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Communications of the Association for Information Systems

AMCIS 2002 WORKSHOPS AND PANELS IV: PRINCIPLES OF EFFECTIVE E-COMMERCE CURRICULUM DEVELOPMENT

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ABSTRACT

The need to teach e-commerce (EC) is a significant issue for academia. Regardless of the downturn in dot.com startups, many organizations are still very much aware of the need for effective EC strategies and applications. In response to industry demand, some universities across the globe launched EC programs. Others implemented EC electives at undergraduate and postgraduate levels. This paper presents suggestions for teaching EC. Findings from a study of EC offerings by the top fifty UK business schools are presented. A wide disparity exists across schools in terms of EC offerings, including a significant number of schools that do not offer EC modules or degrees.

This paper offers and discusses the following recommendations on how to implement an EC curriculum effectively and economically in a business school:

1. EC should be taught throughout the business school curriculum as part of traditional classes followed by EC specialty classes and practicum courses. It is essential that multiple departments invest in offering EC curriculum.
2. Foundation classes should be taught before EC specialty classes.
3. EC survey courses should not be taught early in the curriculum because they are difficulty to staff and maintain.
4. EC classes should be a balance of each discipline's fundamental principles, along with some newer EC theories and applications.
5. Principles taught in Information Systems classes can have broader application when patterns are taught that span many technologies instead teaching only specific applications.
6. It is important to leverage alumni and industry volunteers to help provide EC lecture series and for input on EC curriculum and teaching.

Keywords: Teaching e-commerce, e-commerce curriculum, e-commerce curriculum development, teaching approach, teaching issues

I. INTRODUCTION

The impact of e-commerce (EC) on organizations and the economy is significant and is expected to become increasingly important in the near future [Evans and Wurster, 1999]. Organizations use EC applications to buy and sell, serve customers, serve their own employees, advertise, distribute products and services, and manage production and logistics. In terms of buy-sell transactions, business-to-business EC is already substantial and is expected to continue to grow significantly. The value of worldwide B2B Internet commerce sales transactions is expected to reach $2 trillion in the year 2002 and is projected to grow to $8.5 trillion by the year 2005 [Gartner Research, 2001]. On the consumer side, EC is smaller but is growing at a healthy pace. Online, U.S. consumers accounted for $7.5 billion in retail sales during the third quarter of 2001, an increase of 8.3% over the previous quarter [U.S. Census, 2001]. However, B2B and B2C sales are only one part of the EC story. Automation's impact on how companies execute many key business functions is growing.

In short, the emergence of EC as a force in the marketplace is growing rapidly. This fact is not lost on organizations that hire university graduates, nor is it lost on students who wish to thrive in this new environment. In response to increased student demand for EC courses at universities, the number of EC courses also increased [Whittens and Stephens, 2001].

This demand confronts universities with the challenge to develop viable EC courses, tracks within existing degrees, and in some cases entire EC degrees. To meet the demand from students and the employment market, many colleges and universities throughout the globe launched initiatives to include EC content at both the undergraduate and postgraduate levels [Baker, 1996; Tabor, 1999; Brookshire, et al., 2000; Nickerson, 2000; McCubbrey, 1999].

It is both stimulating and challenging to develop EC curriculums and degree programs. Teaching EC is exciting because of the topic's relative newness and its rapid evolution. But it also presents considerable challenges to professors and administrators. The rapid evolution of the field leads to the question of what role IS faculty should play in the development and delivery of EC courses. This question is especially important because automation is a key component of EC, but the field of EC touches every discipline in a business school. In some cases IS faculty found it difficult to carve out a niche in the overall EC curriculum. Another problem is that the rapid changes in the field make course development and maintenance extremely costly. To be successful across the broader curriculum, teaching EC requires bringing together a wide variety of skills from a number of academic disciplines.

The popularity and increasing significance of teaching EC in universities throughout the world creates a need for principles to guide curriculum development and to help faculty be efficient in course preparations. Furthermore, ways to stabilize value-added EC classes are needed across the entire business school curriculum, so that classes prepare students well but are not unduly costly to maintain.

