REPORT OF THE E-LEARNING WORKING GROUP

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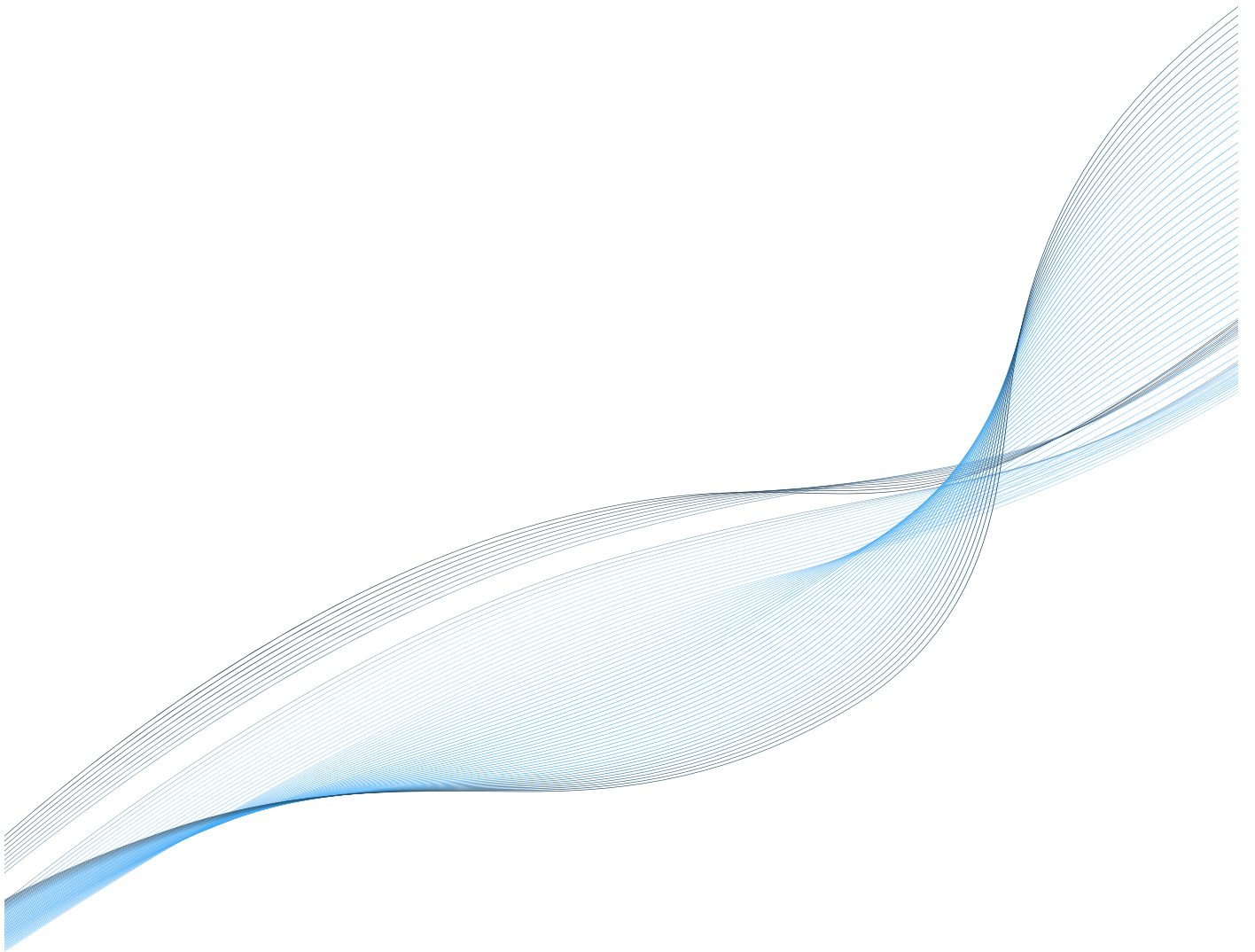**Lee-Anne Ufholz**, Director (Health Sciences), University of Ottawa Library

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EXECUTIVE SUMMARY

BACKGROUND ON THE E-LEARNING WORKING GROUP

In the summer of 2012, the Administration Committee proposed and agreed to the creation of a working group whose mandate would be to set recommendations on online teaching and learning based on the University's particular situation. The Working Group on E-Learning was created in the fall and started meeting in November 2012.

The E-Learning Working Group met twice a month and heard the views of different people. It also undertook detailed research to learn about the benefits of e-learning and blended learning and reviewed what other institutions are doing on e-learning.

TRENDS

Education is undergoing a dramatic transformation. The concept of e-learning is rapidly becoming an established part of the fabric of higher education and already permeates the consciousness of government. The Government of Ontario has made it clear that it wants higher education institutions to expand on e-learning courses and opportunities and Ontario universities have started to act. In effect, they are seeing e-learning as a key factor in enhancing their competitive advantage. An analysis of the strategic mandate agreements (SMA) that were submitted by Ontario universities last year found that the Ontario post-secondary sector is already signalling

a commitment to change and adapt to the times, new technology and methodologies, the needs of Ontario residents, and the competition.

Technology plays a powerful role in the life of today's students and institutions can no longer meet their needs through classroom-based traditional instruction alone. Higher education students are already active learners and a lecture-based learning format is not enough to meet their expectations for a flexible and dynamic experience that allows them to develop knowledge for themselves. Employers are also expecting graduates to have skills that are more often acquired from informal learning experiences that are increasingly being provided by online learning environments.

Student expectations are leading higher education toward the use of blended learning, a learning model that blends online and in-class learning. This approach has been found to be beneficial for students and universities. It delivers a flexible and dynamic experience that supports student learning by engaging them inside and outside the classroom and by allowing them to learn at their own pace. Meanwhile, institutions are seeing the benefits as well: retention rates increase, recruitment efforts improve and early evidence suggests that the use of this approach can improve grades.

MAIN RECOMMENDATIONS

The E-Learning Working Group recommends that the University of Ottawa adopts blended learning at large scale. It also recommends continuing to support the offering of online programs and the online development of specific high enrolment courses.

The E-Learning Working Group does not recommend the development of a number of Massive Open Online Courses (MOOCs) in the short term. However, after having undertaken further analysis and doing a feasibility study, it recommends considering strategically developing a "flag-ship" MOOC, preferably in French.

In order to implement blended learning at the University, the E-Learning Working Group recommends the enhancement of existing University-wide professional development programs and web-based resources, and more specifically recommends investing $315,000 each year up to year 2020 in the development and implementation of the Blended Support and Training Program. The University should also launch a promotional campaign to all faculties and departments that stresses the benefits of blended learning and create a championing program that encourages teaching innovation.

The E-Learning Working Group found important the creation of an organization or structure to coordinate, disseminate, and where appropriate lead, future e-learning initiatives for the University. A new E-Learning Advisory Committee would be responsible for the governance related to e-learning activities and programs from a strategic perspective, and would work closely with the Teaching and Learning Support Service (TLSS), which would be responsible for all logistical aspects of online and distance education.

CONCLUSION

As stated in our Strategic Plan, Destination 20/20, and in the strategic mandate agreement (SMA) submitted to the Ontario Government last fall, the vision of the University is to offer an unparalleled university experience through outstanding teaching and research, and to make the University of Ottawa one of the great universities of our time. The University wants to ensure that students benefit from the best ways of teaching and learning, and it is determined to put to use the most recent technology and the opportunities it offers to innovate in the fulfillment of its mandate. In that context, the University plans to include technology-assisted learning facilities in the new Learning Centre whose opening is expected by 2016.

Blended learning combines the best of online and face-to-face instruction to enhance the learning experience, improve outcomes and increase access in a cost-effective way. The E-Learning Working Group found that this approach can support the achievement of key University objectives in e-learning:

→ To enhance the teaching and learning experience

→ To foster a more stimulating and dynamic teaching, learning and researching environment

→ To better connect with and engage students

→ To connect students, academics and ideas

→ To prepare students for the future

→ To increase flexibility and access to learning opportunities for students

→ To promote and increase availability of French-language online programming

The introduction of technology into the classroom might present several challenges and obstacles to overcome. Chief among these is that adoption of any new technology – no matter how transparent or easy to use it may be – requires changed behaviours. Successfully deploying blended learning (or e-learning in general) will take work. It will require inter-departmental and inter-functional area cooperation, combined with openness to technology and appreciation of new pedagogical approaches. A new E-Learning Advisory Committee would work to engage faculties and departments, promote the benefits of e-learning and blended learning, and help professors to lead in the development of pedagogical innovation.
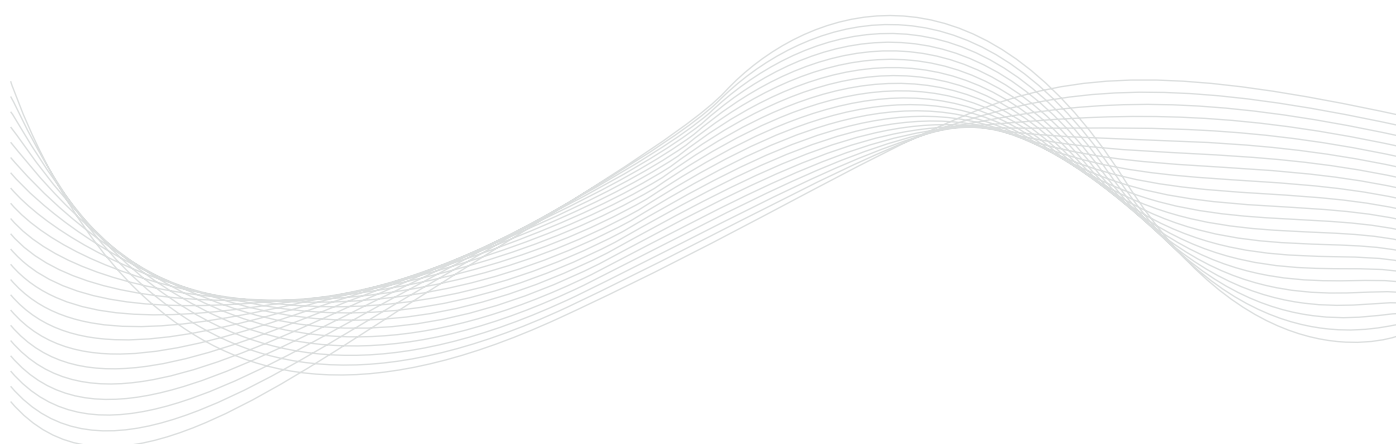
REPORT OF THE E-LEARNING WORKING GROUP

1. Context

The concept of e-learning is rapidly becoming an established part of the fabric of higher education. It is firmly on the agenda for universities and already permeates the consciousness of government, academic, and institutional decision makers. Colleges and universities are entering a new era where more student learning takes place outside the classroom than within it. Technology mediated teaching and learning is enriched by instructional technologies and online interaction that enables the integration of in-class, distant and blended learning.

KEY TRENDS IN EDUCATION: PROFILE OF TODAY'S LEARNERS

Higher education students are already active learners, using e-books, Web resources, and social media to explore and discover all facets of information in their daily lives. Research shows that a traditional, lecture-based learning format is not enough for students who are accustomed to active learning, either on their own or in small groups. Students increasingly expect a classroom experience that helps them develop knowledge for themselves, not just passively receive one-dimensional information. Students want to be more active in their learning instead of passively listening to lectures. They also expect to meet with discussion groups and project teams and prefer to

do much of their assigned work during class time instead of meeting separately. For certain groups of students, notably part-time mature students accessing continuing professional development – flexible access to learning as made possible by ICT technologies is a core expectation.

Students coming to university (from secondary institutions or other universities) are very likely to have already had experience with e-learning. Graduates will increasingly need to be competent and comfortable working and learning in an online environment. If we fail to provide the means to foster and enhance this kind of learning experience, and support students in their need to properly develop and hone such skills, we will fail to adequately prepare them for the demands of the modern world.

New skills and competencies are required in today's society and the University plays an important role in developing them. In effect, as Tony Bates states, one of the core competencies now required in nearly all subject domains, and more specifically in different occupations and professions, is embedded digital literacy. This is the ability to use information and communications technologies in ways that are specific to a particular knowledge or occupational domain[1].

Workers in knowledge based companies are expected to have 21st century skills[2]:

→ good communication skills

→ independent learning

→ ethics/responsibility

→ teamwork

→ flexibility

→ thinking skills / critical literacies[3]

→ knowledge navigation

→ IT skills embedded in subject area

The workforce demands skills from college graduates that are more often acquired from informal learning experiences rather than what simply takes place in the university itself. Informal learning generally refers to any learning that takes place outside of a formal school setting, but a more practical definition may be learning that is self-directed and aligned with the students' own personal learning goals. Employers have specific expectations for new hires, including communication and critical thinking skills — talents that are often acquired or enhanced through informal learning. Online learning environments are trying to leverage both formal and informal learning experiences by giving students traditional assignments, such as textbook readings and paper writing, in addition to allowing for more open-ended, unstructured time where they are encouraged to experiment, play, and explore topics based on their own motivations. This type of learning will become increasingly important in learning environments of all kinds.

