

Online Learning as a Possible Cost Saving Measure: What Canadian Researchers Tell Us

Achieving Economies and Quality

As colleges and universities face increasing challenges around funding and cost-effectiveness, online learning is often brought forward as a possible cost saving measure. At the same time, it is seen as imperative that potential economies maintain or even increase the quality of teaching and learning outcomes, as well as provide enhanced access and flexibility for students. Both these issues have been integrated into the research on the cost and cost-effectiveness of online learning done in Canada.

In order to understand how the question of institutional costs of online learning has been addressed in Canada over the past 15 years, we prepared this compilation of web-available reports, articles, blogs, and case studies from Canadian educators and researchers. Some of the sources relate the experience of private enterprise; these are included when the content has relevance for post-secondary education.

A companion piece, *Five Ways to Reduce Costs with Online Learning*, coming soon to the Ontario Online Learning Portal for Faculty & Instructors, looks at experiences, largely in the U.S., that illustrate cost saving or cost effective practices.

Five Recurrent Themes

The research does not provide any definitive answers – instead it stresses the complexity of the issues involved and offers some models, strategies, and considerations to guide an institutional planning and analysis approach. Cost is most often considered as a factor among many others, rather than as the sole subject of the research or analysis.

The recurring themes of the reports, articles, blogs and case studies reviewed include:

- Possibilities exist for increased revenue through offering specific services linked to online learning.
- Cost-effective implementation of online learning requires new thinking about, not only financial systems and measurements, but also about approaches to the development and management of teaching and learning. Measures of the costs of classroom delivery are necessary for any comparison of models.
- Separating the factors in the online teaching/learning process and re-designing each one for maximum effectiveness offers possibilities for cost savings and efficiencies. This effectiveness can also be applied to courses and services delivered on campus.
- Any consideration of cost-effectiveness or savings inevitably links back to concerns for quality as the development and delivery of well designed online learning can involve considerable investment. Cost implications are more likely to be linked to increased productivity than direct savings.

- Inter-institutional, provincial, and/or pan-Canadian cooperation and collaboration are necessary to address issues of cost and of resource and service duplication, as well as achieve critical mass.

Scarcity of Research Directly Related to Cost and Cost Effectiveness

Many of the resources reviewed highlight the scarcity of research directly related to cost and cost effectiveness, also pointing out that comparable information is also lacking for on-campus courses. The situation in Canada may be said to reflect that in the U.S. where a recent look at the literature on the costs of online learning from **The Future of State Universities** concluded that: "As online learning grows and becomes more systemic, studies aimed at determining its economic benefits are perhaps the most promising new area of research." Despite the existence of a number of useful reports, much more remains to be discovered and shared.

What the Research Tells Us

Abrami, P. et al. (2006). A Review of E-Learning in Canada: A Rough Sketch of the Evidence, Gaps and Promising Directions. Montreal: Centre for the Study of Learning and Performance, Concordia University. Retrieved January 4, 2013 from <http://www.ccl-cca.ca/pdfs/StateOfField/SFRElearningConcordiaApr06.pdf>

The review analyzed 726 sources and documents on the outcomes and impacts of online learning, with a particular focus on Canada from 2000 on. Although 100 documents on costs were included, very few provided quantitative information.

Under the heading Limitations and Future Directions, the paper concludes that: "The biggest unanswered question for policy makers and practitioners concerns whether e-learning is worth the cost. But the fascinating and largely unanswered question concerns the emphasis which is placed on deployment, attendant costs, and what one might take away, or not add, given the expense of an e-learning curriculum. While in distance learning environments this may be less of an issue since technology is a requirement of operation, in face-to-face and hybrid/blended learning situations many policy makers struggle with decisions regarding the choices between innovative pedagogy and innovative technology. We don't have firm answers for them yet."

Advisory Committee for Online Learning. (2001). The E-Learning E-Volution in Colleges and Universities: A Pan-Canadian Challenge. Ottawa, Industry Canada and the Council of Ministers of Education, Canada. Retrieved January 17, 2013 from <http://www.cmec.ca/Publications/Lists/Publications/Attachments/19/evolution.en.pdf>

The Advisory Committee for Online Learning was created by the Council of Ministers of Education, Canada Consortium on Public Expectations for Postsecondary Education and Industry Canada to provide advice on the optimization of online learning opportunities and on the investments required to build a world-class Canadian presence in online learning.

