2006-166: AN OVERVIEW OF INTERNATIONAL 'ONLINE TEACHING' SUCCESS STORY

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Overview of an International 'Online Teaching' Success Story

Abstract

Tennessee Tech University (TTU) is one of the pioneering schools in distance education and learning. Many hybrid and online courses have been offered by College of Engineering and College of Business faculty since 2002. Indeed, besides the regular campus-based MBA program, AACSB International (the Association for the Advancement of Collegiate Schools of Business) has accredited the distance MBA (Master of Business Administration) program that College of Business has started offering as a completely online degree program. Distance programs provide a practical and an interactive student active-learning approach besides being accessible, flexible, portable and affordable.

Students log onto TTU website (http://webct.tntech.edu) and use the interactive course materials presented at the course site in WebCT [1], which is a widely used e-learning system across the nation. Some of the interactive teaching methods include cases, competitive computer simulation, applied problem solving, team building exercises, cross-functional activities, scenario planning, role playing, and feasibility projects. "The campus-based and distance-based programs earn the same degree" [2].

In the summer semester of 2004/05 academic year, the authors were able to offer fully undergraduate and graduate level online courses for their degree programs. These courses were CAD (Computer Aided Design) for Technology (undergraduate level) and Strategic Marketing (graduate level). CAD for Technology course was offered by the first author the first time as a fully online course, while Strategic Marketing course was offered by the second author the second time as a fully online course. The authors were in Turkey while they have been teaching their respective courses to TTU students geographically located in a number of states. This paper will report the success story of delivering these courses fully online and express the student and faculty views of teaching online courses from an international distance. Moreover, some of the assessment studies and collected information from student evaluations will be presented.

Introduction

Today, there is a considerable interest in using the Internet to enhance the traditional engineering and business courses. There are a number of advantages of Internet educational delivery systems over the conventional approaches. Faculty members spend most of their time in front of computers and rely on the electronic communication via Internet for their daily work. Many faculty members are also expanding their traditional delivery methods (e.g., lecture, laboratory and face-to-face discussion) to include educational support options ranging from web-based course supplement to the complete delivery of courses online. The choices that faculty may consider range from simply posting a syllabus or discussion board to creating web-based content to enhance classroom instruction to exclusive online delivery.

The use of technology in general and the Internet in particular has changed and will continue to change the conventional engineering and business education. WebCT is one of the most popularly used online course delivery systems. In TTU, WebCT is the only tool used to deliver the web-based courses to its students. WebCT provides an environment for developing and delivering web-based educational activities and materials. It permits instructors to make tests, discussions, lecture materials, and sample solutions available via the web. Some course work such as homework, lab reports and team projects, can also be submitted and controlled via WebCT. It is a requirement to have a University WebCT access code to fully access this website. This paper will present an international online delivery success story accomplished in the summer semester of 2005. Since authors were able to teach their regular campus courses fully online from an international distance the objective of this paper is to present both courses and their delivery mechanisms with the advantages and disadvantages. Some of the student comments and concerns will also be discussed and best practices will be provided.

CAD for Technology Course

Course Description

This junior level design course covers industrial design practices using AutoCAD software [3]. Its prerequisite is the 'Fundamentals of Technical Drafting' offered in the student's freshman year. Course continues the exploration of 3D industrial practices by focusing on the three dimensional commands within AutoCAD. The primary focus of the class is to combine lecture, demonstration and hands-on application of the AutoCAD program as a tool for graphic presentation. Students exercise various geometry, lighting and surface materials to create 2D and 3D projects. Using the built in rendering parameters, the student learns to create realistically rendered images from inside AutoCAD.

Course Objectives

- Understand the modern engineering design procedure and the role of engineering graphics.

    o Understand the difference between traditional design sequence and the cutting edge engineering practices.
    o Understand the aspects of design flow: refinement and implementation.
    o Understand the role of 3D solid models for engineering design communication.