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[1] Tony Bates and Albert Sangrà, *Managing Technology in Higher Education: Strategies for Transforming Teaching and Learning* (2011), page 20

[2] Tony Bates, *Designing University Teaching to Meet the Needs of the 21st Century Students* (Presentation at the Collaboration for Online Higher Education Research (COHERE) Conference, October 2012)

[3] Leu, D.J., Kimzer, C.K., Coiro, J.L. et Cammack, D.C., *Toward a Theory of New Literacies: Emerging From the Internet and Other Information and Communication Technologies* (2004)

The role of educators continues to change due to the vast resources that are accessible to students via the Internet. Institutions are now faced with a critical shift as students engage in more formal and informal learning outside of the classroom, and they are using always connected devices to surf the web, download apps, and read articles, chat with their friends, take photos, download music, work on projects, share data of all kinds, and so on. Educating learners to be critical thinkers and to decipher credible resources and aggregate content has become imperative, and there seems to be an increasing need for university educators to fulfill the position of educational guide. The recent emergence of Massive Open Online Courses (MOOCs), the growth of the Open Content Movement, and the increasing numbers of free online seminars and learning modules, to name only a few avenues of learning, also raises the question as to who we now consider experts. Part of the emerging roles of educators is to provide mentorship support to students which includes connecting students with the most effective resources and tools to best navigate their areas of study.

Education approaches are shifting to include online learning, hybrid learning, and various collaborative, synchronous and asynchronous learning environments. Students already spend much of their free time on the Internet, learning and exchanging new information — often via their social networks. Institutions that embrace face-to-face/online hybrid learning models have the potential to leverage the online skills learners have already developed independent of academia. Online learning environments can offer different affordances than physical campuses, including opportunities for increased collaboration while equipping students with stronger digital skills. Hybrid models, when designed and implemented successfully, enable students to travel to campus for some activities, while using the network for others, taking advantage of the best of both environments.

PROVINCIAL CONTEXT

Ontario has invested heavily in the development of a world-class postsecondary education and training system – it has one of the most intense concentrations of post-secondary institutions in the world. With a foundation of twenty universities and twenty four colleges and a vibrant training sector, Ontario sees post-secondary education as a strategic investment for its future.

The province has invested in significant online learning infrastructure (such initiatives include Contact North| Contact Nord, OntarioLearn, the Ontario Research and Innovation Optical Network (ORION), Ontario Council for University Lifelong Learning (OCULL), and the Independent Learning Centre (ILC)) and Ontario universities are already offering students a robust online learning experience[4]:

→ Ontario currently has approximately 500,000 online course registrations - over twice that of any other Canadian jurisdiction.

→ 18,000 college and university online courses (over 4,700 through the universities; 505 graduate courses offer e-learning options at 13 institutions within the province[5]) and 1,000 fully online programs.

→ The overall number full-time equivalent learners studying online in Ontario was 52,500

→ In the college sector, completion rates for online learning were between 70-79 per cent (median of 76.1 per cent) and for universities between 85 per cent and 95 per cent (median is 89 per cent).

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[4] *Online Learning in Canada: At a Tipping Point*, Contact North (June 2012)

[5] Council of Ontario Universities (http://www.cou.on.ca/policy-advocacy/online; accessed in January 2013)

The Government of Ontario has made it clear that it wants higher education institutions to expand on e-learning courses and opportunities. In the 2010 Throne Speech and Budget it announced that an Online Institute would be established to "bring the best professors from Ontario's postsecondary institutions into the homes of those who want to pursue higher learning."[6]

The Provincial Government, in the recently released discussion paper, *Strengthening Ontario's Centres of Creativity, Innovation and Knowledge*, also included a section regarding online learning as a potential method to increase access for all learners, particularly those who are prevented from attending in-class education as a result of barriers that may be financial, geographic, physical, family-related, or work-related.

In order to maintain Ontario's position as one of the world's leading public post-secondary education systems, and in response to what the Ministry of Training, Colleges and Universities has outlined as a need for increasing capacity, affordability, and access through collaboration, technology, and innovation, for new and flexible approaches to learning and teaching, and for a renewed focus on productivity and sustainability. Each college and university was asked in the summer 2012 to submit a proposed strategic mandate agreement (SMA) comprising a differentiated mandate statement, an institutional vision, and three priority objectives.

The overall picture that emerges from an analysis of the mandate statements that were submitted is that of a post-secondary sector which is signalling a commitment to change and adapt to the times, new technology and methodologies, the needs of Ontario residents, and the competition[7]. Online and hybrid learning seem to have started to expand rapidly on an already extensive base, and perhaps more significantly, online learning is becoming a core function and competency of nearly all public post-secondary institutions in the province. In effect, the analysis of the SMAs shows that online learning is no longer something that exists on the periphery of the organization. On the contrary, a growing number of universities are seeing e-learning as a means to support flexible access to teaching and learning as a key factor in enhancing their competitive advantage in an increasingly active market place. The Appendix section presents a comparative table of online programs and courses at Ontario universities.

Among the 21 universities submitting agreement proposals, 18 specifically mentioned plans for an increase in online and/or blended learning activities. Some examples are:

→ Brock plans a significant expansion of online learning of 90 courses over three years.

→ Ryerson highlighted its intention to develop 120 fully online courses a year for the next five years, and 75 courses for technology-enhanced delivery.

→ Many universities mentioned the use of technology to re-design large first- and second year courses, including Windsor that is looking to transform the experience with the use of online and mobile communications, e-books, and flexible approaches to course organization.

→ York will focus on blended learning, but add to online and technology-enhanced options as well.

→ Waterloo expressed the intent to lead a consortium of regional universities to collaboratively develop online courses and resources.

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[6] *The Ontario Online Institute: Achieving the Transformation*, Council of Ontario Universities (August 2010)

[7] *An Overview of the Strategic Mandate Agreement Proposals Prepared by Ontario's Public Colleges and Universities*, Contact North (2013)

Summary of the Strategic Mandate Agreement Proposals with regards to Online / Blended / Technology-Enhanced Learning at some Ontario Universities

University	Mandate Statement	Online/Blended/ Technology-Enhanced Learning
Carleton	Combine academic and research programs with support services for highest quality experience for students, with commitment to innovation and community engagement	Online and hybrid delivery models and international institutional partnerships for delivery to students around the world.
McMaster	Serves community and society by enabling fulfillment of human potential; creativity and critical thinking; love of learning and inquiry; and undertaking innovative research	Combine online and experiential learning developments
Queen's	Research intensive university with a transformative student learning experience.	
University of Toronto	Ontario's academic flagship, with academic rigor of educational offerings at all levels; innovations in digital education; contributions to Toronto region, Ontario, and Canada; strengths in research and scholarship, graduate and second-entry professional education; and strategic tri-campus differentiation of academic programs.	Explore the potential for offering for-credit foundational Massive Open Online Courses (MOOCs) to U of T students
Waterloo	Offer experience-based education connected with the world beyond the university walls and inspired by the entrepreneurs and visionaries who support the institution, students develop the competence and confidence to take risks and lead change.	Develop a lifelong learning success project to identify success factors in online and blended learning; student assessment of needs; provide development opportunities to address needs. Provide online resources in modular formed to fit gaps in learning outcomes Lead a regional university consortium to develop online courses and resources Lead development of open courseware in Canada
Western	Provide the highest-quality learning environment to help, staff, and faculty achieve their full potential, driving competitiveness and prosperity.	
York	Comprehensive, research intensive institution, with leadership as a fully engaged, socially responsible institution and a defining excellence in liberal arts and professional programs	Focus on blended learning, with online and technology enhanced offerings as well

Source: *An Overview of the Strategic Mandate Agreement Proposals Prepared by Ontario's Public Colleges and Universities*, Contact North (2013)

The Council of Ontario Universities (COU) is also developing its own collaboration which they have called Ontario Universities Online (OUO). OUO will be a consortium and its overarching purpose will be to enable universities to support technology-enabled learning through collaboration. More precisely, it will support participating Ontario universities in their efforts to develop and deliver their own online courses and programs, and support their efforts to improve technology-enable learning. OUO will enable universities to achieve results through collaboration that would not be possible for them acting alone, or that would be more costly for them to do individually. uOttawa has already said that it would like to be involved as an active participant.

Additionally, the Ontario Ministry of Education published an e-Learning Strategy. The Ministry's goal is to make blended learning available for all Ontario students from kindergarten to grade 12 within three years of the September 2011 implementation start date[8]. The changes that are happening at Ontario elementary and secondary schools will impact the postsecondary education sector as the students graduating from there will arrive to colleges and universities with greater expectations when it comes to e-learning (online or blended courses, multimedia, etc.).

DEVELOPMENTS IN E-LEARNING AT CANADIAN UNIVERSITIES

Online learning is expanding across the country at the post-secondary level and new investments are being made to support its continued growth and development, particularly in Ontario and in British Columbia.[9]

Canada has six academic institutions which have a significant, strategic focus on distance education and online learning. These are Royal Roads University (British Columbia), Thompson Rivers University (British Columbia), Athabasca University (Alberta), Memorial University (Newfoundland and Labrador), TÉLUQ (Québec), and Centre collégial de formation à distance (Québec).

Other universities offer some of their programs across Canada using online platforms. These include, but are not limited to[10]:

→ University of British Columbia (British Columbia): has shown considerable leadership in distance and online learning in British Columbia. It offers about 120 courses and several programs, including a Masters of Educational Technology, entirely online.

→ Simon Fraser University (British Columbia): has the largest distance education program in the province with over 12,000 enrolments. Its courses are increasingly delivered online.

→ University of Saskatchewan (Saskatchewan): has a number of online courses, although as yet few full programs are available online. An E-Learning Task force, struck by the Provost and Vice-President Academic, recently recommended significant investments and additional institutional coordination in blended, e-learning, and distributed learning over the coming years.

→ University of Manitoba (Manitoba): offers a Diploma in Instructional Design and has a range of bachelors degrees, including bachelor of social work, bachelor of arts and a bachelor degree in integrated studies, and has started to offer blended courses.

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[8] More information available at: http://www.edu.gov.on.ca/elearning/blend.html (accessed in March 2013)

[9] Online Learning in Canada: At a Tipping Point, Contact North (June 2012)

[10] *Ibid.*

→ Queens University (Ontario): offers an MBA through a combination of in-class activities and online learning and a wide range of distance courses at the undergraduate level.

→ McMaster University (Ontario): is increasing its offerings for online courses and programs.

→ University of Waterloo (Ontario) is expanding the use of blended learning.

→ Université Laval (Québec): offers 450 distance education courses in 80 disciplines, the majority of which are online. It also delivers online programs into Francophone Africa in partnership with the African Virtual University. It has also developed its own Francophone learning management system, called ENA.

→ Dalhousie University (Nova Scotia): operates Dal Online as a portal to study courses and programs online. It offers five Master degrees and two undergraduate degrees, including a Bachelor of Science and a Bachelor of Social Work, online.

→ In Western Canada, according to a baseline survey administered by BCcampus and eCampusAlberta[11], public post-secondary institutions across Alberta and British Columbia are making online learning a crucial piece of their long-term strategies. Nearly 40% of the institutions have developed strategic plans strictly focused on educational technology and online learning. All institutions said that they were motivated principally by a need to improve student access to education and the vast majority view online as key to expanding into non-traditional educational markets and improving student retention. Hybrid/blended use of online tools and techniques is encouraged and endorsed in most universities; two institutions reported that almost every one of their on-campus courses now used a blended approach.

→ In British Columbia, the most significant support for online learning has been the creation of BCcampus in 2002. This is an organization which uses information technology to connect the expertise, programs, and resources of all post-secondary institutions in the province under a collaborative service delivery framework. It also identifies, acquires, develops and implements innovative technologies and services that facilitate system-wide connection points for student services and provides collaborative educational models for faculty and instructors. All post-secondary institutions in British Columbia make extensive use of blended learning.

