

e-Education: A Case Study

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Abstract

The Internet is breaking all barriers of time, distance, language and boundaries. Its popularity can be attributed to its simplicity and accessibility. A user needs only a personal computer and access to an Internet service provider (ISP). Traditional organizations are joining “netpreneurs” in creating a virtual business environment. E-retailing, e-b2b, e-advice, e-management and e-banking and many other internet based activities are becoming norm for many people. E-Education is not far behind. Many for-profit virtual universities are already offering on-line courses and digital diplomas. E-education, however, is not without its critics who question the quality, control, delivery, and integrity of education over the Web and, in many cases, the worth of the “digital diploma” itself. E-education is here to stay, however, there are many conceptual issues that still do not have any answers. Can everyone benefit from Web-based education? or is it only suited to people with certain kinds of learning styles and personalities? This paper describes how one university is “Internetizing” its curriculum and discusses authors' experiences in developing a web-based course.

Keywords: e-Education, Internetization of Curriculum, web-based classes

INTRODUCTION

The Internet is changing the very structure of society. Traditional businesses are creating parallel structures to the currently existing structures, either to meet the challenges of net companies or finding new customers through the Internet. For example, traditional stores like Wal-Mart, Barnes and Noble, GM are opening Web sites to compete with netpreneur like eToys, Priceline.com and Amazon.com. Education is not far behind. Like businesses, traditional universities are forced to create a “parallel” education system on the Web. It is estimated that about 200 universities are offering some form of Web-based learning.

Advances in technology have created many solutions for time-independent and place-independent Web-based e-

education. It is becoming easier to develop formal courses using the Web as an important medium, and sometimes the only medium, for knowledge delivery. There are many commercial software packages available which allow audio, video and animation data streamlining to be included as part of the lectures, enabling the instructor to simulate traditional class room lectures on the Web. From the student's perspective, access to the Internet is the only major requirement. E-education is diffusing in many disciplines of education, such as business, history, political science, engineering, and law. It is also spreading across different levels of education from high schools to universities. Web-based education is here to stay and cannot be ignored. As already noted Web-based education, lucrative as it sounds, generates many issues and we focus on the some of these issues in the following sections.

Aggarwal and Bento [2000] provide three models of "Internetizing" courses at a traditional university. These models are: a) Web support for information storage, dissemination and retrieval; b) Web support for two-way teaching, and c) Web-Based teaching. The nature of Web support and usage increases from (a) to (c). Whereas model (a) requires Web usage mostly for "information" purposes, model (c) requires a complete Web-based environment. Web involvement increases from model (a) to model (c). Burbules and Thomas A. Callister [2000] discuss several controversies surrounding e-education. The authors discuss ethical and policy issues facing administrators of traditional universities, such as whether universities should respond to the growing demand for on-line education. Intellectual property rights of faculty and demands of non-traditional students are also discussed.

Aggarwal and Bento[2000] , and Tetiwat and Igbaria [2000] also discuss issues related to e-education . Technical, administrative, quality and control issues are identified as important issues in e-education.

e-Education

What is Web-based e-education? Two dimensions can be used to describe Web-based teaching; time and place. The scenarios for Web-based teaching extend from same-time-same-place to any-time-any-place environments. However, the any-time-any-place scenario creates an asynchronous learning environment. Correspondence degrees are the historical examples of this scenario. It is also where Web-based teaching can provide the maximum contribution. Web boards, Web-assignments, Web based exams, etc can all be used in this model. Education is available any time, from any place, and students can learn from home, office, or any other location. The following section describes a case study.

CASE STUDY

Currently there is a big push for offering a Web-based MBA degree at our university. This is driven by economic reality and the intrusion of many Web-based programs into our competitive sphere. Many of the faculty, in return for their voluntary participation, are granted a course reduction to allow time for web course development. This learning approach came to be called the artisan model, reflecting the creativity involved in meeting student needs and course content requirements. Given that our traditional student works, attends school part time, and lives in an urban area, this approach proved popular with students.

