

# **Building a Canadian e-Learning Model**

*A private training perspective*

Rima Aristocrat  
&  
Dr. Keith W. Wilson

Willis College of Business & Technology

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*"There are two fundamental equalizers in life: the Internet and education. E-Learning eliminates the barriers of time and distance creating universal, learning-on-demand opportunities for people, companies and countries."*

*—John Chambers, President and CEO, Cisco Systems*

## Contact Information:

Rima Aristocrat, M.Ed.  
President and CEO  
Willis College of Business and Technology  
85 O'Connor Street  
Ottawa, Ontario, K1P  
Email: [raristocrat@williscollege.com](mailto:raristocrat@williscollege.com)  
Tel: (613) 233-1128

Keith W. Wilson, M.D., Ph.D.  
Director, Enterprise Solutions  
Willis College of Business & Technology  
150 Katimavik Road  
Kanata, Ontario, K2L 2N2  
Email: [kwilson@williscollege.com](mailto:kwilson@williscollege.com)  
Tel: (613) 591-1128

*“Learning how to learn has become the most fundamental skill that an educated person needs to master, and the instrument that enables learning in almost every field is the computer.”*

Dr. Peshe Kuriloff  
Adjunct Associate  
Professor of English  
University of Pennsylvania

*“Chance favours the prepared mind.”*  
—Blaise Pascal, 17<sup>th</sup>-century  
mathematician

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## Executive Summary

In order to transform post-secondary education in the next decade, significant changes have to take place in the way Canadian institutions react to the opportunities presented by online learning. To ensure that both public and private post secondary institutions are in a position to take advantage of these opportunities and benefit from the potential presented by online learning, they must collaborate. Obstacles to this process include accepting the Internet as a valid alternative and augmentative learning tool, embracing the retraining of instructional staff, recognizing industry certification providers, and acknowledging that no single institution can provide a total solution.

**Market Changes.** Success in future online education is in direct proportion to adaptation to industry needs. Technical training in addition to university/college education is a competitive advantage to the job seeker. The educational consumers today are more demanding, requiring increased resources at both public and private institutions, undoubtedly fuelled by the advent of the Internet and the speed with which it has grown.

**Financing Change.** Although the scope of profitability with e-Learning initiatives is great, there are a number of caveats to consider. Some include fiscal restraint, overwhelming competition, attracting private investment for sustainability.

**Strategic Alliances.** Pooling of resources and expertise in e-Learning is a critical factor in the development of these initiatives. Consortia of education institutions hope to spearhead these developments but government involvement is required to ensure national leadership. Partnerships between private and public institutions in the United States have proven to be very successful. Canada needs to recognize the advantages of the formation of similar partnerships to allow more efficient use of development strategies and resources.

**Quality Control.** E-Learning is such a new mode of delivery that the development of standards is essential. Standards will drive the e-Learning market as courses will be richer and more effective. Adoption of industry certifications will produce a better-qualified and more competitive candidate. Establishing standards at the beginning of development will alleviate problems that may stem from fragmented or lacking infrastructure.

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**Credit Transfer.** One of the main obstacles that a learner may encounter is the non-transferability of credits between institutions and programs. Essential to e-Learning is the ability to embrace a continuum of education, but it highlights the need for partnerships between all levels of education.

**Lifelong Learning.** In an effort to better themselves and remain competitive, consumers must stay pro-active lifelong learners. E-Learning is the only model that will facilitate continuous education.

**E-Learning Delivery.** Technological advancement has enabled interactive and adaptive delivery of online courses. Use of smart-engine technologies permits pro-active course delivery, creating a custom-learning environment, specifically tailored to the individual learner.

## Introduction

In the global economy, where success is measured according to quarterly results and where market demand for products is just a breath away from the competitor's next revision, fusion of knowledge and expertise of private training sector and public education becomes essential. The advent of the Internet, its ability to connect citizens across the planet and its rapid proliferation into all avenues of our daily lives, highlights the urgency of taking action. Industry Canada's "strong commitment to keeping our country competitive in today's global, knowledge-based economy" has provided the leadership and it is incumbent on both sectors to take up the challenges. E-Learning is the key to this collaboration.

More than simply the presentation of educational materials on the computer screen, e-Learning is, in fact, a collection of processes: the sole purpose of which is to provide a more comprehensive and productive experience for the learner, educator and administrator.

