In the Fast Lane:
A Study of Online Learning At Ontario Universities.

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Abstract

In order to find out how Ontario universities were doing in their process of moving into the Information Superhighway, a study was conducted by visiting their Web pages. Those in the fast lane, at the graduate level have already incorporated some strategies to help them succeed in the new economy, either by forming alliances with other universities or with private enterprises. At the undergraduate level there are still plenty of opportunities that they have not cashed on yet.

Keywords: Web based Learning, Online Learning Models, Web Site Design, Distance Education.

1. INTRODUCTION

Bilimoria [97] used the metaphor of pedestrians on the information superhighway to bring out the impending dangers of being a walker on a road intended for quick-moving traffic. Drawing on the metaphor, she addressed three dangers as challenges to current practices of management education: (a) obsolescence: keeping pedagogy apace with new knowledge realities; (b) slowness: appropriately integrating new communication technologies into pedagogy; and (c) constrained choice: designing institutional arrangements to encourage pedagogical innovation. With that metaphor in mind, we decided to investigate how Ontario universities were doing in their process of moving into the fast lane.

While distance education courses have been offered in non-traditional ways through paper-based packages, videos, cable TV, video conferencing, satellite, fax, telephone and mail, it is Web-based learning, over the Internet, that has opened up a new world of possibilities in education delivery, design and structure. How are Ontario universities moving in this direction, as a way to position themselves better in the new economy?

A look at the literature in this area reveals a bewildering array of research, thought and practice on the topic. Web-based learning is becoming the new frontier to conquer for any university worldwide. So, how are we doing at Ontario universities?

2. HIGHER EDUCATION - 90'S STYLE: A REVIEW OF LITERATURE ON THE TOPIC OF ONLINE LEARNING OPPOSING VIEWPOINTS

According to [Noble, 98], Internet-based education is a cyber-counterfeit, providing inferior education to the masses. It is being forced upon professors and students by cash-strapped university administrators encouraged by private business. It threatens the ability of professors to develop proper courses and eliminates face-to-face contact. Professors are at the mercy of university administrators. Once their brains are picked in preparing a course, they will no longer be required. They will hire a less educated instructor to deliver the course. The professor has no recourse and no protection. All course notes become the property of the university.

Higher Education is facing its second major setback. In the first phase intellectual property became a commodity and university focus shifted from education to research that was commercially viable. In the second phase, education is becoming the commodity, to be wrapped and served to the waiting masses. In the future education will be administered by EMOs (Education Maintenance Organizations) which will be responsible for course content and delivery, just like HMOs do today for the health industry. Classical education will not die. It will become the domain of the rich and famous.

Margolis [98] acknowledges that the force behind developing the wired university is market capitalism and not the Internet per se. He predicts that consumers (students) are more likely to embrace than to resist these changes. As he puts it, a college degree from an accredited program will suffice - the cheaper the better - as long as it increases a student's chance of securing a decent first job to help pay back his or her loans. Margolis [98] believes that American universities have not done enough to cheapen higher education to assure consumer satisfaction.

Personnel costs account for about 90 percent of a university's budget. A viable alternative to reduce this cost will be welcomed. Internet-based instruction can focus on the needs of the student and the employer rather than on the needs of the instructional providers. Once arrangements for outsourcing courses have been made, mediocre universities can then become franchises of greater institutions like Harvard or Oxford [Margolis, 98].

Admittedly, there are certain courses where laboratories and face to face meetings are still essential, such as dance and chemistry experiments, but these have to be managed and kept to a minimum. In addition, universities can eliminate all but a subset of their libraries and computing centers and access what they need over the Internet. Professors have enjoyed more protection from the periods of change of the marketplace than any other profession.

We are seeing the classic problem of technology transfer with respect to applying computer networking to higher education. Historically in the field of Management Information Systems, it is clear that new information and computer system technologies can be misdirected if the underlying human organizations and cultures are not adapted to make the best use of this technology. History now seems to be repeating itself in the area of higher education. The use of technology alone as a cure of organizational ills in education can have disastrous results. Distance Education departments currently run as independent money making operations staffed by inexperienced adjunct teachers and other support staff must be brought under the control of full time faculty to improve course content and delivery with this new medium [Turoff, 97].

The simplistic view of some university administrators is to think that all they have to do is to put the courses on the web, enroll hundreds of students per section and all their financial woes will go away. Current trends seem to indicate that there is going to be a tremendous long term shakeout of marginal institutions that cannot deliver quality education or meaningful full degree programs. All these issues suggest that higher education is in an assembly line. It is the same automation approach that got countless companies in trouble. There is no recognition of the need to rethink the educational

process and its corresponding associated methodologies. If a course can be automated, it is no longer a course at the university level. It falls within the realm of self-study and commercialized training packages [Turoff, 97].