It is worth mentioning that some institutions, such as the University of British Columbia, the University of Guelph, Memorial University and several universities in Québec, have integrated their faculty development units, learning technology support, and distance education units into a single, integrated faculty and student support unit, called Centres of Teaching, Learning and Technology, or something similar. These are often not just support units for faculty, but centres of innovation and development for online teaching, and provide a critical role in moving innovation from isolated pockets into cross-institutional developments. One example is UBC's course wikis, where more than 100 different courses have 'open' wikis that enable faculty and students, from both within and outside the university, to develop specialist topics or 'nodes of excellence' related to specific courses.[12]

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[11] *2012 Alberta-British Columbia Managing Online Learning Survey*, BCcampus and eCampusAlberta (October 2012)

[12] *Online Learning in Canada: At a Tipping Point*, Contact North (June 2012)

THE UOTTAWA CONTEXT

Our Strategic Plan: Destination 20/20

E-learning technologies with traditional teaching and learning methods can directly support several of the goals and objectives set out in our Strategic Plan, *Destination 20/20*, especially with respect to Goal 1, which is about strengthening every element of the student experience and enriching the learning environment both inside and outside of the classroom:

| Destination 20/20 Objective	Means by which e-learning can support this objective
Goal 1: A rich, inspiring student experience	
1.1 promote the quality of teaching as part of our institutional culture	Raises students' expectations by providing access to better learning technologies
1.3 increase student-professor interaction by supporting and encouraging professors in their diverse roles as educators, advisors, tutors and mentors	Supports diverse range of learning styles
	Facilitates student-centred course design
1.6 ensure that the most effective technologies are used, to support teaching and respond to the diversity of learning styles	Pre & post lecture mass information delivery (e.g. lecture notes)
	Supports large scale discussion fora
1.7 facilitate the career development of professors who want to focus their efforts on teaching innovation and on pedagogical research	Supports self-paced learning
	Supports collaborative learning
	Potential for collaboration with wider community
1.9 enable the creation of social networks and communities of learners	Supports self-assessment and automated methods of assessment & feedback (e.g. Quizzes, Multi-choice; short answer papers)
Goal 3: Francophonie and bilingualism: A competitive advantage that is central to our mission	
3.1 recruit more Francophone students and achieve a better linguistic balance in our student population	Provides time- and geographically- flexible access to course materials
3.8 design an innovative program to help Francophones learn English	Supports diverse range of learning styles
	Facilitates student-centred course design
	Supports large scale discussion fora
Goal 4: Developing leaders through internationalization	
4.1 Welcome a greater number of international students and faculty to our campus	Provides time- and geographically- flexible access to course materials
4.6 Double the number of international graduate students (from 700 to 1,400) and increase the number of international undergraduate students by 50% (from 1,500 to 2,250), for a total of 3,650 international students, or 9% of the entire student body	Supports diverse range of learning styles

uOttawa's Strategic Mandate Agreement (SMA)

As requested by the Ontario Ministry of Training, Colleges and Universities, the University filed in October 2012 its strategic mandate agreement (SMA) proposal. [13]The document features three value-added strategies that highlight the university's distinctness and will mark its growth in the years to come:

→ Objective one: Innovation in teaching and learning: this objective touches on the quality of the students' experience, which is the first Destination 20/20 priority. It focuses on the best ways to teach our students and for them to learn, be it through hands-on education, student mobility, technology-assisted learning or French immersion.

→ Objective two: Secure Ontario's future through training highly qualified people and knowledge transfer: this objective focuses on the University being a major contributor to innovation and investment in the National Capital Region and in Ontario generally.

→ Objective three: Bilingualism and the francophonie: this objective is about the University's commitment to bilingualism and the Francophonie.

Objective one includes a section on technology-assisted learning. It states that the University is determined to put to use the most recent technology and the opportunities it offers to innovate in the fulfillment of our mandate. In particular, it says:

"We have created a Working Group on Technology-Assisted Learning to find ways to produce better learning outcomes, increase productivity, reduce cost, increase revenues and allow us to make different and better use of space. It will also determine how best to make French-language online programming broadly available, answering an unmet need (particularly in Ontario) and putting to use one of our important differentiating advantages. Once the Working Group reports later this academic year, we shall put a full strategy before our Board of Governors for discussion." (Page 5)

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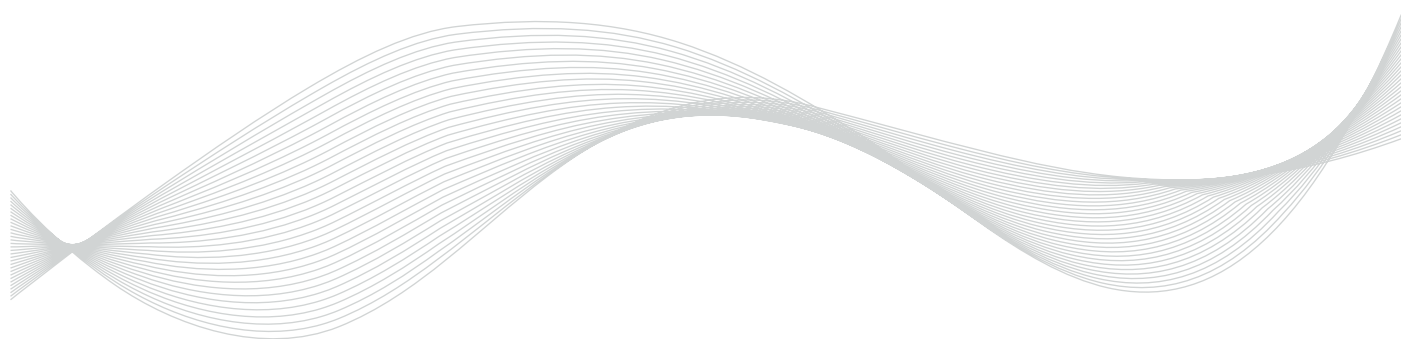
[13]The uOttawa submission to the Government can be found at:
http://www.uottawa.ca/governance/documents/2012/strategic-mandate-agreements.pdf

2. Mandate of the E-Learning Working Group

In the summer of 2012, the Administration Committee proposed and agreed to the creation of a working group whose mandate would be to set recommendations on online teaching and learning based on the University's particular situation. The Working Group on E-Learning was created in the fall and started meeting in November 2012.

Its objective was to answer such questions as:

1. What should be the University of Ottawa's priority objectives using instructional technology?

2. What are some of the instructional technologies to consider and what can they do?

3. Should the University be seeking partnerships in the realm of developing online courses / resources? And if so, what kind of partnerships?

4. Should we consider replacing or supplementing first year mandatory courses with online courses?

5. What are the technology-mediated teaching and learning best practices in the U.S. and Canada?

6. What are, and how can we incorporate, the most effective pedagogical techniques in our current teaching practices? (e.g. Should the University rethink how it teaches students and develop a new economic and learning model?)

7. How can the University take advantage of our strength in bilingualism?

8. Cost – what impact would implementation of an online strategy have on the budget of the University?

9. What guidelines or policy should the University of Ottawa adopt with regards to the use of personal electronic devices in the classroom?

The E-Learning Working Group met twice a month and heard the views of different people. In particular, it learnt about what is being done at uOttawa by the Teaching and Learning Support Service (TLSS) and at the Faculty of Medicine by the Academy for Innovation in Medical Education (AIME) and the University of Ottawa Skills and Simulation Centre (uOSSC). The Working Group also had a phone presentation and discussion with an expert in higher education technology strategies at the research and advisory company, Gartner Inc. In parallel, to complement our findings, University of Ottawa President, Allan Rock, met with Professor Hal Abelson at MIT, to informally get his independent views and perspectives on the possibilities of e-Learning in higher education institutions and in particular at uOttawa.
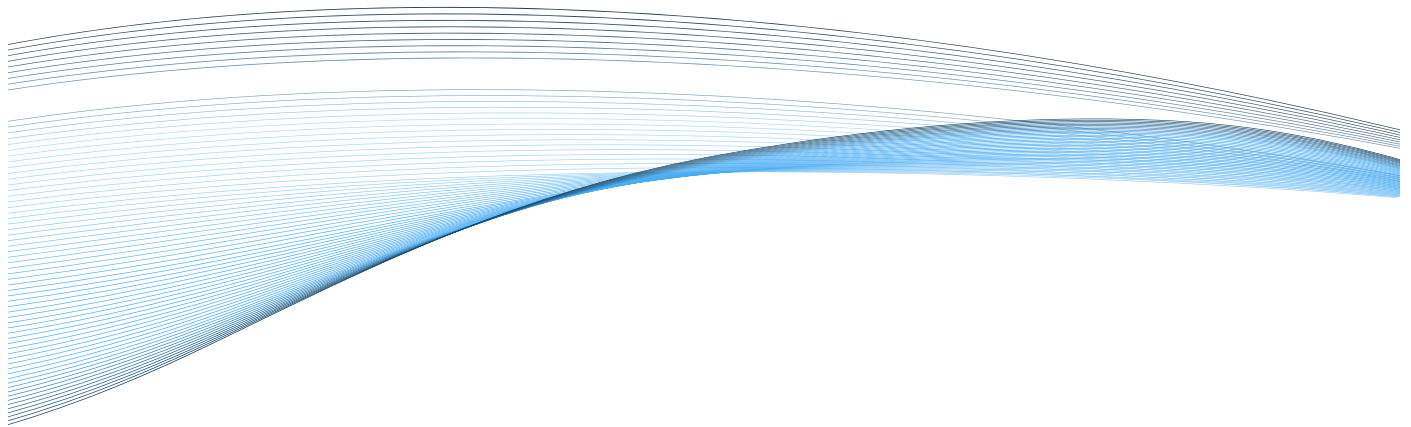
3. Definition of E-Learning and E-Learning at uOttawa

WHAT IS E-LEARNING?

E-learning is a convenient term to cover a range of uses of technology for teaching and learning. To be more precise, according to Tony Bates, e-learning can be better defined as:

"all computer and Internet-based activities that support teaching and learning – both on-campus and at a distance"[14]

The term covers a wide set of applications and processes, including computer-based learning, Web-based learning, virtual classrooms, and digital collaboration. It can also be defined as the delivery of content via all electronic media, including the Internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM. Yet, e-learning is defined more narrowly than distance learning, which would include text-based learning and courses conducted via written correspondence.

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[14] Tony Bates, What is e-learning? (http://www.tonybates.ca/2008/07/07/what-is-e-learning/)

The term also includes administrative as well as academic uses of information and communication technologies that support learning, such as software that provides links between student data bases and teaching, for example, class lists, e-mail addresses, etc.

In contrast, it is worth mentioning that online learning constitutes just one part of technology-based learning and describes learning via Internet, intranet, and extranet.

At a more specific level, the Teaching and Learning Support Service (TLSS) defines online and blended/hybrid courses as follows:

- Online: an asynchronous course, fully online (100%), managed by the professor, sometimes with the support of a teaching assistant. The material is online. Contact with the professor can be by email, chat or via discussion forums or threaded discussions. Online courses are essentially asynchronous with the possibility of synchronous sessions, at the discretion of the professor, who may decide to have "live" contact with his/her students, for office hours for instance, via Skype, Adobe Connect or other synchronous tools.

- Blended/hybrid: Blended learning, or what is also referred to as hybrid learning, is understood as a blending of campus and online educational environments for the expressed purpose of enhancing the quality of the learning experience. In other words, blended learning is the "thoughtful integration of classroom face-to-face (f2f) learning experience with online learning experiences" As such, we can say that blended learning integrates synchronous (f2f) and asynchronous (multimedia, online Internet) learning activities.

In effect e-Learning comes in different forms, ranging from classroom aids to fully online learning:

Modes of delivery: e-learning as a continuum

Figure 1
Different forms of e-learning
(from OECD, 2005 and Bates and Poole, 2003)
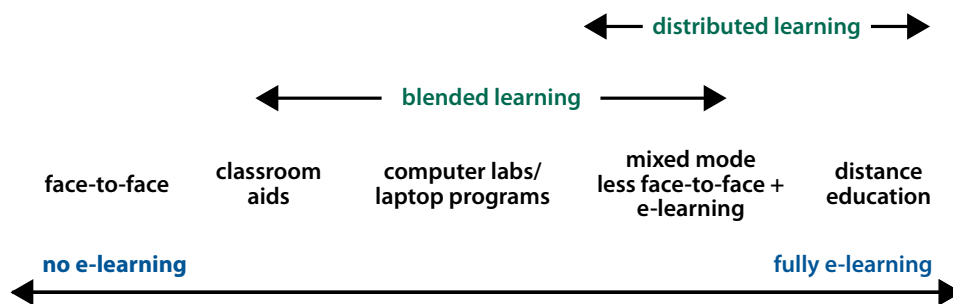
With classroom aids, the teacher controls the computer and the Web is used to supplement lectures or classroom teaching. Students may be given supplementary work to do online after class. With computer labs or lap-top programs, students have access to a computer, but still within a classroom setting. The use of computing is still time and place dependent. In mixed mode, classroom time is reduced but not eliminated. In this blended mode, lecture-based class time can be reduced - meeting once a week instead of twice for instance, with the remaining time taken-up by a range of online learning activities. Such activities may take place synchronously (at a designated time with either other students, and /or the professor) or asynchronously (at whenever the student

wishes) – although, more often than not, the bulk of non-lecture time is made up of asynchronous learning activity. Finally, there is fully online, where students are not required come to campus for a particular course or program. This is a form of distance education.