Initially used to supplement classroom-based courses, online education has greatly expanded this role to ultimately become a primary form of interaction and information provision. While not every type of course material is conducive to online delivery, a greater amount of course curricula is moving to the online realm. Although e-Learning generally refers to any form of learning and/or teaching that occurs over a computer network, few education providers truly embrace the potential of the Internet as it exists today. Canada is a leader in the connected world and now is the time for Canada to provide leadership by fostering a more collaborative approach and accessible use of the Internet to deliver education.

There are a variety of goals driving institutions online. Fragmentation of the educational market, lethargy, technology and uncertainty on how to elicit change have prevented implementation of e-Learning, even in the face of present-day statistics, which suggest

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that “the next big killer application for the Internet is going to be education.” (John Chambers, CEO Cisco Systems) However, key to success of the migration to the online world is leadership and planning; both strongly rooted in Canada. There are, unfortunately, a number of obstacles yet to be overcome, discussed in detail below. It is hoped that through collaboration between all parties involved, Canada will push the limits of education to a new level.

For the purposes of this paper, public education refers to Canadian universities and colleges with publicly funded ministry approved programmes; private vocational institutions refer to educational providers that may or may not be ministry approved; and vendor-specific certification providers are industry partners that deliver their own highly specific training on a particular product. There are few trainers who do not fit these categories and they are not referred to in this document.

As there are key differences between public and private education sectors, this paper is intended to reflect private industry in a commentary on the papers presented to the Advisory Committee for Online Learning.

## Challenges to Online Learning

Numerous arguments have been made, to date, in support of online training (Farrell, 2000; Ruttenbur, Spickler & Lurie, 2000) from the perspective of the provider. These have included: market change, reduced costs, increased revenues, increased accessibility and international market penetration. All are linked to the changing face of the connected world. Indeed, with each new addition to the Internet, its usefulness increases.

Despite the disarray of online resources, the population still flocks to the Internet for all activities in life: learning being a key priority. Canada is part of this new *knowledge economy* and thanks to government vision has become a leader in the connected world, recognizing the competitive advantage that the Internet will play in the lives of every Canadian.

### Market Changes

There has been a noticeable shift in the educational field over the past 10 years. More and more people are furthering their education in one form or another. For many students educated in the past decade, the computer and the Internet have become tightly entwined with their educational pursuits. The Internet is now acting as the largest information repository available 24 hours a day, 7 days a week worldwide. This undoubtedly is a major driving force in changing the face of education today.

**Institutional Change.** Since technology is driving much of the world's workforce and hence economy, it is imperative, then, that educational endeavours reflect this new model (Pennycook, 2000). Adaptation is critical to the survival of all educational institutions as more people become computer literate.

In the IT world, private vocational schools have rapidly adapted to industry needs to capitalize on this segment of the market. This has occurred despite the high costs associated with implementing new technology, because unlike larger well-established public institutions, the private sector is driven primarily by market trends. It is well

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known that certain public institutions are slow to change and this has delayed th

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workforce. For someone who has already spent considerable time in the workforce, the possibility of spending upwards of four years in the public education system, not to mention the financial cost, may be unrealistic. To this end, many private industry players have geared their efforts to developing highly focussed hands-on training programmes.

Public and private educational institutions could, in fact, provide broader and hence, more useful retraining programmes if delivered to the Internet. Overall it would increase market penetration, in particular, for public education participants who have not been actively involved in retraining to date. For those funding retraining, in particular HRDC, the move to Internet delivered retraining programmes could save considerable public funds. In fact, CAP sites could be responsible for the delivery of such initiatives through public and private collaboration in the form of an e-Learning portal.

The change to an online model is fraught with difficulty: encouraging traditional educators to change to an e-Learning model of instruction being one significant obstacle. As Farrell (2000) observes, many educators express concerns about e-Learning ranging from academic quality to their own changing roles. For many traditional educators, who have little interaction with online learning, the move to an e-Learning environment is perceived as having little or no advantage for them. There is obviously a great need to provide faculty with necessary coaching and encouragement. To ensure sustainability, a reward system should be considered to help to deploy educational initiatives online.