Considerations of cost are integrated into chapters on opportunities and challenges, quality, accessibility and flexibility, and creating synergy and critical mass, as well as the outline of a framework for action.

The centrality of costs and cost-effectiveness is evident in the conclusions: "The large investments required to mount high-quality online learning programs are prohibitive for institutions on their own. Yet real obstacles exist to sharing these costs through cooperation — such as the competitiveness among institutions created by funding formulae, multiple educational jurisdictions and the fragmented Canadian marketplace. ... High-quality online post-secondary learning will only become available to Canadian learners if new forms of collaboration emerge to create synergies and greater critical mass within the Canadian post-secondary community. Finally, in developing an implementation plan, institutions should consider entering into partnerships, strategic alliances and/or consortia to improve their competitiveness and share the considerable up-front costs of implementing online learning."

Anderson, T. and McGreal, R. (2012). Disruptive Pedagogies and Technologies in Universities, Education, Technology, and Society, 15(4), 380-389. Retrieved January 4, 2013 from http://www.ifets.info/journals/15_4/32.pdf

The paper presents arguments for public institutions following the lead of other mainstream service providers in the development of low cost or so-called 'no frills' services. The authors examine the core education services of post-secondary institutions and show "existing and emergent services that could be unbundled, eliminated and/or outsourced to collaborative partnerships or to more effective private or public service providers. We are not arguing that there is as yet any single best solution for such unbundling, but rather that institutions should look both strategically and critically at all components of their development, delivery and accreditation systems and decide which should remain in-house and which are either not core business or which cannot be provided cost-effectively."

The conclusion states: "We think there is opportunity (and accompanying challenge) for educational institutions to be early adopters of low cost and no-frills models to avoid the ongoing spiral of increased costs coupled with decreased government funding and increasing student resistance and incapacity to pay high tuition fees. To make such a transition challenges many of the traditional ideals and systems of higher education institutions based on pre-net ideals and technologies. But the alternatives are also not without risk. Many will fail to adapt and go out of business; some may continue serving an elite that can afford the high costs."

Bartolic-Zlomislic, S. and Bates, A.W. (1999). Investing in On-line Learning: Potential Benefits and Limitations. Canadian Journal of Communications, 24(3). Retrieved January 8, 2013 from <http://www.cjc-online.ca/index.php/journal/article/view/1111/1017>

The University of British Columbia's Department of Distance Education & Technology conducted a two-year study entitled "Developing and Applying a Cost-Benefit Model for Assessing TeleLearning" which was federally funded by the Canadian TeleLearning Networks of Centres of Excellence. This paper uses the results of three case studies undertaken as part of this research to "attempt to answer the question of why institutions around the world are investing so much in on-line learning, and whether the investment is justified."

A detailed analysis of the costs, benefits, and limitations evidenced in the case studies leads to the conclusion that: "The economics of on-line courses are complex, fascinating, and not transparent. Under the right conditions, on-line learning can be cost-effective and actually bring in net profits for an educational institution. This requires quite a different approach to the development and management of teaching. It requires financial systems and financial management that, frankly, few higher education institutions have in place or are even ready to contemplate. For instance, it requires up-front investment, development of business plans, project management, financial and technical support to faculty, allocation of revenues to those units that take the risk and do the work, and professionalism and a team approach to course development and delivery."

"Whether or not on-line learning can be considered successful and worth the investment will largely depend on the values and goals of the organization."

Two of the case studies analyzed for this article are available online:

- **[Assessing the Costs and Benefits of TeleLearning: A Case Study from the Ontario Institute for Studies in Education at the University of Toronto.](#)**
- **[Assessing the Costs and Benefits of TeleLearning: A Case Study from the University of British Columbia.](#)**

Bates, T. (2012). How to Assess the Costs of Online Learning in Post-secondary Education. Retrieved December 30, 2012 from <http://www.contactnorth.ca/tips-tools/how-assess-costs-online-learning-post-secondary-education>

Having decided to increase online learning, most institutions then face questions concerning faculty time, level of investment, extra student fees, and whether this will result in savings. In this article, the response is: "Every case is different, and you need to develop a proper business model based on the unique needs and requirements of your institution, but there is enough experience and research now to be able to provide you a rough guide on what drives the costs of online learning, and how these differ from the costs of face-to-face teaching."

