

Overcoming Barriers to Student Participation in Online Discussions

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Abstract

This paper is an analysis of the issues encountered in the process of building a community of practice amongst students through engaging in online dialogue using WebCT. The analysis is guided by an educational change framework, proposed by Goodell, Parker, and Kahle (2005), which includes Technical, Political, Cultural, Moral, and Personal dimensions. First, the analysis highlights the reasons for using WebCT. Second, the issues faced in using WebCT effectively are discussed. Finally, suggestions are offered for instructors using WebCT for the first time.

The two authors of this paper taught a yearlong seminar for a cohort group of 28 master's students writing theses as the culminating activity of a grant-funded program called Urban Fellows (UFs). We decided to use Web Course Tools (WebCT), a university-supported Internet-based software management system for supplementing course instruction, to facilitate our communication with the Urban Fellows, to promote a community of inquiry among the students, and to manage the massive amount of record-keeping that this project required.

Unfortunately, our goals were not realized. Neither the program coordinators nor the Urban Fellows used WebCT's discussion capabilities as we had hoped, and the potential benefits were lost. This paper analyzes the barriers we faced in trying to reach our goals. The paper is divided into three sections. In the first section, our rationale and intended uses for WebCT are explained. In the second section, the barriers we faced while trying to use the technology are described. The reasons for these barriers are then analyzed, and recommendations are offered (especially geared toward new users of WebCT) for effective use of online communication tools or other Web-enhancement course software.

Context of the Study: The Urban Fellows Program

Program Goals: Leadership, Collaboration, and Technology

The Urban Fellows Program was designed as a partnership between Cleveland State University and the Cleveland Municipal School District. The UFs were selected by the school district as experienced teachers in middle grades (5 -8) who demonstrated leadership potential in their buildings. The UFs took 36 credits during six semesters together beginning in May 2000. Course content included the graduate core (research, educational psychology, and curriculum), content-specific methods, and a culminating project. The goal was to develop middle school mathematics and science teachers who would remain in the district as leaders, assisting other teachers in improving mathematics and science instruction.

Collaboration was an important goal of the program. There was an attempt to choose two teachers (one mathematics, one science) from participating buildings so that these two teachers could work together and support one another. Most of the courses, except the content specific courses, were taken together. Mathematics and science teachers were separated for content courses. In pairs, the UFs designed and completed a final project, described in the next section.

Another important focus was helping the teachers become more proficient in the use of technology so they, in turn, would integrate technology into their own teaching. All of the UFs were provided with new laptop computers at the beginning of the program and given training on how to use them. Several of the courses were devoted to the use of technology in mathematics and science instruction, such as the use of graphing calculators or supplementing instruction through the use of the World Wide Web.

The Exit Project: Seminar in Theory and Practice

The last three semesters of the program were devoted to the completion of a master's project. Over the summer, the UFs read *Designing Professional Development for Teachers of Science and Mathematics* (Loucks-Horsley, Hewson, Love, & Stiles, 1998) and designed professional development programs to disseminate their newly gained knowledge among their school colleagues. Their proposal, which had to include a plan for conducting action research on the program, had to be approved by three faculty members and receive human subjects approval before they could begin.

During fall 2001 and spring 2002, UFs implemented their programs, gathered data on its success, and wrote up the results. Two instructors (authors of this paper) facilitated a biweekly seminar for the entire cohort and offered brief presentations on topics such as writing proposals for human subjects approval, writing and organizing a literature review, collecting and analyzing data, and using APA style. Much of the seminar was devoted to UFs discussing their projects and the status of their final project reports. A professor from the university -supported writing center was always available to assist with editing. There were also two program administrators and a graduate assistant who assisted with overseeing logistical and clerical details.

While planning the UF seminar over the summer, we decided early to use technology, specifically WebCT, to facilitate the seminar. We required them to post on the discussion board two progress reports per semester (the seminar was conducted over two semesters), and drafts of their literature review, methodology, and results sections of

their final project report. We envisioned that the easy access to multiple readers—ourselves, program coordinators, and one another—would allow them to experience the benefits of collaboration by receiving supportive as well as critical feedback on their projects throughout the writing process.

After one semester of struggling to get the UFs to use WebCT as we envisioned, we began to collect more systematic data about WebCT usage. In particular, we kept all of the WebCT records, including postings to the discussion board and individual WebCT usage statistics. In addition, 18 of the 28 UFs participated in an exit interview, and they were all asked for their thoughts about WebCT.