The following types of individuals benefit from online learning:

- lifelong learners wanting new qualifications/upgrading
- full-time students wanting more flexibility
- students needing 21st century skills
- independent learners
- remote, isolated students

There are many advantages to e-learning when compared to traditional face-to-face courses and lectures. There are a few challenges as well.

Some advantages of e-learning are:

→ Learning becomes more active and dynamic when compared to traditional in-class learning, allowing it to be centered on the students and their learning, instead of focusing on the classroom activities.

→ Access to a vast quantity of resources is possible and at lower cost.

→ Learning can be differentiated pedagogically, it can accommodate different learning styles, allow students to work at their own pace, and facilitate learning through a variety of activities.

→ New tools and social media encourage collaboration between students and the community, without barrier to space and time.

→ Those same tools allow for the development of virtual communities that can persist after the program/course is done, which is an advantage for the Ontario francophone community.

→ IT and the Internet can transform processes and institutions, transforming in consequence the ways

→ of teaching and learning, and opening the door to innovation and new pedagogical theories.

Some challenges are:

→ Professors have to learn to formalize all their courses, decentralizing the teaching and learning from the classrooms: going from activities that were done in class to activities that will be done by students online.

→ Professors need to be trained to use the tools and techniques (just like students), but they also have to be trained on the pedagogical potentials of these tools, by taking themselves online and blended courses.

→ Institutions have to put in place decentralized approaches (i.e. accompany change and innovation without deciding from the top) and work in close collaboration with faculties and departments.

Blended Learning

Student expectations are leading higher education toward the use of blended learning, a learning model that blends online and in-class learning. In effect, respondents to the Center for Digital Education's 2011 Community Colleges Survey indicated the majority of their students enrol in online or blended courses and that more than two-thirds of online courses used some type of online collaboration tools to promote learning[15].

Blended learning, or what is also referred to as hybrid learning, is understood as a blending of campus and online educational experiences for the expressed purpose of enhancing the quality of the learning experience. It can also be defined as:

→ A Thoughtful integration of classroom and face to face (f2f) learning experience with online learning experiences, and

→ An integration of synchronous (f2f) and asynchronous (multi-media, online Internet) online learning activities.

In essence, blended learning combines the support of classroom learning with the flexibility of online learning. A real added value is that it provides a more stimulating and dynamic environment that offers a mix of medium and type of interaction that can solicit different learning styles and are more in sync with the new ways of connecting with the world.

The Flipped Classroom Experience

In the traditional lecture-based teaching, students must be present for every session and classroom time is consumed primarily with the instructor's lecture and a brief Q&A period. Students work on assigned activities outside of the classroom, which often presents scheduling difficulties, especially for students who have part-time or even full-time jobs. In a flipped model, students may be presented with a range of materials pertinent to topic under review. Materials may include lecture notes, power points, video clips or even video clips of the professor going over the most salient points to be covered that week before they arrive in the classroom. When the students arrive in the classroom, they are now ready to engage in discussion with the topic at hand and begin to work on related individual or small-group activity. This flipped approach incorporates an engaged and active face-to-face learning environment, with host of online, asynchronous tools that prepares and enhances students' learning.

E-LEARNING AT UOTTAWA

Since 1999, several e-learning advancements have been made at the University of Ottawa. In 2011-2012, there were already 14 programs offered online (close to two thirds were in French), 289 online and distance courses and more than 4,000 registered students. It is important to note that when compared to other Canadian universities, uOttawa is very well placed in terms of technological capacity but it is behind in the adoption of online learning and the number of online courses and programs is low compared to what other universities offer (the Appendix section presents a comparative table for Winter 2013).

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[15] *The Flipped Classroom, Increasing Instructional Effectiveness in Higher Education with Blended Learning Technology*, Echo360 (2012) (http://echo360.com/sites/default/files/Flipped%20Classroom%20Brief.pdf)

In January 2013, the University migrated to a new Learning Management System, Blackboard Learn 9.1, replacing a previous Blackboard Vista version of this product. New features include:

→ Simplified content management and course editing tools;

→ A streamlined notification system;

→ Embedded multimedia & Web conferencing capabilities;

→ Efficient and consistent grading and assessment tools that deliver results to students instantly;

→ Native collaboration and reflection tools including wikis, blogs, journals and discussions with built in grading and assessment capabilities; and

→ Mobile unit access to online courses

Online education at the University is under the leadership of the Teaching and Learning Support Service (TLSS)[16]. Currently, the Centre for e-Learning broadly produces three types of Web-based pedagogical resources:

→ Specialized Online Learning Resources: The Centre for e-Learning responds to the demand to develop educational materials from the University of Ottawa's faculties, departments, and services in the design and development of various online resources, projects and learning environments.

→ Strategically develops courses fully online: The Centre for e-Learning has also helped in the development of fully online courses and programs (Part-time B.Ed., numerous Nursing courses, to name but a few). Recently, the Centre developed fourteen online high enrolment first year mandatory courses (see Appendix A for the list of courses) that are now being offered across various faculties and departments.

→ Blended learning, courses and programs: The Centre for e-Learning has produced learning resources, for both formal and informal learning environments, in support of lecture-based courses. In January 2013, the Centre commenced working on designing and developing seven blended courses from a variety of disciplines (the Appendix section shows the list of courses being developed). This project, a more formal blended learning design initiative, will thus see seven professors working with the Centre's team to convert their face-to-face/lecture format classes into blended learning courses. This will provide important lessons learned for a strategic scaling-up of blended learning support TLSS can provide to professors.

Additionally, the Centre for Mediated Teaching and Learning (CMTL) offers a videoconference service at more than 14 sites in Ontario and Quebec. On campus, there are 19 rooms, which are used mainly for courses and thesis defences. Furthermore, thanks to the support of the Consortium national de formation en santé (CNFS), CMTL has designed and installed an immersive telepresence room, making the University of Ottawa the second in the country to benefit from such a leading-edge technology conference room. CMTL is also responsible for managing the learning management system (LMS) which hosts almost 4,000 courses and for providing support to professors and students who use the platform (Blackboard), which represents over 60,000 users.

The Faculty of Health Sciences has been one of the early adopters of mediated teaching with its live Internet and videoconference Post-diploma Program in Nursing in the 1980s and 1990s and has, among other programs, developed its Master of Science in Nursing online with blended lecture components.

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[16] The Teaching and Learning Support Service (TLSS), which was created in 1999, has four sectors: the Centre for e-Learning, the Centre for Mediated Teaching and Learning, the Multimedia Distribution Service and the Centre for University Teaching.

The Faculty of Health Science along with the Faculty of Medicine and the Faculty of Social Sciences are partners in the University's involvement with the Consortium National de Formation en Santé (CNFS). The CNFS is a Canada-wide umbrella organization bringing together 11 university and college educational institutions which deliver training programs in various health disciplines in French, as well as regional partners who facilitate access to these training programs. A large portion of these training programs are delivered online or in a hybrid format.

The Faculty of Education is an important actor in e-learning at the University, in particular in regards to its French programs. As part of its mission to offer services to the francophone community in Ontario, the Faculty offers the following programs:

→ An alternative teaching education program for people already in the workforce, using a hybrid model (asynchronous and synchronous courses and on campus in the summer) for approximately 60 students per year.

→ An alternative technical Teaching Education program, using the same hybrid model, for about 10 students a year.

→ A professional Master in Education program fully online for about 100 students (2 concentrations).

→ All master courses are offered by videoconference to about 200 students.

Also, in order to satisfy its clientele, for more than 10 years the Faculty has used a hybrid model for its French programs with the development of satellite campuses in the Ontario province: in Toronto (90 students) and in Windsor (30 students). For this, the Faculty developed its own model of teaching education and of course management and it is currently expanding its expertise to the Anglophone programs. It is worth mentioning that preliminary results from a survey administered to students registered in the French baccalaureate programmes in Education found that students prefer the blended/hybrid model when compared to fully online courses and in particular to courses by video-conference. Finally, The Faculty of Education is developing in collaboration with the Faculty of Arts a baccalaureate program that will be offered fully online.

The Faculty of Medicine's undergraduate education program is also very advanced in Canada with the existence of the Academy for Innovation in Medical Education (AIME) and the University of Ottawa Skills and Simulation Centre (uOSSC). The University is well positioned to become a leader in the integration of simulation and eLearning in medical education.[17]

In effect, a pilot project is currently underway to use eLearning and combine opportunities in simulation to meet the needs of "off-service" residents in Pediatrics. This is in response to pressure in the system to place more residents in these clinical services, which are already at full capacity; and at the same time, also having the local pressure in Ontario to produce more pediatricians. Through the pilot project, trainees are introduced to the specialty through eLearning modules, supplemented by simulation-based training so that they can enter the clinical setting with maximal efficiency and minimal strain on the system.

Given our location (close proximity to the Royal College of Physicians and Surgeons of Canada), if the pilot projects are successful, they would have a bigger chance of being rolled out to other parts of Canada. The Faculty has also embarked on a systematic review of eLearning and simulation in medical education with colleagues from the University of Toronto, UBC and the Mayo Clinic.

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[17] The Appendix Section presents more information about this.

Survey on Information and Communications Technologies Use

In the fall 2012, the University surveyed students to better understand their ICT habits, opinions and needs[18] and it found that students are already well connected to communications technologies. Some highlights of the results are:

→ 94% of students that responded to the survey said that they already own a laptop computer; 2% said that they plan on buying one within the next six months.

→ 46% of students bring their laptop computer every time they come to campus; 23% bring it a few times a week.

→ 42% bring their laptop computer every time they go to class; 20% bring it a few times a week.

→ 14% have access to class lectures captured by Echo 360 (Echo 360 captures class lectures and converts them into podcasts, video and rich media for playback anytime and anywhere).

→ 77% own a smart phone (with ability to connect to Internet); 6% plan on buying one within the next six months.

→ 21% own a mobile phone (without ability to connect to Internet).

→ 53% of students rate the ICT skills of professors as "Good"; 35% rate it as "Fair".

→ 17% of students have followed a blended course[19] in their current program of study at the University of Ottawa; 6% have followed an online course offered entirely via the Internet; 4% have followed an off-campus course offered by audio- or videoconference.

→ 25% of students would register for an online course offered entirely via the Internet if the courses they are interested in were available.

VISION & OBJECTIVES FOR E-LEARNING AT UOTTAWA

As stated in our Strategic Plan, *Destination 20/20*, and in the strategic mandate agreement (SMA) submitted to the Ontario Government last fall, the vision of the University is to offer an unparalleled university experience through outstanding teaching and research, and to make the University of Ottawa one of the great universities of our time, with a reputation to match its achievements.

The University is determined to strengthen the academic environment in which outstanding teaching is enabled, valued and rewarded. It will put to use the most recent and effective learning technologies and support new and innovative ways of teaching, including the development of e-Learning, for the benefit of students and university community at large.

Key objectives for the development of e-Learning are:

→ To enhance the teaching and learning experience

→ To foster a more stimulating and dynamic teaching, learning and researching environment

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[18] This survey was jointly produced by Computing and Communications Services, Teaching and Learning Support Service, Systems Managers and Institutional Research and Planning. The response rate among the 1181 participants was 29.5%.

[19] Defined in the survey as a course where in-class teaching time is considerably reduced and replaced by material accessible online.

→ To better connect with and engage students

→ To connect students, academics and ideas

→ To prepare students for the future

→ To increase flexibility and access to learning opportunities for students

→ To promote and increase availability of French-language online programming

GUIDING PRINCIPLES FOR E-LEARNING

The principles underlying the objectives presented in this document are:

1. Sound learning design based on established educational good practice, research and evaluation should underpin all use of technology.

2. Quality instruction should remain the paramount goal and e-learning should never be used for its own sake.

3. Appropriate support, tools and resources will be provided to professors to help them develop effective and meaningful skills and develop competencies in using blended and online learning.

4. Although the degree to which e-learning is used by instructors will vary due to a number of factors including their personal teaching preferences, the nature of the subject matter, the students involved as well as the availability of technical and instructional design support, minimum standards need to be defined and implemented.

5. The University needs to be effective, flexible, innovative and at the forefront of developments in the integration of technology to that can be used to support student learning and the broader student experience. Where possible what we do should be informed by user input, research and evidence-based practice.

