For instance, searching for a course in educa tional psychology brings many URL's of academic departments, but few hits where the course is delivered over the Web. Most of the syllabi culled from such a search are created for conventional face-to-face, not online, courses. Thus, as with commer cial businesses attempting to market goods on the web, when marketing an online course or program, the potential user must find the appropriate homepage and then the homepage must invite the user to pursue relevant information.

Cummings, Bonk, and Jacobs (1999) analyzed syllabi of all education courses listed at the World Lecture Hall (http://www.utexas.edu/world/lecture/). Most syllabi posted there were unidirectional with the focus being to transfer information from the instructor to the students. Few courses facilitated multidirectional informational flow from students to the instructor and from practitioners to students as well as extensive peer-to-peer communication within the course.

Based on a content analysis of syllabi found at the World Lecture Hall, Cummings et al. developed a 3 x 3 matrix to describe the flow of communication patterns facilitated by the Web among instructors, students, and practitioners. These syllabi analyses, not surprisingly, revealed that instructors providing information to students (e.g., course objectives, requirements, due dates, topical sequence, and course content, etc.) is the most common form of communication within this matrix. In contrast to photocopied syllabi, the next most common function of an electronic syllabus is for students to communicate with the instructor. For instance, students can take pre-tests, provide feedback on class sessions, and take q uizzes and tests over the Web. More excitingly, perhaps, electronic syllabi share information with practitioners. In return, practitioners may be involved in class discussions and case analyses taking place in electronic conferences that are neither pla ce-based nor dependent on all participants being available at the same time.

Given the above interaction possibilities, it is clear that we can learn about many aspects of Web-based instruction from Level 1 of the Web integration continuum. Just how are our colleagues teaching the same cour ses we teach? How are they attempting to attract students to their courses? What age or type of student are they targeting? What books, resources, and assessment criteria do they use? How are they incorporating the Web in their instruction? How do ot her instructors approach the same general content? Answers to such questions in both content heavy courses like introductory psychology classes, as well as advanced seminars on learning and memory, are extremely useful. Level 1 Web integration activitie s, therefore, appear to offer rich opportunities for instructors to collaborate and exchange ideas. At the same time, the marketing of syllabi also becomes a way to exchange ideas with students, parents, alumni, policy makers, and administrators.

Student Issues: At this initial level, both prospective and current students take advantage of syllabi on the Web. Prospective students have an opportunity to look for courses that would fit their needs as well as to understand the expectat ions for the courses. Current students can also benefit from having syllabi on the Web because they always have access to the updated syllabi.

Instructional Design Guidelines: How should one's syllabi and course information appear on the Web? General guidelines for Web pages should be applied to syllabi. A common mistake is to simply post a word processing document on the We b and then expecting students to scroll though numerous pages of text. Where possible, instructors should deliver Web information in screen-sized amounts. Instead of simply translating long passages of text into smaller linear segments, a better idea is to layer the content in levels of depth. For example, the first screen-full of information might be general in nature with links that lead the reader into deeper material at their own volition. Deeper levels of material may lead to even more detailed i nformation, to specific examples, or to related information. The key concept here is to present screen-sized (i.e., a paragraph or two) chunks of information at a time and to let users follow their own lines of inquiry. As an option, one could provide a link to a master document for either downloading or printing purposes.

Like all Web pages, one's electronic syllabus should stick to a simple 1-3 color scheme making sure the text is legible, limit use of animation and graphics, avoid distracting background images and blinking text, and develop intuitive navigation to ols that always let users know where they are in the site. At a more advanced level, instructors should take advantage of the enriched communication channels of the Web to share their syllabi. For instance, instructors might conduct electronic polls and post the results of these voting practices on the course homepage. Such practices keep the Web site fresh and fosters a sense of interactivity and community in the class. Even if you do not have the means for electronic polling, you can still post the results on the Web as well as class announcements, updates, transcripts of real-time electronic chats with guest experts, and other activities. The key is to create a dynamic or changing electronic syllabus that generates student movement inside.

Level 2: Student Exploration of Web Resources

At the second level of the integration continuum, the Web is a resource for student exploration both in and outside of class. Instructors provide links to the Web pages relevant to the content of the courses. This use of the Web tends to be a component within many online courses such as the typical listing of Web resources in class syllabi, handouts, or activities. For instance, our undergraduate educational psychology course, the "*Smartweb,*"contains a section called "Very S mart Weblinks" that provides Web resources for students to explore (http://www.indiana.edu/~smartweb/links/weblinks.html). Students in the course can also contribute to the list of links by suggesting useful Web sites. Many online courses have such type s of links for students to explore and instructors to refer to (http://www.valdosta.edu/~whuitt/psy702/).

Level 2 use of the Web fosters student exploration and knowledge discovery. Given the surface level learning of most undergraduate survey courses, this instructional technique encourages students (as well as instructors) to explore course material in greater depth and at their own leisure. In addition, using such links as guides, students might pursue areas that have more personal meaning or professional consequences.

Student Issues: Students knowledge quests need not be totally open ended. Instead of a pure discovery learning model, it is likely that Level 2 Web integration will most often utilize predesigned Web links or sequences. Like WebQuests at t he K-12 level, the Web can provide the resources for a lesson plan. Here, students are guided in their journeys to discover key information from various Web sites such as exploring the Educational Testing Services Web site for vital information on standa rdized testing or the American Psychological Association Web site for information on the 14 learner-centered principles.