The authors of this paper are involved in the development and delivery of EC curriculum at the graduate and undergraduate levels. They grapple with the many issues faced by professors involved in teaching EC. This article summarizes the issues and suggestions the authors discussed with EC scholars at the Workshop on Teaching EC at the August 2002 AMCIS meeting in Dallas. This paper is organized as follows. First, it discusses the need to teach EC. Next, it

presents the findings from a recent survey of the top 50 UK business schools[1] on the present state of teaching EC. Finally, it provides suggestions, based on the authors' experience, for teaching EC.

II. THE NEED TO TEACH EC

The need to teach EC is motivated in part by significant worldwide employer demand for graduates. Student enrollment in IS programs increased significantly in recent years to meet the demand for skilled IS graduates. For example, in the UK, students enrolled in graduate and undergraduate IS and IS-related majors increased by about a third from 1995 to 2000. Typically more students apply than the number of openings at universities offering these programs. Eighty percent of students graduating from these programs are employed six months after graduation [The Guardian, 2002]. Demand for these students is expected to remain strong over the next five years. Interest in these courses is not limited to students who wish to graduate in information systems (IS) or IS-related fields. Interest is also strong at the course level. For example, in the UK, more students enroll in computing courses than any other university course [The Guardian, 2002].

IS departments and business schools without EC offerings risk losing students interested in this area. Employers seeking graduates with EC knowledge will also favor schools that include this content.

In some cases, departments hurriedly put together EC courses and programs to meet demand for skilled computing graduates [Chan, 2001; Davis, et al., 2001]. This process is not easy for faculty or administrators and is still underway. Just as many businesses have struggled with EC initiatives, many IS departments and business schools have struggled with how to create and staff successful EC course offerings. Some programs have developed degree programs in EC. Others added EC specialty courses to their existing offerings, and in many disciplines, some faculty tried to incorporate EC content into traditional courses.

Adding to the difficulty in curriculum design is that EC content should be offered not only by IS faculty, but also by other traditional disciplines, such as marketing and finance. This requirement creates the need to integrate and interleave offerings across the broader curriculum. Regardless of which approach IS departments and business schools select, finding a successful way to teach EC throughout the curriculum is an important objective. Thus, guiding principles are needed to help develop viable EC offerings.

III. INSIGHTS FROM THE TOP FIFTY UK BUSINESS SCHOOLS

To investigate the degree to which EC modules and specialty degrees are offered by universities in the UK, a study of the top 50 business schools listed in the most recent ranking by the Times Good University Guide [The Times, 2002] was conducted by one of the authors. The study was completed in two stages:

1. A website search was conducted for each school to find out whether and how EC is offered.

2. When information on a school's website was not clear, a follow-up call was made to determine how EC is offered.

[1] The ranking is based upon the Times Good University Guide 2002 [The Times, 2002]. It is presented in the Appendix.

This study examined the following four departments or schools:

- Business
- Computer Science
- Electrical Engineering
- Information Science

These universities offer MBA, MSc., MA, full-time and part-time master's programs.

Most of the EC programs in the UK are intensive one-year "conversion" programs for students who do not have previous degrees in IS. Twelve modules (a mix of core and elective) are typically offered across two semesters. To complete the course, students are required to complete a 15--20,000-word dissertation (master's project paper) on a topic approved by their supervisors. Students usually start their projects during the last three months of their program.[2] Table 1 summarizes study results regarding EC offerings in MBA programs. Table 2 summarizes study results regarding non-MBA masters programs.

Table 1. EC Offerings in MBA Programs

Type of EC Offerings in MBA Programs	**Number**	**Percent**
EC is not offered as a module / No MBA program	27 / 1	56%
EC is offered as a core module	1	2%
EC is offered as a specialization module	4	8%
EC is offered as an elective module	17	34%
Total	50	100%

Table 2: EC Offerings in non-MBA Masters Programs

Type of EC Offerings in non-MBA Masters Programs	**Number**	**Percent**
Specialty EC Master programs		
Program offered by the business school	7	14%
Program not offered by the business school	6	12%
Traditional (Non-EC Specialty) Business School Programs		
Offer an EC module	9	18%
Offer an EC elective module	7	14%
Do not offer an EC module	21	42%
Total	50	100%

MBA programs at the top fifty business schools vary greatly in terms of EC offerings. Of the fifty business schools surveyed, 28 (56%) do not offer EC at all as a subject. Only 2% offer EC as a core subject, and 8% offer EC as a specialization subject. Seventeen (34%) business schools, including seven of the top ten MBA programs, offer EC as one of a number of MBA elective modules.