6. The needs of all leaners as well as the nature of the discipline must be considered when e-learning and fully online activities are introduced into courses. The most effective instructors promote active learning using methods supported by educational research.

7. E-learning can enhance learning opportunities for disabled students and can provide a more inclusive environment than is sometimes afforded by conventional teaching; however it also has the potential to exclude some learners if not designed carefully. It is essential that the needs of all leaners are considered where fully online activities are introduced into courses.

8. Although today's students tend to be more technologically knowledgeable than earlier generations, they are not necessarily prepared to take immediate full advantage of e-learning opportunities and they need orientation and skills development support to optimise their use of the online environment. It is important that as part of the curriculum, faculties and departments ensure that students are capable of successful participation as active learners and that they have essential information literacy skills.

9. It is recognized that although it is desirable to reduce costs, learning outcomes must be maintained or improved. During this process, it will be recognized that instructors who explore new instructional methods require time and appropriate support to develop, pilot, and revise their practice.

4. Benefits of Blended Learning

Many reports have found the blended approach to be beneficial for students. It delivers a flexible experience and supports learning by allowing students to learn at their own pace. Meanwhile, the use of this model helps maximize instructor efficiency, increasing engagement inside the classroom while simultaneously enabling them to reach more students. Institutions are seeing the benefits as well. Retention rates increase, recruitment efforts improve and early evidence suggests that the use of this approach can improve grades.

Blended learning combines the best of online and face-to-face instruction to improve outcomes and increase access in a cost-effective way. As cited in the U.S. Department of Education's report[20] "Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies" (Revised September 2010), "Students in online conditions performed modestly better, on average, than those learning the same material through traditional face-to-face instruction" and, notably, "Instruction combining online and face-to-face elements had a larger advantage relative to purely face-to-face instruction than did purely online instruction". Not only do students perform better in blended courses, but the electronic resources inherent in the modality offer other

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[20] Available online at: http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf

advantages as well. For example, student performance analytics can be used to study and better understand student learning. Data analytics can also identify students who need early intervention, thus increasing retention. The online tools available in blended courses can also significantly enhance student engagement, ensuring that all students participate in course discussions and benefit from collaborative learning.

A 2012 industry report[21] found that eighty-four percent of students surveyed responded that the ability to study both online and in class improves their understanding of course concepts. The case for blended learning is corroborated by their preference for this model versus receiving instruction in-class only or online only. Sixty-three percent of students indicated their preference for a blended learning model over only in-class learning, while 69 percent prefer this model to an exclusively online delivery method[22].

In effect, blended learning has drawn the interest of several OECD countries. In the USA, the University of Central Florida (UCF) has identified it as a transformative practice impacting faculty and students across the institution and has adopted blended learning as a strategic agenda over the past 13 years. Drawing on over a decade of experience in institution-wide blended learning, UCF reports consistently over 85% student success [defined as a 'C' or more] in blended learning offerings. Since beginning this initiative, UCF has delivered over 5,030 UCF blended course sections and blended offerings have increased 475%.[23] In the fall 2010 semester, 26,000 UCF students enrolled in at least one online, blended or video course. UCF currently offers more than 2,500 online, video and blended classes.

The University of Wisconsin-Milwaukee (UWM) has also over a decade of experience with strategically promoting blended learning. It developed the University of Wisconsin-Milwaukee Certificate in Online and Blended Teaching and has built broad support for blended learning at the University. For instance, in only one year, from spring 2009 to spring 2010 the number of students taking online courses increased 64%.[24] UWM has also established an Award for Innovative Use of Learning Technologies to honour learning technology excellence at the University.

Moreover, the Sloan Consortium[25] has held annual conferences on blended learning for the last eight years, with increasing participation each year. In the United Kingdom the Higher Education Funding Council of England (HEFCE) has funded multi-year initiatives in blended learning. Clearly, blended learning is being implemented in higher education in many regions of the globe[26].

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[21] *Blended Learning Technology: Connecting with the Online-All-the-Time Student*, Echo360 (2012) (available online: http://echo360.com/sites/default/files/2012%20Student%20Survey%20WP_FINAL.pdf

[22] *The Student View of Blended Learning*, Echo360 (2011) (available online: http://www.ecsu.edu/academics/offices/distanceeducation/docs/studentViewBlendedLearning.pdf)

[23] *Benefits of Blended Learning*, The Blended Learning Toolkit (http://blended.online.ucf.edu/about/benefits-of-blended-learning/; accessed in March 2013)

[24] *Committed to Quality in Online Instruction*, UWM Report, April 2010 (http://www4.uwm.edu/news/publications/report/upload/UWM_R_April10-ml2.pdf)

[25] Sloan-C is a consortium of individuals, institutions and organizations committed to quality online education (http://sloanconsortium.org/)

[26] *COHERE Report on Blended Learning: Innovative Practices Research Project*, Collaboration for Online Higher Education and Research (COHERE), 2011 (http://cohere.ca/wp-content/uploads/2011/11/REPORT-ON-BLENDED-LEARNING-FINAL1.pdf)

In Canada, an analysis by COHERE[27] of universities' responses to a questionnaire about the effects of blended learning from students' perspectives, revealed that students have positive experiences with and attitudes towards blended learning. According to the surveys, interviews and research projects conducted at the universities, students saw the flexibility afforded by blended learning as a key advantage. Students also enjoyed the increased opportunities for interacting with classmates and the instructors through the integration of new technologies. The second advantage of blended learning, according to this report, was improved learning outcomes found through student surveys, formal studies, and informal feedback. University responses attributed the improved learning outcomes to the increased quality of interaction among learners, between students and instructors, and the richness of learning resources overall.

It is worth mentioning the experience of Mount Royal University which has been offering blended courses for more than a decade. In 2000-2003 the Course Adaptation Research Project conducted an evaluation of selected blended learning courses and involved a survey of students enrolled in blended delivery courses. The students reported they had an enhanced understanding of course content in the blended learning environment.[28] A subsequent study of student experience in blended first year courses at Mount Royal indicated that students who perceived a higher level of active and collaborative learning in these courses also achieved the best final course grades.[29]

Internationally, blended learning research reveals similar findings. In a recent study conducted at a Spanish university with a large sample it was found that blended learning had a positive effect on reducing dropout rates and in raising exam pass rates.

In summary key elements of blended learning for teaching and learning are:

→ Students will gain a positive experience and attitude towards technology-mediated teaching and learning;

→ It supports different styles of learning;

→ Fosters improved learning outcomes and increases quality of interaction among learners, between students and instructors, as well as with outside experts and communities, and the richness of learning resources;

→ Creates flexibility and provides greater time to reflect in online discussions;

→ Provides a learning environment that is more dynamic and interactive which results in a higher level of engagement;

→ Highlights the importance of instructional design for optimal learning outcomes;

→ Provides an opportunity to fundamentally redesign teaching and learning approaches in ways that realize increased effectiveness, convenience and efficiency;

→ Provides better ways to address the multiple needs of learners and learning styles, and

→ Provides a strong pedagogical foundation for engaged and sustained learning.

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[27] Established in 1999, COHERE is a collaboration of Canadian universities focusing on the research and practice of blended and online learning within higher education.

[28] *COHERE Report on Blended Learning: Innovative Practices Research Project*, Collaboration for Online Higher Education and Research (COHERE), 2011.

[29] Vaughan, Zimmer & Villamar, 2011

For students, blended courses offer the conveniences of online learning combined with the social and instructional interactions that may not lend themselves to online delivery (e.g., lab sections or proctored assessments). Benefits to Students are:

→ Discuss online and face-to-face with classmates, TA's and the professor;

→ Reduces face-to-face time and offers greater flexibility;

→ May overcome sense of isolation many students feel when doing fully online courses;

→ Can reduce costs for students by decreasing travel expenses, etc.;

→ Leads to better results: statistics demonstrate that students score higher in blended courses than they do in lecture-based courses, and in fully online courses.

For faculty, blended courses can be a method to infuse new engagement opportunities into established courses or, for some, provide a transitional opportunity between fully face-to-face and fully online instruction. Benefits to Faculties and Departments are:

→ Reduces face-to-face time;

→ Offers greater flexibility to faculty scheduling and allocation of classrooms,

→ Enables and expands existing resources and tools created for online to be used in face-to-face or lecture-based settings.

For universities, blended courses can be part of a strategy to compensate for limited classroom space, as well as a way to think differently about encouraging faculty collaboration. Benefits to the Institution are:

→ Frees-up more classroom spaces;

→ Allows for more effective management of classroom scheduling;

→ Provides meaningful and more effective teaching and learning practices through integrating face-to-face and online teaching and learning design strategies;

→ Enriches the course offering as well as the learning environment, inside and outside the classroom, and provides a high quality student experience;

→ Provides extended access to a wider range of knowledge and expertise.

5. Recommendations

STRATEGIC DEVELOPMENT OF ONLINE TEACHING AND LEARNING

Education is undergoing a dramatic transformation. Technology plays a powerful role in the life of today's students and institutions can no longer meet their needs through classroom-based instruction alone. As noted above, blended learning provides students, faculties and the university overall with a wide-range of benefits made possible through the effective integration of face-to-face and online learning.

RECOMMENDATION 1

The E-Learning Working Group recommends the adoption of blended learning at large scale at the University of Ottawa. In particular, it recommends the development of 1,000 new blended courses (representing 20% of the total course current offering) equivalent to having 500 professors using blended learning by 2020.

The following two graphs show how the University could achieve the 2020 target.

Yearly Growth

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Trained professors		40	80	100	130	150
New hybrid courses		80	160	200	260	300

Total over 5 year

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Total # of trained professors		40	120	220	350	500
Total # of hybrid courses		80	240	440	700	1000
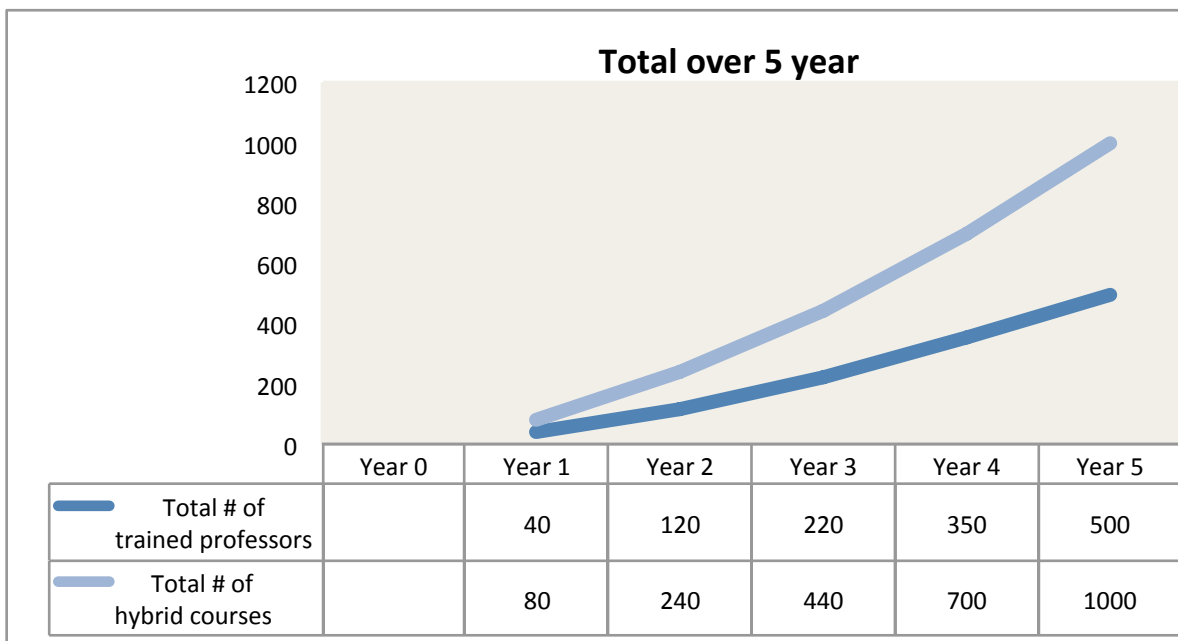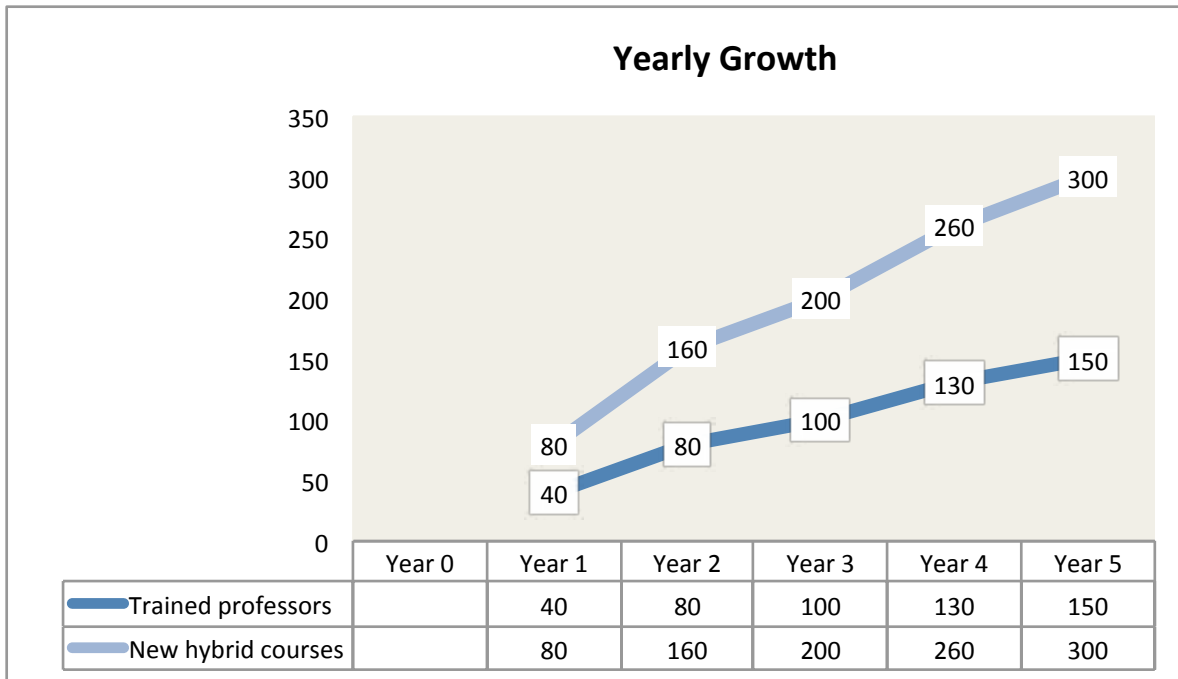
It is estimated that by 2020, almost 25,000 students will have benefited by the offer of blended courses at the University[30]. Furthermore, based on the hypothesises that in a five-year period, 20% of the courses will be hybrid, and these courses should be 50% online and 50% face-to-face, it is estimated that the economy in space allocation could be in the vicinity of 10% (more information about this is included in the Appendix section).