A research study published by Wilson (1998) examined the concerns of educators in using web-based delivery of distance education. Respondents to the questionnaire used in the study were 71 instructors of web-based courses and fell across a wide variety of disciplines including social sciences, humanities, scientific/technical and business. Although the research is biased towards educators already delivering web-based courses, it is important to appreciate the experiences that they have accumulated. The primary concern they voiced was insufficient time to develop and maintain course material. They found that the amount of time required to develop a course was difficult to quantify, although in terms of hours of full-time work, time ranged from 48 to 300+ hours with a

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mean of 152 hours per course. Other concerns raised included technical and administrative support, sufficient time to interact with students, and technical training. The research highlights the need for careful infrastructure planning in order to make the transition to e-Learning easier for curricula developers and administration.

Another important barrier that public education has encountered to the adoption of online learning strategies is the slow approval process, as the process is generally linked to a fixed academic timetable (Keenan, 2000). Keenan (2000) also noted that “this structure often clashes with the entrepreneurial, market-driven culture.” He suggests that institutional governing bodies react more quickly to change and establish a more flexible approval system. Since private educational schools have traditionally provided shorter courses, they have been in a favourable position to modify course materials in a timelier manner.

**Consumer Change.** The educational consumer has evidently become more demanding over the past decade with respect to resource requirements in both public and private institutions. There is a growing trend toward shortened tolerances for delays and toward increases in consumer-centric thinking. This is undoubtedly fuelled by the advent of the Internet and the speed with which it has grown. But, as Keenan (2000) states, “the deepest remaining issues revolve around student willingness and ability to use online learning software.” In this instance, it is clear that careful deployment of any online initiative must consider the less-experienced Internet user.

Experienced Internet-based consumers want choice, speed, availability and above all quality (Ruttenbur, Spickler & Lurie, 2000). This has placed considerable pressure on Internet-based institutions to cope with this change and many fail in their attempts. It seems that as the speed of the Internet increases, tolerance to failure decreases in the consumer. As people become more familiar with the opportunities presented by the Internet, more will be inclined to pursue academic interests on the web. Unfortunately for many institutions, this change is happening far more rapidly than previously expected. This ultimately creates a pressure to jump into the technology and possibly and

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regrettably with little or no experience in the area. Despite the volatile nature of Internet change, it is imperative that institutions hoping to embrace this technology will plan carefully. There is such great scope for successful e-Learning initiatives; the temptation to leap before looking can be overwhelming.

### **Financing Change**

“The development of online education continues to be driven by its application in the context of distance education... This situation, together with the belief that there are huge untapped international markets that can be profitably accessed via distance education, suggests that the distance education context will continue to be the venue that is most amenable to the use of online learning.” (Farrell, 2000). Online education is fast becoming a key element in sustainability of many institutions. The International Data Corporation (IDC) predicts that the worldwide IT training market will approach \$34 billion USD by 2004, making it a highly competitive and lucrative arena for revenue generation. Despite the appearance of this market, there are some important points to be considered before making the commitment to online training.

The move to an e-Learning model can be time consuming and expensive. Given that e-Learning has the potential to be financially lucrative (and thus why so many private institutions have rapidly adopted the concept), proper business models need to be in place to successfully make the move. “The context of post-secondary education in Canada has been almost exclusively public sector, and in the global context, it is small and fragmented by provincial jurisdiction, making it relatively less attractive to private investment” (Farrell, 2000). Canadian public institutions seem to be limited in attracting the optimal balance of private and public investment in making the move to online educational initiatives. This is not to say that venture capital cannot be raised effectively in Canada - a great potential will continue to exist. In fact, the landscape is ripe with opportunity: “eduventures.com reported that \$6 billion of private capital has been invested in the education industry since 1990. Close to \$1 billion of that was raised in the first quarter of 2000 alone.” (Ruttenbur, Spickler & Lurie, 2000)

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Although private industry is tightly bound to business models of education delivery, public education delivery historically has not been permitted to pursue a business means of revenue generation. There are a number of reasons for this including the use of public education funds to foster profit and as Pennycook (2000) points out, “it is not at all obvious that the appropriate business model for a full-scale online learning initiative can be grafted on to our traditional post-secondary institutions.”