Non-MBA master's programs (e.g., MSc./MA) at the top fifty business schools also vary greatly in terms of EC offerings. Seven (14%) of the fifty schools offer masters programs specializing in EC. Six (12%) offer specialty EC programs through departments outside of the business school; 18% require an EC module, and 14% offer EC elective modules; twenty-one schools (42%) do not provide any EC offerings in their non-MBA MSc./MA master's programs. In short, a significant number of business schools provide no or limited EC offerings in both their MBA and non-MBA master's programs. While this study did not include universities in the United States and other

[2] After completion of regular courses, degree candidates are required to undertake a dissertation on a topic that will put theory into practice. Students, with the help of their supervisors, conceive and develop research topics, which in many cases are relevant to their career development or to the organisations for which they work.

countries, anecdotal evidence suggests similar variability in terms of EC offerings in other countries.

IV. ISSUES AND SUGGESTIONS FOR TEACHING EC

Many IS departments and business schools are still working on strategies for implementing EC content in their degree programs and classes. They confront the continuing questions of what courses should be taught by IS faculty and how the courses should fit within the portfolio of EC-related courses. The following sections discuss

- curriculum content issues,
- when EC content should be taught in the overall curriculum,
- who should teach EC courses, and
- how to increase the economy of developing and maintaining EC curriculum.

THE CONTENT ISSUE: WHAT SHOULD BE TAUGHT?

In our view, EC should span the curriculum because EC relates to many business functions, not just IS. Simply stated, a business needs a successful IS function, but it must also purchase, create products and services, market, finance, account, hire, and perform all other business functions. Being able to evaluate the business impact of different IS strategies and applications is a key skill for IS graduates [Gant, 2001]. Skills are also needed in IS selection, implementation, and management. Because students should possess both strategic and technical skills, how to balance the emphasis of these two areas becomes an issue.

IS programs should produce graduates who are marketable, flexible, and able to apply correct business and IS-principles in a variety of settings. Chan and Swatman [2000] argue that employers prefer three main areas of expertise:

- infrastructure (technical, e.g., Web developers),
- services (semi-technical, e.g., process analysts), and
- legal (e.g., legislators).

IS graduates, MBAs, and Techno-MBAs, however, cannot be all things to all employers. Chan [2001] suggests that three basic emphases can be offered to achieve balancing technical and business curriculum when teaching EC:

- Technology is emphasized more than business,
- Business is emphasized more than technology, and
- Business and technology are emphasized equally.

Business schools must decide which emphasis they want when offering degree programs and electives. However, our experience suggests that one trap to avoid is to try to make a single student a jack of all trades--and a master of none. Different employers have different needs. Some want students with greater technical skill who will be able to help maintain and develop applications. They typically want these students to be strong technically with some business skill. However, they do not try to hire students as business generalists. Other employers are more interested in students with some technical skill, but who are very strong in non-IS disciplines,

such as strategy and marketing. In this case, these employers do not expect students to select, develop maintain, and manage IT applications. This profile often applies to MBA students and in some cases Techno-MBA students, although some Techno-MBA students with especially strong technical backgrounds may be prepared for either technically or managerially oriented positions.

WHEN AND BY WHOM SHOULD EC BE TAUGHT?

An important issue is where EC content should be taught within a business school curriculum. Although technology is an important enabler for EC applications, IS faculty should not teach all EC courses. An integrated EC curriculum should leverage the deep backgrounds of professors in all traditional business disciplines, including IS faculty. If faculty from all traditional disciplines do not share the responsibility for distributing the EC teaching and research load, IS faculty can become overloaded with the unrealistic expectation of having to deal with too many learning curves across all business disciplines and rapidly changing course content.