Instructional Design Guidelines: Educators and corporate trainers might embed these Web exploration activities as a means to display instructional design approaches in action. For instance, Web activities could illustrate concepts and princ iples related to social learning, discovery, guided, constructivist, and social constructivist theory. In fact, instructors might embed such explorations and then force students to reflect on what learning theories they were addressing in each activity. Or, better still, students might be required to create Web sites that display various instructional approaches in action. Similarly,

small groups might compete to create Web-based lessons representing different forms of instruction. There are limitless opportunities for employing Level 2 resources in one's class.

In addition to detailing theory in practice, it is vital to include instructional tools that allow instructors and electronic guests to provide students with lists of URLs that lead to related material. For instance, main journals in the field, on line scholarly papers, and links to APA or other writing styles help students understand their field better and become a part of their professional communities. Instructors can ask students to compile such a list, or add to one like it, and then share th is list with the entire class. Such activities provides instructors with additional resources and also allows students to explore their own interests and volitions.

Level 3: Student-Generated Resources Published on the Web

At the third level of Web integration, the Web can be utilized by students to generate resources and exemplary products for the class. Instead of returning student generated papers at the end of a class, instructors can ask permission to publis h the best examples on the Web. Hence, Level 3 Web integration can help current students learn the subject matter as well as provide Internet resources for future students.

For instance, the first author has utilized this level of Web integration to post interactive glossaries that students have created for his class as well as URL links to examples of key concepts, summaries pages of topical resources (e.g., distance learning courseware), and school simulation experiences (see http://php.indiana.edu/~cjbonk/#three). In each case, his students were happy to share these Web activities and resources; such resources would have taken weeks or months for the instructor to create.

College instructors may find a myriad of ways to embed Level 3 Web integration in their classes. Level 3 is useful for at least three reasons. First of all, Web integration at this level motivates students by granting credit for work performed in class. Our experience shows that if students know that the best work will be put in display, they will put more time and effort into their product. Second, if such work is exemplary, then the instructor has just gained high quality resources for his or her next class. Keep in mind that in a Web course, modeling

is extremely difficult (Bonk, Malikowski, Angeli, & East, 1998; Bonk & Sugar, 1998). At the same time, posting example answers is crucial to overcoming student anxiety about course req uirements as well as establishing quality standards. Such work is not only a model or example for future students, it is a classroom legacy. The course legacy aspect helps maintain learning communities after a particular unit or semester has ended. Thi rd, publishing student work reveals to colleagues and peers the range and quality of student learning in one's class.

Student Issues: Instructors and instructional designers must obtain student permission prior to posting their work to the Web, or subsequent dissemination of it. Some students are sensitive to having their w ork on display to the world. At the same time, prospective and current students find such resources informative and helpful in making course-related decisions. Instructors, on the other hand, might be concerned with how they will guard against pilferage of online resources and the direct pirating of ideas. As a result, instructors must decide whether the display of work on the Web tends to raise the bar for student course performance or amounts to a lowering standards in favor of wholesale copying and exploitation. As the volume of archived records grow and access is expanded, instructors must become sensitive to the potential for plagiarism. Design of unique assignments should help avoid this problem.

Instructional Design Guidelines: Students can create many types of resources at the third level of Web integration. For example, student profiles can contain information about the student (i.e., interests, e-mail address, personal homepage, etc.) and foster a sense of community among classmates. A second resource, electronic portfolios, could contain all the student work completed thus far over the semester. Classmates and/or the professor (or teaching assistant) could comment on such work . A third resource, student generated Web pages, could serve as reference material for others studying in the field.

In order for students to locate Web resources, instructors need to guide students on how to conduct searches on the Web. Simple search advice, such as Boolean search and the need for patience with dead links and extensive graphics, can be helpful. In addition, instructors can introduce different search engines on the Web and their pros and cons. One of the best Web sites for information on search skills can be found

at: http://www.searchenginewatch.com/resources/tutorials.html. Another useful s earch site is: http://www.calvin.edu/library/ghsearch.htm, while useful Web search training can be found at

the following Web site: http://www.indiana.edu/~tickit/searchengine.html.

Level 4: Course Resources on Web

Instructors can also create a set of class resources on the Web for current and prospective student access. This fourth level of Web integration is an expansion of Level 2 because it not only includes Web resources but also other student resou rces such as lecture notes, PowerPoint presentations, and instructor guidance and tips.

For instance, the *Bobweb* (a graduate level course in educational psychology) is a Web site that contains resources and tools to support instruction for a course often taught throughout the State of Indiana using videoconferencing (see: http: //www.indiana.edu/~Bobweb; see Figure 1). This course was created for graduate students and teachers to use in conjunction with a course on *Alternative Instructional Strategies: Critical, Creative, Cooperative, Motivational* (a master's level cours e). The *Bobweb* Web site has access to books, handouts, Web links, a student information page, FAQs about the course, PowerPoint presentations, learner-centered resources, and an electronic bulletin board for class discussions, etc. related to thes e topics.

Insert Figure 1 about here

Our Web development team is currently designing a slightly different type of course at this level intended to be a set of Web resources for readers of an introductory educational psychology textbook. Here a t eam of instructional designers and content specialists are currently working with Houghton Mifflin Company to create a Web site, currently named "*Insite*," to supplement the ninth edition of the educational psychology textbook, "*Psychology A pplied to Teaching*." Tools in the *Insite* Web site offer opportunities to access information,

reflect on field experiences, construct knowledge, and share knowledge. In the *Insite* Web site, there are weekly activities, course Web l inks, technology demonstrations, PowerPoint slides, hyperlinked glossary, student work samples, reflection questions, practice tests, online discussions, etc. The *Insite* Web site also provides pedagogical suggestions for using the book, suggestion s for using technology in classroom, and various Web resources. While we list *Insite* as Level 4 integration, instructors might decide to use the *Insite* Web site at higher levels of the Web integration continuum.