- Construct one- and two-parameter geometrical entities on a modern CAD system.

    o Understand Cartesian, cylindrical, and spherical coordinate systems.
    o Know the difference between local and world coordinate systems, and between absolute and relative coordinates.
    o Construct using a CAD system regular curves, conics, roulettes, and B-splines
    o Learn elements of shading and rendering.
    o Case studies and industrial practices.

- Construct 3D solid models integrated with 2D design projects.

  o Distinguish wire frame, surface and solid models.
  o Create solid models using constructive solid geometry.
  o Create solid models using revolve, extrude, and sweep operations.
  o Modify solid objects by geometric transformations and by slicing.
  o Understand the importance of 3D solid models for computer aided manufacturing (CAM) and finite element analysis (FEA).
  o Case studies and industrial practices.

Teaching Methods and Class Preparation

Starting in the fall semester of 2000, the 'CAD for Technology' course curriculum was enhanced with web-based exercises and projects. By the spring semester of 2003, a complete WebCT supplement was developed for the course and beginning in the fall of the same year, the entire course was delivered through WebCT. Throughout the spring 2003 semester, no course materials were committed to paper. The syllabus, handouts, course chapters, tests, unannounced quizzes, homeworks, lab assignments, lab reports, and presentations were presented, delivered, or submitted via WebCT [4].

Course Materials on WebCT

In the 'CAD for Technology' course, students involve themselves in many industrial design projects and part design laboratories. This course has the following modules in the WebCT system.

1. Course syllabus and information
2. Calendar, tips and grade book
3. Lecture materials and extra study materials
4. Tests, labs, practice quizzes, and homework
5. Discussions, chat and e-mail
6. Supplements

With the successful delivery of hybrid CAD for Technology course for almost two years, the course was quite ready to offer fully online. Based on the students' and the first author's interest, course was scheduled fully online for the summer semester of 2005. There were nine students registered from TTU. While the course was offered in TTU course instructor was managing the course from Turkey and he was not in the United States throughout the course.
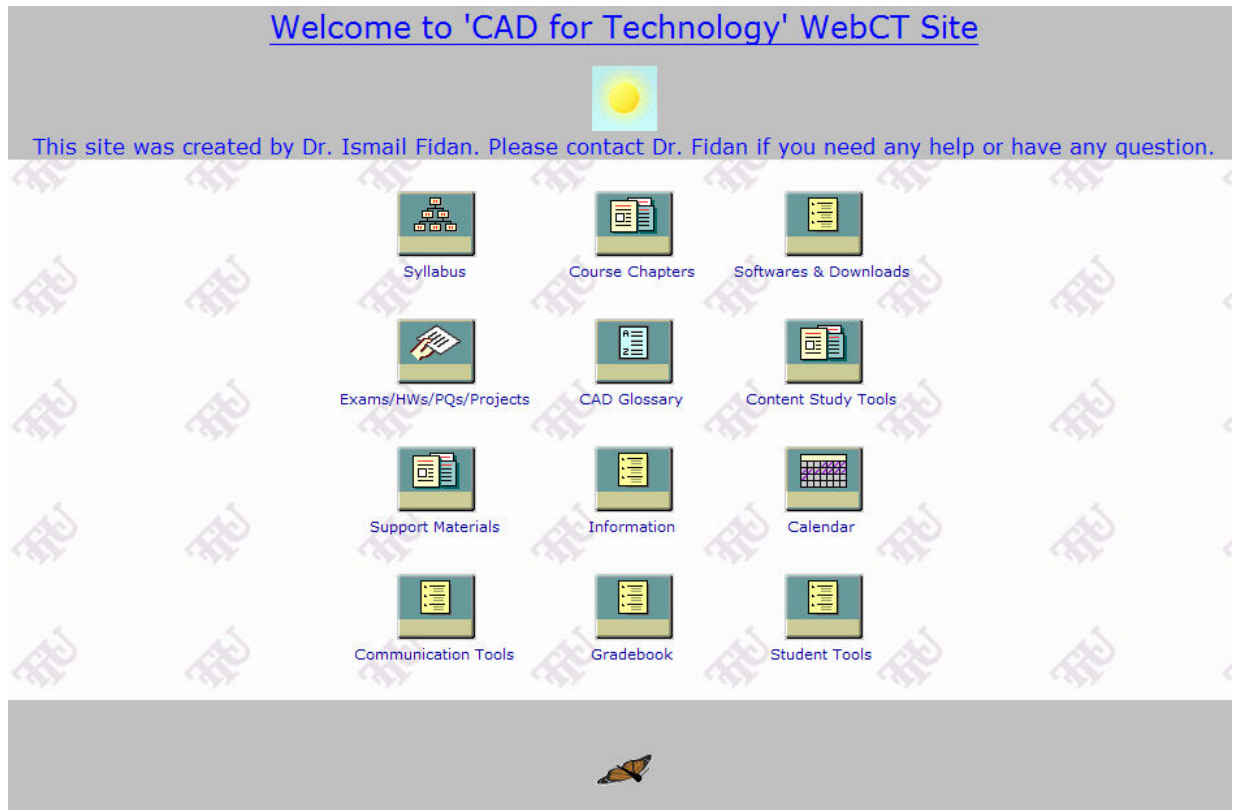
Figure 1: CAD for Technology Course Opening Page in WebCT Site