Bates then goes on to outline the factors influencing the costs of online learning and the types of costs, advancing the idea that: "Most of the factors above also apply to the costs of traditional campus-based teaching. Where online learning differs though is that it disaggregates activities that are integrated into traditional teaching (classroom, labs, field work, tutorials, etc.). This allows for some economies of scale under certain circumstances." Possibilities for the reduction of each main cost centre are then proposed.

Bates, T. (2012, August 31). My Summer Paranoia: Computers Will Replace Teachers in Higher Education. Retrieved January 5, 2013 from <http://www.tonybates.ca/2012/08/31/my-summer-paranoia-computers-will-replace-teachers-in-higher-education/>

Shaken by some of the recent initiatives in post-secondary education, Bates considers what teachers can and computers can't do in post-secondary education, concluding that "online learning can improve productivity, but not through automation (and it ain't going to be easy)." He sees four ways that online learning can improve productivity:

- Using online learning rather than building new campuses;
- Use of shared materials, courses, and programs;
- Use of tenured professors for course design, development and monitoring and well-trained adjunct professors for delivery, supplemented by automated marketing; and
- Course designs that move the work away from the instructor to the student.

In a final comment, he cautions: "But there is no silver bullet if we are to get the kinds of graduates we need in a knowledge-based society, and good teachers (as distinct from instructors) will remain critical for success."

Bates, T. (2011, November 18). Is Online Learning a Waste of Space? Retrieved January 5, 2013 from <http://www.tonybates.ca/2011/11/18/is-online-learning-a-waste-of-space/>

In a consideration of the implications of online learning for saving space on campus, Bates stresses that: "In order to make measurable savings or cost reductions in physical facilities and services through a planned move to online learning, the institution would need to build in space saving as a key priority or strategy. Also it means not looking at campus planning in isolation from plans for online learning."

Bates, T. (2011, March 22). The Cost of Online Learning: \$12.50 an Hour? Retrieved January 5, 2013 from <http://www.tonybates.ca/2011/03/22/the-cost-of-online-learning-12-50-an-hour/>

By tracking all the costs for a fully online master's program at a research university in Canada, Bates arrived at a course cost of \$12.50 an hour per student with all costs considered and suggests that, within plus or minus 20%, this figure can be applied to most fully online courses as they are presently designed. The article outlines the cost categories, including the calculation of faculty costs and study hours, and provides a comparison to an undergraduate course and suggestions on cost reduction.

The conclusion issues an invitation to those who disagree with his model: "Good: then come up with a better way of looking at the cost issue. We do need more open discussion about the costs of not just online learning, but all teaching in universities and colleges. It is lazy and unjust to merely keep increasing tuition fees rather than looking at new ways of developing and delivering programs that can reduce costs without jeopardizing the quality of teaching. This is particularly incumbent on those of us who believe in online learning."

Bates, T. (2010, October 25). Open Content and the Costs of Online Learning. Retrieved January 5, 2013 from <http://www.tonybates.ca/2010/10/25/open-content-and-the-costs-of-online-learning/>

This blog post presents the original analysis of the cost of the fully online master's program outlined above, looking at how the costs are spread over seven years. The analysis "shows that delivery costs constitute an even greater proportion after seven years ... and ... overheads and administrative costs, which with planning total 42% of all costs over seven years, don't decrease in subsequent years."

Among the points, Bates draws from this analysis are:

- "Open content is not going to lead to major cost savings in online learning"; and
- "What universities and colleges are really supplying with online learning is not content but service."

Belshaw, J.D. (2012). 2012 Alberta-British Columbia Managing Online Learning Survey. Executive Summary prepared for BCcampus and eCampusAlberta. Retrieved January 8, 2013 from <http://www.bccampus.ca/study-shows-online-learning-crucial-to-strategic-planning-in-higher-education/>

Eighteen post-secondary institutions in Alberta and British Columbia responded to a survey concerning their plans and activities in online learning, with all of them indicating that "online learning figures prominently in institutional long-term strategies."

