IMPROVING STUDENT LEARNING VIA E-COURSEWORK AND WEBCT-BASED COURSE INSTRUCION IN COLLEGE BUSINESS EDUCATION

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ABSTRACT

The paper recognizes the potential of using the Internet for instruction by presenting the use of Web based instruction in a business undergraduate distance–learning program at Lewis College of Business, Marshall University, Huntington, West Virginia. The e-course and televised course are taught using a secured web site via the use of the WebCT as a primary and complementary teaching instrument respectively. The paper argues that pedagogical improvement in interactive Web environment in a distance-learning environment can be successfully achieved by the use of technology. However, the paper concludes that e-courses where the WebCT instrument is a primary course delivery tool demand unexpectedly high student self-motivation. Moreover, the lack of the classroom environment in case of e-course requires additional control efforts to help prevent student dishonesty.

INTRODUCTION: WEB-BASED LEARING

Web-based and e-courses are being used extensively to provide instruction in College educational settings. One of the most powerful elements of using the Web and the electronic setting for teaching is the ability to engage learners in an interactive format. There are many technologies available that allow instructors to develop interactive electronic and Web-based course materials and elicit feedback from students. Many College professors choose to use them for improving the level of communication among the students and the teaching and learning process.

Most successful Web-based courses are in computer science and other technically advanced fields where students are already comfortable and familiar with computer technology. Such courses are also usually directed at traditional learners, young students often in campus-based programs, who are already familiar with e-mail and online coursework, and are thus likely to adapt quickly to the demands of Web-based teaching.

However, the most significant promise of distance education is its ability to reach non-traditional learners. To some degree, the success of Web-based instruction should be judged by how well it meets this challenge. Students in rural and distant from main campus areas are in need of professional development. These are the students who can most clearly benefit from the advances in Web-based technology and distance education. Unfortunately, these individuals are the least likely to be comfortable with the structure and demands of Web-based instruction. They also bring a range of expectations and backgrounds with them. Usually, these expectations are set by the patterns of traditional classroom pedagogy: an active, present instructor; instructor-directed activities and discussions, and a passive or merely responsive role for students.

Web-based pedagogy, by contrast, tends to reverse these dynamics, making the instructor less present and increasing the interactive and leadership roles of the learners.

Highly motivated and confident learners respond well to this self-directed format, and they are the most likely to benefit from distance education. But to be successful, distance education must be designed to address the needs of more typical learners, particularly those non-traditional students who may be most uneasy with the format of Web-based professional development. New technologies make available new instructional media. Instead of being restricted to face-to-face classrooms and blackboards, we can use computer projection systems, network-based interactions, and other interactive computer-based tools for learning and teaching.

This article describes different approaches to using new technologies in online and web-based long distance education in an undergraduate business education focusing on curriculum, technology, and methods used. We present our experiences from teaching the Web-based and E-course courses in a distance-learning program at Marshall University in order to describe a framework for using multiplicity as a force for developing innovative distance education.

LITERATURE REVIEW

Many educators have recognized the potential of using the Internet for instruction. Although many Internet technologies such as e-mail, conferencing on the Web can be used to assist with teaching, the World Wide Web and most recently WebCT remain the most popular medium. They provide a user-friendly and easy access to text, graphics, audio and video materials that may be used in a common and consistent format. Most education Web sites provide basic course information such as syllabus, schedule, announcements, reading lists, synchronous or asynchronous communication, online testing, discussion groups, conferences, whiteboards, streaming audio and video. These types of materials are being made available in courses that meet in classrooms regularly and use Web materials as supplementary tools, as well as courses that are delivered entirely over the Web without traditional classroom meetings.

Comeaux (1995) suggests that Web interactivity helps engage students in active application of knowledge, principles and values, and provides them with feedback and interaction that allow their understanding to grow and evolve. The interaction can be with content, other students, instructor, participation in a discussion group, quiz questions, simulation program, conferencing, live chat, or by filling out a feedback form (Harasim et al.1995). Web environments can make use of one or more of these interactive components at any time. In designing learning environments, researchers have recommended using an approach that provides appreciation for multiple perspectives, embedding learning in relevant contexts, and encouraging use of multiple modes of representation, and encouraging self awareness of the knowledge construction process (Honebein 1996).

Many authors have stressed that interaction and feedback have significant impact on the learning process since they add value that results in improving quality and success in Web courses (Moore et al 1996, Cornell et al. 1997). They have also specifically identified interaction and feedback components as factors that influence student motivation in completing a course. In a research study, Comeaux (1995) also found that interaction and involvement lessened the psychological distance for students at remote learning sites.

With educators designing and customizing Web learning environments, it is necessary to determine if these environments are meeting the needs of learners. Mechanisms must be incorporated in Web-based environments to evaluate the medium, content, format, design and structure so timely intervention can occur if a problem is identified. Angelo (et al 1993) indicate user feedback is one way of examining if the learning environment is successful in meeting learning outcomes.