Student Issues: The Web allows students to access many resources customized for their courses. The advantage of a non-graded Web site is to provide an opportunity for students to freely discuss different issues related to their interests wi thout concerns about subsequent evaluation. For instance, students who meet in a course can electronically continue their discussions about certain pressing issues (e.g., bilingual education).

Instructional Design Guidelines: While the *Bobweb* and *Insite* Web sites are fairly sophisticated Web resources, activities at Level 4 of the Web integration continuum can be relatively easy to design and implement. First, one n eeds some content. Second, one needs to know someone with Web publishing expertise or find a tool that automates the process. Third, one will have to maintain and update any resources placed on the Web. As a result, instructors should be highly selecti ve regarding what they post to the Web and careful about copyrighted material. Higher education instructors might upload lecture notes, handouts, PowerPoint slides, or surveys. Prior student work might also prove useful, especially if you experiment wit h innovative tasks and activities. Once posted to the Web, these resources might be used by other instructors teaching the same course.

Of course, students will be discouraged if these course resources are not kept current. Lecture notes, for example, should be posted promptly (i.e, within 24 hours) after the class session. In addition to prompt posting, archived resources like P owerPoint slides or class handouts, should be organized in understandable ways. For example, in calendar navigation formats, students "click" on a particular day (or week) of class and are then presented with all the relevant resources for that day (or w eek).

Level 5: Repurpose Web Resources

Web resources can be repurposed for use by other instructors and students. At the same time, one can also use materials from colleagues' Web sites to improve the quality of a course and extend the reach of it to students and instructors anywher e in the world.

One Level 5 example is the *Caseweb* site (http://www.indiana.edu/~caseweb; see Figure 2). The *Caseweb* contains cases originally written by students during the field observation in real schools and is intended to be used by undergraduate educational psychology instructors around the world (Bonk, Daytner, Daytner, Dennen, & Malikowski, 1999). To develop the *Caseweb*, we repurposed the best cases from over 700 cases that IU students wrote in *COW* from 1997-1998 so that others around the world could debate them. At the present time, there are about 40 cases in the *Caseweb* (2 or more for each typical educational psychology chapter) as well as case introductions, sample mentoring and feedback, and a bu lletin board system for discussion. Whereas some educational psychology instructors are using these cases as student quizzes, others are using them as points of discussion and reflection.

Insert Figure 2 about here

Student Issues: Using case-based scenarios can help change students' perceptions about key course concepts, especially for pre-service teachers. Students will learn to become a teacher and think like a teacher through discussions with peers and mentors based on cases presented on the Web. Instead of sitting back and reflecting on instructor lectures, these students can reflect on how concepts emerge in real world settings while noting their personal preferences in electronic conferences. In effect, Level 5 tools provide a vehicle to shift instruction from lectures and didactic instruction, to new resources, partners, courses, and markets.

Instructional Design Guidelines: Level 5 is exciting for instructors since it allows one's teaching ideas to impact students anywhere in the world. It also fosters personal reflection on one's own teaching and learning. In addition to case scenarios, instructors in higher education can develop student surveys and questionnaires, sample tests, testing

systems, or class activities. In effect, the Web becomes a tool in which to build resources that can be globally shared with colleagues. Sh aring experiences about both traditional and online teaching will likely prove invaluable for novice instructors as well as those with decades of college teaching experience. Hence, while we think we are repurposing work for others to use in their instru ction, we may also be supplying the mental yardsticks for reflecting on one's own teaching performances. In the end, if each college instructor posted their best instructional resource for the teaching to the Web, there would be an amazing wealth of free or inexpensive teaching resources.

There are many caveats for creating resources that could potentially be used anywhere in the world. A potential user should be provided an opening statement of the purpose and scope of the Web resource or tool. Directions for use should be simple and lucid. Third, suggestions on alternative uses of the resource should be offered. Fourth, there should be a mechanism for sharing with other instructors and students how one is using the tool or activity. Finally, the site should describe how often and to what extent it has been used as well as provide an account of recent activity. When this occurs, new collaborations and partnerships become possible.

In effect, while Levels 4 and 5 represents a wide gamut of Web resources, what distinguishes them from the higher levels of the continuum is that they provide nongraded materials. Once course materials are graded, we move to Levels 6-10 of the con tinuum.

Level 6: Substantive and Graded Web Activities

At the sixth level, the Web is a substantive and graded part of the course experience. For instance, student online discussions about their weekly course readings can significantly impact their depth of processing of the material and help crea te a sense of a learning community within the regular class (Hara, Bonk, & Angeli, in press). This level of Web use is becoming increasingly popular. For instance, as a result of UCLA "requiring computer Web sites for all of its arts and sciences co urses" (Noble, 1998), many courses with computer conferencing or graded online components were launched (http://www.sscnet.ucla.edu/classes/).

