

## **TEACHING FROM A DISTANCE WITH WEBCT**

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### **ABSTRACT**

As recent trends show increasing use of the Internet as a medium for learning, varied software tools are emerging to make the task of online course development easier for faculty. The authors discuss the use of WebCT in the broader context of distance learning. Lessons specific to WebCT are discussed. The process of selecting and using some of the tools available in WebCT is addressed. Student use of WebCT is discussed as both a supplement to in-class instruction and as a stand-alone online course. Observations are provided from faculty currently using WebCT to teach online courses; conclusions are derived from the survey performed and faculty experience; and recommendations are proffered.

### **KEY WORDS**

Distance Learning, Internet, Construction Education, E-learning, WebCT

### **1. INTRODUCTION**

With advances in technology, the pace of life seems to get ever faster with each passing day. Society in the U.S., as it tries to keep up with changes in technology, is spending more hours at the job than in the past. This high-hour workweek makes it very difficult for many employees to pursue self-improvement through education. An increasing number of online course offerings present construction professionals with new and manageable ways to stay current with other professionals in the industry. WebCT, one of the tools available to educators, allows a person to administer an online course. It also allows for some editing of course material.

It is possible that in the future, much of technical education, particularly the type that benefits from hands on application, will be delivered just in time to the individual student at a place of his choosing and when the student desires it. The opportunities for distance education are just being understood.

The authors are both users of WebCT. With any teaching medium, it is important to know how the students receive the material. The online medium presented by WebCT is no different in this respect. Student perceptions can be explored by answering questions such as, What parts of the student body are signing up for online courses? Does WebCT provide more information than a textbook provides? Is the WebCT medium easy to use? Why are students taking online courses instead of traditional campus-based classes? How well do students expect to perform when taking an online course? Would students exposed to the WebCT medium be willing to take another WebCT course? A survey (copies available upon request) was prepared and distributed electronically to a group of students that had recently enrolled in a WebCT course. Of the students that responded to the survey request, all but one responded by completing the survey form and transmitting it electronically back to the sender. The one exception completed the form by hand and submitted the form in person.

The authors begin by describing WebCT and the way it works. Next, images are provided along with a description of what the WebCT software interface looks like. The third major section of this paper addresses the use of WebCT from the faculty perspective. Student survey data and data derived from WebCT tools are the subject of the next section. Technology is addressed in terms of software and hardware issues, which are important considerations for any online teaching tool. Finally, conclusions and recommendations are presented.

## **2. HOW DOES WEBCT FUNCTION?**

To give the reader a sense of how WebCT functions, an explanation is provided below. Many of the major features are described.

### **2.1 Introductory Page**

Introductory page, myWebCT has notifications about new items: mail, discussion, calendar postings etc. that the instructor makes to the materials or students make to the mail or postings. This is Very helpful, because the hyper link takes you directly to the 'new' materials

Multiple courses can be listed for the instructor on this 'myWebCT' page.

### **2.2 Announcements**

General course announcements from the course administrator can be posted on this page, e.g. proctored mid-term process; reference and administrative information, and known problems. There is also a section for personal bookmarks and course bookmarks.

### **2.3 Course Homepage**

The course homepage has all navigation bars to the left under 'course menu'. The instructors have a 'control panel' menu that is visible only to designers. The main course content links can be placed on this page and accessed by students (e.g. syllabus, tools, lessons, help button).

For the instructor, there are items that can be linked here that are not available in student view (e.g., instructor guide and quizzes). Several links appear on the menu bar at the top (e.g., myWebCT, resume course, course map, course resources, and help).

### **2.4 The Navigation Bar**

Students access pages through the navigation bar, an area of blue background on the left side of the homepage and every page. The navigation bar can contain all of the items shown as icons on the homepage, or include additional links. Links generally appearing in one's navigation bar include Student guide, Course Syllabus, Lessons, Discussions, Internet Web Links, etc.

### **2.5 Student Guide**

If you want to include general directions on how to use webCT and how the course lays out, you can include a student guide.