In Web-based courses one way of collecting assessment and feedback data is by using Web based forms. Similar to paper forms, web based forms have designated fields in which the user enters information that is sent back to the course instructor via the Web. In most cases students fill out the feedback form and press a "Submit" button that automatically forwards student-entered data to faculty as an e-mail message. Faculty can design and customize questions based on course content or outcomes to be measured. In most cases since the design does not go through reliability and validity statistical analysis, and is used for the sole purpose of improving teaching, it can be considered as informal assessment. This form consists of instructions to the student and questions that are indicators for assessing learning outcomes that in this sample case include pace of instruction, instructional strategy, and any open-ended student comments.

INTRODUCTION TO THE WEBCT INSTRUMENT

WebCT was developed in the Department of Computer Science at the University of British Columbia. A course developed using WebCT is organized around one main homepage. This homepage is the entry point for the course. It can contain, among other things, a banner image, a textual message, links to course content elements, and links to course tools. While there is only one main homepage, there can be any number of subsidiary homepages called tool pages.

The WebCT provides structure, interactivity, and course tools. However, an instructor provides course content. Course tools are features that can be incorporated into any course. Tools can be accessed through an icon from any of the course Web page. Examples of tools include a conferencing system, timed quiz, grade storage and distribution, e-mail between course participants, student self-evaluation, student presentation areas, student annotation facility, student progress tracking, course glossary, and index. The progress tracking, student management, and access control tools were used. Exams and quizzes can be offered online.

All WebCT users, an instructor and students, access WebCT using a web browser. Other than the browser, there is no special software needed to access an E-course or web-based course. All that is required is that

the user can access a networked computer that has a modem or is permanently connected to a network. By using the browser, an instructor can create and edit a course, mark students work for a course. Students, on the other hand, can begin the learning process by reading notes, taking quizzes, performing exercises, or communicating with the instructor or other students using a chat room. General familiarity with the World-Wide-Web is required to use a WebCT based instruction.

Background on Teaching Web-based Courses at Marshall University

Marshall University with several locations throughout West Virginia is a state-supported, interactive university providing 2-year and 4-year undergraduate and graduate programs. The enrollment of Marshall University (MU) is approximately 16,000 students, including 4,000 graduate and medical students. A major goal of Marshall University is to create teaching excellence by enriching student skills in communication, critical thinking, and problem solving to ensure that all students receive the best possible instruction.

For the last few years Lewis College of Business at MU has been offering business and economics distance education to students in rural communities in West Virginia. The program is comprehensive in that it enables students to obtain undergraduate business degrees without coming to campus. The primary mode of course delivery is videoconferencing, but the Web-based conferencing as well as e-course instruction have been integrated into the program to help promote comprehensive learning process to the students in rural locations.

Marshall University introduced the WebCT instrument in Beta format in the fall of 1996 as a test project. In the fall of 1997, the university officially adopted WebCT as its Web-based course delivery tool. MU's Electronic Course Policy states that all e-course materials are to be housed and used on MU's WebCT server, so that the University can provide common support for course developers, instructors, and students taking courses from MU.

Currently, MU has more than 660 courses that are using or have used WebCT for curriculum delivery. Twenty-seven of these were fully online courses for the Fall 2000 semester. MU has had over 12,000 students enrolled in classes that are either presently using or have used WebCT for the delivery of instructional material. Of this number, more than

3,000 are currently enrolled in WebCT courses for the Fall 2001 semester. The rural nature of the state makes WebCT an ideal way to deliver education.

Example #1: A televised distance learning with the use of WebCT:

College of Business at MU offered a televised and the Web-based economics course to the rural remote locations in West Virginia in the fall 2001. There are many professionals in rural communities of West Virginia who have difficulty in accessing coursework in traditional campus-based settings. The courseware was offered by allowing students in other locations to meet in groups of 10 to 25 once a week in centrally located distant sites (Logan, Williamson, and Beckley) where they were linked to campus-based instructors in a videoconference. Each class session involved at least two remote sites, and the learning activities stressed learner interaction across sites.

Between classes, students shared their work and discuss course content using Web-based conferencing and e-mail. The conferencing tool was supported by the technology infrastructure at MU. The tool offered a robust Web-based platform for discussions and document sharing, and allowed the students to work together via the WebCT in groups. Students used the Web-based tools to discuss course concepts, to share work experiences, and to offer one another suggestions for carrying out assignments and improving learning.

