

# Web-based Courses for All Disciplines: How?

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## ***Abstract***

*World Wide Web functions offer flexible and powerful tools to online course instructors across disciplines. WebCT being one of the leading providers of integrated e-learning systems, provides features that are conducive to learning and instruction. This article will discuss how to: 1. design and conduct WebCT courses across disciplines, 2. use the constructivist pedagogy of learning and teaching in WebCT courses, and 3. enhance the problem-based and self-regulated features of Web-based learning. The focal points of this article emphasize pedagogical reengineering for designing and conducting online courses that differ in delivery, reception, and learner participation from courses being offered via traditional instructional mode. Qualitative and innovative online instruction demands more complicated work, time, and patience than traditional mode of instructional delivery. Examples from two uniquely different disciplines are elaborated. Suggestions for creating and delivering online courses are also provided.*

**Keywords :** *Online course design and teaching; WebCT; Pedagogical reengineering; Problem-based and self-regulated learning*

## **WebCT and Collaborative Learning across Disciplines**

WebCT is one of the leading providers of integrated e-learning systems. WebCT provides features that are conducive to learning and instruction. Asynchronous communication, global accessibility, and hypermedia interactivity are some of the inherent features of Web-based instruction that prompt for pedagogical reengineering different from the traditional instructional mode (Dabbagh & Schmitt, 1998).

Traditional instructional mode happens in real-time, is instructor-controlled, provides a linear organization of content, uses familiar technology, and relies on stable information resources (Dabbagh & Schmitt, 1998). Online instruction occurs when the learner and the instructor are in different settings but communicate via Internet technology as opposed to traditional face-to-face instruction in a classroom context. Online teaching and learning are highly independent of space and time. WebCT is a comprehensive

Web-based authoring tool that can transform a traditional course to Web-based instructional mode. Online course delivery requires pedagogical reengineering via technological support.

This article will focus on how to: 1. design and conduct WebCT courses (Hricko, 2002), 2. use the constructivist pedagogy of learning and teaching (Duffy, & Cummingham, 1996), and 3. enhance the problem-based and self-regulated features of Web-based learning (Ekhaml, 2001; Lee, 2001, 2002). The skills involved in the focal discussions are applicable across disciplines, but this article will use two uniquely different disciplines, gifted education and school library media, as examples of pedagogical reengineering. Suggestions for creating and delivering online courses also will be provided.

## **Nuts and Bolts of Designing and Conducting WebCT Courses**

WebCT course designers implement a pedagogical reengineering creating a meaningful learning environment where teaching and learning are supported by the unique Web-based features. This section will discuss the basic principles for designing and conducting WebCT courses.

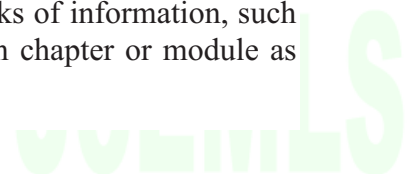
### **Two major prerequisites**

The first prerequisite for WebCT course designers is to master the use of WebCT tools, such as course pages tool, course path tool, bulletin board, real-time chat, and email for communication and presentations, interactive white board, searchable course glossary, reference, and grade tool etc. WebCT offers many workshop opportunities for new course designers. Refer to its Website at: <[www.webct.com](http://www.webct.com)>

The second prerequisite is course designer's motivation. Well-trained WebCT course designers can develop higher level of competence in design through experience but their sustained motivation and dedication affect their teaching performance and the students' learning outcomes. This author had the opportunity to observe selected online course instructors during their course delivered 100% online in which they and their students misused the online course delivery mode for off-task non-productive opportunities or vacation time.

### **Course content modification**

Instructional content and materials normally designed for traditional classroom setting need to be modified for an online format. The course designer needs to divide the lesson content into chunks of information, such as chapters or modules. The students can learn each chapter or module as planned and sequenced by the instructor.



Many textbooks designed for use with online courses are bundled with CD-Rom disks, study guide, or Internet sites. Review all prepackaged materials from publishers and determine their usefulness for the course objectives and their appropriateness to the instructor's teaching style and preferences. For example, this author does not use the prepackaged students' study guide, Internet sites, and quiz/examination manual from publishers. She provides her online students with her own carefully planned specific and general Internet sites appropriate for her courses. She also designs her own evaluation methods instead of relying on those found in prepackaged materials.