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[30] This calculation takes into account that some students may have more than one hybrid course and counts each student only once.

In addition to blended learning, given its unique bilingual character, the Working Group believes that the University of Ottawa should place more of a concerted effort to develop and market a variety of French online programs, such as the recently launched Telfer School of Management's French online MBA program and the joint program that the Faculty of Arts and the Faculty of Education are currently developing (the program would be entitled, Programme de baccalauréat intégré en éducation et lettre française, and would be completely online). This would support the University's Strategic Mandate Agreement (SMA) objective of increased commitment to bilingualism and the Francophonie, and would be a way to make French-language online programming broadly available, answering an unmet need (particularly in Ontario) and putting to use one of our important differentiating advantages.

As noted above, the Centre for e-Learning, in a recent collaboration with various faculties, designed and developed twelve, first year required courses, into online courses. The purpose of developing and offering courses in this manner, was to give students the option to take required courses either in a lecture-based format or as an online course, while at the same time, addressing the challenges of shrinking classroom space and finding an effective way of dealing with high enrolment first year courses . While still in the early stages (the courses have only been offered once so far, but with all departments planning to continue to offer them) the initiative has proven to be successful. This pilot project has received very positive feedback from students, professors and Deans thus far. It is worth mentioning that students continue to have the choice of attending the lecture on campus or taking the course online. Under the online option, students have the appropriate support and services to successfully complete the course: they have tutorials on campus, access to professors and teaching assistants, in some cases they have laboratories training, and like all students they have access to all the services offered by the Student Academic Success Service (SASS).

RECOMMENDATION 2

The E-Learning Working Group recommends that the University strategically explores online learning as a way to expand its offerings of online programs and continues to support the online development of specific high enrolment mandatory courses.

PARTNERSHIPS / COLLABORATIONS WITH OTHER INSTITUTIONS

Currently, the University does not have any formal partnerships or collaborations with other universities or institutions. It is however a member of the Ontario University Council on eLearning (OUCEL) which is a professional non-alligned, informal association of various e-learning specialists across Ontario universities that provides leadership regarding e-learning. Although it is not affiliated to the Council of Ontario Universities (COU), it reports annually to the COU's Educational Developers Caucus affiliate on their activities. This network brings together learning technology leaders from Ontario universities, it includes many well-known experts in e-learning from across the province, and serves as a forum for sharing information, experience and best practice. Richard Pinet (Director, Centre for e-Learning) is the ongoing Chair.

It is worth mentioning that the Teaching and Learning Support Service (TLSS) informally collaborates with Carleton University on specific projects related to technology-mediated teaching and learning. Also, as noted above, the University is active within the Council of Ontario Universities and would like to play a role in the future consortium, Ontario Universities Online (OUO). In the near future, the University will have to explore the need to work and collaborate with publishing houses given that publishers are increasingly moving into e-Learning and into new kinds of electronic publications.

MASSIVE OPEN ONLINE COURSES (MOOCS)

Over the past year, MOOCs have gained a lot of public awareness. World-renowned universities, including MIT (edX) and Stanford (Coursera), as well as innovative start-ups such as Udacity and HEC Montréal's EduLib, have jumped into the marketplace and garnered a tremendous amount of attention — and imitation. Designed to provide high quality, online learning at scale to people regardless of their location or educational background, MOOCs have been met with enthusiasm because of their potential to reach a previously unimaginable number of learners. The notion of thousands and even tens of thousands of students participating in a single course, working at their own pace, relying on their own style of learning, and assessing each other's progress has changed the landscape of online learning.

While we have seen many declarations about the revolutionary potential of the MOOCs phenomenon, there have also been some more negative assessments and critiques of the MOOCs phenomenon in its current configuration. The Appendix section of the report presents detailed information about the benefits and challenges of MOOCs, in their current state of development, as well as the values and limitations they might offer to institutions of higher learning.

MOOCs are a relatively new phenomenon that will, without a doubt, undergo vast changes over the coming years. In effect, while extremely promising, current MOOC models still largely mirror traditional lecture formats. Coursera, for example, is centered around video lectures led by renowned educators from prestigious universities in popular areas such as microeconomics and artificial intelligence. Students watch these videos and demonstrate what they have learned via quizzes and papers. Although the quality of the video and related content provided is high, this delivery model is very much based in traditional models of instruction.

Although there are clear differences among the major MOOC projects, their basic pedagogical approaches are very similar. For Coursera, edX, and Udacity — the three major players in the MOOC space — course materials are located in a hub or central repository and they all use automated software to assess student performance through quizzes and homework assignments. The social structures of the major MOOC projects are also similar, with students participating in online forums, study groups, and in the case of Coursera and Udacity, organized student meetups. Content-wise, Coursera emphasizes video, with students watching recorded lectures from field experts as the main substance of the courses. In January 2013, Coursera had over two million students enrolled in 200 courses, while edX and Udacity have reached around 500,000 students, across 23 courses and 19 courses, respectively.[31]

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[31] *NMC Horizon Report: 2013 Higher Education Edition*, The New Media Consortium

RECOMMENDATION 3

The E-Learning Working Group does not recommend developing MOOCs in the short term without first doing a detailed market analysis and a feasibility study.

As evidenced by the information presented in the Appendix, the E-Learning Working Group identified two main types of concerns: one set based on practical financial considerations of mounting and maintaining MOOC-based offerings, and the other based on an institution pedagogical requirement to provide for and gauge student successes and accomplishments. Listed below are concerns informed by both sets of considerations:

→ Development and maintenance of MOOCs can be very expensive;

→ Technical challenge: it would be necessary to purchase a larger capacity server that could provide access to, and tracking of, a large number of non-University of Ottawa students/users;

→ It is impossible to administer exams, or other assessment methods without a proper means of ascertaining who, in fact is taking the exams (if wishing to administer online). There is currently no technology that can make these kinds of necessary verifications;

→ Plagiarism presents serious challenges to MOOC-based courses, particularly for those courses with huge enrollments. Verification of authentic submission can be an onerous and time consuming task; and

→ Most MOOCs are modeled on a transmission model of course delivery, often simply utilizing a video lecture accompanied by lecture notes and suggested readings. They lack active exercises for student engagement and exchange. Learning activities and reflexive practices are also lacking.

RECOMMENDATION 4

The E-Learning Working Group recommends considering strategically developing "flag-ship" MOOCs in French in the medium term after undertaking a feasibility analysis that assesses the costs and benefits. It also recommends exploring collaborations and partnerships with international francophone universities.

A MOOC in French could serve as a promotional tool for the University as a whole, and because it would be in a language other than English, it could stand out. The MOOC as promotional vehicle is, in fact, one of the primary reasons some of the Ivy League universities entered into the world of MOOC development and dissemination in the first place.

The University could identify a course that presently exists in French and redesign it as a MOOC. If the course was aligned with a well-known professor or high profile faculty, the University might be able to break through the clutter of the large numbers of MOOCs currently offered and obtain significant exposure in this new and exciting realm of online, distance learning.

Development of a MOOC

The target audience of a MOOC course implies the choice of a platform susceptible of sustaining massive (100,000+) users enrolled in the same course. If the University was to consider developing a MOOC for promotional and prestige purposes, as a first step it would have to choose a provider[32]. It is worth mentioning that an institution's expressed interest in participating in any of the three above endeavours does not guarantee an acceptance on the part of the provider.

The current main providers are all U.S. based. In all cases, the university providing the course is responsible for all course development and delivery related costs. Depending on the provider profile and requirements there may be considerable investments for the University. The Appendix section presents additional information about the three main providers (Coursera, edX and Udacity).

It is to be noted that the University of Toronto embarked on an exploration of various providers and recently signed with edX in addition to Coursera. McGill settled on edX and the University of Alberta signed a deal with Udacity.

In all cases, the institution providing the course has the obligation of:

→ Providing the course content in the format required. This includes:

- Faculty release time for the development of the course

- Copyrights of materials involved

- Costs of course building team (course design)

- Production costs

→ Providing support during the delivery of the course

- TA support

- Library access and support

- Technical support to the students

- Administrative/registrarial support

It is estimated that the development of a MOOC with the provider Coursera would require an investment of at least $110,000 for the development of the course and approximately $29,000 every time the course is offered. The Appendix section shows details about the cost breakdowns as well as the monetization strategies suggested by Coursera.

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[32] If the University wanted to deploy its own platform (i.e. servers) it would have to invest a lot of resources (for example, the two major Udacity partners invested $15 million each, with additional funds from a third investor; the two edX founding institutions (MIT and Harvard) have each invested $30 million of resources to the project; as of January 2013, Coursera had raised $22 million in venture capital). It is important to note however that the advertising, prestige, dissemination, and widespread impact come from associating with already known platforms such as Coursera.

E-LEARNING ADVISORY COMMITTEE

RECOMMENDATION 5

To support the strategy and ensure success, the E-Learning Working Group recommends the establishment of an e-Learning Advisory Committee.

This body would meet regularly to consider issues that influence learning environments, the viability of emerging educational technologies, and priorities for funding and support. This Committee would report to and advise the Vice-President Academic & Provost in the development of e-learning policies and the planning of support strategies and would work in partnership with the faculties. The membership would include selected members from the Central Administration, the Teaching and Learning Support Service (TLSS), Faculties (e.g. faculty-based e-learning support staff), Computing and Communications Services (CCS), professors, student representatives, and representatives from relevant campus service organizations (e.g. Library). More information about the Committee is included in the section below.

6. Implementation Plan

GOVERNANCE STRUCTURE & ROLE OF THE TEACHING AND LEARNING SUPPORT SERVICE (TLSS)

The E-Learning Working Group found important the creation of an organization or structure to coordinate, and where appropriate lead, future e-learning initiatives for the University. The new E-Learning Advisory Committee would be responsible for the governance (mandate and policies) related to e-learning activities and programs from a strategic perspective. At the same time, the Teaching and Learning Support Service (TLSS) would be responsible for all logistical aspects of online and distance education (i.e. implementation of the policies, operational activities and daily tasks).