During the past year, the first author was involved in designing one project at Level 6 called TICKIT: *Teacher Institute for Curriculum*

Knowledge about the Integration of Technology
(http://www.indiana.edu/~tickit) for 25 teachers from 5 rur al schools in Indiana to learn to integrate technology in the curriculum. TICKIT teachers receive six graduate credits while experimenting with technology in their teaching. *TICKIT* projects and teacher training activities to date have included We b quests, Web searching, Web editing and publishing, electronic newsletters, collaborative writing, and digitizing images. The reason this project is listed at Level 6 is that participants in TICKIT are required to contribute to electronic discussions fo r part of their course grades. During the first year of the project, we employed both *COW* (*Conferencing on the Web*) and *V-Groups* from the Virtual University for required class discussions. Using these tools, teachers are engaged in online debates and reactions to course readings.

Student Issues: We enter new and precarious territory when we start discussing graded components of a class that utilize the Web. Students may become more cautious about what they post. They begin to realize that each typewritten message m ay have an impact on their course grade. Instructors must be sensitive to the potential change in environment. Whereas conventional assignments are submitted to the instructor in a paper, assignments posted in a Web conference are viewed by classmates. Once accomplished, the quality of student work is evident to all. In the paper version, only the instructor is aware of spelling, grammar, and the overall quality of the content.

Our experience shows that without set requirements and points awarded, students, especially undergraduates, may simply decide not to participate. At the same time, it must be recognized that students have many competing activities for their time. Part of the hesitancy to participate is that it may be difficult to know who their classmates and instructors are now. Just where do they get course answers and insights to improve their grades? There are many such serious student learning issues on t he Web.

Instructional Design Guidelines: Besides student confusion, instructors have daily and moment-to-moment decisions about how best to teach students. Should they rely on questioning techniques and playing devil's advocate or should they try to give extensive praise and encourage student participation? Should they rely on previous canned lecture material or should they push students to explore the Web for

similar resources. Should they encourage dialogue among the entire class or small group learning or partner activities? As an instructor confronts such questions, one finds a voice on the Web and begins to understand the many ways to utilize the Web in instruction.

At Level 6, a college instructor is not giving up control over his or her course, but is enhancing and extending the course. The graded component not only holds students accountable for their work, but it guarantees that instructor time to create the conference and associated topics was not wasted. Electronic discussions also allow students a chance to digest the extensive material in content rich classes like history or geology. Thus, with Web discussions and reflections, students might delve d eeper into issues of importance and pursue areas of personal relevance. Even traditionally shy students may open up and become bonded with classmates in ways not possible in a traditional classroom setting (Cooney, 1998).

The use of Web-based conferencing tools will change the general dynamic of the regular classroom (Bonk & King, 1998). Using conferencing tools prior to class lecture, students come to class having read the online discussions and are more aware of peer positions on issues (Hara, Bonk, & Angeli, in press). Hara et al. found that in a graduate educational psychology class, the assignment of a student to start discussion and one to end or wrap up discussion each week fostered interactive disc ussion and depth to the dialogue. Without such preset starters and wrappers, discussion was disjointed and scattered. Such simple pedagogical interventions like the starter-wrapper technique and various role play activities, in fact, may determine the s uccess of Web integration. To reduce students' initial anxiety, it is beneficial for students to see models or examples of different roles.

Level 7: Course Activities Extending Beyond Class

In Level 7, students communicate with others outside of their class. For instance, student electronic conferencing and course activities can extend beyond one's class to include peers, practitioners, teachers, and experts from other classes an d countries. Harasim (1993) states that computer networks make the world more connected. By communicating with other students who are from different schools and countries, students gain multiple perspectives. Fortunately, there are many tools available for such electronic conferencing, such as *AltaVista Forum*, *COW*, *FirstClass*, *Caucus*, *WebCrossing*, and *Lotus Domino*.

For instance, we have used COW for the past five semesters to foster student interaction with peers and experts around the world (see, for example, http://cow.cee.indiana.edu; password clearance required). In helping with teacher education field r eflections, the Web serves as a safe harbor for preservice teachers to try out instructional ideas and reflect on their early field experiences with students from other classes and universities around the world (Bonk, Malikowski, Angeli, & East, 1998) . In addition, we have used *COW* for chapter discussions, small group work, and other reflections in the *Smartweb* undergraduate course mentioned below. We have also created mentoring programs between graduate and undergraduate students and fostered interactions among practicing teachers.

The *COW* project recently evolved into *The Intraplanetary Teacher Learning Exchange* (TITLE). This is a Web activity wherein preservice teachers at Indiana University are discussing their early field experiences with peers at universi ties in Finland, Korea, Peru, Texas A&M, University of South Carolina, and students in the Cultural Immersion Program at IU. Using COW, these preservice teachers are generating case situations on the Web, while getting feedback from students and prac ticing teachers around the globe. Here, we are researching the forms of electronic mentoring. In particular, we are interested in how to extend discussion, engage students in critical thinking, and encourage them to justify their reasoning.

A graduate level project at Level 7 involves Jack Cummings' creation of an electronic journal that allows experts in the field as well as practitioners and students the chance to comment directly on recent publications (see http://www.indiana.edu/~ ejournal/). Each article published in this journal serves a starting activity for discussion on such topics as assessment, consultation, invention, and prevention/health promotion. The ultimate purpose of Web use here is to stimulate dialogue among a le arning community of school psychologists.

Student Issues: The advantage of activities at Level 7 is that students will gain the opportunity to learn from each other. No longer is the teacher the center of the classroom. Instead, students can learn from exchanging ideas with people from different cultures. It is important to document just how electronic conferencing can help students explore a myriad of ideas from multiple perspectives. Just how do students begin

to create shared meaning?