However, in light of fiscal restraint, a number of public institutions have recently discovered innovative ways of generating sustainability of funds. Bates (2000) proposed a number of potential revenue streams particularly aimed at public institutions which included grants, re-organization, student technology fees and increased enrolment to name a few. Although each has its own advantages and disadvantages, it seems that a predominant outcome is the concept of strategic alliances between public and private industry, to be discussed further below.

Caution should be exercised with respect to the possibility of institutions increasing revenues from online training (Farrell, 2000). While the concept of “if you build it, they will come” works for some ventures, it tends to spell failure for online equivalents. Lack of planning and knowledge of the online industry has crippled many innovative training start-ups. Too many institutions have tried to jumpstart their online presences in order to provide a revenue stream towards sustainability without first considering the process. While many educational institutions do not operate in a traditional *business-sense*, some have successfully grown self-sustaining ventures set to capitalize the corporate training market. An example of this would be the Peel Board of Education. It has had considerable success in creating a corporate training arm, leveraging on its public institution tradition in the community. Another would be the plethora of Universities offering MBA programmes: an obvious choice for today’s market.

In light of changes to the educational market, universities and colleges, both public and private, need to adopt a greater sense of e-Business where the consumer is focus. It has been shown that it costs upwards of seven times more to acquire a new ‘customer’ than

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sell to an existing one. In the educational realm, this statistic should raise a few eyebrows. Both public and private institutions typically have not invited their alumni to upgrade their skills or pursue other interests at their institutions. This is a relatively untapped market. From the consumers' perspective it may seem more inviting to be encouraged to take another course rather than merely be expected to donate to the alumni association. The approach where the students and alumni are considered *consumers* has greater implications for an institution's plan for sustainability; both the consumers and the institutions benefit. This is especially true in the e-Learning world where positioning on the Internet can lead to greater opportunities for customer retention.

As with all new industries with high growth potential, there is a plethora of obstacles to overcome in the adoption of these approaches. In addition to the problems listed above, a number of risk factors have been highlighted by Rutenbur, Spickler and Lurie (2000): the industry is young and in flux leading to uncertainty; currently revenues and earnings are minimal or non-existent (it is estimated that the majority of ventures involved are still one to two years away from profit at a minimum); there is confusion among customers about what e-Learning really is and who is defining quality; there is the reality that the technology is accelerating faster than content development which has led to the attempt of fitting traditional models with a more dynamic Internet-based model; and there is some resistance to using technology in learning as many learners have indeed little or no experience with computer use directly for learning purposes. These points are in desperate need of resolution in order for e-Learning to become an effective and sustainable quality form of education.

### **Strategic Alliances**

Pooling of resources and expertise in the area of online training in Canada is an efficient use of intellectual assets, reducing the time to market for most participants. Consortia of institutions interested in online training have emerged recently (Farrell, 2000). These have been established to help guide online delivery models in an academic setting and provide *best practices* for those interested in becoming involved. While these organizations hope to spearhead these developments, national leadership currently seems to be lacking. Government is in a unique catalytic position to help guide the educational

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reform needed to migrate to an online delivery system (Farrell, 2000). Some government initiatives, such as Canarie, have been designed to help create a pool of resources using progressive technology.

While it may be useful for universities to rally internal IT support to build enterprise-class online training solutions as Pennycook (2000) suggests, it could prove to be more beneficial to draw on private industry's specialization in this area (Anderson & Downes, 2000). Partnerships between private industry and public institutions, a rarity in Canada, are more common and have enjoyed much success in the United States. These partnerships have led to a focus on core competencies within the organization. Indeed, in the business world, many peripheral necessities are now outsourced, allowing a company to focus its efforts on its primary objectives. This is partly where Application Service Provider (ASP) technology comes into play.

The ASP concept is quite simply any business activity that may be carried out on the web, usually on a rental basis. This process aims at providing a large number of businesses and educational institutions with highly aggressive Internet-based technologies, ensuring rapid deployment and market penetration with little need for active development of the technology itself. E-Learning ASPs (predominantly in the United States) are slowly making the move from classroom-based learning to online learning much easier for educational institutions. In effect, it permits the institution to move directly into development of curricula and deployment without spending years in development and set up of the online engine, which will include both hardware and software components. Although many of these solutions have been developed solely by computer specialists, others have been developed very closely with educational providers to ensure overall educational objectives are met. The ASP industry is growing rapidly and adoption of the notion of outsourcing will lead to its success. It is very likely that this will be a wholly viable option for educational institutions: partnerships are key.