LESSONS LEARNED FROM TEACHING TELEVISED AND WEBCT COURSES:

The approaches that were used in distance learning development recognize that nontraditional and off-campus students are likely to be unfamiliar with nontraditional learning approaches that expect from students to show the level of independence and self-direction in the learning process. Therefore, from a perspective of the instructor, it was important to view instructor's role as making a shift toward greater student participation and ownership of their own learning. Web-based instruction, with its capabilities for learner collaboration and independence, is a significant tool for bringing about this shift. Through the use of WebCT and the other components of our distance education technology, we were able to promote learner-centered instruction in three main areas: participation, task performance and collaboration.

One of the keys to building learning via technology is to introduce aspects of the technology gradually, rather than all at once. We waited about three weeks before breaking the class into teams for Web-based assignments, allowing them to get comfortable with us and

with the basic framework of the course before having them begin working with their peers. A crucial element in these early weeks of professional development is televised instruction and e-mail. Nontraditional students acclimate to these technologies much more quickly than they do to Web-based conferencing, so they became natural media for building connections and keeping up communication between instructors and learners. Students emailed their work at early stage of the courses and we gave them extensive, individualized feedback through e-mail.

As the semester progressed, we gave less detailed feedback, encouraging the students to use their own initiative and the examples provided by peers to make decisions about their projects. As they developed more confidence in their performance, we begun incorporating the Web conferencing site as a place to post work samples and project reports. This public forum encouraged students to put more care into their responses, and gives them helpful models for judging their own efforts. We also found it helpful to have a chat room at our Web site that students could use to discuss course-related issues.

Later in the semester, we built in elements to make the assignments increasingly individualized and independent. One way we did this was to have the students learn through a problem-solving approach, applying concepts directly to our expectations. At the same time we used assignments to help students build the skills for using Web technology in the ways that most suit them.

When we first used Web-based conferencing, we tried to introduce all its capabilities not all at once but by giving demonstration of several capabilities of the Web instruction over a week period. We began with minimal information necessary to log in and post a comment, and use the successive assignments to build other skills one at a time. For example, we structured half an hour activities to teach how to cut and paste text and to show how to reply to the comments of teammates. Since the students learned these skills in the context of course activities and projects, they discovered how to do each task as well as how it was genuinely useful. As the semester progressed, they naturally incorporated more and more of the aspects of the conferencing software they find useful in their weekly assignments and group projects.

Much of the success of distance education rests on encouraging an active role for learners. Thus, students must learn to rely on themselves and access to and master in the use of technology. Most students who came into our classes were typically accustomed to a more passive format of instruction. We have found that they responded indifferently to many of our initiatives if we presented them too early in the semester, and that pattern of independence and ownership was built gradually rather than thrust upon them suddenly.

Accordingly, we begin our courses with a more traditional, instructor-centered approach, and proceed toward a more learner-centered model as the students become familiar and comfortable with the distance education format and technology. When class first begun, we do not require a strongly active participation. In our Web-based technology courses, early in the semester, we started relying more heavily on e-mail to communicate with the students. At the beginning students' contacted with us was typically one-sided, and our responses were detailed and individualized.

As the semester progressed, we began demanding more of their contributions. We moved more class activities to the Web-based communication as it became an integral part of their professional development activities. Careful, gradual introduction of Web-based technologies can guide and enhance learners' transition from a traditional model of pedagogy in which their role is passive, to a model in which they take a full, active role in directing and achieving their own learning.

Example #2: E-course instruction with the use of the WebCT instrument:

The e-course was designed to be 100% electronic media based course. A secured Web site was created under MU Web home page where all the study material was kept for this introductory class on Business Statistics. The registered students had the permission to view this material and the instructor had the administrative privileges. This facilitated the student to take the entire class from a remote location at their own schedule with just a computer with the Internet access without having to come to the university for a single day. The students were only expected to be familiar with the Internet navigation. No other computer skills were expected from the students.

The teaching material on Web for this introductory business statistic class included narratives, illustrative graphs, the programs for the student to perform on-line hands-on experiments with numbers, and the list of assignments which the student can complete and mail via regular mail at their own schedule before the end of the semester. Seven assignments were weighed 25% of the final grade and three exams including the final weighed 75% of the final grade. To take the examination, the students were asked to select their own proctor and both of them needed to complete the attestation forms. Once

the student completed the exams within the specified time, the proctor had to mail the exams via regular mail to the instructor. Although a textbook was listed in the on-line syllabus, the actual course material on the Web was designed to be "textbook independent". The startup pages on the Web included short introduction on how to navigate through the course material and the syllabus.

This course was designed to allow maximum 25 students. By the end of the late registration period, 22 students registered for the class. Total eight students withdrew from this class by the last day to drop a full semester individual course which would get reported as "W" on the student grade-sheet. This is 36% compared to 13% withdrawals for the classroom version of the same course. 31% students received an "F" for the e-course where as only 13% students received an "F" for the classroom version of this course. We compared the GPA of the students taking this E-course to the classroom version of this course. As measured by their GPAs, the E-course and non E-course students appeared academically equivalent.