Instructional Design Guidelines: At Level 7, Web integration brings your students to the world and the world to your students. Not only can your undergraduate preservice teachers go online to ask questions of practitioners and peers, these professionals can ask questions of your students and offer timely advice. As indicated, conferencing tools can enhance field experiences within higher education courses like auditing, safety management, or social work. Having expert mentors might also h elp with team projects or proposals as well as with initiation into professional organizations and internships (Cummings, Bonk, & Jacobs, 1999).

At Level 8, instructional designers must consider the predominant language of the Web users as well as allow for conversations among native speakers of other languages. In the *TITLE* conference, for instance, we recently created a "Span ish only" conversation originally intended for students and faculty from Peru. However, this conference area soon became a place for students in the United States to practice their Spanish.

Level 8: Web as Alternate Delivery System for Resident Students

At Level 8, the Web is typically used to make course instruction asynchronous or "anyplace, anytime." Here, local and residential students with time conflicts (e.g., working parents or those with performance careers) can sign up for a Web-base d class. Since the target audiences at the level are primarily students living on-campus, instructors can assume that the students have access to the resources, such as libraries and computer labs, provided by their respective universities. For example, the *Smartweb,* mentioned earlier, relies on common campus e-mail and file sharing systems (see http://www.indiana.edu/~smartweb).

The *Smartweb* is an elaborate undergraduate educational psychology we have developed complete with student electronic portfolios, weekly chapter activities, small group work, discussion groups, reflection papers, avatars, peer commenting and interaction capabilities, Web link suggestions, personal profiles, administrivia, cafes, syllabus, agenda, etc. (see Figure 3). Since we began this project three years ago, there has been minimal lecturing in the *Smartweb*; instead, we have emphasi zed plenty of instructional strategies and student social

interaction.

Insert Figure 3 about here

In addition to the *Smartweb,* the World Lecture Hall lists two other educational psychology courses that appear to be at this level of Web integration. Of course, with Level 8 courses likely to proliferate in the next few years, it is crucia l for the instructors of these courses to communicate ideas and success stories with each other. The *Insite* Web site, mentioned earlier, will be one place wherein success stories or summaries of best practices might accumulate.

Student Issues: Web courses at this level have both advantages and disadvantages for students. It is convenient for students to take courses online because they do not have to go to physical classrooms since everything is available online. However, it also requires students to be self-disciplined and self-motivated. Procrastination is a significant dilemma in courses taught totally online since instructors have fewer opportunities for physically reminding students of due dates and physica lly collect assignments. The parallel issue here is that students can quickly be overwhelmed by the new learning forum. Most Web instruction and task submission processes are foreign to them. Many students will use this as a crutch if allowed to by the instructor. The advantage at Level 8 is that students are typically on campus and, accordingly, can seek the instructor out for help and guidance if needed. In addition, the instructor can hold formal meetings or informal lunches with students to touch base with them and offer advice.

Instructional Design Guidelines: Instructors need to motivate students to keep them in the online courses. As Bonk and Cummings (1998) suggest, it is important to use public and private forms of feedback effectively. Since students cannot see instructors physically, they need to feel connected with their instructors. For instance, instructors might use public feedback for official announcements but private feedback like e-mail to encourage student work and to build personal relationships with individual students. Instructional designers must build new Level 8 tools for delivering instruction, offering course

feedback, and managing course concerns. Among the ways to keep students informed of tasks and maintain schedules is to assign ever yone in class an e-mail pal, critical friend, or Web buddy from within the class (or from another class). These "critical friends" might provide weekly feedback on each other's work and to keep peers up-to-date on tasks coming due.

Level 9: Entire Course on the Web for Students Located Anywhere

The ninth level involves teaching an entire course on the Web to students located off campus and around the world. This kind of course offers opportunities for students who cannot be physically on campus to study with other students (e.g., Owst on, 1997). There are many examples for this level including courses at Michigan State University's Virtual University (http://www.vu.msu.edu/), Technology-Assisted Lifelong Learning at Oxford University (http://www.conted.ox.ac.uk/intall.html), and Tamin g the Electronic Frontier (http://www.virtualschool.edu/98a/).

At Indiana University, Professor Kathleen Gilbert has developed and taught a Level 9 course for graduate or undergraduate credit related to death and dying called "Grief in the Family Context" (see http://www.indiana.edu/~famlygrf/). Since student s from Hawaii to Israel enroll in this course, the sun never sets on it. Here, students are expected to utilize technologies such as Web browsers, Web-based conferencing, e-mail, and tools for sending and receiving files. Similarly, Dr. David Perry at I ndiana University offers a graduate level educational psychology course called "Learning and Cognition in Education" to students throughout the planet. Web resources, computer conferences, electronic syllabi, course schedules, and lecture note s can be found at his Web course site (see http://education.indiana.edu/~p540/webcourse/index.html).

Clearly, Level 9 Web course opportunities, as with every level of the continuum, are on the rise. It seems plausible that student learning at Level 9 will be the marker by which online learning will be judged. Hence, collection of data and report s on student learning here is vital.

Student Issues: Level 9 offers unique opportunities for students to learn with peers at other locales and in different time zones. Here, students can share course knowledge and become good friends with students they may never meet. Through socially shared knowledge,

teacher education students might build perspective taking and interpersonal skills; key skills in becoming effective teachers. During the coming decades, the chance to share knowledge and ideas across such distances is bound t o impact courses in international business, teacher education, and healthcare. Such global collaboration and dialogue is definitely among the strengths of Web-based learning (for a list of Web instruction benefits and problems, see Bonk & Dennen, 199 9).