Analysis of Issues When Using Technology as an Instructional Tool

Flake (2001) discussed how technology changes teacher education by shifting the teaching/learning process, the assessment/evaluation process, the learning environment, and even the skills and curriculum. However, in order to realize these benefits, teachers, especially those who grew up before the meteoric rise of microcomputers and the Internet, will have to embrace these changes. As Koszalka and Bianco (2001) stated, “There is little literature that describes the instructors’ views on the successes and challenges of the different types of design elements incorporated into distance education courses” (p. 60). For many of the UF cohort, using technology as students and integrating technology into their teaching was indeed a major change. We hoped that by modeling the use of technology as an instructional tool, we could help the UF group experience its benefits and want to emulate this use in their own teaching. This paper describes and analyzes, from our perspective as the instructors, the different challenges we faced in trying to get the UFs to embrace these changes.

To analyze our data we sought a model that would help us characterize, from our perspective as promoters of change, all of the facilitators and barriers we encountered so we could share lessons learned with current or prospective users of Web-based course enhancement tools. We selected a model developed by Rossman (1993) for a large project involving case studies of science curriculum reform (Anderson, 1996). Rossman proposed a four-level conceptual framework, derived from studies of educational change and caring (House, 1981; Noddings, 1984; Oakes, 1992; Oakes, Wells, Yonezawa, & Ray, 1997). House (1981) used the terms “Technological,” “Political,” and “Cultural” to describe the different perspectives taken on research about educational innovations. Oakes (1992) and Oakes et al. (1997) used the terms “Technical,” “Normative,” and “Political” to describe three different dimensions of reform identified in a longitudinal study of 10 racially mixed schools implementing tracking reforms. Noddings’ work on ethics and caring in education (Noddings, 1984) pointed to the need to include a Moral dimension. Goodell, Parker, and Kahle (2005) extended the framework further by including a fifth dimension: “Personal.”

These five dimensions are defined as follows, and also listed are some examples of issues that were identified in each category in other studies in which this framework was applied by Rossman (1993), Anderson (1996) and Parker (2003).

Technical: Professional knowledge and skills, and the means by which they are acquired

Rossman: Teachers’ decisions about what their students needed and what mathematics knowledge really was,

Anderson: Curriculum content and pedagogical approaches

Parker: Defining an outcome; provision of support materials; development of progress maps

Cultural: Institutional and group values, beliefs and norms

Rossman: Teachers' deeply held beliefs about what constitutes mathematics knowledge and how best to teach it.

Anderson: The beliefs of many teachers about which students the reforms should be for.

Parker: The embedding of core shared values; the provision of an overarching statement; the "tone" and emphasis of the Curriculum Framework document

Political: Matters of authority, power and influence, including the negotiation and resolution of conflicts

Rossman: Dealing with a large bureaucracy and state mandates in the form of standardized testing

Anderson: Decentralization of power, and the collaboration apparent amongst the faculty in reforming departments

Parker: Changes legitimized through legislation; continuity of support through a change of government

Moral: Matters of justice and fairness

Rossman: Teachers' strong belief that preparing their students for standardized tests using nonreformed teaching methods is the right thing to do.

Anderson: Elimination of tracking as an unfair practice.

Parker: Inclusivity; parity of esteem amongst learning areas

Personal: Personal characteristics of key players

Parker: Personal consultation with stakeholders; collaboration between Secretariat and consultants; acknowledgement that humans need time to change

One of us (Goodell) has used this framework in other research projects involving teacher change (Goodell, 1998; Goodell, Broadway, & Gojak, 2003) and was confident that these dimensions would help us identify and differentiate among the challenges we faced in trying to get the UFs to use WebCT. This certainly proved to be the case as we analyzed our data—all of the issues we identified during the data analysis fit within this five-tier framework, and using this framework enabled us to identify some issues that were not immediately apparent, such as who had the power to influence how the students were interacting with WebCT. In the remainder of the paper, we use these five dimensions to analyze our planned uses of WebCT, as well as the barriers to and facilitators of getting the UFs to use WebCT.

Technical Issues

Although we knew that technical issues often present the greatest stumbling block for implementing technology (Ali, 2003), we believed that we had addressed all the necessary concerns. We hoped that WebCT would help us to manage the sheer amount of paperwork generated in shepherding 28 students through a multipart project. Since each proposal and final report needed to be approved by a committee of three people (one instructor, one program coordinator, and one other member identified by the student), we wanted to provide an easy mechanism for students to submit drafts of their writing to multiple readers simultaneously (rather than managing multiple paper copies), and for the readers to return drafts with comments. We liked the idea that WebCT is a closed system and that we would not have to deal with attachments and messages from the students in our regular e-mail inbox until we decided to download the documents at a convenient time.

