

The Use of Internet-based Tools to Support the Delivery of an eBusiness Course

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Abstract

In recent years considerable attention has been focused on the growing importance of the global Internet to business. Many business schools in Canada, the US and Europe have begun to offer curriculum in various aspects of eBusiness. However, experienced faculty and resources available to design and deliver globally "eBusiness" courses are scarce and many institutions are exploring new modes of delivering eBusiness and other high demand business and IT curriculum. This paper reviews the results of a pilot project using Internet-based materials to deliver an undergraduate elective course in eBusiness.

eBUSINESS CURRICULUM IN CANADA

The impact of the Internet is being felt in virtually every business sector and every business function. Indeed there are some who maintain that all business will soon be "eBusiness". Post-secondary institutions in Canada and elsewhere have in recent years begun to offer specialized courses and programs in eBusiness in an effort to provide learners with the knowledge and skills they need to operate in the new internet-enabled business world. In Canada, a government/private sector partnership, the Canadian E-Business Opportunities Round Table, produced a report which emphasized "the importance of developing the eBusiness talent pool in Canada through the acceleration of skills training and retraining". (Ogilvie, 2000).

Many Canadian colleges and universities now offer courses, certificates, diplomas, graduate degrees in eCommerce, as shown in *Table 1*

Table 1: Selected Programs in Ebusiness

Institution	Credential
Acadia University	Bachelor in Com Science Masters in Com Science Bcom (eBusinessSpecializations)
Algonquin College	Information Technology Professional Program (some on-line ebus. courses)
Athabasca University	MBA in IT Management BCom (major in eCom)
Centennial College	Post Graduate eCommerce Certificate Program
Concordia University	BCom, MBA (eCom courses)
Dalhousie University	MBA of eCommerce (Joint with UNB)
Ecole des Hautes Etudes Commerciales	Masters Diploma in eCommerce
Holland College	Internet Marketing and eCommerce Program
Humber College	Certificates in eCommerce
Laval University	Post Graduate program in eCommerce

McMaster University	MBA in eCommerce, Executive Program in Electronic Commerce
Ryerson University	BCom with eBusiness minor Certificate in eBusiness
Seneca College	Internet and Electronic Commerce Diploma Program
Trent University	BA Computer Studies (electives in eCommerce)
University of Moncton	Multimedia MBA (electives in eCommerce)
University of Quebec	BCom and Computer Science (electives in eCommerce)
University of Alberta	MBA and Joint MBA/MEng (electives in eCommerce)
University of British Columbia	BCom in IT (electives in eCommerce)
University of New Brunswick	BBA in eCommerce, MBA in eCommerce (Joint with Dalhousie)
University of Ottawa	Graduate Certificate in eCommerce
University of Toronto	Certificate in Internet Business and Technology
University of Western Ontario	MBA in MIS (electives in eCommerce)

There are also a number of private institutions offering short courses and long programs. However, the field of globally "eCommerce" is rapidly changing and professionals with expertise are in great demand. Many education institutions are having difficulty meeting the growing demands for specialized courses and programs and are attempting to improve access for students. Some are beginning to experiment with new modes of delivery in order to meet changing learner needs. (Hawkins, 1999; Mottl, 2000) Indeed some have waxed enthusiastically about the potential of virtual universities and the threat to traditional forms of delivery. (Alavi, 1997) However, experience to date with distance learning and purely web based courses have been mixed. (Reeves, 1999 Bates, 2000; Webster et al, 1997; Noble, 1998) While these modes work well for some courses and some students, they require heavy up front investment, operational

support and sometimes have higher than normal drop-out rates. Consequently, some institutions are turning to distributed learning models which combine traditional classroom and globally “Internet” based learning in new ways in an effort to better leverage scarce resources. (Cukier, 2000).

