

EXECUTIVE SUMMARY

Technology and Learning: Embracing Continuous Change

It is remarkable to consider that technologies we take for granted, such as radio and electricity, were once considered to be highly innovative. Like many technological developments, radio (originally called wireless telegraphy) and electricity evolved over decades before they became standard and necessary features of modern life—in factories, businesses and homes.¹ These innovations paved the way for information and communication technologies (ICTs) such as the computer and the internet, which have likewise become a ubiquitous presence in our lives.

ICTs are broadening and redefining the learning landscape in unprecedented ways. Studies suggest that countries that foster ICTs' potential as learning tools are making an investment in their citizens' prosperity and well-being. Societies that fail to take advantage of their potential may well be left behind.

Canada is Well Positioned to Benefit from Learning Technologies

Canada—like other member countries of the Organisation for Economic Co-operation and Development (OECD)—has long recognized the importance of lifelong learning to social and economic development. However, the global economic downturn that commenced in 2008 underscores the need to re-examine how to help Canadians acquire the skills and knowledge required for success over the long term. Global economic uncertainty, rapid technological developments and the growing supply of information highlight the need for a flexible and adaptable workforce that can embrace continuous change.

This report suggests that a flexible approach to education and training is essential to prepare Canadians for the 21st century. This broadened paradigm will involve the full integration of learning technologies into education and training.

Despite the challenges that lie ahead, Canada, more so than most other countries, appears well positioned to reap the benefits of e-learning. Our telecommunications infrastructure, generally regarded as one of the finest in the world, provides a firm foundation for online learning initiatives.² Additionally, our population has widespread access to the internet.³

Indeed, Industry Canada describes Canada as an internationally “acknowledged leader” in the development of ICTs, including wireless technology, biometrics, security technology, software, and multimedia and digital entertainment.⁴ Canada also introduced several innovative firsts such as the world's first personal computer, Javascript and the Blackberry.

Canada has another advantage—one of the most educated populations in the world. According to a 2007 study by the OECD, Canada placed second on an international list of countries comparing overall post-secondary attainment—ahead of Japan, the United States and Australia. The same study showed that in terms of the proportion of citizens having completed university, Canada placed seventh overall—behind top-ranked Norway, Israel and the United States.⁵

Canada's younger generation is primed to exploit the potential of learning technologies. Computers, multimedia programs, chat rooms and other manifestations of the digital age are now common throughout children's developmental years—as almost any parent or educator will attest. Young Canadians use the internet regularly to learn: in fact, a 2006 report suggests that 31% of 15-year-old students in Canada used a computer almost daily to search the internet for information, above the OECD average of 25%.⁶ We need to evaluate how we can best harness the ICT interests of this group—the leaders, parents, and workers of tomorrow.

But...We are Falling Behind Other Countries

Over the last decade, Canada has played a leadership role and gained international recognition in e-learning—in infrastructure deployment, learning methodology, tools and practices, work on accessibility, and research on learning objects and repositories.

Yet, despite this strong foundation, evidence is mounting that Canada is starting to trail behind the efforts of other countries in this very important sector:⁷

- Countries such as Australia, the United Kingdom, France and South Korea are harnessing e-learning's potential contributions to economic and social development. Collaboration across jurisdictions and among public and private agencies and organizations is a hallmark of these countries' e-learning policy frameworks.
- A 2009 survey by the International Telecommunications Union⁸ ranked Canada 19th out of 154 countries in the category of advanced use of ICTs, down from ninth place in 2002. This drop was largely due to gains made in Europe. Sweden ranked first, followed by South Korea, while the remaining eight countries in the top 10 were all from Western Europe.
- In 2008, the Economist Intelligence Unit (EIU), which has been assessing the e-readiness of the world's largest economies since 2001, ranked Canada 12th out of 70 countries. The assessment compares the quality of each country's ICT infrastructure and the ability of its consumers, businesses and governments to use ICTs to their economic and social benefit.

Adoption of e-learning in Canada slower than predicted

In Canada, levels of adoption of e-learning have been significantly slower than anticipated.

While the proportion of courses delivered online in Canada is one of the highest among countries studied, research suggests that Canadian post-secondary institutions have been slower than those in many other countries to incorporate significant online components into their programs.⁹ Key barriers remain, including infrastructure, funding and staffing issues, and resistance by faculty (because of increased workload and intellectual property issues, among others).¹⁰

The growth of e-learning has not significantly altered the way in which Canada's institutions organize or deliver learning. As the OECD reported in 2005, "E-learning [worldwide] has not really revolutionized learning and teaching to date. Far-reaching, novel ways of teaching and learning, facilitated by ICTs, remain nascent or still to be invented."¹¹

Likewise, e-learning has not become a standard feature of employee training. Various surveys show that by 2005, the percentage of workplace training delivered online ranged from 15% to 20%.¹²

Canada does not have a comprehensive plan for e-learning

In 2001, the report of the Advisory Committee on Online Learning (a committee established by the Canadian Ministers for Education, Canada/CMEC and Industry Canada) provided recommendations designed to harness the tremendous potential of ICTs. The report set out an action plan to promote several key goals: significant expansion of e-learning in Canadian post-secondary education, improved economic competitiveness, and sustained health of civil society in this knowledge-intensive era.¹³

Although lifelong learning is a focus of policy discussions, and technology is transforming nearly all aspects of our lives—including education and training—response to the report has been muted at best.