Strategic Marketing Course

Course Description

Strategic marketing course (a required course in the MBA program at TTU) discusses "strategic marketing issues and opportunities that impact both the marketing process and marketing program. Decisions will also consider environmental variables as well as the internal elements of an organization" [5].

On-campus strategic marketing course is offered once every spring semester, while distance strategic marketing course is offered every fall, spring and summer semesters. Each section of this individually taught graduate course is normally taken by 20-30 students (18 in summer 2005). Students can enroll this required course with the permission of the MBA director after completing all the core courses.

This MBA level strategic marketing course initially refreshes the marketing infrastructure by briefly highlighting some selected principles, concepts, tools, processes, theories, issues, debates, real-life practices and ethics of marketing based on the following definition of marketing:

"Marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders" [6].

The focus of this course eventually becomes a marketing strategy exercise filled with tactical details. Through a computer business simulation, it places students into a very realistic international business setting where they start up and run a company for two years in compressed time (eight rounds of decision making; one for each quarter).

Course Objectives

Upon successfully completing this course, students are expected to be able to:

- o Understand and master design as well as use of each element of marketing mix as it applies to the competitive global business environment affected by various social, political, legal, economic and cultural factors by learning to analyze and critically evaluate ideas, arguments, and points of view represented by teammates.

- o Apply strategic marketing process in the current business environment by improving their skills in critical thinking, problem solving, and decision-making under stress.

- o Develop an understanding of customer value as it applies to marketing decision variables within the marketing process by acquiring skills in working with others as a member of a team.

Teaching Methods and Class Preparation

In order to learn and apply strategic marketing in a simulated business environment, students are expected to accomplish the following tasks, using multiple teaching and learning methods:

- Read the course syllabus carefully and use it as a reference during the entire semester. Read the textbook regularly before every quiz and also use it as a reference guide for their decision making process before the submission of quarterly decisions for the game.

- Team up with three or four other students and form an entrepreneurial firm that will compete in a "business war game." Use cell phones, e-mail, instant messaging, the World Wide Web and/or video conferencing to communicate with everyone up and down your supply chain.

- Run their own company, struggling with marketing and business fundamentals. Control a simulated business and manage its operations through eight decision cycles; the natural stages of business growth, including emergence, development, and maturity. Repeatedly, analyze the situation, plan a business strategy to improve it and then execute that strategy out into the future. Remember that It is permissible to fire a team member who is not making a substantive contribution to the success of the team.

- Understand the course introduction and lecture summaries in power point slides for both the course and the game (some with voice recordings). Study the simulation resource documents (e.g., student instructions, student manual, game scenario, decisions by quarter, balanced scorecard)

- Practice exercise(s) such as QFD exercise in understanding how to create customer value. Use library resources to learn more on important topics such as customer value and 'quality function deployment' (QFD) approach.