### **2.6 Syllabus**

Course conduct, topical content, and work activities are included in this familiar document.

### **2.7 Lessons**

Content area for students to read (in conjunction w/text if there is one.)

## **2.8 Discussions**

This section allows students and instructor to post topics, questions, and replies to same in a threaded (connected) format. The instructor can structure the different areas for discussion (folders) (e.g. review, setup, main discussion, archive, etc.). This section is very useful in getting student participation and in displaying important topic content multiple times. For instance: if you make a statement related to the topic being discussed and ask why or how the students think it happens or ask them to paraphrase how the text presented it; you will get numerous correct and some not quite correct answers. With minor 'herding' responses you can correct misperceptions. The beauty of this format is that students will read the 'correct' answer repeatedly. They say if you see it 7 times you will remember it. If so, this is where they will see it 7 times.

The drawback of this section is that it requires constant monitoring once you've posted discussion topics, even if you give time limits for responses. The calendar can help by announcing discussion times; and moving the topics to 'old' folders can help too.

In addition to the "Discussions" feature, other means of communication are provided in the form of "Mail," "Chat rooms," and "Whiteboards".

## **2.9 Mail**

Mail can provide an internal email system for the course. Try to limit outside emailing. It's easier to keep track of the messages if you keep them all within the WebCT shell. Here you can create as many folders as you wish and manage the email as you desire. Mailing from inside to outside the system is difficult

## **2.10 Chat**

It is difficult to get distance learning students to commit to being online together at any one time. The reason they're taking the course is often time flexibility. Even when WebCT is being used as a supplement to 'in class' sessions, it is difficult to get students together unless it is a regular assigned class time. Only then do you have the leverage.

You can encourage students to use the chat rooms to work in groups, but they often either meet in person or communicate by email.

## **2.11 Whiteboard**

There is a 'whiteboard' feature in WebCT. This is a tool for freehand drawing and discussion. You need a stylus to control your drawing, however. A mouse provides only a modest ability to draw recognizable figures.

Other important features that may appear on the Homepage include "Calendar," and "Assignments".

## **2.12 Calendar**

"Calendar" is a very useful tool. You can post announcements, work schedule, assignment due dates, test dates etc. You can do this all at once or you can do it in phases. The advantage of doing it in phases is that 'new' postings to the calendar announce themselves to students as they log in. They can look directly at only the new postings before they continue with their coursework. You can make changes to items you have listed in your calendar and these changes will be treated just like a new posting. The WebCT program lets you keep private listings on your calendar as well. Only you can see these. You can change parameters to let students post calendar items if you want them to do this. When they click on the date all details of the posted item show up.

## **2.13 Assignments**

The 'assignments' routine in WebCT is a double-edged sword. It can be confusing and there can be technical glitches that aggravate both students and instructor. Ideally you can post downloadable assignment sheets here with due dates, grade point value, and the students can submit these assignments when done. It may be easier to post the assignments and collect them through another avenue (e.g. email w/attachments).



### 3. WHAT DOES WEBCT LOOK LIKE?

The challenge of any software today is to have an interface that is easy to view. WebCT offers a very easily understood portal for students and faculty. Students, as noted above, use navigation bars and icons to navigate their way through the course. Each icon shown in Figure 2 links the student to corresponding pages.