This paper will explore the challenges in developing an eBusiness curriculum at one Canadian university in the face of overwhelming demand.

eBUSINESS CURRICULUM AT RYERSON UNIVERSITY

Ryerson's BCom in Information Technology Management was launched in September 1999. The program is unique in Canada combining a business education with specializations in applications development and telecommunications management, through a blend of technology and management courses. (Cukier et. al, 1999) The program introduced elective courses in eBusiness and took the lead in the development of an eBusiness minor, available to other programs, as well as an 8-course certificate in eBusiness. The courses are delivered in a multi-disciplinary approach with courses taught by all four Schools in the Faculty and include:

Required Courses

- The Concepts of eBusiness
- Internet Marketing
- B2B eBusiness
- Virtual Retailing

And a wide range of elective from which to choose including: Entrepreneurship, Tourism on the Internet, Establishing an eBusiness Operation and Computer Law.

DEVELOPING THE INTRODUCTORY eBUSINESS COURSE

The course was developed based on the premise that every enterprise, employee and consumer will be affected by the emergence of the Digital Economy. An understanding of this emerging economy and the new ways of doing business is critical to everyone, whether as business person or consumer. This course is intended to provide a foundation for more detailed study of eBusiness or to serve as a standalone overview for a wide range of business students.

Development of the course used the following design approach:

- Initial investigation of existing material:
 - A review of courses on eBusiness being offered (mainly at the MBA level) across North American business schools) as well as the content of an advanced special elective course that had been taught at Ryerson for the last two years.
 - A review of a wide range of eBusiness textbooks offered by the major educational publishers.

- A general review of the available literature on eBusiness, eCommerce and the Internet.
- To meet the design objectives developed, no single textbook could form the basis of the course. Most of those reviewed were either too general or (often despite claims to the contrary) too focused on the technology and not on the business issues.
- A decision was made to use the Internet as the primary source of all course material – both for readings and for delivery of the material to the students. The only exception was the use of the book “Customers.com” by Patricia Seybold, (Seybold, 1998) which is required reading for the Minor.
- A project team of one professor and two research assistants and a part-time web technician worked through the summer of 1999 to develop the course:
 - Searching for materials to support each topic;
 - Developing presentation material for each class including Powerpoint slides with embedded weblinks); and
 - Loading the material on a Course delivery tool (Ryerson uses WebCT for most of its online course delivery).

Course Objectives

The objectives of the course were:

- To understand the changes that are taking place in our local and global economies, which are creating the new Digital Economy, and the real implications of Electronic Commerce.
- To understand the fundamental social, business and technology drivers in the Digital Economy.
- To learn how the basic business functions (such as marketing, sales, manufacturing, distribution and customer service) will be impacted.
- To examine the concept of the integrated supply chain and how it can be transformed by the new tools available.
- To address outstanding issues in this new field (such as copyright, privacy, consumer protection, taxation and payment flows), as well as likely future developments.

Course Content

The course was integrated lectures, labs and exercises on a variety of topics as outlined in *Table 2*.

Table 2: Course Structure: Concepts of e-Business

Topic	Lab Work
Technology and business	Initial Shopping Expedition
Internet as a business enabler	Understanding Search Engines
Marketing on the Internet	Study of Brands
Internet Users, Ecommerce buyers and Digital Products	
Retailing on the Internet	Detailed Shopping Expedition (physical to digital products)
Setting up a virtual store	Website project part 1: Creating an ebusiness site

Security and Payment	Website project part 2:
B2B and Auctions	Using B2B verticals and intermediaries
Legal Issues	Using eBay
Business models for eCommerce	Case Study Models
Industries in Transition	
Whither ecommerce?	Research Project due

In order to ensure that students understood the concepts and were able to apply them, the course used a variety of assessment techniques. Lab Work consisted of a number of small projects. Students also had a design project: Building a Website for eBusiness as well as a Research Project and four multiple-choice quizzes.

DELIVERING THE INTRODUCTORY eBUSINESS COURSE

Because of the shortage of qualified faculty to deliver the course and the high demand for the course (over 600 day students requested it) it was decided to use the following delivery approach:

- A large-scale 2 hour lecture in a fully equipped presentation classroom (to approximately 200 students in each lecture)
- An “experiential” Lab and Tutorial, run for 40 students at a time, in a fully equipped multi-media Computer Lab, supervised by a junior professor.
- All course readings for each week provided by downloads or clickthrough links delivered through WebCT.
- All assignments and tests assigned and submitted through the Internet.
- Teaching assistants to handle the bulk of the marking of assignments.

