

Chapter 7

INTERACTIVE TAX LEARNING USING WebCT

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To encourage the use of technology in teaching, some universities are adopting software to help educators create web-based learning environments. The university installs the software on a separate web server, and educators then use the software to create and manage both classroom and web-based courses. The software generally involves minimal computing skills to create multimedia content, practice and assessment activities, and a variety of online collaboration opportunities for students.

Examples of web-based learning software include Blackboard (<http://www.blackboard.com>), First Class/LearnLink (SoftArc Inc., <http://www.softarc.com/>), FORUM (Forum Enterprises, <http://www.foruminc.com/>), Learning Server (Data Beam, <http://www.databeam.com/>), LearningSpace (<http://www.lotus.com/home.nsf/welcome/learnspace>), Symposium (Centre Corporation, <http://www.centra.com/>), Top Class (WBT Systems Inc., <http://www.west.ie/>), Virtual-U (Virtual Learning Environments Inc., <http://virtual-u.cs.sfu.ca/vuWeb/>), and WebCT (<http://www.Webct.com>). A comparison of three of these software programs, WebCT, Learning Space, and TopClass, is provided in Exhibit 1. To provide more in-depth information about web-based learning software, this chapter uses WebCT as an example, illustrating the various features using a WebCT tax class taught at The University of Iowa.

WebCT

WebCT was developed in the Department of Computer Science at the University of British Columbia. The software uses web browsers as the interface for the course-building environment. Faculty and students can use any computer capable of running Netscape 3.0 or Internet Explorer 4.0 (or higher versions of either browser) to interact with the WebCT server. The browser must be able to handle frames, tables, and JavaScript. The WebCT server must be on a Unix machine. The price for WebCT is based on the number of student accounts and as of March 2000 ranged from \$250 for 50 students to \$3,000 for unlimited students, both for 12-month periods. Students are given passwords that allow them access to the site.

WebCT facilitates the organization of course material on the Web. In addition, WebCT provides a wide variety of features that can be added to a course web site. These features are discussed below.

EXHIBIT 1
Comparison of WebCT, Learning Space, and TopClass

	WebCT	Learning Space	TopClass
HTML knowledge required to develop course material	No	No	No
HTML knowledge required to develop quiz material	Yes	Yes	Yes
Password and username security	Yes	Yes	Yes
Desktop-based file management for uploading to server	Yes	No	No
Automated glossary tool	Yes	No	No
Automated index tool	Yes	No	No
Search tool for course material	Yes	No	No
Student can make private annotations of course material	Yes	No	Yes
Student presentation area	Yes	No	Yes
Instructor can assign specific course material to individual or group	No	No	Yes
Multiple choice self-test tutorial questions (automatic marking)	Yes	Yes	Yes
"Fill in the blank" self-test tutorial questions (automatic marking)	Yes	Yes	Yes
Customized feedback to tutorial questions	Yes	Yes	Yes
Redirect path of tutorial depending on question answers	Yes	No	Yes
Timed quizzes (graded with permanent mark retention)	Yes	No	Yes
Online marking and grades management of timed quizzes	Yes	No	Yes
Generate random set of questions from a pool	Yes	No	Yes
Student access and progress data available	Yes	No	Yes
Student can view own grades and compare to class summary data	Yes	No	No
Course electronic mail	Yes	No	Yes
Course message board	Yes	No	Yes
Course chat facility	Yes	No	No

Source: <http://www.umanitoba.ca/ip/tools/courseware/evalmain.html>

Main Course Homepage

A course developed using WebCT is organized around one main homepage. This homepage is the first page that students see after logging on to the course web site. The instructor can provide a textual message to the students, links to course content elements (notes and assignments, for example), and links to course tools. The homepage shown in Exhibit 2 is part of the homepage used for the second tax class at The University of Iowa.