AN INTEGRATED, INTERDISCIPLINARY APPROACH

Consider two different approaches for implementing EC content in a curriculum:

- An integrated, interdisciplinary approach discussed in this subsection
- A nonintegrated approach discussed in the next subsection.

The first approach, shown in Figure 1, is the model we recommend. Within this model, classes offered by business school departments such as marketing, accounting, IS, and the other disciplines include some EC content, together with traditional content in their core course offerings. In this way, all students obtain some EC principles within the context of the respective disciplines, whether they plan to specialize in EC or not. Moreover, with this approach, students obtain prerequisite subjects prior to taking EC specialty courses. For example, students can take courses in non-IS disciplines, such as marketing, accounting, finance, and strategy. In parallel, students also obtain classes such as programming, networking, and database. In this way, students receive a foundation in these disciplines before they enter specialty courses.

After these foundation courses, EC specialty classes are offered both by IS and non-IS departments. For example, an EC marketing class could be offered by the marketing department, and an EC technology class could be taught by the IS department. One approach to offering courses that include technical and business content is that of problem-based learning used by Rosenbaum [2000] and Rosenbaum and Lennox [2001] in which a student develops a business concept, a commerce site, and operates his or her mock business in a simulated market. Another approach would be to offer multidisciplinary courses that include topics taught by faculty from multiple departments. For example, a supply chain automation class could be taught that includes both supply chain management principles taught by operations faculty and principles of technology implementation taught by an IS faculty. Finally, multidisciplinary practicum courses [Chan and Knight, 2000] or thesis projects could be offered. Multidisciplinary practicum courses would allow students to integrate their use of knowledge from multiple disciplines on projects for organizations. Team teaching alliances among faculty from different departments do require coordination, but they allow faculty to leverage each other's backgrounds in their respective disciplines.