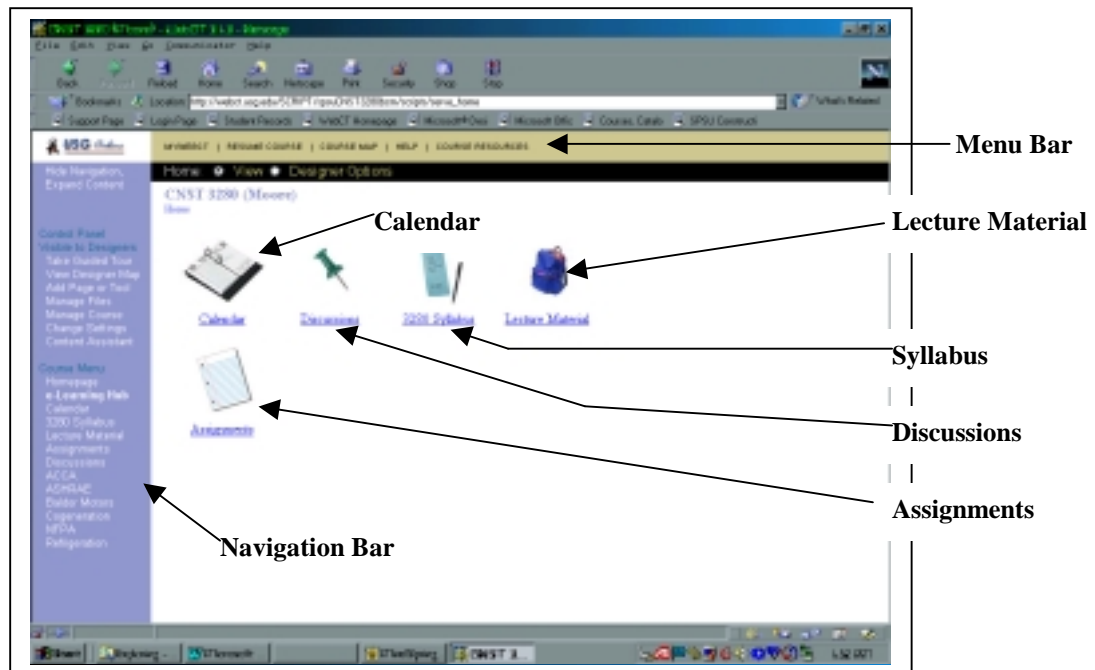


Figure 2: WebCT Tools

Faculty can acquire student access data from available WebCT tools. This allows the faculty member to quickly determine how often students have visited the site and in what activities they are engaging. The blue horizontal bars, appearing in the Figure 3 below, are accompanied by the specific number of visits to "Homepage," "Content Pages," "Articles Read," and "Follow-up Posts". There is also a number indicating the total number of different pages visited by the student. The "Breadcrumbs," a horizontal listing of page titles that appears in small blue text at the top of the page, indicate where in the WebCT course you have traveled and allow you to instantly point-and-click your way back to any recently viewed pages.

### 4. IS WEBCT EASY FOR FACULTY TO USE?

The first time through a WebCT course for the instructor can be a very difficult and aggravating experience. The program is not as intuitive as MS Word or similar Windows programs. It is, however, a very powerful package; and it looks like it will be the standard for distance learning delivery by higher education for the near term. As a person spends more time with the program, they learn more about the logic and flow of the software and it becomes easier to manipulate WebCT to better accomplish your distance teaching goals.

### 5. STUDENT DATA

Students from four WebCT courses (Math 1111-College Algebra-3sch, CNST 3180-Building Techniques & Methods III-4sch (Fall01 and Spg02), CNST 3280-Building Codes and Loads-4sch) were surveyed regarding their WebCT experiences. The students surveyed were enrolled in, or had taken, a course that was either entirely WebCT-based (i.e., no more than two on-campus classes) or WebCT was used as a supplement to in-class sessions. Additional usage data was collected from the WebCT student-tracking capabilities.