Of course, when Web courses are offered to students around the world, the norms for operating a course are no longer in effect. Many questions arise. Should instructors provide daily, weekly, monthly, or once a semester feedback? Will peer feedb ack be required? If so, when? What scoring or evaluation systems will be in place? Will students get written or electronic feedback? How detailed will it be? Will exams be proctored or somehow supervised? How can I verify that student work actually was generated by a certain individual? Each decision here will have significant ramifications in terms of student learning.

Instructional Design Guidelines: Instructional design guidelines are increasingly complex as we move to the upper edges of the continuum. At Level 9, instructional designers must begin to consider how to develop tools for establishing a sen se of community and fostering student engagement in the learning process. Equally interesting, some instructors who now teach courses with minimal Web integration might team up to offer a joint Web course across university settings. Some instructors mig ht combine pieces of Web courses that they have separately developed to jointly offer cross-institutional courses. Similarly, some accrediting bodies in areas such as teacher education, business, and medicine may start recommending various Web-based cour ses to schools receiving marginal or failing reviews.

Level 10: Course Fits Within Larger Programmatic Web Initiative

The tenth and final level involves embedding Web-based course development efforts within larger programmatic initiatives of a university, department, or Internet service company (Rowley, Lujan, & Dolence, 1998). In terms of traditional uni versities with programmatic efforts in distance learning, examples of the former include Ohio University MBA Program--The Ohio University MBA Without Boundaries (http://mbawb.cob.ohiou.edu/), the University of

Illinois' Master's Degree in Library and Info rmation Science program (http://alexia.lis.uiuc.edu/gslis/leep3/index.html#head), Indiana University's Master's Degree in Language Education (http://education.indiana.edu/~disted/masters.html), and Drexel University's Master of Science in Inform ation Systems (http://www.cis.drexel.edu/aln). Well known for profit institutions and commercial organizations in Web-based learning include the University of Phoenix (http://www.uophx.edu/), Walden University's master's degree in Educational Change and Technology Innovation (see http://www.waldenu.edu/), and the Western Governors University (http://www.wgu.edu). Those seeking more information, might visit the Yahoo site that lists universities providing distance education courses for both kinds of orga nizations (http://dir.yahoo.com/Education/Distance_Learning/Colleges_and_Univ

Beyond the US, such cyber or virtual universities are becoming very popular in countries such as Korea and the entire Pacific Rim. One of underlying rationales for this Web-based instruction boom in Korean education institutions is to expand the a ccessibility of quality of instruction to people enrolled in different universities. This trend is spurred by new educational law called "credit bank system," a policy to grant a degree based on the amount of credits a student registers in his/her credit bank regardless of the school in which he or she is enrolled.

For example, there is the Korea Virtual University or "Cyber UNIV;" a consortium of a group of large urban universities in Korea such as Chunnam University, Ewha Women's University, Kyung Hee University, Kwanghoon University, Hannam University, etc . This consortium is offering students Web-based instruction possibilities (see http://cyber.chonnam.ac.kr/kvu/index.html). One of advantages of this united Cyber UNIV is that it provides students with a variety choices of courses offered by different un iversities and professors as well as special nondegree or certificate programs in such areas as information management technologist. A second example of this Web-based instruction boom in Korea is found at Seoul National University. Seoul National Unive rsity (see http://www.snu.ac.kr/engsnu/index.html) has created the Virtual Campus (see http://snuvc.snu.ac.kr/) to provide a uniform platform for all Internet-based courses.

Without a doubt, the range of institutions offering entire programs on

the Web is proliferating. In fact, Internet companies, university consortia, and other services are emerging to administer these programs. It is conceivable that teacher educa tion institutions or for-profit Internet businesses might try to locate the best Web courses for different aspects of an undergraduate degree in teaching. Exactly how higher education will be affected by these large scale consortia remains unclear.

Student Issues: As entire college programs become available over the Web, students will benefit in a number of ways. First of all, students can more directly compare the courses, course requirements, faculty, costs, and instructional opport unities at different universities. Instead of paying for courses on a piecemeal basis, students might discover the true costs of the courses leading to their degree. Second, they will begin to focus beyond obtaining knowledge in individual courses and p erhaps reflect on how various courses might fit within an overall scheme of study. They will better appreciate the sequencing of certain courses and the planning required for completion of their degrees. Third, students will be able to explore particula r course and program Web pages and make better guesses as to which instructors go the extra mile in their teaching. Recent issues of the Chronicle of Higher Education indicate that students are accessing Web sites that document and compare online course offerings at different institutions. Finally, online programs benefit students by providing a cohort of other peers on the Web. When this occurs, they have more shared knowledge from which to post statements and ideas.

Of course, all institutions are faced with many new decisions regarding what to charge students in online programs of study (e.g., in-state or out-of-state fees). New policies about the course fees, instruction, course management, and advertising will affect student learning in the class. Naturally, students will benefit if there is some instructor and course stability. Students are the big losers when instructors decide that they can no longer handle the workload of teaching on the Web. And wh at if students really get turned on by the instructional approaches of one Web instructor but other instructors simply transport lecture notes to the Web? Clearly, how students are treated before, during, and after the Web experience, will determine the long term as well as the short lived players in online learning.