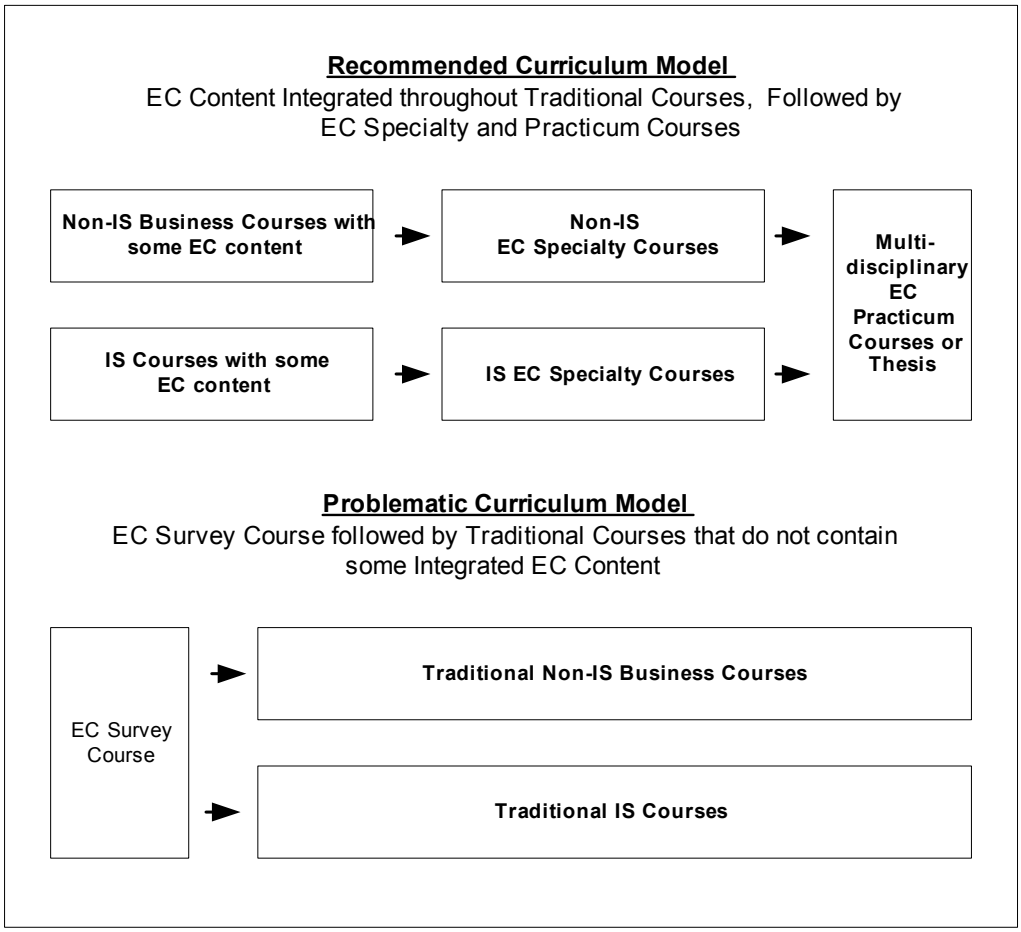

Figure 1. E-Commerce Content Delivery Models

Applications mean little if students lack foundation principles in both business and technology. With the approach described above, students gain background in both basic and applied levels of knowledge. IS faculty can teach students to design databases, configure security, and implement websites, shopping carts, and payment systems. However, these topics are better taught to students with foundations in both IS and non-IS courses. With this foundation in place, specialty and capstone courses can be more interesting.

An EC thesis project is another useful vehicle to engage students in research on EC-related topics. A thesis project is best done after students take sufficient coursework to allow them to bring to their project's principles from multiple disciplines.

This integrated approach offers several important benefits. First, it leverages the expertise of faculty in each of their respective disciplines. Fundamental principles within each discipline are taught by professors who specialize in that discipline. Second, the investment required to stay current in EC practice and theory as it relates to each discipline is distributed across faculty in each discipline. Consider a marketing faculty person who traditionally taught principles of marketing such as product, place, price, promotion, branding, differentiation, and product positioning. What are the implications of EC theory and practice as it relates to these issues? It is easier for a marketing professor with background in marketing principles to stay abreast of new EC marketing developments than it is for an IS faculty trained in IS to try to research these areas. This distribution of the learning curve across faculty is particularly important in light of the rapid innovation that occurs in EC.

A NONINTEGRATED CURRICULUM MODEL

In contrast to the model that offers traditional classes with integrated EC content followed by specialized classes, consider a curriculum that offers an EC survey course followed by traditional classes containing no EC content. This model results in two main problems:

- problems for the content of the survey course and how the survey course relates to subsequent courses; and
- problems for faculty staffing the survey course.

Each problem is now discussed in turn.

An EC survey course offered early in the sequence of classes is saddled with the unrealistic expectation of teaching business basics across a variety of business disciplines, as well as EC principles as they relate to those disciplines. For example, it is not very effective to talk about EC marketing without an understanding of basic marketing principles and strategies, nor is it very effective to talk about EC security when students do not understand how networks or operating systems work. All too often, when EC survey courses are offered which span multiple disciplines, many topics are taught but are not taught very well, nor are they well grounded in core principles within the referent disciplines.

Faculty members assigned to teach such a survey course face the difficult, if not impossible, task of trying to stay abreast of current topics and evolving practice and theory across multiple disciplines. Unfortunately, this outcome occurred within some institutions where the need to respond rapidly to student and employer demand for EC classes resulted in IS faculty or faculty from other departments being assigned this type of survey course. This approach creates unrealistic expectations for faculty and can result in poor course offerings. This problem is not exclusive to IS faculty; it also occurs for faculty from any business discipline who are asked to teach an EC survey course. The need to stay abreast of evolving theory and practice in EC across all relevant disciplines is a considerable burden, to be sure, and is best distributed across faculty from all relevant disciplines.

A related problem confronted by single faculty who teach an early multidisciplinary EC course is that of course-content cannibalization by other courses. Over time, as EC principles become accepted as part of referent disciplines, topics taught in the survey course eventually appear in courses offered by each business discipline [Wheeler, 2000; Nickerson, 2000]. This “content erosion” means that faculty who invest in lecture content become unable to use this preparation over many offerings of a course. A lot of wasted course preparation effort results.