The structural backbone of our web teaching resources is provided by an outside vendor who specializes in the web-based education industry .

The tools (Lotus Domino database) provided by the vendor were used to teach ECON 504 (Basic Economics) to students in both the webMBA and the flexWEB course structures. Prior to teaching ECON 504 on the web, the instructor had taught the course approximately 10 times over the preceding 8 years. Basic Economics is one of the core courses in nearly every MBA program in the US and abroad. About 2/3 of the course material focuses on microeconomic topics with the remainder dealing with macroeconomic topics.

The students had available to them a textbook, similar to any textbook in any Principles of Economics course. The content of the course was broken into sections corresponding to weeks in the course, with each week being broken into modules corresponding to chapters and sections of chapters. Web pages were created to correspond to the modules with links to separate web pages where more elaboration appeared.

The syllabus for the course clearly showed all assignments and due dates. In each week there is an assignment due and a turnaround time of 2 days was promised. The students were required to turn in assignments in electronic format, instructor comments were simply added to the files in another font color to make them identifiable. Later, the instructor began using Word's "Reviewing Tool" and making the comments appear when the student's mouse rolled over a highlighted word or phrase. Each time the course was offered, student participation in The Forum, threaded discussion, was required and formed a significant portion of the grade. This requirement, coupled with the fact that each week featured either an exam or a homework assignment due was intended to keep students active in the course on a continuous basis.

The instructor planned to engage students in asynchronous discussions in the forum in two ways. First, students were encouraged to create threads dealing with course related topics. The instructor then watched the discussion unfold over the next several days, offering advice and guidance to the evolution of the discussion. Second, the instructor began forum threads which were highly similar to questions the instructor would ask in class to stimulate a discussion. Student responses were monitored, and where necessary the instructor made follow-up postings to bring the discussion back in line with expectations.

Examinations and grading issues received special recognition in the course designed. A significant portion of the students' grade was based on continual attendance and participation in the course activities. There is a scheduled mid-term exam done individually by students in an entirely essay and short written problem format. The students were given strict instructions on length of time to take the exam, that outside materials were simply not allowed to be used,

and the signature of a proctor had to be obtained certifying that the student completed the exam in compliance with the instructions. The validation of the authenticity of student work came when the student exams were compared with each other and with the forum postings of individual students, by the time the midterm was given each student would have had at least 3 homeworks on file with the instructor and at least 15 forum postings. There was also a case study done by student groups where the instructor was continually updated by the student teams on their progress and provided feedback along the way. The second exam was done in student groups and, similar to face-to-face classes, group work was permitted and facilitated by assigning student teams their own areas in The Forum.

The first offering was conducted entirely online in April, 1999 as one of two courses in the second term of a recently initiated webMBA program. There were eight students in the class who began their MBA programs three months, and two courses prior to their taking ECON 504. Both the instructor and the students were fairly new to the instructional medium; however competence with the tools increased tremendously during the first few weeks. In an attempt to personalize the course the instructor sent several emails prior to the start date of the course introducing himself and asking students to send him short biographies and motivations for this course. The response by the students was unanimous and seemingly overwhelming. Many students provided links to their personal and professional web pages. Additionally, the instructor provided a sound clip lasting about 2 minutes as an introduction and his picture appeared on the welcome page. The students were encouraged to email frequently and high percentage of them attended informal chat room sessions with each other and the instructor.

Three primary observations arose by the instructor. First, more material was covered on the web than in a usual 10 week class. This happened because the instructor was able to more quickly identify how much time to spend on each topic; evidence provided in the homeworks and the forum threaded discussion. Second, student learning seemed enhanced because of the forum. The students knew that their responses and postings in the forum would be read by others; this peer monitoring seemed to cause students to give more thoughtful replies. Third, the instructor concluded that this experience with web teaching was much more time intensive than a face-to-face class setting. It was not uncommon for the instructor to spend fifteen hours per week on the web course; although it was difficult to differentiate between time spent with students and time spent working with the web pages created for the course.