The WebCT "electronic grade book" provided a helpful record-keeping system to track students' progress. Recordkeeping in the UF program was particularly challenging, since there were two instructors, a writing assistant, two program administrators and a clerical graduate assistant overseeing project completion. We wanted to offer a centrally accessible and secure database to keep track of the students' progress.

We also believed that WebCT would provide maximum accessibility for program participants. Although we had both previously used a free version of Blackboard.com (another Web course tool), students had reported technical difficulties getting onto the Web site. Our university supports WebCT software on its local servers and offers introductory training sessions for new users. We believed that since WebCT was housed on the university servers the students would have an easier time accessing the site, and we had heard from other instructors that this was true.

Everyone in the program had access to computers. With the program's emphasis on technology, every instructor, administrator, and urban fellow had been given a laptop computer at the beginning of the program. The program administrators and the graduate assistant all had office facilities that included desktop computers. The students had participated in extensive training in how to use their laptops and had been using them for the previous three semesters. In addition, they had used Blackboard.com with one instructor earlier in the program. We believed the UFs would be comfortable and willing to engage with the WebCT platform.

Cultural and Moral Issues

The electronic discussion board is an important Web instructional tool that can enhance in-class discussions by providing students with additional opportunities to share their thinking (Dutt-Doner & Powers, 2000; Galland, 2002; Johnson, 1997; Koszalka & Bianco, 2001). Since discussion board postings allow students to take more time thinking and responding than they would have in a face-to-face discussion, these forums maximize student-to-student interaction as students respond to one another (Collison, Elbaum, Haavind, & Tinker, 2000).

The more substantive contributions to a discussion board have also been shown to produce a greater degree of reflective thought about teaching (Hawkes & Romiszowski, 2001). Finally, students appear to be more candid and willing to share frustrations in electronic discussions since these environments are "faceless," but not anonymous (Dutt-Doner & Powers, 2000).

We hoped to maximize communication and collaboration among the UFs while remaining as a “guide on the side” (Collison et al., 2000). We were only going to meet with the group biweekly for 2 hours, and we knew that this time period would not be sufficient to allow all the UFs to share their progress, their concerns, or their frustrations. We valued reflective dialogue in a community of practice, and we had both participated in settings where students benefited by working together closely. Many of the UFs had designed similar professional development programs and evaluation plans, so we hoped that they would appreciate the benefits of receiving feedback, not just from instructors but from one another, through sharing resources and experiences as “critical colleagues” (Lord, 1994).

Political Issues

Although we were both committed to using technology, we also felt pressure to make sure that the UFs used technology. The culture of many universities, including our own, is being pushed toward distance learning and online courses, due to the ever-expanding number of such offerings from around the world. Thus, there was some pressure from college administrators to incorporate technology into our teaching. For example, “use of technology” is an item on the university student evaluation forms. Instructors who offered distance learning courses were given additional professional development funding. We were among a group of faculty members participating in a government sponsored PT3 (Preparing Tomorrow’s Teachers to Use Technology) grant. However, by far the biggest political pressure came from the grant itself. The grant had provided laptops for the UFs and faculty (in addition to tuition and books), so we felt that we had better make sure everyone was using their laptops.

Personal Issues

Both instructors were interested in supporting the UFs as much as possible. One of the instructors had taught two previous UF courses and had established a good working relationship with many of the UFs. We were convinced that WebCT’s tools would address the UFs needs during their project year. Both instructors were comfortable with computer technology and had prior experience using course software such as Blackboard and WebCT, as well as participating in collaborative writing groups where people read and critiqued drafts of one another’s work. By introducing WebCT we were trying to provide a tool that would make the process of project completion as easy as possible.

Implementation of Technology

At the beginning of the semester, we set up the WebCT “grade book” with columns for every project component that the UFs would be expected to submit (project proposal, Institutional Review Board proposal, drafts of each section of the project, and final project), along with columns for every signature they needed along the way (at the proposal and final project stage). Hoping that the program administrators and graduate assistant would be the main conduit for keeping the WebCT records updated, we helped the program administrators and graduate assistant log onto WebCT and showed them how to use WebCT’s “grade book.” Since we always met the UFs in an auditorium style classroom where each student had an electrical outlet and Ethernet jack for laptop Internet access, we thought it would be simple to help them log onto WebCT for the first time. Although we “required” the UFs to bring their computers to the first class, unfortunately, many did not, so we spent a significant amount of time catching people up later.