BALANCING “FIRST PRINCIPLES” WITH EMERGING THEORY AND APPLICATIONS

EC teachers struggle with the changing nature of EC theory, applications, and teaching materials. New and interesting business models, theories, software applications, and development environments arise. But some of these changes are fads that are soon discredited, while others withstand the test of time. This rapid evolution and “weeding out” process makes courses based solely on new theory and applications seemingly impossible to stabilize. This section offers some suggestions on how faculty can make courses more economical to develop and maintain while still including some evolving EC theories and applications.

Since EC evolves so quickly, authors of textbooks and teaching cases face the daunting task of trying to define valuable material that will have some longevity. Many textbooks and cases based on transient applications and untested theories go quickly out of date, causing difficulties both for

textbook authors and for the professors who use them. This problem is not exclusive to IS teaching materials but also applies to other disciplines that teach EC content. In addition, IS faculty must also absorb the overhead of continuing to learn constantly evolving hardware, networks, applications, and application development environments. How can IS faculty develop EC curriculum without being at the mercy of constantly changing theory and applications?

Answers to this problem are not easy, but we offer the following suggestions:

1. Ground EC course offerings in time-tested principles within the IS discipline.
2. Teach patterns that transcend applications.
4. Leverage external experts.

GROUNDING EC COURSES IN TIME-TESTED PRINCIPLES

To build a course around content that is not tied in some way to well-founded business and technology principles means that course content will be under enormous pressure to change. As evidence of this, consider the many books and textbooks on EC which were not tied to fundamental business and technology issues that went so quickly out of vogue. On the other hand, courses grounded largely in proven theories and principles, but also include some emerging EC theory and applications, will be less subject to "content thrashing." For example, well-established principles of system selection, IT investment evaluation, database design, programming practice, change management, and network security don't change that rapidly. These principles still need to be the core of the IS discipline [Alter, et al., 2001]. EC presents some new practices, issues, and applications to some of these old issues. Course developers can achieve more stability if they ground their courses in these mature principles with proven long-term value.

Faculty members need to teach principles that will generalize across many development environments, software applications, and business settings, including those related to EC. Such theoretically mature topics and application principles should constitute the main course and be updated with new material as appropriate. For example, consider an EC programming class that teaches principles of program construction and program component reuse, but uses internet-based programming environments and applications as the vehicle for teaching these principles. Such an approach not only provides more value to students, but is also easier to maintain and update because it is grounded in correct principles of program construction. It is worth noting, however, that it is easy to err on the other side—that of not including EC applications and theory in traditionally taught courses. When this happens, the curriculum can become stale and outdated.

TEACHING PATTERNS THAT TRANSCEND APPLICATIONS

A final way to balance first principles with emerging applications is to avoid teaching specific applications in favor of teaching conceptual patterns that generalize across a number of applications. For example, a colleague of one of the authors at Brigham Young University teaches a web development class. Rather than teaching one specific programming environment, like PHP, ASP, or Cold Fusion, he teaches patterns that generalize across all of these applications, and gives examples of how each pattern is instantiated in the respective programming environments. He also teaches the pros of cons of the specific implementation approaches for each principle. Then he lets student groups choose one of these languages for a project within the class. With this approach, students see specific programming environments as instances or implementations of stable principles, but also receive experience with a specific application. One important benefit of this teaching approach is that students feel more confident in being able to learn specific applications that are instantiations of the general principles taught and practiced in the class.

LEVERAGING EXTERNAL EXPERTS

Another way to improve the overall EC curricular offering is to leverage external experts. Advisory board members, alumni, representatives from recruiting organizations, visiting professors, and colleagues from other universities can be valuable resources. For example, at Brigham Young University, an endowed EC center helps faculty coordinate with a functioning EC advisory board. The advisory board provides input on curriculum and EC research. In addition, the center facilitates an interdepartmental EC curriculum committee and coordinates an EC lecture series offered by willing alumni and industry volunteers. In this way, the external resources complement the efforts of faculty who teach EC classes. Students are exposed to current issues presented by lecturers who are knowledgeable in EC developments and applications, in addition to the material taught in class.