"Overall, institutions are drawn to online education as a way to better student opportunities and to enhance the education experience. Significantly less than a third view online as a means of achieving economies even though almost all identify it as a means to improving revenues." Profitability was highlighted as one of the key issues facing online learning over the next three years.

The BCcampus web site states that a more comprehensive presentation of the results is forthcoming shortly.

Canadian Council on Learning. (n.d.). What are the Costs and Benefits of Using Delivery Mechanisms such as On-Line Learning to Improve Access to Post-Secondary Education? Retrieved January 3, 2013 from http://www.ccl-cca.ca/pdfs/QuestionScans/QuestionScan8_EN.pdf

This paper is one of a series of Question Scans done by the Canadian Council on Learning to explore the volume of literature in a field and summarize the predominant observations. The review provides over 100 pages of annotated entries focused on the financial and social costs and benefits of online learning, as well as video- and telecommunications and interactive television. Seventy-seven articles were found that related to financial costs. Looking at the focal points of the research on costs revealed:

- "Government reports focusing specifically on the financial costs and benefits of investing in on-line learning are particularly relevant sources of information. These reports examine how factors such as capital and recurrent costs, production and delivery costs, budget cuts, and funding affect distance learning."
- "The literature also consists of a large number of editorials advancing authors' perspectives and suggestions regarding distance education, and addressing themes of quality/evaluation and accreditation, enhanced public access, organization and governance, partnerships, and state and federal financial support. Most articles here do not focus chiefly on financial costs and barriers, mentioning them only briefly to emphasize the author's perspectives."
- Qualitative studies describe "effectiveness and cost considerations of distance education in a variety of locations."
- Quantitative work "examines both costs and benefits and the overall effectiveness of on-line learning."

The conclusion of the study was that: "Overall, however, both quantitative and qualitative work addressing the financial costs and benefits, as opposed to the social costs and benefits, is slim."

Canadian Council on Learning. (2009). State of E-Learning in Canada. Retrieved from http://www.ccl-cca.ca/pdfs/E-learning/E-Learning_Report_FINAL-E.PDF

The objective of this report is “to improve Canadians’ understanding of e-learning—particularly of the challenges, limitations and benefits—so that Canada may move forward in appropriate and relevant ways.” The state of e-learning in Canada is characterized as well-positioned but falling behind in relation to other countries due to slow adoption and the lack of a comprehensive plan. To address this, the recommendations include development of a shared vision, stakeholder collaboration, sharing of resources, accelerated use of technology, and enhanced research.

The analysis of cost effectiveness is based on return on investment for online learning in business, suggesting that “intangible costs must be factored into calculations of costs. Development of customized programs or content can be very efficient, but also expensive and time-consuming. There are also costs for maintaining the learning management system including licensing, monitoring and upgrading. Clearly, cost savings are not a guarantee of e-learning’s quality or effectiveness.”

Using the Kirkpatrick-Phillips evaluation methodology, a matrix for evaluation of e-learning’s return on investment is outlined.

Canadian Virtual University. (2012). Online University Education in Canada: Challenges and Opportunities. Retrieved January 3, 2013 from <http://www.cvu-uvc.ca/Online%20University%20Education%20%20jan17%202012.pdf>

This report seeks to provide a better understanding of the impact and potential of online Canadian university education, examining impacts, innovations, effectiveness, adoption, cost-benefits, business models, and barriers to its expansion.

The section on cost effectiveness looks at the limitations for economies of scale in online learning imposed by the provincial structure of education so that “provinces and universities invest separately in up-front course development, content, supports, ICT, and other costs.” The lack of a national strategy limits “interprovincial solutions to achieve efficiencies, leverage existing resources, pool course development allocations, settle funding for virtual out-of-province enrolments, improve learning outcomes and graduation rates, and – critically – duplicating taxpayer investments in a time of public service retraction.”

Many of the barriers to ongoing success for online university education in Canada are linked to cost in terms of lack of efficiencies, economies of scale, strategy, critical mass, strategic investment, and other factors. The final recommendation is the development of a national e-learning strategy based upon university collaboration.