During the first class session, we explained our expectations regarding WebCT and walked them through the process of logging onto WebCT, using the discussion board, and attaching papers electronically using WebCT's private mail. We explained that they would be expected to submit all of their writing to us as WebCT attachments and to post two progress reports each semester on the discussion board. We encouraged, but did not require, them to read and respond to one another's drafts and progress reports. Finally, we indicated that they would be able to track the course of their proposal drafts and project drafts using WebCT's "grade book" feature.

By halfway through the semester, the usage of WebCT varied widely among the students. As Collison et al. (2000) noted, "An online community exists only if its members are active and posting" (p. 49). Eight students had not successfully logged on to WebCT. Figure 1 and Figure 2 are frequency histograms showing how many of the students posted or read within a certain range of items. For all of these categories, most of the students were doing the bare minimum or less. For example, 15 of the 28 students read less than 30 items (including their own postings and the instructors' responses), and 13 of the 28 students did not even post the seven required items on the class discussion board.

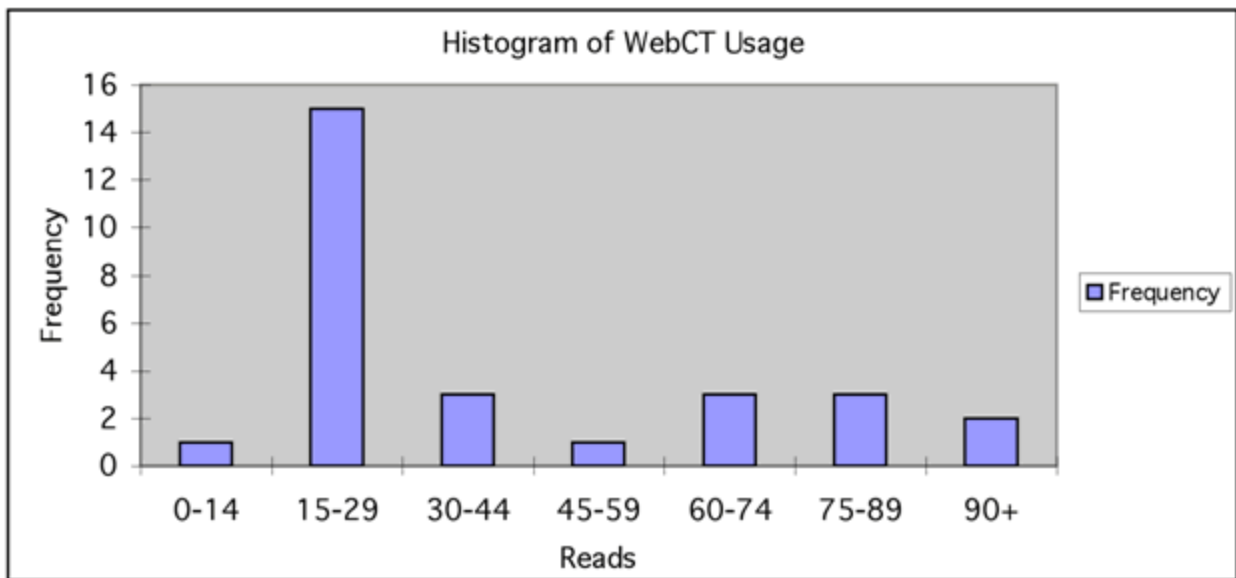


Figure 1: Histogram of WebCT Usage: Reads

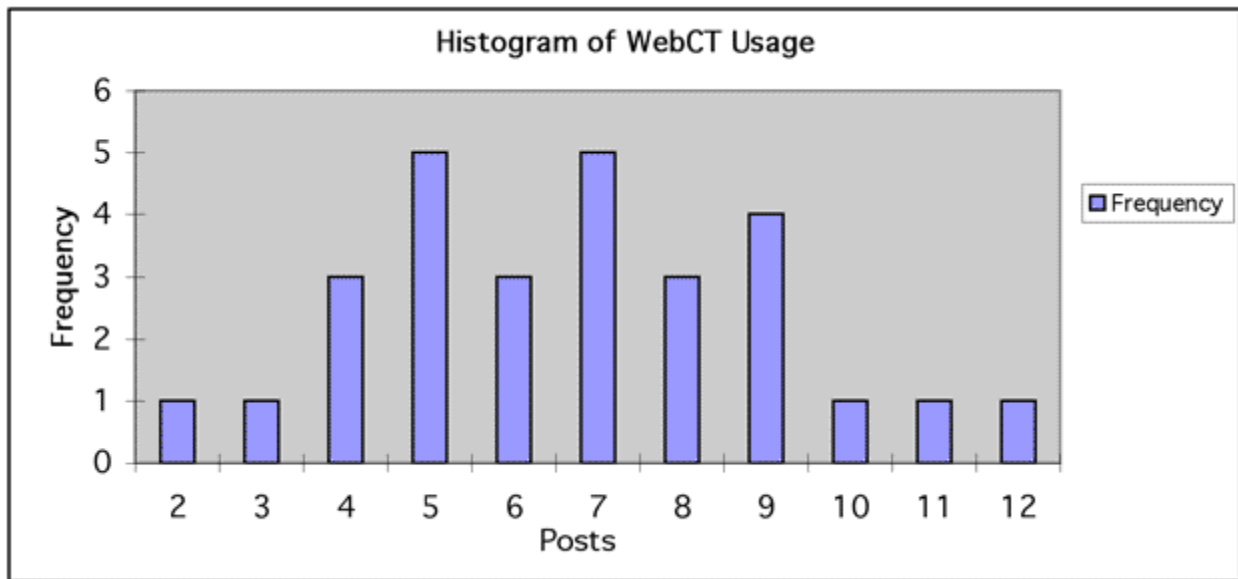


Figure 2: Histogram of WebCT Usage: Posts

At the end of the first semester, we met to read the UFs' discussion postings and to update their progress on WebCT. At that time it became apparent that not all of our goals were being met. The program administrators were rarely logging on to WebCT, and the graduate assistant had not kept the status reports up to date. The database was used infrequently by us and never by the program administrators. We only used it at the end of the semester when we updated the whole thing.

Despite the fact that we had made the use of WebCT a course requirement, only 75% of the students had "chosen" to use WebCT to submit drafts of their writing to us. The remainder provided hard copies or sent drafts through regular e-mail. Although it was our intention that they read each other's work, the only replies to any posting at all were all from one student (an older white female), and these were not substantive, referring only to how much she liked the author's work. From the interview responses outlined earlier, it seemed that some other students did take advantage of the opportunity to read other students' work, but they did not post a reply to the author. We suspect that it was because we did not make it a requirement through giving some credit as part of the assessment for the course.

