

The Maturing of E-Commerce Education in Our Curricula

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ABSTRACT

When the power of e-commerce was unleashed for the benefit of the society, the evolution of the business world started. Businesses used electronic data interchange (EDI) to reduce costs, increase the speed, and increase the accuracy of business documents when doing business with other companies. Consumers were no longer tied to local stores or mail catalogues for retail purchases. E-commerce became a new retail outlet in the late 1990s. Educational institutions, for their part, responded by initiating e-commerce related research and curricula. Since those early days of e-commerce education, e-commerce education has matured. It has transformed from scattered courses and is now manifested in undergraduate and graduate degree programs.

Keywords: E-Commerce, information systems education, information systems curriculum.

1. INTRODUCTION

E-commerce, in its broadest definition, is the exchange of goods, services, or transactions via electronic means. Most people consider electronic means to be telecommunications and telecommunications-based tools, especially the Internet. In our context, e-commerce and e-business are essentially the same thing.

E-commerce was started with the use of electronic data interchange (EDI). Although the exact start of EDI is unknown, it is thought to be sometime in the late 1960s. Different standards and expensive computers made it difficult for most companies to participate in e-commerce in

the 1970s and early 1980s. 1984 was a banner year for e-commerce with the development of the X.12 protocol, which standardized EDI and provided a consistent basis for the reliable exchange of business documents related to the buying and selling of goods and services. In the mid-1990s, e-commerce was extended to the consumer with dramatic results. First was the dot.com explosion of companies that wanted to be a part of the scene, followed by the dot.bomb collapse of many of the e-commerce companies.

E-commerce continues to grow rapidly, mainly because of the permeation of the Internet into homes and offices worldwide and because it offers many advantages, including cost savings for companies, convenience for

consumers, easy comparison of goods and prices, and access to goods and services not available locally, just to name a few. Education institutions have responded to the e-commerce explosion with courses and then degrees that addressed the needs of e-commerce. Today most information systems programs address e-commerce in some way or fashion in their curricula. This is the basis behind this Special Issue on E-Commerce. In this lead paper, we will address the types of e-commerce, discuss e-commerce education, take a look at the papers in this Special Issue, and briefly look ahead at e-commerce education.

2. TYPES OF E-COMMERCE

The first e-commerce applications dealt with B2B (business to business) transactions using EDI. Although EDI existed in the 1970s and early 1980s, the development of the X.12 protocol standardized EDI and provided a consistent basis for the reliable exchange of business documents. B2B e-commerce has become a necessity for companies that procure a large number of goods from many vendors or sources. The Internet has reduced the costs of B2B e-commerce and has allowed small companies to take advantage of its benefits. B2B e-commerce continues to be the biggest e-commerce application in terms of dollar volumes.

The second breakthrough in e-commerce came with the offering of products directly to the public. B2C (business to consumer) e-commerce applies to any business or organization that offers its goods and services directly to the public using the Internet as the electronic medium. Although there is evidence of B2C e-commerce as early as 1992, the concept of B2C e-commerce became a reality with the development of the Netscape browser in 1994 and the launching of Amazon.com in 1995. While the traditional sale of goods is most closely associated with B2C e-commerce, today B2C e-commerce has grown to encompass many different types of goods and services, including travel services (Travelocity.com, Expedia.com, and Priceline.com to name a few), online banking, life insurance sales, real estate marketing, educational services, and almost any other goods and services available to the public. In the late 1990s, many dot.coms sprang up to offer B2C e-commerce, only to collapse in the 2000-2001 time frame. Today B2C e-commerce sites of traditional brick and mortar and catalogue retailers (Wal-Mart, Barnes and Noble, LL Bean, etc.) and specialty retailers (Best Buy, FTD, Wolfe Camera, etc.) are thriving in the e-commerce market. The Department of Commerce (2004) estimated that total e-commerce sales for 2004 were \$69.2 billion. This represented an increase of 23.5 percent from 2003, whereas total retail sales in 2004 increased only 7.8 percent from 2003. B2C e-commerce sales continue to grow at a significant rate. B2C e-commerce will continue to rise as people become more comfortable with using computers and the Internet and more comfortable with security over the Internet.

C2C (consumer to consumer) e-commerce also started in

1995 with the advent of eBay.com. C2C e-commerce involves a consumer as both the seller and buyer, with the transaction taking place through an intermediary. Auction sites (eBay.com, uBid.com, Overstock.com to name a few) represent the best examples of C2C e-commerce. It should be noted that auction sites may also be B2C, as some of the sellers are large and small businesses, not just consumers.

Governments have recognized the advantages of e-commerce. As a result, G2C (government to consumer), C2G (consumer to government), G2B (government to business and B2G (business to government) sites have sprung up at the Federal, state, and local levels. One of the largest government e-business sites is run by the IRS for information availability (G2C) and tax return filings (C2G).

Today, use is rising in every type of e-commerce. Businesses and governments are recognizing the advantages of e-commerce. The increased importance and use of e-commerce has not gone unnoticed by the education community.

3. E-COMMERCE EDUCATION

E-commerce creates a new way of doing business. The Internet is playing host to the world's largest potential marketplace. It is an expanding field that needs a large workforce with e-commerce skills and knowledge to support its growth. Educational institutes have responded swiftly to this demand by changing their curricula and teaching methods. Educators have designed e-commerce curricula, e-commerce courses, e-commerce tools and environments which provides and supports teaching and learning related to e-commerce.

From information systems (IS) educators' perspective, e-commerce education requires grounding in business and information technologies. E-commerce education should well cover the technical foundation of enabling technologies for e-commerce as well as latest e-commerce technologies. There is no end to the technological revolution, which is one of the essential drivers behind e-commerce. These include programming languages, markup languages, network technology, security technology, database technology, wireless technology, multimedia technology, etc. that are essential to the development of e-commerce infrastructure.