3. ONLINE LEARNING MODELS

Improved workforce learning is imperative for individual knowledge workers, for companies that depend on knowledge workers and for the economy. Meeting this need requires innovative, restructured education and training organizations, knowledge drawn from isolated resources and widespread replacement of the traditional classroom with appropriate delivery technologies. For corporations, acquiring and supporting knowledge workers is becoming the most critical factor for success. Knowledge workers are having great difficulty fitting learning into their professional and personal lives [Lytle, 99].

[Lytle, 99]'s integrated learning model: LSI (Learning System Integration) integrates content from many sources, extracting new knowledge from work, and bringing learning to the workplace via appropriate information technologies. The integration of knowledge would come from four islands of knowledge. 1) Institutions of higher education would provide broad, structured knowledge, developed by tenured faculty, keeping in mind that university degrees mean very little to a corporation in practical terms. 2) Industry specific, technical or too-focused knowledge, such as programming knowledge. 3) Firm specific knowledge, such as a company's human resource policies. And 4) Newly minted knowledge, such as those created through industry practice, such as development of a new manufacturing process. Asynchronous technologies will tie together all four islands and make the integration and delivery of this type of learning possible.

Hanna [98] describes seven models for higher education organizations that are challenging the future preeminence of the traditional model of residential higher education. These models are emerging to meet the new conditions and to take advantage of the new environment that has created both opportunity and risk for all organizations, which demands experimentation of structure, form, and process. Each model offers an alternative to traditional residential higher education. Some of the models are in their infancy, some operate at the margin of organizations with other core businesses and some depend on extensive collaboration. All the models are designed to enable universities to better respond to new educational demands and opportunities at a national and international level. The models include: 1) *Extended traditional universities* - they expand on what they already have for the adult nonresident market. 2) *For-profit adult-centered universities* - operate for a profit for their investors. 3) *Distance education/technology-based universities* - these are on-

line universities. 4) *Corporate Universities* - to train their own employees. 5) *University/Industry strategic alliances* - the example of publishing companies, IT companies and university alliances. 6) *Degree certification competency-based universities* - target the certification/re certification market that has a mandatory continuing professional education base. 7) *Global multinational universities* - these monster institutions and partnerships are already beginning to form.

The cost and effort required to set up a first-class virtual university academic program for about 2000 students scattered around the world, would cost less than the addition of a single classroom building on a physical campus. This estimate comes up to $15 million US [Turoff, 97b]. Whether 2000 is a number that would make a university program self sustaining is arguable and has to be demonstrated.

4. ONLINE VS. TRADITIONAL LEARNING

A study carried out by Wegner, Holloway and Garton [99] at Southwest Missouri State University evaluated the quality of Internet-based instruction versus a traditional classroom. The study, conducted over a two-semester period, compared the achievements of an experimental group of students with a control group being taught the same course. The experimental group took the course entirely online and the control group took the class in a traditional setting. Test results from both groups were compared at the end of the study. The study found no statistically significant difference between the test results of the two groups. The study also reports that students in the experimental group had a more positive experience than the control group.

Blum [99] carried out a study at the University of Phoenix (a virtual university), to find out if there were any gender differences in asynchronous learning. The study found that learning preferences are the same in an asynchronous environment as in a face to face environment where it has been demonstrated that learning style preferences do differ by gender. The implications from this study are that an environment providing for equal opportunity to both the separate males and connected females should take into account their learning style. For connected females, this means creating a learning environment which promotes and encourages collaborative learning, yet allows males the freedom of learning in an abstract, autonomous manner. Since males tend to dominate the learning environment, each on-line course must be started with aset of basic ground rules of *Netiquette*. Participation barriers for females are greater, thus making it essential to have a strong technical support department. Lower confidence levels in females makes it essential for proper control of the online environment to allow females greater participation. Communication styles differ between males and females. Males tend to use short, blunt sentences, while females use sentences that are tied to self, experience, and family. Sexual jokes must not be tolerated. They tend to silence female participation and are a source of legal liability to the institution based on sexual harassment.

5. A SURVEY OF ONTARIO UNIVERSITIES' WEB SITES

Studies have shown that 43% of Canadian homes have Internet access [PriceWaterhouseCoopers, 2000], telecommunication costs in Canada are one of the lowest in the world, making Canada a good market for online courses and programs. Through this study we tried to determine how far Ontario universities have come in preparing themselves for this market, as demonstrated by the number of courses and programs offered over the Internet.