The students had nearly all posted progress reports (we did allocate part of their grade to this activity), but their postings were perfunctory, as demonstrated by the typical postings included in the [appendix](#). The students did not raise any concerns about the research process or ask for any help or advice. Instead, the progress reports functioned more as status reports listing tasks completed and assuring the instructors (or anyone else who might care to read it) that their project was on track. These postings gave little indication that they expected any feedback from any of their peers or the instructors. This was confirmed by the fact that there were no responses from anyone other than the instructors to these progress reports.

Barriers and Facilitators for Successful Technology Uses

In our planning stages, we believed that WebCT would work with the UF group—they had prior experience with Blackboard (technical and cultural), they knew one another (cultural), and they were heavily armed with technology (technical)—and yet they did not accomplish the goals we had established for WebCT. Communication and collaboration did not occur as we had envisioned. The only bright spot was that after much coaching and cajoling, we finally managed to get most of the students to submit their work as WebCT attachments. Nearly all posted their progress reports, even though a few emailed their reports and asked one of us to post it for them!

As we discussed our frustrations during spring 2002, we realized that we shared students in other classes where we used WebCT. Students in these other classes were enthusiastic and eager users of WebCT. As we discussed the apparent lack of enthusiasm among the students we were co-teaching, we began to wonder what was different about the way we used WebCT with our co-taught students and the way we used WebCT individually. To answer this question, we return to the educational change framework used to analyze our initial reasons for using WebCT. We believe that the failure to achieve our goals was due to a combination of barriers, but we also believe that any of these barriers alone can threaten the success of efforts to use WebCT.

Technical Issues

Our initial thought that access would not be a problem was true for the most part, but there were some unexpected access difficulties. Although all UFs had been provided with laptop computers, some students experienced short periods of hardware and software problems, none of which were anticipated, and all of which were difficult to handle. One student experienced computer failure, and she was not willing to pay to have it fixed (the warranty had expired, and repair costs were the responsibility of the student).