We recognized that this was a “high risk” strategy, delivering a new course to a large audience with a partially unproven tool (several of the features of the WebCT software used in the course were not in general use at Ryerson). However, the alternative was to dramatically reduce the number of students allowed into the class.

The “Course Team” included a senior faculty member, who was responsible for the overall course design, course content and the lectures and a junior faculty member who was responsible for lab management, supervision of two teaching assistants and student grading. The “Course Team” also included a Part-time Web technician to help build the course websites. In addition, the University’s Open College provided technical support for the Distance Education section.

The course was developed and delivered in the fall of 2000 as follows:

- Each week, the student was provided with a reading package through WebCT, with links to appropriate Internet sources for course material.
- A weekly combined lecture using presentation technology, including online demonstration of eBusiness Websites to illustrate teaching points. (Copies of all the presentation materials were also distributed to the students through WebCT.)
- A weekly computer lab session (by 40 student sections) where the students had hands-on exposure to reinforce the various topics introduced in the readings and lecture.
- Each week, the students also had a Lab assignment, a project or a test – all provided and administered through WebCT.
- As part of the course, the students built a simple eCom Website and researched in detail a “real” Canadian eBusiness.

A similar approach was used for the evening section and the material was then adapted for Distance Education use as well.

In the Winter Semester, the same format was used, except there was a single combined lecture for the five day sections and a combined lecture for two night sections. Labs were still run on a single section basis.

EVALUATING THE INTRODUCTORY eBUSINESS COURSE

Enrolment

The course has now been taught in two semesters to a total of some 700 students, with the approximate numbers as follows:

- Fall 1999
 - 320 day students
 - 45 evening students
 - 20 distance education students (taught only over the Internet)
- Winter 2000
 - 200 day students
 - 90 evening students
 - 25 distance education students

Faculty Assessment

During teaching to the Fall 2000 group, a number of significant delivery problems did occur. These fell into four basic categories:

- Limitations in the software being used that were not obvious until use in high volume situations, likely exacerbated by the inexperience of the faculty members using the tool).
- Some errors made by the development team that affected student understanding and ease of use of the course material (these were fixed during the semester).
- Significant performance problems with the software tool, particularly in an examination mode, sometimes linked to problems with the University’s own communications network.

- Some volatility in the continued availability of some of the websites used as reference links for the course material (links being removed, moved to a new location).

Students were told from the beginning of the course that, in addition to the normal student evaluations done by Ryerson University for every class, they would have the opportunity to provide feedback to the course team at the end of the course --- after grades had been submitted. More than 95% of the students completed a 45-question survey that covered course content, course approach and the overall experience.

What worked well?

- The use of a course delivery tool (WebCT) as a method of course content delivery (both readings and lecture content).
- The use of a large lecture presentation format with multi-media delivery.
- The use of WebCT to manage students marks in large classes (the course team marked and delivered results for a total of more than 10,000 lab assignments, projects and online quizzes to almost 800 students). In most cases, marks were available to students online, within one to two weeks from submission and frequently within a few days.
- In order to apply the theory and skills developed in the course, students were required to build a simple, but complete, eRetail site using a template-based tool available free at a commercial Website.
- In addition, students completed a research project, which required them to use a structured framework to examine the “web presence” of a major Canadian corporation (different for each student and write an essay on their analysis).
- Overall, online submission of assignments was an effective tool for submission and marking (except for some performance issues with WebCT that reduced marker efficiency).
- Generally, it was possible to communicate effectively with a large body of students using WebCT’s bulletin boards and email.

What did not work well?

- WebCT is not an efficient tool for dealing with large numbers of students, which led to significant student (and faculty!) resentment at times.
- The weekly assessment was worth a significant part of the total mark (40%). This turned labs from educational experiences into stressful tests. These were modified considerably for the second semester, reducing both the effort and the marks (down to 21%). This was a significant improvement.
- On-line testing in the first semester was a disaster, in part as a result of question design, WebCTs weaknesses and the unreliability of the University network. It was necessary to revert to manual tests for the second part of the course for all day students, although online versions were used for night and

distance students. In the second semester, all 32 online tests ran successfully, several of which were taken by distance students over the Internet.