From the Ontario Ministry of Education's Web site we obtained a list of all universities and their Web site addresses. Nineteen sites in total, including the Ontario College of Arts and Design [OCAD] and the Royal Military College [RMC]. Each university's Web site was visited and a search conducted for continuing education, distance education, and online courses. Information from these Web sites regarding online courses and distance education was gathered for further analysis and study. If the university had information on the Web site about plans in this area, it was also taken into consideration. Table 1 contains a summary of the universities and their online courses and programs.

Information for this study was gathered only by visiting the Web sites of Ontario universities. Gathering the information only from Web sites is well suited for this study because our goal was to determine the extent to which online learning over the Internet is being used by these universities. The logical conclusion therefore was that if a university was involved in online education, then it would show up on their Web site.

6. WEB SITE DESIGN AND ITS LIMITATIONS IN THIS SURVEY: NOT ALL WEB SITES ARE CREATED EQUAL!

This is especially true of universities' Web sites. To find information about continuing education and distance education, some sites were extremely easy to navigate and find the required information, while others were extremely poorly suited for the task. At one site, we spent about half an hour following every link to find information about continuing education, and still failed. Some sites do not have search facilities, making it particularly difficult to find information while other search engines brought back so much data that the connection timed out.

Within the context of this survey, an on-line course is defined as a course offered for credit towards a

university program or certificate, most of the interaction between student and instructor is over the Internet, and requires the student to have access to a computer and an Internet Service Provider to take the course, access the notes, communicate with the instructor and other students. Our study suggests that Ontario universities are working towards getting courses online, however, the focus seems to be on those programs that can result in the most *bang for the buck*, such as short Master's programs that can easily be marketed to working adults and the exorbitant tuition subsidized by their employers. Two such programs are already being marketed. The study also indicates that there are extensive exploration and experimentation with online courses at some universities, such as Laurentian, while it is very quiet at others.

TABLE 1:
ONTARIO UNIVERSITIES' ONLINE COURSES AND PROGRAMS OFFERED

University	Online Courses	Online Undergraduate Degrees	Online Graduate Degrees
Brock	No	No	No
Carleton	No	No	No
Guelph	Yes	No	Yes
Lakehead	Yes	No	No
Laurentian	Yes	No	No
McMaster	No	No	No
Nipissing	No	No	No
OCAD	No	No	No
Ottawa	No	No	No
Queen's	No	No	No
RMC	No	No	No
Ryerson	Yes	No	No
Toronto	Yes	No	No
Trent	No	No	No
Waterloo	Yes	No	Yes
Western	No	No	No
Wilfred Laurier	Yes	No	No
Windsor	No	No	No
York	Yes	No	No

From table 1 we can see that 42% of Ontario universities have already incorporated online courses. Only 10% offer graduate degrees via the Internet. At the undergraduate level there is still a mountain of work to be done. Clearly, Ontario universities face a number of reasons for establishing relevance and openness to change (e.g., amore diverse student pool, greater competition from outside the province, etc.). However, the requirements posed by the changing nature of knowledge and advances in information technology present a unique set of demands on the very core of university education: the creation and dissemination of relevant knowledge and practice.

Thirteen universities are members of the Ontario-Wide Web CT License Discussion Group, a group of individuals from Universities, Colleges, School Boards and Non-Profit Organizations who are interested in an Ontario-wide license for Web CT. Web CT stands for "web course tools." It was developed in the Computing Sciences department of the University of British Columbia and is now being sold to other institutions around the world. As of December 1998 there were

approximately 933 different course licenses issued to educational institutions in approximately 30 countries. As of July 1999 there were 34 Web CT licenses in Ontario, and more than 22,175 student accounts. In addition, there were three unlimited licenses for which student numbers are unavailable. Ontario institutions are a significant client group for Web CT. The discussion group has two main points of discussion - one related to the financial savings and the other related to partnership possibilities. The participating universities include Brock, Carleton, Guelph, Lakehead, Laurentian, Ottawa, Royal Military College, Ryerson, Queen's, Toronto, Trent, Western, and Wilfred Laurier [Danielson, 99].

7. IN THE FAST LANE!

The high-flyers in online education in Ontario are the University of Waterloo and the University of Guelph. Waterloo offers a complete online Master of Information Technology degree. It is essentially the same as a similar program offered through traditional classroom delivery, with one difference, tuition is $25,000. It is targeted at the employees of corporations which can pay their tuition and not at fresh graduates. The University of Guelph, in partnership with Athabasca University in Alberta, offers the world's first online Agribusiness MBA. It also charges a tuition fee of more than $25,000. This includes a week of residence at the University of Guelph during the summer and all required textbooks and materials. The only other university that offers a complete online program is the University of Toronto, a Certificate in Genealogy.