- The instructor coaches them, but they make their own decisions. Compare and use the instructor's periodic e-mail messages through WebCT for the hints to frequently asked questions. Pay attention to what is posted in the general and team-specific discussion boards. Use chat rooms in the course site on WebCT. Read what is posted in the weekly updates.

- For each quarter (8 quarters in total), prepare an executive briefing report and e-mail to the instructor through WebCT before the specified deadline in the course schedule.

- Read the comments on quarters before you wrap up your decisions. Ask thoughtful questions regarding to each specific quarter's decisions. Those common questions will be collected in a pool and be answered by periodic instructor e-mail messages to the entire class before decision making deadline for every quarter.

- Prepare a detailed 'business plan' and a 'report to the board of directors' as a power point presentation, and e-mail to the instructor through WebCT before the specified deadline in the course schedule.

Testing

Each week, there are assigned readings from the textbook. In the typical course, there would be two or more exams over various parts of the textbook. But, this format does not encourage reading throughout the semester. In order to perform well during the simulation exercise, it is very important to stay current with the reading. Therefore, there is a quiz on each chapter assigned for that week (22 quizzes in total). These quizzes replace the normal exams on the textbook.

The quizzes are taken over WebCT and open-book, open-notes. The quiz questions are selected at random for each student out of a set of questions designed for each chapter. Questions cover a wide range of difficulty and do not only test basic comprehension skills, but also more complex analytical and integrative skills. Directions for taking quizzes are to be posted in the course site on WebCT.

Course Materials on WebCT

In the 'Strategic Marketing' course, students involve themselves in comprehensive readings, two major projects, eight reports, several exercises, and one major business simulation that is played

over the Internet against other teams. Besides the simulation website, this course has the following modules in the WebCT system.

1. Course Syllabus
2. Communication (chat room, public discussion boards to the class, private discussion boards to each specific team, mail box, and student homepages)
3. Course Resources (text slides; topic slides; game documents including student manual and many other details; course documents including exercises, prior teams' works, etc.)
4. Quarterly Information (reviews, updates, comments, warnings, and fatal errors)
5. Quizzes (22 quizzes in total)
6. Grades
7. Student Tools (search the course, search the Internet, print journals, e-journals, calendar, student's progress report, peer rating forms, etc.)

Before moving to further discussions on international course delivery experience, we would like to provide some highlighting statistics about the Strategic Marketing course based on multiple semesters' data. Average number of e-mails through WebCT is around 1,000 while each team's private discussion board has about 200 to 1,000 postings (there are usually four to five teams in one simulation in a given semester) over a semester depending on the communication methods they primarily choose to utilize. Some students individually had spent 3,500 to 4,000 'online minutes' in engaging activities in specific parts of the business simulation, not including self-study, team meetings, and other aspects of this graduate course.

Discussion of International Course Delivery Experience

As indicated earlier in the paper, both courses were offered online while both course instructors were in Turkey. Here the authors will convey their best practices and struggles happened during this time frame.

Course students had provided their feedbacks/comments related to CAD for Technology course. The instructor of this course has taken these comments for continuous improvement of the course to further develop the course. The following include the partial list of the students' comments:

- The times were screwed up on the tests and the pop quizzes would be put up after I had already driven 45 minutes to get home.

- Better explanations are required on the final project.

- It would be more beneficial to the students if the calendar was updated so that events and schedule making could be done easier. It would allow for more organization for students who are both working and going to school. They could stick to a schedule better if the calendar was up to date.