Multimedia, such as graphics and audio, require proper software and hardware including increased need for bandwidth and technical support. Compressing multimedia for streaming is a reachable resolution for online course designers, especially with the WebCT's newest campus version 4.0 equipped with the learning object import feature (refer to this Website: [www.webct.com/ce4/viewpage?name=products ce 4](http://www.webct.com/ce4/viewpage?name=products%20ce%204)). Students with computers may be less equipped and have limited capacity for downloading multimedia. Course designers need to be very careful about using video in an online course setting, even if the video has been compressed for streaming, unless 56Kbps or higher throughput to students is available constantly (refer to this Website: [www.faculty.rsu.edu/~clayton/hyperpap/studint.htm](http://www.faculty.rsu.edu/~clayton/hyperpap/studint.htm)). The use of video media also requires somewhat expensive software and hardware, such as video camera, video capture card, and video editor. Increased technical support is needed when using video for online instruction, and some academic institutions have budget restrictions for video streaming.

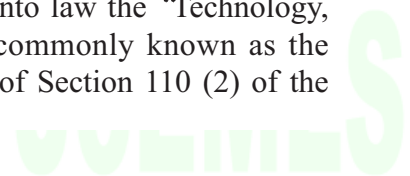
### Copyright

Online course designers also need to be aware of the copyright laws when designing online instruction. U.S. law allows faculty and students some rights to use copyrighted intellectual property for educational (non-profit) activities which are called "fair use" rights. The Fair Use Guidelines state that faculty, students, and staff may use certain works by other authors based on certain criteria. The Library of Congress Copyright Office publishes guidelines on its Website for fair use by educators and students, as well as information for authors who wish to register the copyrights to their created materials. Bookmark these two related Websites:

<<http://lcweb.loc.gov/copyright>>

<[www.cetus.org/fairindex.html](http://www.cetus.org/fairindex.html)>

In November 2, 2002, President Bush signed into law the "Technology, Education and Copyright Harmonization Act", commonly known as the "TEACH Act". This law is a complete revision of Section 110 (2) of the



U.S. Copyright Act governing lawful use of existing copyrighted materials in distance education. This is a detailed statute outlining the terms on which educators may clip pieces of text, images, sound, and other works and include them in online education. The new version of Section 110 (2) addresses the expanded range of allowed works, expansion of receiving locations in online courses, storage of transmitted content, and digitizing of analog works. It addresses specific duties of institutional policy makers, technology officials, librarians and instructors. Bookmark these two related Websites:

<<http://www.ala.org/washoff/teach.html>>

<<http://www.ala.org/washoff/teach.html>>

Some rules of thumb for online course designers include using only small amounts of others' works without making copies for class distribution, and terminating access at the end of class term.

### **Learning activities**

It seems to be common knowledge for both online and traditional course instructors to design learning activities that engage students in meaningful and authentic learning experiences applicable to the course objectives. Accommodating students' learning styles and interactivity are keys for engaging active students' participation during online learning. WebCT course designers can develop creative ways of engaging their students in optimal learning experience (Vygotsky, 1978). Some suggestions are offered below based upon the author's online teaching experience.

- \* Encourage the students to use their personal and professional interests or experiences in completing the course assignments with the support of authoritative references and multimedia options.
- \* Create a balance between group and individual projects with an emphasis on students' interaction between 40% - 50% of the time.
- \* Require the students to demonstrate how to apply what they learned to their real-life or job situations.
- \* Design the assignments to be both enjoyable and beneficial learning experiences (Brown, 2002).
- \* Provide immediate feedback given by both the class members and the instructor for most of the assignments.
- \* Schedule, moderate, and monitor class chat with guest speaker/s or subject matter experts.
- \* Inform the students how to get help for any questions or support they need.

Online learning requires more action, interaction, and application related to the students' learning and/or professional contexts. The students are given

opportunities to practice self- and mutual-regulation while constructing knowledge in an online collaborative learning environment.

## **The Constructivist Pedagogy of Learning and Teaching**

Learning takes place when online students are required to understand and use the course contents to accomplish some meaningful tasks or learning activities (Willis, 2001). Projects, such as chat room exercises and forum discussions with and/or without the instructor or guest speaker/s, turn the course into a social-constructivist experience (Vygotsky, 1978; Lee, 2002; Schneider & Dillenbourg, 1995) by which the instructor works and learns with the students for refining and building new knowledge and skills that are beneficial to the entire online learning community involved. While two or more learning partners collaborate, they share the cognitive burden required by the problem or task in order to achieve a joint decision for problem resolution via synchronous communication, such as online chats. The spontaneous distribution of roles during the collaborative problem solving process encourages self- and mutual-regulation.

## **The Problem-based and Self-regulated Features of Web-based Learning**

How can the problem-based and self-regulated features of Web-based environment enhance learning and teaching? Ekhaml (2001) uses problem-based learning in an online school library media administration course. She defines problem-based learning (PBL) as an instructional method used by educators to teach problem solving, replacing rote memorization and passive learning. In a PBL context, the teacher is the facilitator, coach, and mentor. The teacher can work in a team with other teachers from other disciplines. On the other hand, the students are actively involved in learning and interact with both the teacher and the team members in tackling ill-structured problems that require the students to reformulate problems, explore options, and make effective decisions. PBL can be used across disciplines, depending on the nature of the subject areas or disciplines (Ekhaml, 2001).