The course was taught for the second time six months later, again in the ten week format. The students again had completed two courses prior to taking ECON 504, Basic Economics. Enrollment in this section was 12

students. Clearly the technical sophistication of these students was higher than the first group, perhaps owing to an enhanced orientation effort. The same basic course design was used; updates to the course centered on the inclusion of more current event coverage in the macroeconomic part of the course. For reasons unknown to the instructor, participation in the forum was less than in the previous term, even though students were aware that their grades would suffer. The instructor spent some time revising existing web pages and found that many of the live links that worked six months previously no longer worked. Once again the instructor had no sign of improper student behavior. Based upon the student comments from the previous version of the course, more voluntary chat sessions were scheduled but the percentage of students attending actually declined.

With the second course offering, the instructor took steps to better manage the time required to teach on the web. It was announced that student emails would be answered every Tuesday, Thursday, Saturday, and Sunday. The two weekend email response times were created reflecting the fact that students apparently worked more on weekends. In practice, faster email responses were provided but some channeling was necessary with regards to time management. One of the problems with the first experience with web teaching was that students began to expect live response to emails by the instructor. Student input at the end of the course indicated no widespread dissatisfaction with the process. On several occasions, the instructor was emailing students asking them why they hadn't been active in the forum or with course participation; the answers were invariably personal problems, travel requirements for their job, or computer failures at their home or work.

The third time the course was offered, both 10 week and 15 week versions ran simultaneously. There were also several significant changes in the course content. Much of the work of changing the web pages was really in their titling, and a generic labeling scheme was adopted. The section on demand elasticity went, for example from being titled "Chapter Two: Sections E-F" to being titled Section B2: Demand Elasticity. On balance the course is better this way as it isn't as reliant on any particular textbook.

Logistical changes were also introduced with the third offering of the course. There were no chat rooms scheduled, later student evaluations revealed that their omission was noted. Email replies were promised Saturday, Sunday, Monday, Wednesday, and Friday afternoons or evenings. Instructor monitoring of the forum was put on the same schedule. Student homework assignments and exams were always due on a Monday, again responding to student requests.

Future versions of the course will be conducted much in the same manner. The instructor perceives numerous

challenges. Time must be allocated so that students feel connected through the course; however, the instructor should carefully allocate his time. Adding to this complexity is the fact that students prefer to work late evenings and weekends; and then on irregular schedules. The instructor simply cannot always be "there" online. After several offerings, the instructor has a library of forum entries available. While useful, the instructor must continually improve and update these entries. With the emphasis on student interaction, the UB web teaching model will always involve more instructor input than face-to-face courses for an equivalent class size. Time requirements for the web-based teaching seem more reliant on class size than face-to-face teaching. Future challenges will emerge as bandwidth and technologies improve so that streaming audio and, even video, become a viable option for most students in their homes. The biggest challenge, however, is not how one teaches, but what one teaches. As the market place for web education becomes more and more competitive programs and individual courses must become more and more unique in emphasis.

CONCLUSION

Although iterations of this new Web-based course went extremely smoothly, a learning curve effect was evident during later iterations. Our belief is that universities need to develop a mixed model approach in creating e-education. Universities may have to develop a "dual" approach: one that accommodates traditional students who can "benefit" from the face-to-face model, and the other a complete Web-based education catering to non-traditional students, who live far away from campuses, are on the road quite frequently and self motivated.

As with any new technology, the experience raised more questions than answers. E-education, however, is here to stay and nobody can ignore it. Many issues arise when E-education is spread across disciplines and across nations. What needs to be done to simulate the face-to-face environment on the Web? Is it sufficient or even desirable to simulate a face-to-face environment on the Web? Are some courses such as political science, management, human resources, etc. more suited to the Web medium than analytical courses? What are universities doing with "parallel" education systems? How are other (especially third world) countries responding to the challenges of Web education? How are governments responding to Web-challenges? We challenge our colleagues to provide answers to some of these questions.

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