Curricula repositories are another crucial feature of ASP technology. Some e-Learning ASP providers are focussing efforts on the storage and sharing of curricula materials

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between institutions. These materials can be reused in a number of customized courses in Canada or worldwide. It is imperative as Farrell (2000) suggests that intellectual property issues be sort out before the development process begins. The Canadian government has been supportive of object repositories in the form of Canarie grants.

These examples highlight the need for further collaboration between educational institutions, both public and private. Ultimately it saves time and money as development costs are shared across a number of institutions. As tradition seems to cite a rift between public and private educational institutions, this level of collaboration would require significant encouragement.

### **Quality Control**

As with any educational endeavour, the question of quality control is a constant concern for curricula developers. While traditional educational delivery has occurred behind closed doors, online training subjects curricula to greater scrutiny than ever before. In many areas of education, particularly medicine and IT, standards have evolved from the industry to ensure quality of graduates. As e-Learning is such a new mode of delivery, standards are only beginning to be developed.

It is felt that standards will drive the new e-Learning market. “Companies that are not on board with the standards issue early in the process will, we believe, be at a significant competitive disadvantage.” (Ruttenbur, Spickler & Lurie, 2000). A number of benefits of emerging learning standards highlighted by Ruttenbur, Spickler and Lurie (2000) include enabling the granularization of content (for reuse in other customized courses); making courses richer and more effective by allowing the instructor to track and adjust the courses immediately based on student performance; and will help create a commercial infrastructure for the development, sale and distribution of instructional material throughout the world.

Undoubtedly, the endorsement of industry-recognised certifications in IT, representing billions of dollars in revenue, has created tremendous competition between those who provide vendor-specific certifications and those who do not. It is, then, obvious that the

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provision of certification programmes is a factor in sustainability, particularly in the IT market; and, for the learner, it represents a step towards life-long learning.

In the private sector, there is great disparity between the quality of delivery of these hands-on training programmes. Indeed there are too many private and public providers of IT training who currently do not adhere to recognized content and examination standards. For a student new to the industry, this approach can result in incomplete training. Indeed programmes with the same name within the same city can have a significant content difference. Quality assurance in these instances can be very misleading to the student.

Although vendor-specific certification programmes have their purpose, increasing competency for a specific product, there are often more general students enrolled in the same class. These students suffer because the course content includes just enough information to ensure passing of certification. This highly focussed approach to education has its place but for the inexperienced student the result is a lower level of qualified graduate who cannot think *outside the box*.

A number of private vocational schools offering ministry-approved diploma programmes have recognized the value of industry certifications in the context of a broader programme. To that end, these colleges seem to have the best of these two educational approaches that of producing a highly competitive candidate in the job market. Some universities (particularly in the United States) have adopted the same idea of linking industry certifications with certain programmes. This combination of public and private has been quite successful. Bringing industry certifications to the level of both public and private e-Learning environments provides the best for the learner and increases the credibility of a programme in the eyes of industry.

In criticism of many private vocational educators, focus has not been on life-long learning but learning enough information to pass certification. Much of this information appears on the Internet in the form of *brain dumps*, where students who have taken an

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exam recall and record questions from the exam to help other students successfully complete their certification examination. Clearly this could be a blatant abuse of the word “education.” If more public institutions started offering certification programmes (in co-operation with private industry) as part of a broader scope of education, we would ultimately have a stronger workforce and a better balance of market share.

It is imperative to start forming strategic alliances between the key players in e-Learning standards, which include public, private and industry partners. It is certainly better to establish the standards at the beginning before the situation becomes fragmented.

### **Credit Transfer**

Given the change in the markets noted previously, it is clear that a number of educational paths exist for the learner. One of the fundamental barriers that these learners encounter is the transferability of their credits between institutions and programmes. The concept of *articulation*, a term used mostly in the United States, represents a complete integrated path to the job market. In the Microsoft use, this program begins with elementary school and delivers MOUS (Microsoft Office User Specialist) programmes and parts of the MCSE/MCSD (Microsoft Certified Systems Engineer/Developer) programmes to high school students to steer them in the direction of college or university. These courses would then be credited to the diploma or degree of their choice. This continuum of educational process has been met with resounding success.