Carpenter, G. (2010). E-Learning in the Canadian Post-Secondary Education System. Prepared for the Ontario Undergraduate Student Association. Retrieved January 9, 2013 from <http://www.ousa.ca/dev/wp-content/uploads/2010/06/E-Learning.pdf>

"Using OUSA's (Ontario Undergraduate Student Association) four pillars for the post-secondary education system of affordability, accessibility, accountability, and quality, this research paper evaluates e-learning by its progress and potential, and e-learning enhancement strategies are suggested for the successful implementation of e-learning technologies in Canadian post-secondary institutions."

"A review of both the cost saving and cost inducing reasons for e-learning suggests that rather than an outright gain or loss in funds for the school administration, e-learning technologies represent a change in the cost structure. In particular, there is a change towards up-front costs as large amounts of IT infrastructure must be established, while the operating costs depend on whether e-learning technologies are supplementary to, or a replacement of, traditional classroom learning."

Conference Board of Canada. (2003). E-Learning for the Workplace: Creating Canada's Lifelong Learners. Retrieved January 7, 2013 from <http://www.conferenceboard.ca/temp/87710009-9ef6-4718-9db6-b4fa6958b39f/326-01df.pdf>

Although written for corporate Canada, the report has considerable resonance with post-secondary education, as evidenced in its introduction: "E-learning can be viewed as a means of delivering three key outcomes: improved and consistent rates of lifelong learning, improved productivity and improved innovation and competitiveness. Another desired outcome is increased equity. The issue of equity raises questions that need to be addressed now. Do Canadians currently have access to these learning technologies? Is access to e-learning equally distributed by income, age and educational levels? And are barriers to e-learning such as cost and lack of information, time and content being addressed? E-learning, like all learning, should yield outcomes that benefit society and the economy."

The issues of cost as a challenge, and cost-effectiveness as a goal, are woven throughout the report. A model for an e-learning planning process integrates stages for planning, building, integrating, and improvement, in addition to addressing financial issues, cost-saving strategies, and key questions such as whether to build or buy.

Crocker, R. (2007). Distance Learning: Access and Outcomes. St. John's, NL, Killick Centre for E-Learning Research, Memorial University. Retrieved January 9, 2013 from http://www.mun.ca/killick/documents/TrendsReport_Draft2.pdf

The paper concludes with some preliminary comments on costs of online learning, raising questions about student access, revenue generation, and ongoing costs for supporting the necessary infrastructure in terms of technology and staff.

Downes, Stephen. (1998). The Economics of Online Learning in The Future of Online Learning. Retrieved January 6, 2013 from <http://www.downes.ca/future/index.htm>

Downes offers a series of predictions that still resonate today, concluding with: "The Bottom Line for educational institutions is this: even though savings will not be as great as anticipated, it will be necessary for institutions to offer their courses online - and sooner, rather than later - because the costs of not doing so are too great."

His description of the environment of 1998 has many similarities to the current reality: "Two different schools of thought dominate discussion on the economics of online learning. On the one hand, there is the hope that online learning will reduce costs by increasing the number of students an instructor can manage. This would be accomplished by such means as auto-marking and automatized record keeping. Additionally, in this view, online learning would eliminate the need for expensive classrooms and infrastructure."

"On the other hand, there is the empirical data, which suggests that online learning is more labour intensive than traditional classroom learning, which drives costs up. Online students typically interact to a much greater degree than traditional students, and they tend to expect more detailed and individualized comments. Additionally, the cost of developing online courses is high; it is not uncommon to see course development costs in the range of \$50,000 to \$100,000."

"These appear to be contradictory trends, however, the resolution of that contradiction may be found in the following observations: first, while online learning will be more expensive in the short term, it will be cheaper in the long term, and second, while educational institutions will realize some savings by offering courses online, the greater share of the saving will be realized by students."

Eloumi, Fathi. (2004). Value Chain Analysis: A Strategic Approach to Online Learning. In: Anderson, T. and Elloumi, F. (eds.). Theory and Practice of Online Learning. p. 61-92. Retrieved January 12, 2012 from http://cde.athabasca.ca/online_book/pdf/TPOL_book.pdf

The value chain framework, as outlined and demonstrated in this chapter, “allows online learning organizations to break down the chain—from basic infrastructure and support, to content development, to student support and service—into strategically relevant activities to understand the behavior of costs and the sources of differentiation.”