V. CONCLUSION

The emergence of EC motivates an ongoing need for curriculum innovation in today's business schools. Because employers and students demand EC courses, universities and faculty need effective strategies for developing courses. We believe it important to develop course offerings that integrate longitudinally, so that courses build on and effectively leverage prerequisites. It is also important to distribute course innovation across all departments within a business school.

The suggestions in this paper can help faculty implement EC curriculum effectively within a business school. The paper also provides recommendations on how faculty and universities can be both economical and effective in developing an EC curriculum that embodies staying power in the constantly evolving field of Electronic Commerce.

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REFERENCES

EDITOR'S NOTE: The following reference list contains the address of World Wide Web pages. Readers who have the ability to access the Web directly from their computer or are reading the paper on the Web, can gain direct access to these references. Readers are warned, however, that

1. these links existed as of the date of publication but are not guaranteed to be working thereafter.
2. the contents of Web pages may change over time. Where version information is provided in the References, different versions may not contain the information or the conclusions referenced.
3. the authors of the Web pages, not CAIS, are responsible for the accuracy of their content.
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Alter, S., Ein-Dor, P., Markus, M. L., Scott, J. (2001) Does the Trend Toward E-Business Call for changes in the Fundamental Concepts of Information Systems? A Debate. *Communications of the AIS*, (5)10, April.

Baker, B. S. H., Stray, S. J. and Galliers, R. D. (1996). "What's in a Title? The Nature of Information Management/Systems/Technology Courses in UK Fulltime Master of Business Administration Programmes: Part 1." *Proceedings of the 4th. European Conference on Information* Systems, July 2-4. Lisbon, Portugal.

Brookshire, R.G. (2000). An Interdisciplinary Undergraduate Degree Program in Electronic Commerce. *Proceedings of the Sixth Americas Conference on Information Systems*, 1805-1809.

Chan, S.S, and Knight, L.V. (2000). "Implementation Strategies for a Graduate E-Commerce Curriculum." *Proceedings of the Sixth Americas Conference on Information Systems*, 1826-1831.

Chan, E. S .K. and Swatman, P. M. C. (2000). Electronic Commerce Careers: A Preliminary Survey of the Online Marketplace. *Proceedings of the 13th International Bled Electronic Commerce Conference*, Bled, Slovenia, June, 19-21.

Chan, S. S. (2001). "Challenges & Opportunities in EC Education." *Proceedings of the Seventh Americas Conference on Information Systems*.

Census Bureau Staff (2001). "Retail E-Commerce Sales in Third Quarter 2001 were $7.5 Billion, up 8.3% from Third Quarter 2000, Census Bureau Reports" *United States Department of Commerce News.* Washington, DC: Department of Economics and Statistics, U.S. Census Bureau.

Evans, P. and Wurster, T.S. (1999). *Blown to Bits: How the New Economics of Information Transforms Strategy.* Boston, MA: Harvard Business School Press.

Gant, D.B. (2001). "Taking the Technology Out: Using a Strategic EC Focus in the CIS Cassroom." *Communications of the AIS*. (7)22, pp. 1-27.

Gartner Research (2001). "Worldwide Business-to-Business Internet Commerce to reach $8.5 Trillion in 2005." March 13, 2001 press release.
(www.gartnergroup.com/5_about/press_room/pr20010313a.html).

McCubbrey, D. J. (1999). "Designing an Electronic Commerce Curriculum." *Communications of the AIS,* 1(2) (January).

Nickerson, R.C. (2000). Academic Programs in E-Commerce; Why (or Why Not), How, and What. *Proceedings of the Sixth Americas Conference on Information Systems*, 1818-1822.

Rosenbaum, H. (2000). "Teaching Electronic Commerce: Problem-based Learning in a Virtual Economy." *Journal of Informatics Education and Research, 2*(2). 45-58.