Ekhaml (2001) lists some steps of the PBL process that can be applied for online learning context.

- \* The teacher presents a problem.
- \* The class is divided into groups.
- \* The group members generate learning issues from ideas and facts.
- \* The group members develop a plan of action by researching a variety of sources. They need to develop evaluation criteria.

- \* The group members link their findings with the problem/issue, create, and present a product.
- \* The group members evaluate the problem and their performance using peer evaluation.

Merely learning how to design an online course that covers course content is insufficient. Skillful online teaching does far more than just “cover the curriculum” or use the “mentioning and moving on” (M & M) approach. WebCT course instructors at all experiential levels need to practice and value the self-regulated learning habit so that they will teach their students to become more self-directed and goal-oriented life-long learners. This in turn will promote teaching quality and students’ performance (Lee, 2002). Based upon the present author’s experience, some examples of using the problem-based and self-regulated features of Web-based environment for enhancing learning and teaching include:

- \* Periodically ask students to write a brief reflection on what they have learned and provide them opportunities to share their insights and learning experience with the class members via online chats or bulletin board postings etc.
- \* Require the students to relate the course content to their real-life and/or job-related examples.
- \* Require the students to collaborate with partner/s in accomplishing the group problem solving tasks that will be presented to the whole class via bulletin board or other media technology available.
- \* Encourage students to be in charge of their own learning while the instructor takes a facilitative rather than authoritative role by means of reinforcing the students’ ownership of personal experiences and insights.

How can one apply the problem-based and self-regulated features of Web-based environment for online teaching and learning? The following discussions will focus on two examples of pedagogical reengineering for conducting online courses.

### **Examples of Pedagogical Reengineering: Gifted Education and School Library Media**

This section will use two uniquely different disciplines, gifted education and school library media, as examples to illustrate some pedagogical skills for online teaching applicable to all disciplines. An example from gifted education came from the present author’s teaching experience whereas an example in school library media came from a library science professor who taught her library reference course via WebCT.

This author taught WebCT courses in gifted education both at the university graduate level and in three different public school districts' staff development courses. Similar features in the WebCT course shell as well as the same percentages of on-line (70%) and face-to-face (30%) meetings were used for both types of learners. The learners from both settings were required to take four sequential gifted education courses in order to obtain a gifted endorsement certification. Most of the learners were teaching k-12th grade levels and were mainly from different general education areas. Their course entrance requirements were keyboarding and access to a home or school computer via Internet. In fact, most of them were quite proficient in basic computer skills. Changing the assignments' format for online instruction does not make an online course different pedagogically from a traditional course. The online instructor needs to know how to restructure the teaching and learning processes. No written quizzes or examinations were required in the author's graduate online courses but the following projects were provided instead:

- \* **Conducting online chat room exercises** with a partner after studying selected lectures and after viewing a "learning CD" for a specific lecture topic, followed by large group class chat with the instructor.
- \* **Posting small group presentation on the bulletin board** covering electronic mail project conducted by three partners in each group which required the application of creative problem solving and synthetic thinking.
- \* **Group decision of self-selecting and posting feedback on the bulletin board** regarding another group presentation. This is similar to peer evaluation. However, the instructor also gave feedback via private email to each group. Sometimes, the highlights from selected group presentations were posted on the WebCT bulletin board after permission from the group was obtained by the instructor.
- \* **Synthesizing all the concepts or skills learned during the entire course and requiring students to submit individually.**

The use of private emails, chat room exercises, and bulletin boards can create a host of problems for online course instructors who are overwhelmed by emails or other means of communication from students. The present author provided prompt responses to students in order to provide a proper communication model and help maintain the students' learning effort and motivation.

Netiquette and sources of technical support were given to the students in the first class meeting and posted online as well. Some examples of netiquette include: 1. holding a positive attitude in all chat responses although nobody needs to agree with all different ideas or opinions, and 2. following

the rules for questions and responses, such as:

- \* A group member types question/s, another group member types 'A' if one wants to answer and then waits for the go ahead response.
- \* A group member asks questions. All can answer but maximum 4 lines. Type 'done' when it is done.
- \* Group members can type 'Q' if they have a question, or 'C' if they have a comment, and then wait for the go ahead response.

Students were also given specific rules for group presentations such as not relying too much on personal opinions but making use of authoritative Websites or references. In addition, students were asked to include in their group presentations on the bulletin board a list of questions for initiating further class discussions to promote interactivity.