There are other universities offering online courses but no degree or certificate. Surprisingly, no undergraduate degrees are offered online. One reason for this could be the number of courses required to be developed for an undergraduate degree versus courses required for a graduate degree, and the tuition fees they can charge for an undergraduate versus a graduate degree. It is only a matter of time before undergraduate degrees will also come online at these institutions to better serve the current full-time and part-time students, or perhaps to gain students normally beyond their reach. Individual undergraduate online courses cost essentially the same as a traditional course, except for token set-up fees.

Evaluating each Ontario university strategy against [Hanna, 98]'s models we can see that The University of Waterloo uses both the Distance education/technology-based university model and University/Industry strategic alliances model. It offers an online Master's program on its own but has a partnership with a private company, Education On The Go, to provide non credit self-study courses on the Internet. These courses are only a few weeks long and cost $95 each. In addition, it has created an online corner "Just For Kids" where children can enroll and take online courses from the university. Guess which university these kids will think of in a few years!

The University of Guelph has created a partnership with another university which is not even in Ontario. By building on each other's strengths they are able to deliver an online MBA. Athabasca University is an Albertan university specializing in distance education since the early 70's. Guelph specializes in agriculture. Put the two strengths together and you have a winner. For example, Unexus University the world's first private university based on the Internet opened its doors in Kanata, Ontario and plans to offer an Executive MBA degree starting in January 2000. It is a wonderful opportunity for another Ontario university with little expertise in this area to partner with this university.

8. CONCLUSION

We searched Ontario universities' Web sites to make an assessment on their efforts to integrate online learning to extend their curricula. We found that the focus seems to be on programs with quick returns on investment, such as Master's degrees. At the undergraduate level none are offered online. It seems it will take at least another two to three years before we can expect complete undergraduate degrees to be offered this way.

The study also suggests that partnerships are extremely important. Guelph has partnered with another university and Waterloo with a business in their online offerings. They are the ones in the fast lane. Universities must weigh carefully their responsibilities to their faculty, their current and potential students and their very role in education. Universities in Ontario must form closer ties, recognize each other's degrees and courses and work closely to make the transition to an online world, a world less strewn with lawsuits and closed universities. Students are beginning to get access to different courses and programs online. However, the trend seems to be to move away from government funding when these programs are put online. This may be disastrous from a student viewpoint. Student associations and those interested in equal access to education for Canadians must ensure that these savings should benefit directly or indirectly to students.

This study focused on Ontario Universities' Web sites. A more in-depth study can be done of all educational institutions in Canada and followed up with phone and mail to determine the extent of online activity at each institution. In addition, the amount that each institution is planning on investing towards online activities versus capital improvements would be a good indicator of how seriously institutions are considering online activities.

The government of Ontario has decided to drop Grade 13 from its high school program in the 2001 - 2002 academic year, this means a direct influx of twice as many new students into Ontario Universities and Colleges for the following year. To meet this artificially created double demand, Ontario Universities and Colleges have reacted with an unprecedented building

spree. We lost the opportunity to move into a Virtual University paradigm, and instead of investing on the physical infrastructure, an investment on Internet infrastructure to address this demand would have indicated a serious commitment to Online education.

IS education has taken on a new meaning with the arrival of this new medium in education. It can now be delivered over the Internet. Other disciplines are still struggling to fit their curricula into the demands of this new medium. The first Online Master program offered in Ontario was in Information Technology. For IS students, it is a time of choice and opportunity. If they have to travel for a month and still would like to take a course, that can be arranged, as long as they are able to take their laptop along and connect over the Internet. If they want to stay at home, save some money, and attend a prestigious university, they just have to find a university that offers online learning. Welcome to the future.

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APPENDIX A:
ONTARIO UNIVERSITIES' WEB SITE ADDRESSES

Brock University	http://www.brocku.ca
Carleton University	http://www.carleton.ca
University of Guelph	http://www.uoguelph.ca
Lakehead University	http://www.lakeheadu.ca
Laurentian University	http://www.laurentian.ca
McMaster University	http://www.mcmaster.ca
Nipissing University	http://www.unipissing.ca
Ontario College of Art & Design	http://www.ocad.on.ca
University of Ottawa	http://www.uottawa.ca
Queen's University	http://info.queensu.ca/
Royal Military College	http://www.rmc.ca
Ryerson Polytechnic University	http://www.ryerson.ca
University of Toronto	http://www.utoronto.ca
Trent University	http://www.trentu.ca
University of Waterloo	http://www.uwaterloo.ca
University of Western Ontario	http://www.uwo.ca
Wilfrid Laurier University	http://www.wlu.ca
University of Windsor	http://www.uwindsor.ca
York University	http://www.yorku.ca