Rosenbaum, H. and Lennox, M. (2001). "Problem Based Learning in a Virtual Economy: Using Technology and Pedagogy for E-Commerce Education." *Proceedings of the 2nd International Conference on Electronic Commerce and Web Technologies (EC-Web 2001)*. Munich, Germany.

Swatman, P. M. C. & Chan, E. S. K. (2001). "Report from the Panel on Teaching Electronic Commerce: Fourth Pacific Asia Conference on Information Systems." *Working Paper No. 2001/11.* Deakin University, School of Management Information Systems.

Tabor, M. (1999). "Latest hit on campus: Crescendo in e-major." *New York Times,* September 22.

The Guardian (2002). *The Guardian Good University Guide.* *(http://education.guardian.co.uk/universityguide/0,10085,488282,00.html).* August, 31.

The Times (2002). *The Sunday Times University Guide.* *(http://www.times-archive.co.uk/onlinespecials/education/business.html).* August, 31.

Wheeler, B. (2000). "Three Design Principles for E-Commerce Curricular Initiatives." *Proceedings of the Sixth Americas Conference on Information Systems,* 1802-1804.

Whitten, D. and Stephens, C. S. (2001). "Development of an E-Commerce Curriculum." *Proceedings of the 16th Annual Conference of the International Academy for Information Management.* New Orleans, Louisiana.

APPENDIX 1. TOP 50 UK BUSINESS SCHOOLS

Rank	Name	Rank	Name	Rank	Name
1	London School of Economics	18	University of Edinburgh	35	University of Reading
2	Aston University	19	University of Exeter	36	Kingston University
3	Warwick University	20	University of St Andrews	37	University of Liverpool
4	University of Bath	21	University of Wales, Bangor	38	Keele University
5	Lancaster University	22	Loughborough University	39	University of Glamorgan
6	UMIST	22	Cranfield University	40	Cardiff University
7	University of Manchester	24	University of Hertfordshire	41	University of Birmingham
7	University of Nottingham	25	University of Oxford	42	University of Cambridge
9	Queens University, Belfast	26	Oxford Brookes University	43	University of Sheffield
10	Imperial College of Science, Technology and Medicine…	27	University of West of England	44	University of Wolverhampton
11	University of Southampton	28	De Montfort University	45	Kings's College, London
12	City University	29	Leeds Metropolitan University	45	Bournemouth University
13	University of Ulster	30	University of Stirling	47	University of Kent at Canterbury
14	University of Strathclyde	31	Nottingham Trent University	48	University of Glasgow
15	University of Leeds	32	University of North London	49	Liverpool John Moores University
16	University of Surrey	32	Manchester Metropolitan University	50	Northumbria University
17	University of East Anglia	32	Royal Holloway		

Note: The Sunday Times [The Times, 2002] league ranking of UK universities and higher education colleges was compiled using data from the Higher Education Statistics Agency (HESA), the Quality Assurance Agency for Higher Education (QAA), the national funding councils, and the 123 institutions included in the study. Each institution is ranked according to the total rating it achieved in the following distinct areas: teaching quality, research quality, entry points, employment following graduation, student grades, student/staff ratio and dropout rate.

ABOUT THE AUTHORS

Douglas L. Dean is Assistant Professor at the School of Accountancy and Information Systems at Brigham Young University. He received his Ph.D. in MIS from the University of Arizona in 1995, and a Master of Accountancy with an emphasis in information systems from Brigham Young University in 1989. His research interests include electronic commerce technology and strategy, software project management, requirements analysis, and collaborative tools and methods. His work is published in *Management Science*, *Journal of Management Information Systems*, *Data Base*, *Group Decision and Negotiation*, and *IEEE Transactions on Systems, Man, and Cybernetics*.

Syed Nasirin is a Senior Lecturer in IS at Thames Valley University. He received his Ph.D. in MIS from the University of Bath and an MBA from Ohio University. His research interests include DSS development and implementation, DSS project failure and grounded theory research. His work is published in several journals including *Information & Management*, and *International Journal of Information Management.* Dr. Nasirin also consults with many government agencies and leading multinationals including Royal Malaysian Air Force and Dell Asia-Pacific.

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