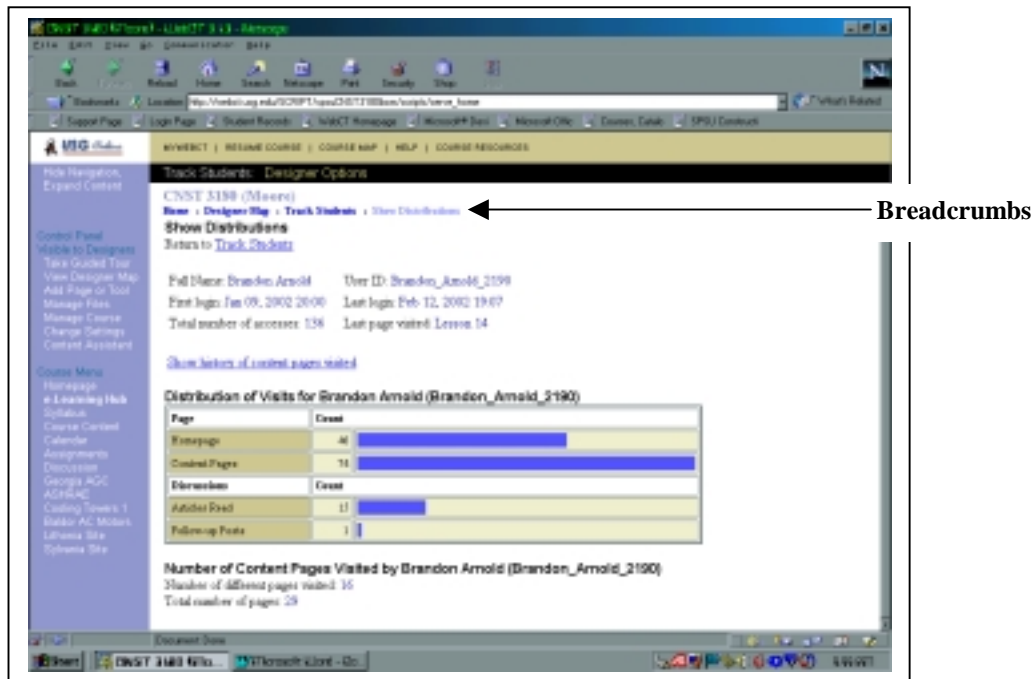


Figure 3: WebCT Screen Shot

For one of the WebCT-based courses, visits for one student amounted to 136 by February 14, 2002. For the same course, several students had never visited the WebCT site, apparently preferring to use only the textbook. The average number of visits for the WebCT course was 36. For one of the WebCT-supplemented courses, visits for one student amounted to 59 by February 14, 2002. The average number of student visits for the course was 39. The fewest number of visits that a student made to the WebCT-supplemented online material was 21.

Survey results showed that over 75% of the student respondents were Juniors or Seniors at the University. Most of the students had enrolled in a WebCT-based course (43.9%) or both a WebCT-based and a WebCT-supplemented course (24.4%); while 31.7% of the students had only enrolled in a WebCT-supplemented course.

Of the total number of respondents to the survey, some 63.4% were still enrolled in a WebCT course. Most of the students (75%) claimed to visit the WebCT site fewer than 30-times each month. Some 30% claimed to visit the WebCT site fewer than 10-times each month. Three of the respondents suggested that they visit the WebCT site more than 100-times each month; a claim that is not generally supported by the available data.

Almost 60% of the respondents were taking the class because it was a requirement of their curriculum. One-third of the group (33.3%) were taking the class because it "fit their work schedule".

An overwhelming majority (97.5%) felt that the WebCT course was "Easy to work with" (37.5%) or "It was okay" (60%). Similarly, a large group felt that WebCT course material clarified the textbook (90%) to some degree. When asked if they would take a WebCT-based course again, 53.6% indicated in the affirmative while 34.1% weren't quite sure ("Maybe"). The remaining student responses (12.2%) would not register for a WebCT-based course again.

When asked if they would take a WebCT-supplemented course again, 47.5% indicated in the affirmative while 40% weren't quite sure ("Maybe"). The remaining student responses (12.5%) would not register for a WebCT-based course again, or had not experienced a WebCT-supplemented course.

When asked to identify what grade they received, or expected to receive, an "A" response represented 47.7% of the replies; "B" responses represented approximately 36.4%; and "C" responses represented 13.6% of the student

replies. One student that responded to the survey did not complete the course. Almost two-thirds of the respondents (65%) were taking a WebCT course for the first time.

## 6. TECHNOLOGIES

As with most electronic tools available to educators, technology's rapid changes present dramatic challenges for today's faculty. Because only limited standards exist, hardware and software compatibility are limiting factors for WebCT.