MBA 6100-M10: Strategic Marketing

Tennessee Tech University

Dr. Ismet Anitsal

| TTU Home | MBA Home | Professor Home |
| WebCT Help | Library | Campus Map |

Communication   Course Resources   Quarterly Information

Quizzes   Grades   Student Tools

Professor Contact Information
Office: Johnson Hall 222C; Campus Box: 5083;
Office Phone: (931) 372-3471; Office Fax: (931) 372-6249; E-Mail: ianitsal@tntech.edu

Course Description
This MBA level strategic marketing course initially refreshes the marketing infrastructure by briefly highlighting some selected principles, concepts, tools, processes, theories, issues, debates, real-life practices and ethics of marketing based on the following definition of marketing:

"Marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders" (American Marketing Association, August 2004).

The focus of this course eventually becomes a marketing strategy exercise filled with tactical details. Through a computer business simulation, it will place you into a very realistic international business setting where you will start up and run a company for two years in compressed time (eight rounds of decision making; one for each quarter)

Figure 2: Strategic Marketing Course Opening Page in WebCT Site

- I like the class the way it is now.

- More tutorials that go along with the book.

- More Industrial exercises should be added. There are enough parts in 2D. More should be added for 3D.

Course students had also provided their feedbacks/comments related to Strategic Marketing course through multiple means of communication. The comments mainly focused in the following areas:

- Online Experience: They often enjoyed the tremendous online experience. They perceived the course as being fun (especially when they learned how to deal with WebCT basics and not losing money in the simulation), but at the same time much more stressful than they would have ever imagined. One of the reasons for this was the business simulation being so realistic.

- The Simulation: Students liked the simulation as being an excellent teaching methodology. They had seen that the amount of effort they put forth in the course resulted in a directly proportional understanding of the subject material.

- Team Work: Working through the simulation as competing teams in a very dynamic marketplace made things even more challenging. Some perceived the virtual team work as 'the closest thing to personal contact.'

- Textbook: They liked the textbook, although some students found it overwhelmingly comprehensive. This was true especially for those who work full-time and have a time-constraint as a result of their busy traffic of business travels.

- Quizzes: They followed an intensive quiz schedule and they performed well in most of the quizzes. When they had points to ask about specific quiz questions through personal e-mails, the instructor provided them customized answers.

- The Course: Some found the course very 'informative.' It was demanding and challenging, but also wonderful for many others. Some rated this course as their favorite MBA class to date.

Figure 3: International Course Delivery Link
(Map is the courtesy of CISP [7])

Some of the common difficulties faced by the authors are summarized below:

- The time difference between Turkey and Cookeville, Tennessee (US central time region) is eight hours. It was almost impossible for the students to schedule on-time chat or communication mechanisms. However, the time difference helped instructors in terms of gaining some extra time in handling probable exceptions.

- Although students' satisfaction rates for the courses were quite high, some students were still insisting on the importance of face-to-face meeting, quick trouble-shooting and support.

- Use of Internet at the national level was more limited in Turkey than it was in the United States. However, authors had a chance to take the advantage of the widespread and readily available Internet cafes or Turkish Telecom facilities all over the major cities of Turkey to accomplish the demanding tasks of online teaching.

- Internet communication lines had performed perfectly with one exception where the lines were down in the entire Aegean Region of Turkey for half-day period.

This unique teaching experience was also a pioneering effort for Tennessee Tech faculty. Authors had few best practices. They are:

- Both faculty members had no complaint or even minor dissatisfaction from their students.

- Over 90 percent fulfillment rate indicates that students' satisfaction is very high to offered courses and their delivery mechanism.

- Hands-on courses are hard to teach online, but this challenge was accomplished by the authors with their expertise in teaching and WebCT skills.

Conclusions

WebCT has been popularly used in many engineering, technology and business courses and its advantages have been reported in various publications. In contrast, there is no detailed publication on its implementation for an international teaching experience. This pioneering development reports the two courses taught by authors to TTU students while they were in Turkey during the summer semester of 2005. It was proved that WebCT provided a convenient and versatile environment for both the instructors and the students to interact regardless of the geographic proximity. In summary, this pioneering implementation was a great success for students, authors, and ITS (Institute for Technological Scholarship) of TTU.

Acknowledgements

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