Although highly successful, one problem observed in this programme is the potential for high school graduates entering the job market directly, thus diluting the value of IT specialists with further education. Advisory boards have tried to show how the ideal programme would be one that flowed from one level of education to another with internships incorporated directly into it. Although students could enter the job market at any point, there is obviously benefit of remaining in the program for an extended period of time.

In the e-Learning context, continuum of education (with particular attention to IT) and transferability of credits from one layer of education to another provide a seamless way to

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deliver quality programmes to many users countrywide. However, as Farrell (2000) points out, “the transfer of course credits across institutional boundaries remains difficult. This limits optimal utilization of the online courses that are available.” This again highlights the need for partnerships between all levels of education. Standardized e-Learning credits could be transferred between institutions fostering access to a larger student market. This could become quite essential to sustainability of IT education in Canada especially considering “distributed learning is likely to be the educational method of choice for many students.” (Moe, Bailey & Lau, 1999)

### **Lifelong Learning**

“Learning has become a continual process rather than a distinct event.” (Urduan & Weggen, 2000) In our new economy, companies face major challenges in keeping the workforce competent and current. Although many employers would like to help their employees develop further in the educational realm, it is costly in time and money to send employees back to the classroom. In an attempt to retain competitive edge, companies are seeking alternatives to traditional classroom-based teaching to help enhance motivation, performance, collaboration, innovation and commitment to life-long learning (Urduan & Weggen, 2000). Technological change has greatly facilitated the possibility of providing education while a person is actively employed.

Consumers seek life-long learning initiatives in an effort to better themselves and remain competitive. Many embrace the concept of an always-open and always-available mode of furthering their knowledge. The solution apparent is that of e-Learning. It is thought that this style of continuous education leads to higher retention of content through personalized learning. Traditional education has focussed on educational delivery through lectures *en masse*. One-on-one scenarios are more conducive to better understanding and retention, but come at too high a cost. E-Learning can create a one-on-one electronic environment, bringing together the educational practices of content experts with a uniquely individual delivery. This style of asynchronous learning provides more opportunity for critical thinking and reinforcement than in traditional settings.

### **e-Learning Delivery**

A crucial area to consider is the effectiveness of e-Learning. The goal is not to deliver course content as a book online or as a single-track sequence of facts but to provide an interactive and adaptive delivery. With a powerful smart-engine permitted by today's technology, courses may be delivered that are pro-active and modify their presentation to the student's learning style, pace and media preferences. A flexible web-based delivery model enables consumers of varying backgrounds, skill levels, languages or disabilities to receive quality courses that are individually designed to meet their needs. At the same time, a tool for creating courses and for managing the entire system is essential. Enhancements such as competency management and formal exam delivery and mark systems could be added to assist institutions in maintaining a level of standardization.

The design of the underlying architecture of such a delivery system demands careful planning. Besides technology issues and expertise required, good pedagogy has to be incorporated to assure effective delivery. The e-Learning management system should provide the delivering organization with the tools to design curricula and to make selections based on current research methodologies in education. By framing flexible and adaptive delivery of e-Learning in a sound pedagogical environment, its effectiveness can be assured.

There is much room for collaborative efforts in assuring the latest technologies are integrated with the best educational practices.

## Conclusions

While technology is an educational means, not an end” (Farrell, 2000), it is quickly becoming a part of many educational settings Canada-wide. There are a number of barriers and concerns both institutional and personal to the establishment of a consistent and structured online delivery mechanism. While the authors have been cognizant of these, they also realize that no single institution can provide a total solution. It is paramount, therefore, that immediate collaboration between all parties is essential to ensure quality, standards and sustainability of e-Learning in Canada.

This paper has focussed on seven major areas for immediate attention: market change reflecting differences between institutions, key players and the consumer; financial change affecting development and sustainability; strategic alliances between private and public education to establish quality control and credit transfer, thus assuring accountability and responsibility; recognition that today learning is a continual process; and that leveraging today’s technology with solid pedagogy can deliver adaptive courses to a wider audience.

The goals of the private sector may not always be the same as those of the public sector, but their desire to take advantage of the potential of e-Learning is the same. Both must collaborate to take advantage of each other’s strengths and to advance Canada as the leader in e-Learning. Time is crucial and this is a call to action.

*“Form should follow function”*

—Aristotle

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