All UFs had free Internet access and university e-mail accounts, but none of them used this service; they all paid a private Internet service provider and used a non-university email address such as Yahoo, Excite, Hotmail, or America Online. Each provider appeared to handle attachments differently, so there were some problems with the transmission and receipt of attachments through WebCT. These different providers also caused some browser compatibility issues when UFs accessed WebCT from home.

Although we had demonstrated the use of WebCT in a lab where students could immediately practice the skills we modeled, several students still felt that the system was not user friendly. Although we had attempted to assist the UFs to log onto WebCT initially by having everyone log on together during the first class session, some did not follow along (and some were unable to because they did not have their computer with them) and still had not added the course by the end of the first class session. Since the instructor can only see the students' WebCT ID and change passwords after students have enrolled in the class, some students chose to create a new WebCT ID, and this added to the confusion. Many chose not to write down their newly created WebCT ID and password, so they continued to use regular e-mail rather than WebCT, and the compatibility problems continued. Finally, many students confused their WebCT ID and password with the class ID and password, and their university ID and password (used to gain access to student services on the Internet), so we had to take time out of class constantly to help these students understand the difference.

Cultural and Moral Issues

The UF's resistance to the use of WebCT was partly a cultural issue specific to the UF group. They were a cohort group who had been together for three semesters by the time we were assigned to the class. Although we hoped that the group was a cohesive community that could be furthered through WebCT, we were mistaken. There had been quite a lot of negativity and resistance to the amount of work that was expected of them in the classes they had taken up to the point of our seminar class, and this manifested itself repeatedly throughout the completion of their projects. Some students harbored residual negativity from their Blackboard.com experiences over the previous two semesters, which impacted their willingness to embrace efforts to use WebCT. Some who experienced the most technical difficulties were very vocal during seminars about their problems, and this negativity sabotaged our efforts to encourage the UF's to use WebCT.

In addition to group resistance, there were individual reasons for not using WebCT. Many of the UF's were older teachers who had little exposure to technology prior to their involvement with the program. Despite the fact that they had participated in at least 30 hours of technology training, many of them were starting from almost no experience, and the training was not enough. As one UF commented, "I guess if I was a little bit younger when I was in grad school [it would have been easier for me]. I was one of the ones where technology wasn't my thing." Fear of technology is a significant problem that is difficult to overcome, especially among older students who may not be familiar with, comfortable with, or interested in using technology.

Although most UF's had become regular Internet users, most were accustomed to sending messages and attachments using regular e-mail. Many considered themselves successful even for having learned to do this much. When we decided to move to an asynchronous discussion board for posting attachments and communicating with one another, it was a novel idea for many. The issue of UF's not utilizing the university-provided Internet and email address was partly a cultural one, in that they had not been encouraged or required by other instructors to use the university Internet access, and they did not know how to set up or configure the pop-mail software or Internet connection software. We believed this had been part of their initial training, but either the training was ineffective or the students had chosen to use outside accounts for other, unknown reasons.

There seemed to be a tendency among the group to do just what was required and no more, including using their computers. In the exit interviews, only one UF commented on the possibility that her WebCT experience could be useful in her own teaching. From others' comments in the exit interviews, most saw WebCT as a tool for turning in papers and keeping track of grades. Our expectations of the students confirmed this idea. We had required students to post drafts and progress reports online, but we had not required the students to respond to one another. With other groups we have taught, part of their assessment was linked to their online responses to one another. Those who saw WebCT's possibilities for promoting collaboration focused on the ability to read one another's work and the accountability that came from knowing their writing would be made public, not on the value of giving or receiving feedback from their peers.

Political Issues

Political issues that worked against us in the implementation of WebCT course enhancements centered mainly on the division of responsibilities of program leaders. One of us had been involved with the group in the preceding semester and already had some awareness of the difficulties inherent in keeping open all lines of communication between all the stakeholders in the group. We mistakenly thought that the program administrators

and the graduate assistant would update the WebCT “grade book” to track the UFs’ progress. For reasons still unknown to us, they never accomplished this, although we thought we had made it clear that we expected them to in our meetings and discussions with them. Since the “grades” were never updated, students ceased to view WebCT as a tool to check their progress and checked the site even less frequently.