The Committee would also:

→ Have a broad membership (members from the Central Administration, the Teaching and Learning Support Service (TLSS), Faculties (e.g. faculty-based e-learning support staff), Computing and Communications Services (CCS), professors, student representatives, and representatives from relevant campus service organizations (e.g. Library))

→ Bring together expertise and experience from professors and support staff

→ Bring issues for discussion

→ Evaluate partnerships and assess resources outside the University

→ Set overall priorities in e-learning at the University

In parallel, the Faculties (Deans) would have responsibility for:

→ Developing their own strategy and needs

→ Encouraging broad participation to the training and workshops

→ Promoting e-learning and blended learning internally within their faculties

Professors would have responsibility for:

→ Participating in the training

→ Participating in the group exchanges

→ Developing pedagogical innovation

→ Promoting best practices

Students would have responsibility for:

→ Using and evaluating the tools and resources available to them

→ Promoting best practices

RESOURCES AND COST IMPLICATIONS

RECOMMENDATION 6

The E-Learning Working Group recommends the enhancement of existing University-wide professional development programs and web-based resources to support increasingly larger numbers of instructors as they implement blended learning methods, incorporate digital resources, and explore the capabilities of e-learning technologies.

These professional development programs would also augment the knowledge and skills of faculty-based e-learning support staff as well as graduate students involved in teaching. The Teaching and Learning Support Service (TLSS) would be best placed to design, develop and execute these programs but it would need additional funds to build on its existing offerings and extend its programming to support blended education.

The academic community is a very heterogeneous population when it comes to the knowledge, skills and experience associated with online approaches to teaching and learning. The skills required include both technical skills and awareness of the pedagogy of online learning and new teaching techniques. Instructors will need the

help and support in both the technical and instructional design aspects of courses development. The objective would be to re-design the courses, rather than to simply add on layers of technology. By putting in place blended courses, the University would take the opportunity to build better courses and transform the way professors teach.

TLSS Blended Learning Support & Training Program

As a way to increase the creation and output of blended courses at the University, the Working group recommends that the TLSS develops and executes the Blended Learning Support & Training Program which itself would be created as a blended course with both an online and face-to-face components. Overall, such a program would provide the resources needed to help professors redesign and develop their blended courses. It would train groups of professors to be effective teachers in a blended learning environment, and provide strategies and resources that would allow them to maintain and update their courses autonomously.

A broad range of knowledge, resources and expertise around all facets of technology mediated teaching and learning would be available for professors. All would be at any professors' disposal whether they are contemplating converting a lecture-based course into a blended course, or creating a new course in a blended learning mode. In both instances, the services of the TLSS would be there to help support the design, development and delivery of effective blended courses. Consequently, for any new strategy or initiative (blended or online), professors would be able to access:

→ One-on-one consultations with instructional designers that will help, for instance, in determining which components of the course are most effective online, and which would be most effective in face-to-face sessions. Such consultations will also advise on the most effective use of the online and face-to-face learning environments, and help align course objectives, learning activities and student assessments;

→ A series of workshops and seminars on best practices in blended learning design, development and delivery;

→ One-on-one consultations with a host of technical support staff who can assist on a wide-range of both synchronous and asynchronous tools, available to be utilized in blended courses;

→ A wealth of online articles, resources, guides and tools that will help at every stage of development, design and delivery of their blended courses;

→ Mentoring can also be offered to Faculties interested in developing either a strategy or specific courses/ programs; and

→ Communities of practice can also be created with and for professors interested in exchanging further on concepts, ideas, etc. related to e-Learning as a whole.

One or two-day training could also be added to the New Professors Orientation Program to familiarize them with hybrid learning from the very beginning of their career.

The TLSS would also offer a series of workshops that would cater to the needs of Teaching Assistants that would help them prepare to be effective teaching assistants in a blended learning environment. Furthermore, blended and online courses require students to be more responsible for their own learning. As such, students would need to develop new and effective time management skills. In order to help students flourish in this blended learning environment, a number of online resources and guides, highlighting effective learning practices and proper time management strategies would also be made available to both teaching assistants and students alike. An active participation of the Student Academic Success Service in this process should be envisaged.

The proposed Blended Support and Training Program will rely on resources coming from two ends, existing resources within the TLSS and the additional resources required.

Existing resources

The TLSS would devote to this blended learning strategy the full gamut of the considerable resources at its disposal (both human, physical and technological). Their human resources include a wide range of experts in the field of techno-pedagogy. TLSS has over 60 employees, which include specialists such as Multimedia Technicians, Network Coordinators, Educational Developers and Graphic and Instructional Designers. As the project evolves, some of these highly trained existing resources will be redeployed to ensure the successful implementation of the hybrid learning strategy.

Furthermore, over the last 12 years, TLSS has gradually added to the University's infrastructure specialized "learning spaces", which will be used to enhance the professors' training process. They manage state-of-the-art training rooms, computer labs, videoconference rooms and other facilities invaluable to the successful implementation of the hybrid learning strategy. TLSS is also responsible for the Virtual Campus, which is another key component of the hybrid learning strategy, not to mention the Echo360 system. Its effective integration will ultimately benefit thousands of students and ensure that they have easy and dependable access to their course material.

Additional resources required

The University will need to invest new funds to build on its existing e-learning offerings and extend its programming to support blended education.

RECOMMENDATION 7

To be successful and achieve set goals and targets, the E-Learning Working Group recommends that the University invests $315,000 each year up to year 2020 for the development and implementation of the Blended Support and Training Program. Additional resources may be necessary to support professors as they re-design their courses and adapt them into blended courses.

The additional resources will evolve through the development, implementation, and maintenance phases. It is estimated that the required resources would amount to four FTE (including a Lead Developer and three Techno-pedagogical Developers with very specialized sets of skills), equivalent to approximately $315,000 per year. The Appendix section shows detailed breakdowns of these costs. It is important to note that the University may have to invest additional funds to support professors that would need additional resources and teaching relief to adapt their courses into blended courses (this cost would vary depending on the level of comfort that professors have with the use of technology mediated teaching and learning).

The University could consider creating a special projects fund to support the transformation of teaching and learning in areas where significant gains can be made in terms of enhancing learning. The goal of this program would be to enhance the quality of learning through the selective application of e-learning and it would consist

of special project funding for course and program redesign projects. These funds could also come in the form of an excellence award, such as an "Award for Innovative Use of Learning Technologies" that would recognize excellent instruction in a blended or fully online course and encourage innovation in the effective use of learning technologies to promote student engagement and collaboration, active learning, and critical thinking.

Infrastructure & Technology Requirements

Although it is extremely difficult to determine a dollar value, the University must take into consideration the following elements:

Learning Management System:

The new Learning Management System, Blackboard Learn, was implemented following a growth model based on the change over the past ten years. A new focus on hybrid and blended learning will necessarily imply an increase in adoption of the platform.

→ The contract limits regarding current active users and storage capacity will have to be increased to accommodate the anticipated surge in usage, as well as the potential increase in blended course and materials to be hosted.

- Current contractual limit: 31,000 active students

- Potential (target): 44,000 active students

→ These increases (users and storage capacity) will have a financial impact on the managed hosting contract currently in place with Blackboard. The contract is up for renewal in 2014. (Note: Blackboard does not stop services if current limits are surpassed. The data is taken into account for the next contract discussions.)

Synchronous tools:

→ Increase for Adobe Connect

- Servers (could be cloud hosting)

- Licences

Link with the Learning Centre

The blended learning model will be supported by the construction of a Learning Centre at uOttawa. This building will have:

→ Quiet/study spaces (e.g. cubicles)

→ Three types of multimedia classrooms:

- A very big classroom (250-500 places) that could easily be reconfigured into smaller classrooms to support blended teaching and learning;

- Active learning classrooms of 60 to 120 places that would be furnished to encourage interactions and collaboration and allow for changes in the configuration of the furniture;

- A series of small classrooms that could accommodate 10-15 people;

→ Multimedia spaces for collaborative research for students and professors; it would have:

  • Labs for educative games

  • Giant interactive screens

→ Work spaces for groups of students, multimedia equipped;

→ Open space with many places to sit (about 1000) that would allow students to meet. It would be open 24/7 with Wi-Fi and in close proximity to:

  • Coffee shops and restaurants

  • A one-stop shop of student services

  • The Academic Writing Help Centre (AWHC)

One of the objectives of this new building is to create active learning classrooms that draw from the SCALE-UP (Student-Centered Active Learning Environment for Undergraduate Programs) principles and classrooms at over 40 universities across North America. The types of spaces would also allow for the promotion of "Technology-Enhanced Active Learning" (TEAL) which is a project that was first implemented at the Massachusetts Institute of Technology (MIT).

The Appendix section presents some examples of such spaces.

ENGAGING FACULTIES AND DEPARTMENTS

In many institutions, the introduction of technology into the classroom presents several obstacles to overcome. Chief among these is that adoption of any new technology – no matter how transparent or easy to use it may be – requires changed behaviours. The challenges can be grouped into three key areas, and are somewhat simple to identify, though not always easy to address[33]:

→ Cultural – What is the blend of attitudes towards technology, knowledge and pedagogy?

→ Process – In what ways can an organization best address workflow to ensure seamless adoption?

→ Academic – How does blended learning fit into the pedagogical practices of instructors, and how can it be seen as an effective academic tool that enhances an educator's ability to engage with students?

RECOMMENDATION 8

In addition to the training program and availability of tools and resources for all professors, the E-Learning Working Group recommends to put in place a promotional campaign to all faculties and departments that stresses the benefits of blended learning and to create a championing program that encourages teaching innovation.

[33] *Blended Learning Technology: Navigating the Challenges of Large-Scale Adoption*, Wainhouse Research (2012) (available online: http://echo360.com/sites/default/files/Adoption%20White%20Paper.pdf)

Successfully deploying blended learning (or e-learning in general) will take work. It will require inter-departmental and inter-functional area cooperation (process), combined with openness to technology (the cultural) and appreciation of new pedagogical approaches (the academic).

More precisely, to support the implementation of blended learning, it is recommended that the University:

→ Promote blended learning among Senior Management, Deans and Directors of Programs and get their buy-in and support.

→ Identify champions who can illustrate the benefits to other instructors and will disseminate good practice in e-learning. Those champions are essential in helping to identify and articulate specific performance improvements.

→ Clone the champions. The University can focus on engaging with those champions and then building upon those successes to find other opportunities. Those champions are actively seeking to identify the pedagogical impact of blended learning to support further adoption.

→ Ensure deployment of technology is scalable, sustainable, rock solid, easy-to-use and well supported.

→ Develop an institutional wide policy to address intellectual property rights issues. Significant amount of communication will be necessary.

→ Measure the impact of blended learning (scores, retention rates, recruitment numbers, student surveys, faculty performance, review measurements (monitoring how often and when students review content)) and launch a promotional campaign to faculties and departments that will stress the benefits. The campaign would also highlight the resources and services available to all professors wishing to either redesign their current lecture-based courses, or to develop new course and/or programs utilizing blended learning course design strategies.

→ Encourage innovation and celebrate success. Consideration should be given for new award(s) in the area of e-learning as well as awarding course Web sites with best-practice designations based on an agreed set of evaluation criteria.

→ Encourage the development of research, conferences and publications on what is being done at the University of Ottawa.

→ Encourage the development of faculty/departmental strategies/plans on e-learning.

→ Partner with the Registrar to promote these courses on the Web and through the Student Information System (with proper codes) and Computer and Communication Services (CCS) to ensure the proper technological infrastructure and support.

→ Optimize the use of the collection of scholarly publications purchased or licensed by the Library in accordance with copyright and license agreements. The University of Ottawa Library has a comprehensive collection of which 73% is in electronic format. Those materials are available online to the uOttawa community at any time.

→ Actively seek out existing authoritative online pedagogical materials created by publishers that can be used to decrease the workload required to create materials for blended learning.

→ Enhance the collection, particularly for any e-learning tools that might be available freely online (MOOC), by promoting the discovery of open access resources such as those found in Learning Commons.

COPYRIGHTS AT UOTTAWA

Professors may have fears about policy, privacy and copyright issues which could affect the development of e-learning at the University. In effect, instructors may resist or fear mandated behaviours or policies over which they feel they lack control and show concerns over who "owns" the content once it is recorded, and how does that content interplay with an educator's own intellectual property.

RECOMMENDATION 9

The E-Learning Working Group recommends developing a policy on the intellectual property rights associated with online course materials. This would fall under the responsibility of the E-Learning Advisory Committee. Significant amount of communication will be necessary to make it widely known and to ensure understanding.

Currently, ownership of intellectual property developed at the University of Ottawa is governed by Policy No. 29 - "Patents" and by Article thirty-five of the Collective Agreement between the University and the Association of Professors of the University of Ottawa[34].