Student Evaluations

In the end-of-course survey, students were asked whether, knowing what they did at the end of the course, the decision to offer the course in this manner rather than cutting it back to pilot it with a smaller group was the right decision. 70% said the decision to deliver the “full-scale” course was the right one. While about 30% thought the course should have been piloted first, only about 19% would rather have waited for the “final” version of the course.

Students were also asked how well the course met each of its five specific objectives. On a five-point scale, where 5 meant “completely met the objective,” the course was rated at 3.81/5 overall (range 3.7-4.15 across all objectives). In the winter semester, the overall rating went up only slightly, to 3.84/5. As a general comment, across all sections in both semesters, the overall assessments seemed slightly better in the smaller classes (night and distance).

Most students described the work required as requiring the same or more work than other courses they were taking and reported typically spending between 2 and 6 hours per week outside of class working on the course. Most seemed to spend 3-4 hours.

Most students were very positive about the use of the Internet as a course tool. Specifically:

- Almost all found the delivery of course materials for review and study to be very or extremely effective.
- Similarly, the use of the Internet to post assignments, allowed students to submit their work, receive marks and comments electronically. This facility was very highly rated in comparison to the more traditional paper submission approach.
- When asked how they used and reviewed material, just over half said they printed off all the material, between 1/3 and 1/2 said they stored the material electronically on their own computer and a smaller number said they used the “clickthrough” links each time to review. When asked whether they would have paid (say \$30-40) to get a printed copy of the material nearly half said they would have done so.

They were least happy with their perception of relevance and fairness of marks for their various lab exercises (which they submitted electronically and had returned electronically). Interestingly, average marks given to this work were higher than those for the other assessment methods. However, they seemed to feel distant from the markers and that they did not receive adequate feedback.

Students were very positive about the Website project, which called for them to build a complete, but simple eRetail site using a template-based tool available free at a commercial Website. They were also generally positive

about the Research project, which asked them to use a structured framework to examine the "web presence" of a major Canadian corporation (different for each student) and write an essay on their analysis.

In the first semester, many students encountered significant problems in the use of online testing (very slow response, software crashes, duplicate questions, computers freezing) but were still relatively positive about the use of online quizzes compared to paper-based quizzes. However, there were a significant number who found this approach, with its failures, unsatisfactory. In the second semester, these problems were resolved and there were no further difficulties. Consequently, most students found this to be a positive approach for quiz administration. Results were typically available within 2-3 days of completion of the test. (All marks for all work were available to students online).

Overall, students found the Internet-based technology fairly reliable, though almost all reported having some technical problems during the course. The most frequently reported problems were slowness in response times, especially from the WebCT-based service and, at times, very slow downloads from the Internet. They reported having these problems at home (usually with dial-up access) and sometimes from the University's labs, even with a high-speed network.

Between 50 and 75% of the students in each section taught used the private email feature and almost all described this as an effective tool.

Also, nearly all found the bulletin board feature to be a highly effective tool for general communication with a slightly lower (but still good) assessment for its use to discuss course material.

Professors' responsiveness using the tool was rated only as fairly good but, when asked to compare the level of communication to that they experienced in other large face-to-face classes where no such tools were used, they found the Internet tools to be much more effective.

The use of Course Delivery Systems for large classes

The use of Course Delivery Systems as a delivery tool and a communication vehicle requires a substantial investment in resources. However, "What was once seen as merely an alternative method of delivering instruction is now a powerful resource for high-quality, lifelong learning" (Withrow et. al, 1995). Given the increase in class sizes (especially in the high demand field of eCommerce), WebCT creates an environment for asynchronous collaboration in which large groups of students can develop an understanding of the course concepts. In an effort to effectively use this medium, to teach the eBusiness curriculum to large classes, at Ryerson's school of Information Technology Management, significant resources were required:

- Internet Access was necessary to allow students to login to the campus network from any location and at anytime. This process made the exchange of information more convenient and relatively easier for most of the students.
- Equipment and Software were prerequisites that supported access to the Internet and facilitated students' participation in the program. Students were given the option to work at the school labs and at home.
- Technical Support was available in order to resolve faculty and students' system problems that arose from time to time. Providing equal access to technology-transparent information gathering is essential in this program
- Faculty and Student Acceptance of this on-line program was an important factor in the pedagogical viability of WebCT.