The use of individual and group projects during online instruction promotes different students' learning styles. The author recommends using more group than individual projects when teaching online courses in order to promote more interactivity and class dynamics. Although private emails, class chat, and bulletin board postings etc. are helpful learning tools, the author found that using one-on-one phone discussion with selected students was also essential depending on the class size. Phone contacts with students help monitor their learning, clarify instruction, and promote student-teacher relationship.

The author found that it was essential to provide the students supplementary learning materials that may be unavailable in the online course content. Incorporating PowerPoint slides of the author's lectures seemed to be helpful to students. However, some sophisticated multimedia, such as interviews conducted in the studio with professionals in the field, are better suited for face-to-face meetings only. Based upon the present author's observations, the students usually preferred a few (30%) face-to-face class meetings rather than taking a 100% online course. The students were glad to have face-to-face contact with the instructor and fellow classmates.

Does it take a completely different route to design and teach online courses apart from the gifted education course illustrated above? The answer is "no" except that different online course instructors may have different teaching styles and preferences. The next example came from a personal interview via email, sample of printouts, and phone contacts with my former colleague, Dr. L., who taught the graduate level library reference course via WebCT and face-to-face meetings.

Dr. L. was a Professor of Media and Technology in a State university. Dr. L. had many years of experience in teaching WebCT courses and other types of distance learning. She combined WebCT (60 %) and face-to-face meetings (40%) for her library reference course that included graduate stu-



dents majoring in School Library Media Specialist. Individual projects that she used in her library reference course included the following:

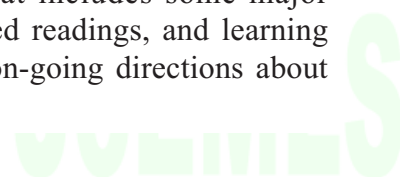
- \* **Query exercises** requiring the students to use the existing query exercises found on GALILEO, Directories, Almanacs, Yearbooks and Handbooks, Biographical Sources, Dictionaries, Encyclopedias, Geographical Sources, Bibliographic Sources, Indexes and Abstracts, and Government Documents and Statistical Sources. Each query exercise was sent to the instructor weekly via file attachment in WebCT setting.
- \* **Individual oral presentation** during two face-to-face meetings regarding an assigned reference tool.
- \* **Quizzes** including 4 quizzes for selected lecture topics.
- \* **Basic reference collection project** requiring the students to design a reference collection for his or her situation.
- \* **Final examination** including 2 parts of final take-home examination questions that covered all the concepts and skills learned in the entire course.

The next section will present some suggestions for creating and delivering online courses.

### Suggestions for Creating and Delivering Online Courses

Based upon the present author's observations and personal experience, the very first pre-requisite for creating an online course starts with the course instructor's attitude. The online course instructor needs to be enthusiastic, flexible, and adaptable about learning and using new technologies. Other suggestions for new online course instructors are provided below:

- \* Teach the same course at least once before converting it to an online course. Add, modify, and revise course content and materials, such as syllabi, slide shows, lecture notes, handouts, and assignments etc.
- \* Identify a mentor who is experienced in online course instruction and who is willing to share mistakes and lessons learned.
- \* Identify measurable course objectives that accommodate different students' learning styles and needs with an emphasis on interactivity and self-regulation in both face-to-face and online settings.
- \* Decide what materials will be delivered online and what items are better delivered in face-to-face class meetings. Provide the students with a supplementary learning booklet that includes some major PowerPoint printouts, selected recommended readings, and learning resources. Students should also be given on-going directions about how to use the supplementary booklet.



- \* Based upon the syllabus, create a skeleton for a new online course including a clear organization of folders that consists of the course content and materials. Use sub-folders or sub-topics as needed.
- \* Welcome the students and post an introductory message in the bulletin board area directing them how to locate course information and how to get technical support. Remind the students from time to time to check regularly the calendar icon for assignments due dates, online meeting/s with guest speaker/s, face-to-face class meeting dates, and other major events that may occur during the course.
- \* Provide a brief summary for each lecture that helps students understand how to associate the lecture notes with other course materials, such as Websites and recommended readings, which are relevant to the same topic.
- \* For the purpose of starting an active online community, require the students to submit electronically a brief self-introduction. Online course instructors may include the biodata of each student in an “about us” icon in the course homepage.
- \* Check Web links regularly for accuracy and log on once in a while as a student to identify any problems that may occur.
- \* Do not forget to click “update” each time after modifying or revising any course content or materials.

We have discussed the nuts and bolts of designing and conducting WebCT courses across disciplines, promoting the constructivist pedagogy of learning and teaching, enhancing the problem-based and self-regulated features of Web-based learning, and utilizing guidelines for creating and delivering online courses. Keep in mind that qualitative and innovative online instruction demands more than mere willingness to teach online. The rewards in designing and teaching online courses are satisfying and fulfilling.

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