To date, Canada does not have a comprehensive or coherent approach to align e-learning's vast potential with a clearly articulated and informed understanding of what it could or should accomplish. Instead, e-learning in Canada consists of loosely connected provincial, territorial and federal e-learning networks, educational providers (public and private) and targeted initiatives. The consequences of this approach include duplicated efforts, fragmented goals and objectives, and sporadic and short-term initiatives.

Many OECD countries, as well as the European Union, are implementing aggressive national/supranational e-learning strategies to support their policies and programs.¹⁴ Indeed, e-learning strategies and action plans in most countries are government-initiated—through ministries/departments, public funding councils or multi-ministerial committees—and translate into initiatives with significant public funding.¹⁵

A coherent framework to shape e-learning's development—and its relevance to social and economic policy development and implementation—must be premised on certain conditions favourable to learning. Efforts are required in four key areas: generating multi-sectoral momentum; developing a shared vision for e-learning across Canada; harnessing the potential of technology to meet the needs of learners; and filling gaps in research.

Generating momentum: stakeholder collaboration and sharing of resources

ICTs such as the computer and the internet have created a platform for sharing information and educational resources. Canada's e-learning resources and expertise are significant. Despite these obvious advantages, further progress is hindered by a lack of co-ordination and communication among stakeholders.

A wide range of sectors—educational institutions, federal and provincial/territorial governments, and business and community-based organizations and associations—need to collaborate, share resources and consider cost-sharing mechanisms that could create synergies and economies of scale. Clearly, achieving momentum will require strong leadership focused on establishing mechanisms for effective policy and program co-ordination.

A shared vision of e-learning

The concept of collaborative partnerships recognizes that the successful use of ICTs in support of learning does not rest on a simple “build-it-and-they-will-come” approach. A vision forged through collaborative partnerships would bring clarity to our understanding of what e-learning can and should do. Resolving complex issues such as open-source software, open access to research and scholarship, sharing/reducing of costs, investments in research, and appropriate e-learning resources and support can best be achieved if there is a coherent, comprehensive and shared conception of e-learning.

Harness the potential of technology to address the needs of learners

The Advisory Committee on Online Learning identified a need for initiatives to encourage innovation in post-secondary education that would place students at the centre of their learning. Such initiatives would include the creation of more high-quality e-learning materials, and investments in learning research and related product development designed to meet the needs of learners. Additionally, e-learning opportunities should be more accessible for individuals with disabilities. Institutions, the private sector and governments should ensure the appropriate adaptation of technology and associated resources to meet the differing requirements of people with disabilities.

Filling the gaps in research

E-learning holds tremendous promise and potential, yet it remains a largely unexplored field.¹⁶ There is a lack of Canadian data related to e-learning—in particular, relevant empirical and longitudinal research on e-learning¹⁷ that would shed light on the effectiveness of current Canadian e-learning initiatives.¹⁸

The research findings that do exist offer a variety of opinions and conclusions. Some research demonstrates the positive impact of technology on student learning. However, other research strongly suggests that there is little evidence, if any, to support the claim that the use of technology in learning justifies the resources it requires, such as computers, software and special training.¹⁹

We need to know more about e-learning in Canada if we are to build a common framework for its advancement. Numerous authors have identified the need for data that provide better understanding of how e-learning is used and implemented in Canada and on issues such as access, quality, cost and outcomes.

Moreover, a stronger understanding of learning—both traditional and online—would help to ensure that the highest quality of learning experience is available. Evidence-informed research will help us understand how to harness the full potential of ICTs and how e-learning experiences and outcomes can differ and complement traditional learning approaches.²⁰

Research has identified the need for an e-learning data clearinghouse that would monitor trends, collect good-quality evidence on promising practices, and create awareness and build capacity among stakeholders. This entity would contribute to greater understanding of e-learning's impact on the development of essential competencies and skills.

Final Observations

Lifelong learning is our greatest safeguard against an uncertain future. Clearly, ICTs have the potential to broaden the scope of lifelong learning. By advancing new learning technologies, Canada can maximize its human capital and help foster a dynamic learning society prepared to meet the challenges ahead.

Each new technological era entails a period of adjustment and new ways of thinking, but the potential benefits are well worth the effort and commitment required to secure Canada's future prosperity.

Endnotes

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