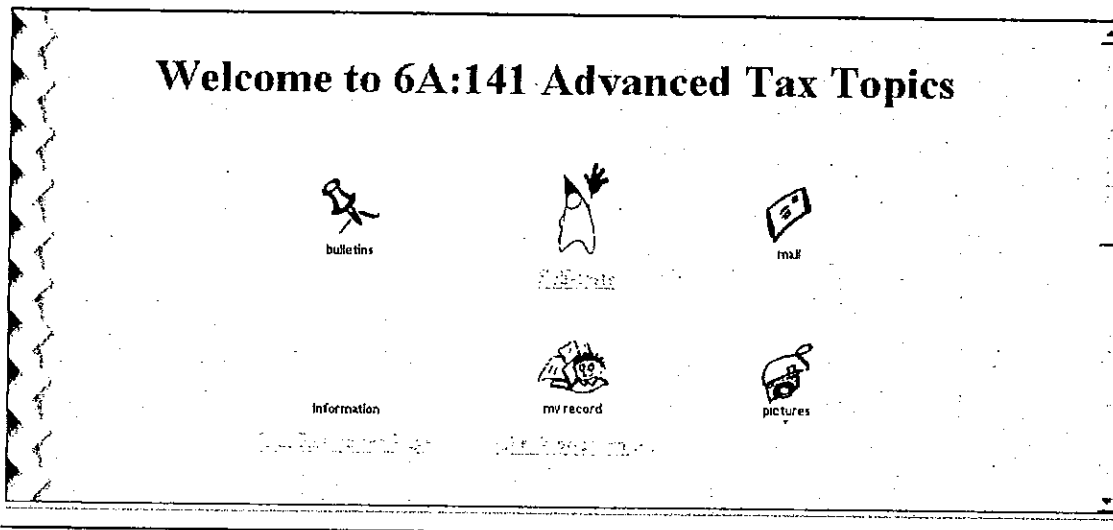
Tool Pages

In addition to the homepage, there can be any number of tool pages. A tool page is accessed by clicking an icon on the homepage or another tool page. Thus, the homepage and tool pages form a hierarchy of pages with the main homepage at the root. For example, if students click on the first icon on the homepage in Exhibit 2, they view the message board tool page as shown in Exhibit 3. Here they can see the messages posted by other students and post messages in reply.

Course Content

A course can have any number of course content elements, including a URL (for example, the Tax Resources icon in Exhibit 1 links to a page outside the WebCT course), a single page of content (for example, the course syllabus), or a path. A WebCT path is a set of individual pages

EXHIBIT 2
Example of WebCT Homepage



of content organized both linearly and hierarchically for easy reference and navigation. The linear ordering of the pages is the order in which the material is presented in class (for example, chapter order). This ordering allows for sequential perusal of course content. Students can also view the hierarchical listing of the pages to see, for example, note organization within a chapter, allowing direct access to any page of notes. The hierarchical listing demonstrates the topic/subtopic relationships between the pages of content and allows students to quickly access the desired topic.

Exhibit 4 shows the path that appears when students click on the self-test icon on the homepage shown in Exhibit 2. This simple path shows a linear listing of course chapters. This path could be expanded hierarchically to show pages of course notes.

All pages of course content that reside on a path consist of the actual content created by the instructor and a button bar created by WebCT. The button bar has navigation arrows that take students to the previous or next page of notes in the path. In addition, the navigation buttons allow students to go directly to the homepage, to retrace through the last few accesses, or to view

EXHIBIT 3
Example of Message Board Tool Page

Back	WSJ memo
Help	<input type="checkbox"/> 467. Kenneth Slaymaker (Thu, Oct. 15, 1998, 19:47)
Compose	<input type="checkbox"/> 470. Instructor (Sat, Oct. 17, 1998, 14:46)
Forum	
Show Unread	Gift Tax
Catch Up All	<input type="checkbox"/> 468. Haining Qian (Thu, Oct. 15, 1998, 21:26)
Update Listing	<input type="checkbox"/> 469. Joseph Sofen (Fri, Oct. 16, 1998, 16:26)
Search	<input type="checkbox"/> 471. Instructor (Sat, Oct. 17, 1998, 14:50)
Message Menu...	
Options Menu...	

EXHIBIT 4
Example of Course Content Path

[Chapter 13: Property Transactions](#)
[Chapter 16: Corporations: Operating Rules](#)
[Chapter 18: Corporations: Current Distributions](#)
[Chapter 19: Corporations: Liquidating Distributions](#)
[Chapter 21: S Corporations](#)
[Chapter 22: Partnerships](#)
[Chapter 28: Working with the Tax Law](#)

the hierarchy of the current path for direct access to any page on that path. In addition, the status bar at the bottom of the browser always displays the name of the current path and the page number currently being viewed.

