Designing an Electronic Commerce Course: An Effort to Balance between Theory and Practice

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Abstract

The exponential growth of Electronic Commerce (E-commerce) continues as more and more people and businesses connect to the Internet on a daily basis. Consumers can now use their computers to find everything imaginable on the Internet. Everything from searching for information to shopping is available online. Since most employers value extensive experience with website development and are expecting their information system graduates to at least understand how to manage a website, many universities are now offering an electronic commerce course. There are some difficulties in designing such a course. The major issue seems to center on how to design a course which integrates both theory and hands-on learning aspects of E-commerce. Most students tend to appreciate the value of the hands-on component, but somehow forget that the theory behind the website is also important. This paper addresses the issues of designing an E-commerce course for business students majoring in Management Information Systems.

Keywords: electronic commerce, information systems education

1. INTRODUCTION

Despite the dot-com bust, many firms are continuing to use the Internet to conduct business. Several firms have transformed their business models to adapt to and exploit the use of the Internet (Lim, 2002). While the late 1980s saw a major platform shift from host-based systems to client/server, the late 1990s experienced a similar shift to E-commerce applications running over the Internet (Orfali, Harkey, and Edwards, 1993; Chaudhury and Rao, 2000).

The proliferation of E-commerce in organizations points to an upward trend in the organizational use of Internet technologies. This trend is placing significant pressure on colleges and universities to produce graduates who are skilled in E-commerce technologies and management. The graduates need to be able to analyze E-commerce from both a technical perspective as well as an organizational perspective (Parker and Swatman, 2001).

The development of an E-commerce course that integrates both technical and non-

technical aspects of E-commerce for Management Information Systems (MIS) students is imperative (Chopoorian and Wang, 2004). Besides technical knowledge, it is essential that MIS students have a sound understanding of the business perspective of E-commerce. They should be able to implement an E-business which allows them to achieve the potential benefits such as reduced cost, streamlined processes, and extended market reach. One approach for achieving students' understanding of both the business and technical perspectives of E-commerce is to find a balance between the transfer of knowledge, which includes basic E-commerce principles, theories, and hands-on experience.

The main goal of most educators is to prepare students with the skills and knowledge to solve 'real-world' problems. Some people argue that academia and the 'real-world' are two parallel worlds. They also believe that students cannot transfer their knowledge and skills between the two worlds (Brown, Collins, and Duguid, 1989; Sternberg, 1985). This opinion is evidenced by students' passive learning of theories that happens in many college courses. Typically, the problem occurs because theories are often abstract and thus difficult to learn. In addition to studying the theories, students also need the opportunity to apply them in a hands-on environment so that learning is less passive and theories are less abstract.

A method for approaching this is the objectivist model, a model of learning, in which students are taught reality by instructors (Belanger and Van Slyke, 2000). This model of learning has its place in colleges because instructors are usually limited to 16 weeks of contact with students. During this relatively short period of time, the instructor must provide students with a certain amount of knowledge to help prepare them for future success. However, when it comes to teaching an E-commerce course, this model should not be used exclusively. In addition to the knowledge obtained directly from the instructor, students also need the opportunity to experiment with such knowledge. Therefore, experiential learning is also necessary in E-commerce courses. In experiential learning, meaningfulness is gained when knowledge is applied in ways that seek to address the needs and wants of the learner (Rogers, 1969). This learning model is learner-centered. Learners are free to experiment and learn from their mistakes as they work to solve 'real world' problems in E-commerce.

Although it may not be possible to teach students everything about E-commerce in a brief 16-week semester, an ideally designed E-commerce course should incorporate a balance between objectivist learning and experiential learning. Students can develop a strong E-commerce foundation upon which to build and refine. Evidence for this approach can be found in the Beyond the Information Given (BIG) approach (Perkins, 1992). The BIG approach suggests that instructors directly introduce concepts and examples to students and then engage students in problem-solving activities (Chen, 2003). These activities challenge students to apply and refine their understanding through experimentation. This balanced learning approach will enhance students' ability to apply to the 'real world' all the E-commerce knowledge and skill sets that they learned in college.

This paper discusses the development of an E-Commerce course aimed at integrating both theory and practice. The next section provides information about the length of the course, the target students, and the objectives of the course. The third section discusses the four modules designed for teaching this course. The last section discusses the feedback from students and response from the college.

2. COURSE LENGTH, STUDENTS, AND OBJECTIVES

This course is designed for undergraduate students majoring in MIS. The course is offered during a 16-week semester, meeting twice a week for 1 hour and 15 minutes. Upon completion of this course, students should:

- understand important terms used in the area of Internet technology
- understand the evolving role of doing business on the Internet
- understand advantages and disadvantages of doing business on the Internet
- understand security issues on the Internet

- understand electronic payment systems implemented by E-commerce
- understand laws and legal issues that govern E-commerce activities
- gain experience in developing websites.

3. COURSE PREREQUISITES

Students are expected to be familiar with fundamental computer concepts. They are required to take the "Computer Applications in Business" and "Management Information Systems" courses before enrolling in this course.

4. COURSE MODULES

In order to ensure that students gain hands-on experience, the course is taught in the Business Computer Lab. Each student is equipped with a computer with Internet connection. The course is divided into four modules as follows:

The Technology Behind The Use of E-Commerce

Database and Networking: During the first class, students are introduced to the fundamental concepts of databases and networking. It is quite important that they understand how the data are stored in the server, thus allowing the users to retrieve the data from the web database via the use of network technology.