As instructors, we were not active participants on the class discussion board. We spent most of our time reading and responding to individual drafts of project sections. In addition, we never established guidelines for how to divide the work of facilitating the WebCT discussion board. Consequently, on occasions considerable time would pass before anyone read or responded to UF postings. Although one legitimate strategy of facilitating student-student interaction is to “sit on your proverbial ‘virtual hands’” (Collison et al., 2000, p. 63), it is equally important that the facilitators make some public contributions to the discussion. We never made it clear to ourselves or the UFs whether we even intended to reply to all postings, or what difference it would make if we did. We suspect that for some students, the apparent lack of involvement of the faculty and staff with WebCT degraded the worth of WebCT and affected their willingness and enthusiasm to remain involved.

Personal Issues

We both were committed to integrating appropriate technologies into our teaching and were eager to model good practice with our students. Our technology goals were compatible, and we did not give up on these ideals despite technical issues and resistance from the students and program administrators.

Even though we felt frustrated during the seminar, we later learned through the exit interviews that many of the UFs felt that aspects of WebCT were beneficial. In spite of the challenges faced, all 11 UFs who discussed WebCT in their exit interviews, even those who had an overall negative response to WebCT, cited some positive benefits. Every respondent cited the value of improved communication with instructors. Specifically, the UFs mentioned the value of being able to turn in work electronically rather than using paper copies, and they appreciated receiving feedback electronically. One UF even stated that she appreciated knowing which assignments were turned in and which were still missing, which is somewhat surprising considering that these records were only updated sporadically.

In addition to communication with instructors, some UFs described how WebCT promoted collaboration. Five UFs appreciated the ability to read one another’s writing, either so they could get a better idea of what the instructors expected or to see that they were on the right track. Two of the UFs stated that knowing their work was going to be made public and that they were expected to respond to one another made them more accountable. As one stated, “When everybody is looking at your stuff, you want to put it out there right.” These comments suggest that frequency of logging on or the number of comments posted to the discussion board may not be the only measure of collaboration. Students experience some benefit just from having their work made public, because they feel pressure to do their best work and because they have the opportunity to gauge their work against the quality of other students’ work.

Lessons Learned: Advice for New WebCT Users

As a result of our collaborative teaching, we have learned three lessons that will be helpful to all WebCT instructors, but particularly those implementing WebCT for the first time.

First, instructors should minimize student frustrations by addressing and heading off as many technical problems as possible during early class sessions. Second, instructors should eliminate negative messages that may be inadvertently communicated to students about WebCT. Third, instructors should ensure that students experience the benefits of using WebCT through a combination of pressure (through grades and course requirements) and support (incorporating technology support into instruction and being available to assist students who still struggle).

As with the introduction of any new technology, technical issues can cause a great deal of frustration, and measures should be taken to prevent them where possible. We highly recommend bringing students in early class meetings to a lab with Internet access where all students can work at individual computers. Instructors should identify the WebCT tools that students will use most frequently and give students considerable time practicing those tools. For example, in our case, we should have spent more time ensuring that students logged on successfully, that they wrote down their WebCT ID and password, that they practiced sending messages and attachments, and that they replied to messages. Although this approach places early emphasis on technology rather than course content, it actually decreases the total amount of time spent on teaching technology. Without adequate initial training, many students are likely to experience difficulty with the technology, and instructors will either spend more time addressing difficulties with the whole class—a situation that is likely to engender negative feelings about WebCT among students—or spend significant amounts of time outside class helping individual students. With adequate initial training, many students will have early success with the technology that they can share with the instructor or the class.

Instructors should discourage negative feelings about the technology while still addressing students' difficulties. Instructors can target their assistance by working on individual problems that crop up, such as browser or software compatibility issues. If instructors cannot deal with students' concerns, they should enlist the help of university technical support. Negative feelings can often be traced back to students or the instructor. For example, even though the exit interviews showed that some students appreciated the benefits of WebCT, we found that several vocal students with technical difficulties contributed to an overall negative feeling about WebCT and a sense that the technology was simply an additional course requirement rather than a benefit. If this occurs, instructors should encourage successful students to share their experiences or at least describe strategies that the negative students could use to overcome frustrations.