The button bar on each page of content provides direct access to any course tool that has been included on that page by the instructor. These tools might include links to a self-test, a conference forum for that page of notes, or reference material for that page. When students click on one of the chapters in the path in Exhibit 4, the button bar for that chapter appears at the top of a content page as shown in Exhibit 5. The content below the button bar could contain chapter notes prepared by the instructor. When the students click on the self-test button, they can take the self-test for that chapter.

In addition to uploading pages of course notes, the instructor can upload other material, such as student pictures or a course syllabus. For example, clicking the "Student Pictures" icon on the homepage in Exhibit 2 takes students to a page that has the pictures of each student in the class. The instructor used a digital camera to create the electronic images, which were then uploaded to the WebCT course site. Electronic images can also be created by scanning pictures of students.

Other Tools

In addition to the message board and self-test tools, WebCT provides numerous other tools including online chat, group project organization, grade maintenance and distribution, access control, auto-marked quizzes, electronic mail, automatic index generation, course calendar, student homepages, and course content searches. Exhibit 6 gives an example of a portion of the grade maintenance tool for the student Miller. If Miller wanted to see how her grades compare to those of her classmates, she could click on a column title to see the class statistics, including a histogram of the class grades.

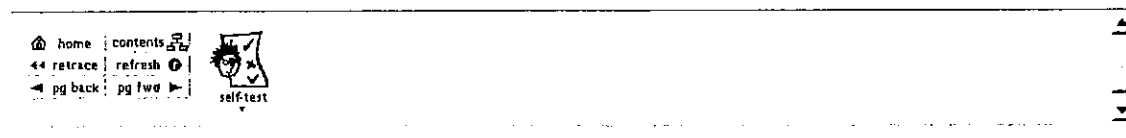
EXHIBIT 5
Example of a Button Bar


EXHIBIT 6
Example of Grade Maintenance Tool Page

Current Student Record for millerr

[Home](#)

Last Name	Login ID	Writing	Ch.13	Ch.14	Ch16-1	Ch16-2	Ch.17	Ch.21	Ch22-1	Ch22-2	Ch.28	Proj#1	Proj#2
Miller	millerr	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.83	9.17	48.00	48.5

Click on a column title to see statistics (if available).


4 | [Back](#) | [Home](#) | [Search](#) | [Help](#) | [Logout](#)

EXHIBIT 7
Example of the Instructor Homepage Button Bar



Customize Page	Organize Icons	Course Settings	Course Management
Get Started	Welcome Page	File Manager	Update Student View

EXHIBIT 8
Example of the Instructor Path Editor Button Bar



Back	Path Editor:	Reorganize	Add File	Create File
		Configure	File Manager	Customize

EXHIBIT 9
Example of the Instructor Tool Button Bar for Content Pages

Back Home	Page:	Glossary	Index	Case	Audb	Video	Quiz
Contents		Questions	References	Add Link	Page Text	Customize	

WebCT from the Instructor's Perspective

When the instructor logs on to the course homepage, he or she will see a button bar at the bottom of the homepage. This button bar allows the instructor to customize the homepage, organize the icons on the homepage, and determine appropriate course settings. An example of this button bar is shown in Exhibit 7. The "QuickStart" button walks the instructor through a tutorial that creates the WebCT course pages. The "Welcome Page" button allows the instructor to create a welcome page describing the course to all viewers, including those who do not have passwords. The "File Manager" button provides the instructor with an automated means of uploading of course content pages to the web site. When a course has been updated, the "Update Student View" button updates the students' version of the course pages.

When the instructor wants to create a path for course content pages, he or she again uses a button bar. An example of this button bar is shown in Exhibit 8. The instructor uses the path to provide a map of the course content. For example, the chapters in Exhibit 4 are the key points in the path. The path can be expanded as much as the professor chooses. WebCT provides self-help hints to help the instructor.

Once the course content pages are on the course web site and the path is created to help the students find the course notes, the instructor can add various tools to the content pages. For example, audio and video clips can accompany the course notes. Exhibit 9 illustrates the button bar to add various tools and customize the page content.

CONCLUSION

WebCT provides a useful way to organize course material, as well as various tools to aid student learning. WebCT has a tool that allows the instructor to monitor how often students use the course site and the date of the last use. Based on the statistics gathered from this tool, WebCT has been widely used by The University of Iowa students.

Many universities, in addition to Iowa, have adopted WebCT. To read what these universities have to say about WebCT, click on "Success Stories" on the WebCt web site (<http://www.webct.com>).