Instructional Design Guidelines: In order to provide entire programs

on the Web, carefully planned curricula are necessary. Getting a degree is different from randomly taking available online courses. Thus, students and their advisors need to carefully plan the curriculum that fits individual students' needs. This kind of support becomes crucial to successful Web-based degree programs. In addition, instructors teaching within online programs must consider how their course fits within a c ommon online interface. They need to consider whether course expectations, format, sequencing, and grading criteria will be similar across online courses.

Reflection on the Levels

It is vital to think deeply about the level of your Web integration efforts. Each decision made has long-term impacts on the design of your course, cost-benefit analyses, student attitudes, and student overall participation and interaction pat terns. The ten level Web integration continuum provides an initial step for thinking about the degree to which you can incorporate the Web in your teaching and learning settings. Will you utilize the Web for nongraded activities or move one to the top f ive levels of the continuum? Perhaps you will do both.

Once you have determined the level at which you will embed Web activities in your teaching, you will need to decide on the instructional strategies that might make the Web effective (Bonk & Dennen, 1999; Bonk & Reynolds, 1997). What types of creative thinking techniques will foster students' generative processes? For example, you might try brainstorming ideas on the Web or using computer conferencing and chat tools to free up student inhibitions. Besides student divergent processes, you will want to include opportunities to foster critical thinking and evaluative processes. One might structure electronic debates on key issues seen in the field with forced compromise positions, or, if there are specific course readings, reading reactions might encourage students to defend ideas, analyze the credibility of sources, draw appropriate conclusions, and distinguish relevant from irrelevant information; all vital critical thinking skills.

Web instructors might also embed cooperative learning or team oriented activities such as having assigned "critical friends" or e-mail pals in the course respond to one's work in a private conference. Using other cooperative learning methods, such as jigsaw or group investigation, can force students to contribute pieces to an online

conference thereby fostering teamwork and collaboration skills (Bonk, 1998). As Bonk and Dennen (1999) point out, templates of such pedagogical activities are too oft en ignored in the development of Web courseware, where glitzy technology with prespecified formats is the norm.

In addition to instructional strategies, instructors need to reflect on how they will use the Web to enhance learning from a learner-centered perspective (Bonk & Cummings, 1998; Bonk & Reynolds, 1997). In linking their twelve recommendati ons to different aspects of the 14 learner-centered principles from APA, Bonk and Cummings (1998) begin an important next step in Web instruction--to frame Web-based instruction from psychologically sound learning theory.

In their recommendations, they point out how groups can form on the Web, what the Web encourages or nearly mandates for instructors, and how to create psychologically safe learning environments on the Web. For instance, embedding student choice i n activities is a way to foster intrinsic motivation within the course and build on learning strengths. In addition, students need clear task structuring and immediate feedback in a Web course. Unlike traditional instruction, online students are expecti ng feedback on every post they submit. In a traditional class, the instructor may only call on a few students to get their answers, but on the Web everyone contributes. Establishing peer mentors or buddies effectively reduces the amount of work an instr uctor has to do in these environments.

Finally, as good teachers do in traditional classrooms, Bonk and Cummings point out that Web instructors need to find ways to vary the forms of electronic mentoring and apprenticeship. For instance, at any point in instruction, one can now incorpo rate peer mentoring, practitioner mentoring, cross cultural mentoring, or self-reflection. Given the variety of methods that are possible, instructors should not simply recreate their lectures on the Web. Some direct instruction is fine and valuable at the appropriate times, but Web instructors need to find ways to question, praise students for their work, offer advice, and pushing them to explore and reflect.

Next Steps

There has been an explosion of instructional ideas and courses on the Web during the past few years as well as new funding opportunities for

creating courses with Web components. As a result, it is relatively easy to find examples of Web-based instruction at each of the ten levels of Web integration. Whether one teaches college courses in educational psychology, knowledge management, or anthropology, some form of Web-based instruction can be incorporated. It is our hope that frameworks like the integration continuum provide a means to reflect on and make sense of all the changes that Web instruction fosters.

We are moving ahead on various fronts here. First, we are continuing to fine-tune and expand the various courses that we are already teaching on the Web. Second, we hope to expand upon our initial attempts to create *The Intraplanetary Teacher Learning Exchange* (TITLE). If we do, tens of thousands of students from around the world the globe will be discussing their early field experiences and offering each advise on how to handle various dilemmas. Third, as indicated earlier, we are devel oping new Web-based learning tools for the *Psychology Applied to Teaching* introductory educational psychology text from Houghton Mifflin. Fourth, we are creating an educational psychology electronic course packet for Bell and Howell. Those four d evelopments will place us in a position to test tools along the entire Web integration continuum.

Clearly college instructors have many options for Web-based instruction. It is likely that such options will only increase in the foreseeable future. Think about what you can do to make sense of these options. Think about what your intended goal s are before choosing a level for Web integration or courseware tools. Think about how you will be rewarded within your institution as well as personally before you start. Finally, think about the range of people who might gain from your Web efforts. W hat new resources, partners, courses, and markets await? What new students might you teach? If we plan how to use the Web as a pedagogical device now, student learning will hopefully be more relevant, exciting, and powerful in the future. Just where in the Web are you?

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Table 1. A Continuum of Web Integration in College Courses (Bonk & Dennen, 1999; Rowley, Lujan & Dolence, 1998).