As instructors, we may have contributed somewhat to the negative feelings about WebCT by not keeping student records up-to-date and contributing infrequently to the discussion board. Once we discovered that the program administrators were not keeping the records updated, we should have removed the tool from our WebCT page or taken steps to ensure that the records were updated. As team teachers, we should have been clearer about how often we would respond to discussion board postings and how we would distribute the work. It is easy to underestimate the amount of time required to read and respond to student postings. When instructors themselves are not active participants on WebCT, students may see their lack of participation as an indicator that instructors do not really believe in the value of WebCT but view it primarily as a hoop through which students must jump.

Even when negative messages are minimized, some students must still be forced into using WebCT before they can recognize its benefits. One of the most potent incentives is to use grades to force participation. We required UFs to post, but we did not require them to respond to one another. If we had attached grades to the UFs postings and responses, more students would definitely have responded. As evident in the exit interviews,

students who logged on and read postings from other students appreciated knowing that they were on the right track. Students who never logged on, who persisted in sending electronic copies through regular e-mail, and who only posted cursory progress reports never had the opportunity to experience any of the benefits that the more active students cited. If we had forced increased participation through the pressure of grades, more of the UFs may have seen the benefits and begun to participate more voluntarily. With a critical mass of students reading and responding to postings, the online WebCT community may have flourished and the need for grade incentives for online participation may have decreased.

Finally, instructors must help students recognize the benefits and relevance of WebCT tools. In addition to the incentive of grades, we could have been more explicit about how we hoped WebCT would promote collaboration, since many of the students seemed to believe that WebCT was primarily a tool for turning work in electronically rather than a tool for sharing and collaboration. We could have invited active WebCT participants to share experiences of how the WebCT discussion board helped their writing process by increasing their audience or by providing a venue for mutual feedback. Finally, we might have spent more time demonstrating how the UFs could use WebCT features in their own classrooms in a large, under-resourced urban district.

Our experiences suggest that students may have to cross a certain threshold of use before they can experience the benefits of WebCT and become more active participants. Technical difficulties and negative feelings may prevent students from venturing across the threshold, so they must be addressed. Without a minimum amount of use—both posting and responding to messages—students may be stuck halfway across the threshold and never fully realize the technology's benefits. Many of the UFs seem to have made it halfway across the threshold. They did what was required, but only what was required. They came to view WebCT mainly as a tool for electronic paper submission, so they did not experience the full potential of collaboration afforded by WebCT's discussion board. To get students fully across the threshold of use, instructors may have to resort to a combination of modeling through active participation in online forums, explicit instruction and continuing support with the technology, pressure for participation through grades and course requirements, and helping students recognize the rewards of online participation (see also Geelan & Taylor, 2001).

Although we were unsatisfied with our WebCT experience with the UFs, we learned a great deal from our own collaboration on this project. We both remain convinced of WebCT's potential and have both used WebCT with our individual classes since the collaboration ended. Working together to reflect on our experiences and write this paper was an important part of our learning, and has confirmed our commitment to reflection as a path to improving practice. While the UF group did not achieve that goal, they have certainly helped us ensure that our future students will.

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**Appendix
Student Postings to WebCT**

Message no. 16

Posted by Student A on Wednesday, October 24, 2001 8:20pm

Subject: Proposal progress

At this point my proposal is out for revisions. I have a small number of teachers that are anticipating the start of this professional development. My IRB is being reviewed for approval. I am constantly working on seeing this proposal through.

Message no. 67

Posted by Student B on Tuesday, December 4, 2001 4:55pm

Subject: ProgressReport2

Currently I have received the IRB approval to begin my Project. I have met with the teachers who will participate in order to discuss with them what will occur during our Study group sessions. A rough draft of my Methodology has been complete awaiting comments. Now, I am ready to conduct sessions with my fellow colleagues in order to complete my project.

Message no. 83

Posted by Student C on Thursday, December 6, 2001 6:14am

Subject: Second Progress Report

This is my second progress report. I have posted my methodology and Lit Review. We had an initial meeting with the teachers and they have signed consent forms. I am still waiting for a response to my IRB. We will be holding our first session on Monday.

Message no. 152

Posted by Student D on Thursday, February 28, 2002 5:28pm

Subject: Progress Report

The teachers in our study group have been very cooperative. They seem to be really enjoying these sessions. We are helping them to become proficient in using the TI-73 graphing calculators. We have also modeled a lesson with a 7th grade class. We are really trying to allow them to become comfortable with using this tool. They are really hesitant using this tool with their students, so we decided to team-teach a lesson with them. Hopefully this will help them gain some confidence when it comes to teaching their student how to become proficient in using this tool. In our next session we will discuss our modeled lesson with the 7th grade class.