In addition to the information systems concepts, aspects, e-commerce requires non-technical knowledge and skills from business and other disciplines. These cover legal aspects, taxation, business processes re-engineering, supply chain management, customer relationship management, and marketing,, just to name a few. This is why many of the e-commerce education programs are multidisciplinary in nature.

It is true that business based programs generally focus more on non-technical knowledge and skills and information systems programs focus more on e-commerce technologies'

knowledge and skill. Basically, e-commerce matches the generally understanding of the difference between business-oriented and technologies-oriented programs. One challenge in e-commerce education is to provide students with a balance of the technical and non-technical aspect of e-commerce while still allowing sufficient time for discipline specific instruction to be delivered.

4. ISSUE OVERVIEW

In all, ten papers on e-commerce are presented in this issue. The first three papers deal generally with class development issues. The next two papers deal with curriculum development issues. These are followed by three papers dealing with specific courses or course design for specific courses. The final two papers address e-commerce in an international context. As could be expected, a strong international flavor is evident in the papers. Three papers are authored by U.S. based educators. Two papers originated in the United Kingdom and two others were from Hong Kong. One paper came from New Zealand, one from Slovenia, and one from Korea. Perhaps the most important issue is the variety of topics addressed by the papers. This is an indication of how e-commerce has developed over the years. We briefly introduce the ten papers below.

4.1 E-Commerce Class Development

Student learning is the focus of our first three papers. In the first paper, Sharon W. Tabor outlines the issues and challenges of developing electronic commerce curricula to achieve "significant learning." She uses team projects in which students consult to small businesses, collaborate on development projects, and achieve significant learning through the realistic application of theory. Next, Krassie Petrova and Gwyn Claxton from Auckland University of Technology in New Zealand talk about building student skills and capabilities in information technology and e-business. They talk about the results of an investigation into student and employer perceptions of the relevance of the professional academic content and outcomes in their undergraduate program. They introduce areas in need of specialized curriculum development and the possible misconception of the e-business discipline as perceived by employers and students. Finally, Richard T. Greci describes and analyzes a teaching approach that frames e-commerce within an introductory Information Systems class. His teaching approach employs a semester-long series of three assignments in which students propose and analyze an Internet start-up business. The paper also discusses lessons learned from the experience of having implemented the assignments.

4.2 E-Commerce Curriculum Design

Curriculum design is the focus of the next two papers. Hyunwoo Kim, Younggoo Han, Sehun Kim, and Myeonggil Choi, all from Korea, discuss curriculum design for e-commerce security. This paper provides useful guidelines in the design of the e-commerce security curriculum, including topics to be covered in e-commerce security. Next, Mayur R. Mehta, Jaymeen R. Shah, and George W. Morgan discuss the merging of e-business

courses into and Information Systems (IS) curriculum. This paper describes an e-business framework and analyzes the impact of the technological and e-business evolution on an existing IS curriculum. The paper also describes some of the challenges of implementing the new model and the resultant impacts.

4.3 Course Design Issues

Neil K. McBride from DeMontfort University in the United Kingdom describes a student-driven approach to teaching e-commerce at a master's level. His paper discusses the student's role as an active developer and deliverer of material in a group environment and the role of the instructor in directing studies, providing support and counsel, and assessing student deliverables in an e-commerce course. This is followed by a paper that describes the use of online auctions by Jonathan Foster and Angela Lin from Sheffield United Kingdom. Their study showed that there are considerable differences in the knowledge that students acquire from an online auction assignment. They developed recommendations for future research and practice in e-commerce education. Next, David Bodoff and Paul Forster from Hong Kong talk about a virtual market for teaching electronic market concepts. They contend that virtual market concepts help explain two-sided information in an electronic market, the value of information to buyers and sellers, and effects of search costs.

4.4 E-Commerce in an International Context

Although many of the papers in this issue have a strong international flavour, two of the papers discuss the application of e-commerce education in the local marketplace. First, Jože Gričar, Andreja Pucihar, and Gregor Lenart focus on a course in B2B e-marketplaces at the University of Maribor in Slovenia. Their course uses an e-marketplace technology platform for hands-on experiences and prototype development for company-sponsored student projects. Finally, E. W. T. Ngai, C. K. Lok, E. M. W. Ng, C. N. Lo, and Y. K. Wong, all from Hong Kong, discuss a collaborative project across three Hong Kong universities. The study examined student attitudes toward learning in an introductory e-commerce course via a project-based teamwork game in EC using a non-traditional teaching approach. The project was found to facilitate the teaching and learning of EC and to be interesting, exciting, innovative, and more worthwhile than traditional textbook-based learning.

5. LOOKING AHEAD

While providing a glimpse of state-of-art and state-of-practice of e-commerce education research in this issue, the articles in this issue are focused on the class development, curriculum design as well as course design of e-commerce. E-commerce is a cross-disciplinary subject comprising both business and technical skills.

One may consider that e-commerce education brings information technology/information systems (IT/IS) and the other business disciplines together in a single classroom. In fact, we are witnessing a paradigm shift in higher education

as a result of technological advances and a greater introducing "e" subjects by higher education providers. Because IT and e-commerce technologies are evolving and changing so rapidly, organizations face numerous challenges. So too do college and university faculty in the pursuit of e-commerce education. There is tremendous opportunity for interdisciplinary e-commerce education research in this growing field. We are expecting a broad range of e-commerce papers for future inclusion in JISE, and will bring together practitioners and scholars from business and academia from all over the world to discuss, to share ideas and "best practices" emerging out of teaching and learning of an exciting and rewarding field: E-Commerce Education!

6. ACKNOWLEDGEMENT

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7. REFERENCES

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