Levels of Web Integration	Description
Marketing/Syllabi via the Web	Instructors use the Web to promote course and teaching ideas via electronic fliers and syllabi.
Student Exploration of Web Resources	Students use the Web to explore pre-existing resources, both in and outside of class.
Student-Generated Resources Published on the Web	Students use the Web to generate resources and exemplary products for the class.
Course Resources on Web	Instructors use the Web to create and present class resources such as handouts, prior student work, class notes and PowerPoint presentations.
Repurpose Web Resources	Instructors take Web resources and course activities from one course and, making some adjustments, use

	them in another.
Substantive and Graded Web Activities	Students participate with classmates in Web-based activities such as weekly article reactions or debates as a graded part of their course requirements.
Course Activities Extending Beyond Class	Students are required to work or communicate with peers, practitioners, teachers, and/or experts outside of their course, typically via computer conferencing.
Web as Alternate Delivery System for Resident Students	Local students with scheduling or other conflicts use the Web as a primary means of course participation, with the possibility of a few live course meetings.
Entire Course on the Web for Students Located Anywhere	Students from any location around the world may participate in a course offered entirely on the Web.
Course Fits Within Larger Programmatic Web Initiative	Instructors and administrators embed Web-based course development within larger programmatic initiatives of their institution.

Figure 1. The *Bobweb* Interface

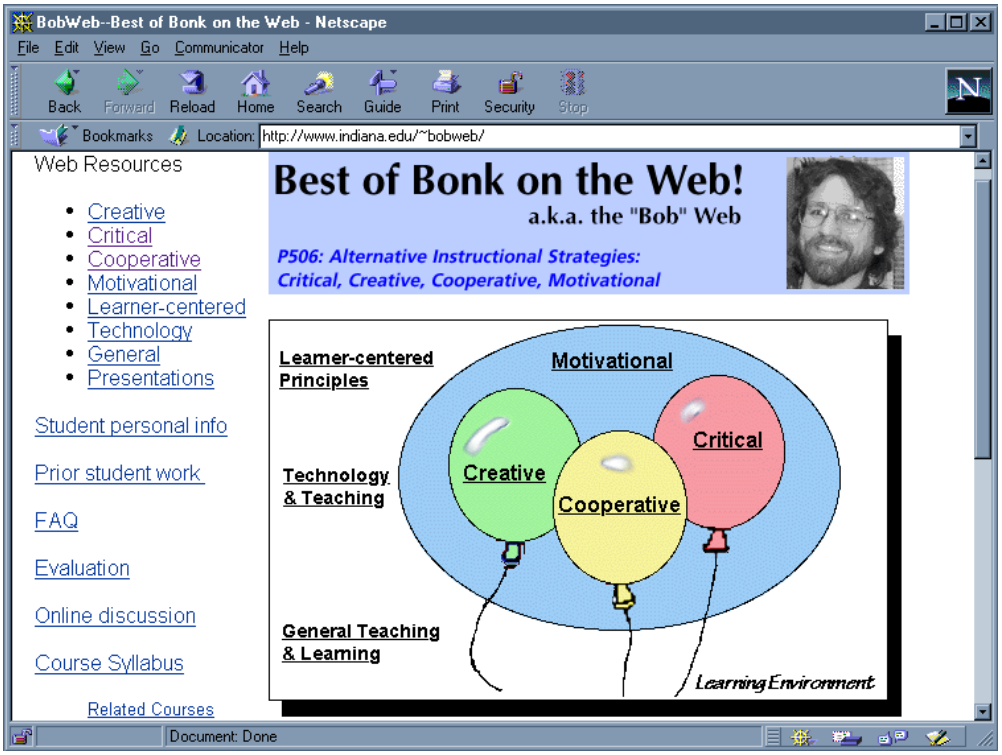

Figure 2. The caseweb Interface

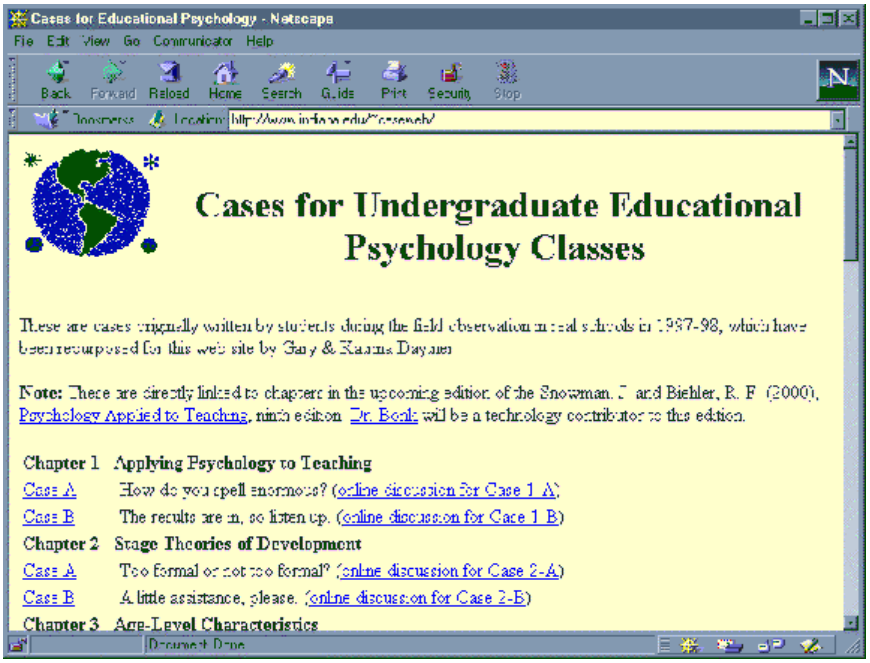

Figure 3. The smartweb Interface