### 6.1 Hardware Compatibility

It is safe to assume that not all WebCT users will have 2-GHz processors and 21-inch monitors with T-1 access to the Internet. In fact, some students may be limping along with a 133-MHz processor and a 15-inch monitor with a 56-k modem connection. What does all this mean to the WebCT course creator? It means that all the wonderful tools available through WebCT cannot be haphazardly included in one's course. As we know from the classroom situation, a teacher must consider the audience. With WebCT this is especially true. Taking advantage of WebCT's video and audio capability may be splendid for those using the latest computer equipment and connections (e.g. their employer's computer and connection). However, most of the students will spend most of their time waiting for clumps of graphic- or audio-intensive content to download.

### 6.2 Software Compatibility

Although you might assume that everyone uses MS Word; this is not true. You may find students without MS Word, Excel, or Powerpoint. If you need for them to have this capability you need to state so in the public syllabus (before they sign up for the course). Some software capabilities are available for download as part of the first assignments in the course. In a mathematics course, they need to download MathML so they can see equations that are part of the lessons and quizzes. Since WebCT is Internet based, ALL of your students will have a Browser. There are some incompatibilities with newer browsers, however. The version used in AY 2002 worked well with versions as new as Netscape 4.7 and Internet Explorer (IE) 5.x. Since everyone with internet access has a browser, they can read HTML and they can edit HTML if they have Netscape Composer or MS Word with IE 5.x. Using the HTML format as often as you can causes the fewest problems with student communications.

## 7. CONCLUSIONS AND RECOMMENDATIONS

The impact on textbooks will be noticeable. One can predict that with greater reliance on learning from a distance, students will be relying more heavily on textbooks to provide many details that it would be prohibitive to include in WebCT. Such reliance on textbooks was demonstrated in the WebCT student usage data considered in this study. Several students had not visited the WebCT course material at all. Thus, the students were relying solely on their textbooks to furnish the needed skills to complete assignments and exams.

Is WebCT okay for all occasions? The authors suggest that it is not. Laboratory situations are difficult to replicate using WebCT. Often, a suitable substitute or equivalent learning experience is not feasible for presentation through WebCT. WebCT does, however, seem to be suitable for many subjects.

The data show that there are many students (one-third of those surveyed) that found the WebCT course an appropriate choice because it didn't conflict with their work schedule. It is instructive, therefore, to note that a majority of the students surveyed (28 out of 40) visited the WebCT course more than ten times per month on average. If these same students were enrolled in a traditional classroom-based course, would they have dropped the class? A need to make ten or more visits to the classroom might have conflicted with their work schedules and prevented them from registering for the course in the first place.

Almost half of those surveyed indicated that they would be interested in taking another WebCT course; while a significant number indicated that they might be interested in taking another WebCT course. This information should be considered in light of the fact that almost two-thirds of the students were taking a WebCT course for the first time. One should also consider that an acceptable interface, and online course material that clarifies textbook

material, may prove to be the most important factors in encouraging WebCT enrollment. Further study of this subject is necessary.

None of the students expect to receive a grade below "C". In fact, the vast majority expect to receive a grade of "A" or "B". This latter point raises questions about why some of the students surveyed were not certain whether they would register for a WebCT class again. Perhaps this can be attributed to the fact that the vast majority of those surveyed were in their third or final year of undergraduate coursework.

Forty students participated in the survey used in this study. The fact that the majority of the students (i.e., 3 of 4 classes surveyed) were attending the same school, may have influenced the survey outcome. A more comprehensive study should survey students nationwide that are using WebCT. Although the WebCT interface is consistent and "friendly," the instructor can tailor the content modules and other specific features (e.g., Chat Room, Whiteboard, etc.). As a result, each WebCT course can have unique features depending on who has created it.

One limitation of this study was the small number of students involved in the survey. The authors suggest that a broader reaching study be performed including a longitudinal study of multiple school systems. Another limitation faced by the authors was the short amount of time that courses have been available via WebCT and similar online course development software packages. If the past is any indication, WebCT in ten years will look very little like the somewhat labor intensive teaching tool of today.

## **8. ACKNOWLEDGEMENTS**

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## **9. REFERENCES**

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