The experience of this pilot supports Schutte's assumption that "Since 1994, the World Wide Web and related Internet resources (e.g., e-mail, chat, and news groups) have become an increasing viable component in higher education pedagogy" (Schutte, 1997).

The use of the Internet to deliver an eBusiness curriculum

In establishing the pilot course, it was felt that the features in WebCT would allow students to develop Internet related skills that are necessary in the electronic marketplace.

"The world of commerce today looks different thanks to the Internet. The growth of the Internet in recent years has triggered a transformation in the way people and businesses communicate and interact" (Canadian Bankers Association).

As potential eBusiness person or consumer, the eBusiness students were required to download a variety of information pertaining to the course. This practice involved working within tight timeframes, the integration of numerous Internet sources and communication between each other.

The Web-based learning paradigm of WebCT, such as bulletin board, chat room, forum and e-mail, are similar to those provided by an Internet Service Provider (ISP). This tool fosters eCommerce learning through exploration, integration and the building of user-communities. WebCT also creates a central repository for course content and provides many paths for students to access course material and to provide feedback. In addition, in eBusinesses, the idea of keeping customers informed about the status of their orders is of paramount importance to the enterprise (Napier et, al, 2001). Just as in the eBusiness world, customers experience peace-of-mind from the assurance of knowing the whereabouts of their goods. In the educational environment, the "Check Your Grades" feature in WebCT keeps students abreast, at any time, of their current standing in the program. In the same way, students derive a high level of comfort and

assurance from being able to access their grades and monitor their progress on an on-going basis.

The Internet has the potential to evolutionize education and training. According to the Toronto Star, "higher education online in Canada now has a firm foothold via the Internet" (Nov. 25, 1999). Online training ranges from accessing self-study courses on institutions' network via software application, such as WebCT, to complete virtual classrooms. Clearly, the Internet has made training programs more flexible and affordable than the traditional seminars and courses.

CONCLUSIONS AND IMPLICATIONS FOR FURTHER RESEARCH

There seems to be little doubt that the move toward online business will continue in the future and business schools must find ways to incorporate aspects of eBusiness into their curriculum. At the same time, there are some indications that the resources need to teach this curriculum are not readily available - the publishing time frames for textbooks make it difficult to have current reference materials and faculty with both a theoretical grounding in eBusiness and practical experience are increasingly hard to find.

Further, the demand for learning opportunities in this field will only increase. New modes of delivery are emerging but require heavy front-end investment in design. The experience of pure web-based distance education courses is still mixed and most evaluations suggest that they are most suited to mature learners. Hybrid courses, which combine web-based learning with face-to-face, learning and tutoring, seem to hold promise.

The experience in developing and offering a web-supported eBusiness course to a large cohort of students at Ryerson was mixed. Overall, the project was judged to be successful and most students were reasonably satisfied but there were a host of challenges related to curriculum design and delivery using Web-CT. Further more detailed evaluation of the next iteration of the course will be instructive regarding the perceived strengths and weaknesses of the pilot. In addition, further investigation of opportunities to develop collaborative eBusiness programs and shared repositories of learning elements might go a long way to addressing some of the shortages in qualified faculty and appropriate learning materials. (Cukier, et. al. 2000)

Is there a synergy between eBusiness and the electronic delivery of education?

There is no doubt that technological development is gradually reshaping the educational landscape. Due to the workforce demand for computer literacy, educational institutions and professional bodies are forced to restructure their curriculum to suit the increasing technological and knowledge-intensive economy. The

use of WebCT as a teaching and learning tool, to deliver an eBusiness curriculum, has provided faculty and students with a platform to help create and use Web-delivered learning environments. However, both eBusiness and the electronic delivery of education are still in their infancy, which makes it premature to determine whether or not there is a synergy between these two paradigms. The question remains, not if there is a synergy, but rather when the synergy would be realized. One can further postulate that with additional research and involvement of all stakeholders the future seems bright.

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