Data Transmission: This class guides students through the concepts of how data are transmitted. Students learn the different types of signals, i.e., analog and digital. The class also covers topics such as packet switching, TCP/IP, LAN, and WAN.

Introduction to E-commerce: This class introduces students to technical terms and concepts frequently used in the area of E-commerce. By the end of this class, students are expected to know the difference among the terms Internet, Intranet, and Extranet. Different types of E-commerce, such as B2B, B2C, and C2C are also discussed in this class. Students also learn the history of E-Commerce. A practical example of how E-commerce can help reduce transaction costs is discussed in this class.

The Business Concepts of E-commerce

Planning an Online Business: This class discusses the idea of doing business via the Internet. Students are asked to debate the advantages and disadvantages of conducting an online business. Then, they are assigned to work in teams of two. Each team has to develop an idea for an online business they are interested in running.

Business and Marketing Plan: Since this class is designed for students in the college of business, it is important that students learn the business aspects of E-commerce. Each team has to create a business and marketing plan based on their idea from the previous class. Guidelines on how to write a good business and marketing plan are covered in this class. Their main objective is to prove that their businesses have the potential for success.

It appears that this topic is the most difficult to handle. In order to motivate students to be creative, the instructor provides only guidelines for writing a plan. Students have to come up with their own ideas on how to propose a business, such as target customers, a list of competitors, pricing strategies, marketing strategies, etc. With very few exceptions, based on the feedback at the end of the semester, it is no surprise that students like this topic the least.

The Ability to Develop a Website

It should be noted that this class is not designed to teach any programming languages. Later on, if students are interested, they can take an elective web development course where programming languages are covered. Although this class does not emphasize programming, the instructor believes that students should learn how to develop a website using common web editor tools. Several web editor tools are available in the market. FrontPage and Dreamweaver seem to be the more popular tools, and each tool has its pros and cons. As it is difficult to decide which tool is better than the other, the instructor believes that it is important for students to learn both tools. This enables students to compare the tools, as well as appreciate the fact that once they learn one tool, it is not difficult to learn another.

FrontPage I: In this class, students are introduced to FrontPage. FrontPage was chosen because of its basic design screen. Compared to Dreamweaver, the FrontPage environment looks less intimidating to a beginner. Students learn how to design a simple one-page website and integrate bookmarks to jump among each section on the page. The fundamental concepts of HTML are also covered in this class.

FrontPage II: In this class, students learn how to convert different sections in one page into multiple pages. Then, the concepts of frames, hover buttons, and hyperlinks are taught so that they can link different web pages together. Each student is assigned to create their own personal web page with at least five hyperlinks to other pages.

Dreamweaver I: Once students are familiar with developing a web page, they learn how to use Dreamweaver as an alternative web editor tool. They learn how to design their own background, integrate pictures, set properties, etc.

Dreamweaver II: This class introduces students to more sophisticated features available such as, how to set table properties, use layout to control the location of pictures, and integrate cascading style sheets.

FrontPage III: By this time, students have already submitted their business and marketing plans. Now, each team has to convert their proposed idea into an E-business. Since 16 weeks are quite short, they are allowed to use the Corporate Presence Wizard available in FrontPage to start their business websites. However, in order to ensure that students learn how to modify from the template, the instructor makes it very clear that one of the criteria for grading, besides design and functionality of the website, is the more their websites look different from the wizard, the higher the grade. The concepts of shared borders and navigation bar are also covered in this class.

FrontPage IV: In this class, students learn how to create a web form to collect data online. They also learn how to set form properties for database connection so that data can be submitted via the website and automatically stored in a database table.

FrontPage V: This class discusses the integration of other useful components such as Excel spreadsheets, so that a simple calculation can be performed without writing programming code. Students also learn how to retrieve data from the database and post it back as a webpage so that a user can view the data via a browser.

Major Issues in E-commerce

Three major E-commerce issues are covered as follows:

E-commerce Security: This class explores the different types of threats to E-commerce. Students learn how threats can affect their business. The class also discusses several security techniques, such as encryption and digital certificates that can help a business maintain customer privacy, keep transactions confidential, and ensure customer identification and authentication.

Electronic Payment Systems: In this class, students learn about the different types of online payment options. The advantages and disadvantages of each option are discussed.

International, Legal and Ethics Issues: This class discusses cultural issues that affect online businesses and laws that govern E-commerce activities. Several ethics issues are also examined.

5. CONCLUSIONS

This paper presents a course design for teaching an E-commerce course. An attempt has been made to integrate both theory and practice into the course. The course received good feedback from students. The teaching evaluation scores for this class (on a 5-point scale) for five consecutive semesters are 4.84, 4.89, 4.56, 4.61, and 4.72 respectively. The written feedback from students also reveals that they enjoy the class and feel that they can put the knowledge learned from the class into the practical use immediately. Due to the success of this course, the college now offers a similar course at the graduate level. The first graduate E-commerce course was offered as

a current topic elective seminar. However, the demand was so high that a request was made and approved to add the E-commerce course to the graduate catalog.

The graduate E-commerce course was taught by the same instructor for the undergraduate level course. The design of the graduate level E-commerce course is similar to the modules mentioned above, except that a fifth module was added. This new module introduces the research component to graduate students so that they learn how to research E-commerce topics.

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