Dr. Elloumi uses Athabasca University to provide an example of an online learning university value chain and illustrate how value chain analysis can improve the management of the university. The applicability of the information is not limited to fully online universities.

The conclusion highlights the role of a value chain analysis in good governance: “A not-for-profit organization must continually prove that it is serving specific public needs identified in its mission statement. The organization must also develop its various resources, and use them effectively and efficiently, and demonstrate its ability to manage its operating systems successfully by delivering a quality service to the public served. The value chain analysis is a useful framework to facilitate these requirements.”

Garcia, L. and Albert, S. (2011). Online Education – Academic Considerations. Toronto: Council of Ontario Universities. Retrieved January 5, 2013 from http://cou.on.ca/publications/academic-colleague-papers/pdfs/online-learning-disussion-paper_final-may-5

A consideration of diverse factors in online learning, such as quality, students, professors, and operational concerns presents some insights into how concepts of cost and potential profit have had an impact on institutional decision-making. For example, looking at experiences at the Universities of Illinois, Texas, and Massachusetts reveals that: “In each of these cases the idea that online courses will generate revenue is revealed as a myth” and that “Online education is great, but it is an additional way of offering instruction rather than a profit-making alternative.”

Cost sharing and a minimization of duplication are recommended as strategies for the reduction of development costs. Optimal approaches for government investment to promote and enhance online learning are outlined.

Pannekoek, F. (2008). Best First Year Online: An Open Courseware Alternative. Retrieved January 6, 2013 from <http://president.athabascau.ca/documents/BestFirstYear.pdf>

In an examination of pedagogies and technologies to improve the success of students, especially those in the “net generation,” Pannekoek considers the potential of open courseware and open access environments. Based on a review of the experiences and challenges to date, he outlines an option: “This new open courseware option would consist of a digital repository of the world’s best courses for a generic first-year university program: the World’s Best First Year. The courses would all be made available online—fully accessible, totally free, completely adaptable, always changing and, to ensure intellectual excellence, peer reviewed. They would represent the best pedagogy in combination with the best available content. Most importantly, this set of courses would include the universally difficult courses, those with the highest failure rates.”

He then outlines the 10 key issues to be resolved to create the World’s Best First Year open courseware, including subjects, cultures, mode of delivery, student outcomes, and sustainability. The final issue, business models, addresses how the project will “ensure that member institutions are not only kept fiscally whole but flourish as a result of the project.” Possible revenue sources are then explored.

York University e-Learning Working Group. (2010). E-Learning Business Case for York University. Retrieved January 9, 2013 from <http://irlt.yorku.ca/reports/E-learningcasefinalversion.pdf>

This report, following on a policy-centred White Paper, sets out the Working Group’s recommendations for implementing an e-learning strategy at York University in Toronto that will improve student accessibility, engagement, and learning, as well as provide a strategic response for managing the enrolment pressures facing York.

Based on a literature review and policy analysis, “the Working Group advocates a strong and focused effort at growing the number of course and program offerings in the blended format.”

“For modeling purposes, the Working Group chose to estimate the revenue and costs associated with an ambitious plan to increase the number of online courses at the rate of 100 courses per year for five years with each course having an enrolment of 100 students.” In a detailed analysis of costs, particular attention is paid to the major cost centres of technical support, technological infrastructure, faculty training, and course development. Estimated revenues are also projected.

No “yes” or “no” answer

This look at the literature of costs and cost-effectiveness of online learning in Canada is not exhaustive; as one of its limitations, it includes only material that is readily available on the web.

While the scarcity of research addressing cost issues is cited in a number of the studies, the field is by no means barren. The sources listed above provide models for organizing and analyzing the costs associated with online learning, outline the major challenges in trying to look at costs in isolation, and describe policy and organizational approaches for thinking about the cost of online learning within a broader framework of institutional planning.

The consensus seems to be that no amount of research will ever result in a ‘yes’ or ‘no’ answer to the question of whether or not online learning saves money while maintaining quality. Instead, strategies for potential cost effectiveness and for assessing costs and aligning them with institutional priorities are offered.