LESSONS LEARNED FROM TEACHING THE E-COURSE:

The primary lesson learned from teaching E-course relates to instructor's workload. Although the person-to-person teaching efforts were almost none (except for the rare occasions of helping the student by phone), the course required much effort in certain non-conventional areas. The instructor's time was spent for activities such as: learning and exploring the rich set of WebCT tools; exchanging e-mail with the students or exam proctors; Web site administrations and revising; familiarizing with all the material that was on the Web before helping the students or grading their mailed-in assignments; calculating and posting grades, grading the assignments, and grading the exams.

Base on the above, we argue that there can be a steep learning curve for both the students and the Instructor. Since neither the instructor nor the students can be familiar with the new emergence of electronic courses, the new ways of doing things might be challenging at the best and confusing at the worst. To aid students' efforts to communicate with one another or indirectly with the instructor, WebCT Course Conferencing System (also known as Bulletin Board) tool can be used. However, if no student posts an article during the semester, one reason may be that learning to properly post the article would have taken considerable time.

The Web-based courses require the instructor to be proficient in e-mail features such as personalized group e-mail, updating and navigating through Web pages, administrating user access to the Web site, etc. Although WebCT provides a rich set of administration tools, considerable time is needed to master and effectively use all of them. As a result, only some of the available tools can actually be ever used. In fact, research reveals that e-learning developers often focus on graphics design and production, but ignore training analysis and underlying learning structures (Searbrook et al. 2000). E-courses are appropriate for students with high motivation, and generate significant work for the instructor in non-traditional areas.

ASSESSMENT INSTRUMENT

The primary goal of using informal assessment techniques in both courses via Web was to provide opportunities for the students to truly master the concepts being discussed in class. The use of an online feedback form enabled students to describe what they learned the opportunity after every class lesson. This method focused their attention on and reinforced the key elements of the concepts they were expected to learn. At the same time, instructors were also given useful information regarding concepts that students still needed reinforcement on both an individual basis and as a whole class. The use of the feedback form extended beyond in-class time constraints and was a non-threatening way for students to communicate their uncertainties regarding course content because it conveyed the message that it was normal to understand some concepts and not understand others. It also provided an excellent feedback to the instructor on the pace of the class and offered an extraordinary opportunity to modify the course on an ongoing basis or to maintain the flow of class as it was being presented.

The critical thinking questions e-mailed or posted on the discussion board through the WebCT used feedback forms to provide opportunity for students to think about and thus reinforced the concepts presented in class. Students were able to analyze the class concepts on an ongoing basis, reflect upon previous concepts, and make connections among seemingly disparate components of theory. This allowed students to monitor their own learning throughout the course in a sequential and constructive fashion as they responded to the questions and received ongoing feedback.

At the beginning of a televised course, feedback forms were used to familiarize students with the interactive Web technology while at the same time collecting data on initial student competencies. Once the course has started, similar to traditional courses, the feedback received helped

instructors gain a perspective of the range of attained learning as well as individual competence. This type of informal assessment was beneficial as it helped the instructors evaluate knowledge acquisition and retention rate of students in class. The instructors could get a better idea of what students understood as well as concepts that still needed clarification to help plan subsequent classes.

The instructors were able to continuously monitor students' learning. It was also a means of engaging students in construction of knowledge. Depending on the way the feedback and assessment mechanism was set-up it could be delivered quickly and at regular time intervals for example, after each lecture, every two weeks, during midterm, etc. We observed that when students filled out the required information outside the classroom, they got a better chance to reflect on the material before replying.

Forms could also be set up so students were not required to identify themselves while replying to questions on the form. Anonymous feedback offers an opportunity for students to be able to bring forth comments they would not ordinarily have mentioned openly in face-to-face meetings or in-group settings. This type of environment encourages students to take learning more seriously, and hence, teaching and learning becomes more efficient and effective.

CONCLUSIONS

In traditional as well as Web-based courses there is a gap between what is taught and what is learned.

We observed that by cooperating in assessment, students reinforce their grasp of course content and strengthen their own skills at self-assessment. Furthermore, student motivation is increased when they realize that faculty are interested in their success as learners. To achieve pedagogical improvements in interactive Web environments for assisting teaching and promoting learning, faculty can empower themselves by using technologies to facilitate a proven educational process of receiving and acting on feedback from learners.

Methods of assessing the teaching and learning experience in online education are not sufficient to adequately evaluate how well a faculty member performs in a virtual classroom. The Web-based assessment enabled teachers to post questions online or the WebCT boarding board. These technology tools also enabled students to analyze the course content in a direct and focused manner. Furthermore, the feedback and critical thinking forms provide the opportunity for students to demonstrate

what they are learning, and how to grow in specific areas if needed, in a way that does not count against them through formal measures.

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