The University's Policies Relating to the Conduct of Research gives information on various forms of intellectual property. In particular, it states:

> *Works prepared within the scope of employment, also called "works for hire", generally belong to the employer. The general rule at the University of Ottawa is that the University owns all copyrights to work created by University of Ottawa employees in the scope of their employment. However, in keeping with academic tradition and the collective agreement between the University of Ottawa and the Association of Professors of the University of Ottawa, the University generally grants ownership of copyrights of original works resulting from faculty members' or students' own efforts to the creator(s). Also see article 35 of the APUO collective agreement, and, in particular, s 35.2, with respect to copyright.*

It is important to note that a virtual learning environment, such as Blackboard, is a secure environment which can only be accessed by University staff and students with the necessary access entitlements. If such a secure environment is provided for and managed centrally, e-learning materials will be made available in a secure fashion – complying with the University's intellectual property rights and those of any third parties whose materials are being legitimately used in the course of University teaching.

The Copyright Office, located in the Office of the University Librarian on the second floor of Morisset Hall, was created in May 2011 and is committed to providing support and advice to assist faculty, staff and students seeking information about copyright in learning, teaching, research and scholarly communications.

The Copyright Office prepared a guide[35] to help researchers and professors navigate copyright issues in the university environment, so that they can carry out their academic work in a manner that respects intellectual property and the ethical uses of information.

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[34] More information is available at: http://www.rms.uottawa.ca/researchers_guide/policy.asp

[35] Copyright Guide, University of Ottawa (http://www.biblio.uottawa.ca/html/Page?node=copyright&lang=en)

QUALITY ASSURANCE AND EVALUATION

The blended and online courses will be under the same quality controls of the province of Ontario which has a rigorous quality assurance framework for all undergraduate and graduate programs. As part of the University of Ottawa's Institutional Quality Assurance Process (IQAP) all programs are evaluated in turn every 7-8 years, according to a predetermined schedule. In addition, at the University, teaching and courses are subject to evaluation. In consequence all online and blended courses will be under the same quality control methods and the evaluation will be adapted specifically to meet the needs of these courses.

It is worth mentioning that the University will require the capacity to respond flexibly to the continually evolving needs and opportunities associated with e-learning. There should be regular studies of how faculty are teaching and how students are learning at the University as well as the roles that existing and emerging educational technologies might fill. A review of effective support strategies within Faculties might also encourage the sharing of best practices not only for teaching, but also for providing support services.

INSTITUTIONAL GAPS AND CHALLENGES

Any discussion of technology adoption must also consider important constraints and challenges that currently exist in the operational infrastructure of the University:[36]

Gaps, challenges, threats	Opportunities
→ Current systems and infrastructure present problems and need to be updated: the Student Information System (SIS) is not able to deal with different modes (can only handle a limited number teaching/learning activity categories such as classroom or lab); Rabaska and the registration process also need to be modernized.	→ To refresh and update all systems taking into account not only traditional courses, but also online, blended, distance, mobile, etc.; offering smooth and transparent processes for students, thus improving their experience. The system should be as simple as the one developed by the Centre for Continuing Education at the University of Ottawa.
→ Classroom allocations: current system does not have provisions for tracking virtual time.	→ To develop a system allowing a more flexible use of classrooms. This would also alleviate the need to increase the number of classrooms.
→ Promotion and communications of these new courses, who promotes them and how?	→ To use the upcoming revamp of the University's Website to create a "one-stop shop" for individuals looking for online courses at the University of Ottawa.
→ Bureaucratic misunderstandings over who does what, when and how?	→ To revisit or develop institutional policies to define or redefine roles and responsibilities.

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[36] Some of these have already been discussed in the previous sections.

Gaps, challenges, threats	Opportunities
→ Rules are unclear regarding exams, fees, locations. Who coordinates and who pays?	→ To set policies and procedures that are clear and concise and that take into account the Ministry's rules and directives.
→ Resistance to change when it comes to online courses and their value.	→ To promote the benefits of blended and hybrid technologies and approaches.
→ e-Learning strategies, activities and programs can only work if the institution, the faculties and the departments provide students with support every step of the way. Without the proper support, a number of students will drop out and never come back.	→ To create a partnership between faculties and TLSS to develop proper tools and a system (with professors and teaching assistants) to assist students through their courses and programs.
→ e-Learning courses and programs can only be successful if the University has a well-defined evaluation system and assessment tools.	→ To develop evaluation tools and systems not only for our institution, but that could be shared with our partners or fellow institutions.
→ Need institutional buy-in at the highest levels, both from Central Administration and from the Deans.	→ To identify champions for the initiative.

NEXT STEPS

It is recommended that as a first step the E-Learning Advisory Committee be set up as soon as possible to start work on an e-learning strategy. The Committee would undertake an analysis of the meaning of blended learning for the University of Ottawa in order to better define blended learning (and a blended course) and to set minimum standards for professors.

The Committee would also start working with the Teaching and Learning Support Service (TLSS) to put in place an action plan for engaging faculties and departments and to launch a promotional campaign.

The TLSS would start developing the Blended Learning Support and Training Program, in consultation with the faculties and services. The program is expected to be ready after one year of having received approval and resources.

APPENDIX

A. Online Courses at uOttawa[37]

COURSES DEVELOPED IN 2012-2013[38]

Blended Courses financed by the University

Faculty	Code	Title
Telfer	ADM2304	Applications of statistics in Business
Social Sciences	ECH 3330	Introduction to International Human Rights Law and Politics
Health Sciences	NSG 4543	Contexte historique et socio-politique des soins de santé
Engineering	GNG 4100	Technology Entrepreneurship
Engineering	CVG2540	Mécanique des Materiaux
Arts	ENG 2135	Science Fiction and Multi-Media
Health Sciences	ERG 5721	Dimensions de la personne

Online Courses financed by the Consortium des universités de la francophonie ontarienne (CUFO)

Faculty	Code	Title
Health Sciences	HSS1501	Déterminants de la santé
Social Sciences	SCS2550	Introduction à la méthodologie en sciences sociales
Social Sciences	CMN 3505	Éthique des médias

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[37] Information was provided by the Teaching and Learning Support Service (TLSS)

[38] These are pilot projects. Costs for the development of these courses were: Blended $115,000; Online French $90,000; Online $360,000. Please note that these costs include the production of guides and resources that will continue to be used in the future (for an example see: http://www.tlss.uottawa.ca/cyber/index.php?option=com_content&view=article&id=122%3Aguides-and-resources-for-online-courses&catid=49&lang=en) as well as ongoing consultations with professors, monitoring of courses and development and delivery of quality control measures such as surveys and focus groups.

Online Courses financed by the University

Faculty	Code	Title
Arts	CMN1160	Introduction to Media Studies
Science	MAT1339	Introduction to Calculus and Vectors
Social Sciences	SOC1101	Principles of Sociology
Arts	ENV1101	Global Environmental Challenges
Arts	HIS1120	The History of Europe (16th-20th Century)
Telfer	ADM2341	Managerial Accounting
Arts	CDN1100	Introduction to Canadian Studies
Health Sciences	HSS1101	Determinants of Health
Social Sciences	SCS2150	Introduction to Methodology in the Social Sciences
Social Sciences	PSY2105	Child Development
Health Sciences	ERG 5721	Dimensions de la personne

Online Courses offered in 2011-2012

Course code	Course Title	Registrations	Faculty	Level of instruction	Language
CMN5565	Nouvelles orientations en journalisme	4	Arts	Graduate	F
EDU5265	Internationalization of Curriculum Studies	31	Education	Graduate	E
EDU5582	Modèles médiatisés d'enseignement	25	Education	Graduate	F
EDU5590	Introduction à la recherche en éducation	12	Education	Graduate	F
EDU5616	Principales problématiques en éducation	21	Education	Graduate	F
EDU5630	Leadership en milieu éducatif	25	Education	Graduate	F
HSS2525	Introduction à l'analyse du son pour les sciences de la parole et l'ouïe	23	Health Sciences	Undergraduate	F
NSG5801	Stage d'intégration	3	Health Sciences	Graduate	F
PDP1216	English as a Second Language - Part I	13	Education	Undergraduate	E
PDP1220	Special Education - Part I	45	Education	Undergraduate	E
PDP1220	Special Education - Part I	27	Education	Undergraduate	E
PDP1410	Primary Division	19	Education	Undergraduate	F
PDP1422	Reading - Part I	10	Education	Undergraduate	E

Course code	Course Title	Registrations	Faculty	Level of instruction	Language
PDP1422	Reading - Part I	6	Education	Undergraduate	E
PDP1603	Intégration de la technologie de l'information et communication dans l'enseignement - partie I	10	Education	Undergraduate	F
PDP1603	Intégration de la technologie de l'information et communication dans l'enseignement - partie I	7	Education	Undergraduate	F
PDP1620	Éducation de l'enfance en difficulté - partie I	44	Education	Undergraduate	F
PDP1620	Éducation de l'enfance en difficulté - partie I	41	Education	Undergraduate	F
PDP1660	Français langue seconde - partie I	40	Education	Undergraduate	F
PDP1660	Français langue seconde - partie I	22	Education	Undergraduate	F
PDP1660	Français langue seconde - partie I	26	Education	Undergraduate	F
PDP2220	Special Education - Part II	9	Education	Undergraduate	E
PDP2220	Special Education - Part II	14	Education	Undergraduate	E
PDP2270	Junior Division	11	Education	Undergraduate	E
PDP2603	Intégration de la technologie de l'information et communication dans l'enseignement - partie II	11	Education	Undergraduate	F
PDP2603	Intégration de la technologie de l'information et communication dans l'enseignement - partie II	15	Education	Undergraduate	F
PDP2620	Éducation de l'enfance en difficulté - partie II	16	Education	Undergraduate	F
PDP2620	Éducation de l'enfance en difficulté - partie II	25	Education	Undergraduate	F
PDP2660	Français langue seconde - partie II	10	Education	Undergraduate	F
PDP2660	Français langue seconde - partie II	8	Education	Undergraduate	F
PDP2670	Cycle moyen	11	Education	Undergraduate	F
PDP2670	Cycle moyen	11	Education	Undergraduate	F
PDP3130	Characteristics of the Learning in the Intermediate Division	20	Education	Undergraduate	E
PDP3177	English, Intermediate Division	20	Education	Undergraduate	E
PDP3270	Special Education - Specialist	10	Education	Undergraduate	E
PDP3270	Special Education - Specialist	9	Education	Undergraduate	E
PDP3422	Reading - Specialist	7	Education	Undergraduate	E

Course code	Course Title	Registrations	Faculty	Level of instruction	Language
PDP3603	Intégration de la technologie de l'information et communication dans l'enseignement - spécialiste	7	Education	Undergraduate	F
PDP3603	Intégration de la technologie de l'information et communication dans l'enseignement - spécialiste	9	Education	Undergraduate	F
PDP3660	Français langue seconde - spécialiste	6	Education	Undergraduate	F
PDP3660	Français langue seconde - spécialiste	12	Education	Undergraduate	F
PDP3670	Éducation de l'enfance en difficulté - spécialiste	13	Education	Undergraduate	F
PDP3670	Éducation de l'enfance en difficulté - spécialiste	17	Education	Undergraduate	F
PDP4510	Éducation et enseignement (11e et 12e)	12	Education	Undergraduate	F
PDP4708	Français (11e-12e)	12	Education	Undergraduate	F
CHM2120	Organic Chemistry II	25	Science	Undergraduate	E
DCC2303	Legal aspects of human rights	20	Law	Undergraduate	F
DCC2703	Dimensions juridiques des droits de la personne	14	Law	Undergraduate	F
EDU5188	Integration Of Technology In Education	29	Education	Undergraduate	E
EDU5190	Introduction To Research In Education	22	Education	Undergraduate	E
EDU5590	Introduction à la recherche en éducation	27	Education	Graduate	F
EDU5631	Comportement organisationnel	23	Education	Graduate	F
EDU5653	Théories et modèles de l'apprentissage	25	Education	Graduate	F
EDU5658	Psychopédagogie de l'enfance exceptionnelle	22	Education	Graduate	F
EDU6546	Théories d'apprentissage appliquées à l'enseignement des langues	15	Education	Graduate	F
EDU6634	Gestion de la qualité en éducation	17	Education	Graduate	F
NSG4101	History of Canadian Nursing, 1850-1975	4	Health Sciences	Undergraduate	E
NSG4501	Histoire des soins infirmiers canadiens - 1850 à 1975	27	Health Sciences	Undergraduate	F

Course code	Course Title	Registrations	Faculty	Level of instruction	Language
NSG4570	Les principes et les pratiques de l'allaitement maternel	28	Health Sciences	Undergraduate	F
NSG5130	Development of knowledge and theory in nursing as a discipline	15	Health Sciences	Graduate	E
NUT3725	Sécurité alimentaire et nutrition d'urgence	16	Health Sciences	Undergraduate	F
PDP1216	English as a Second Language - Part I	9	Education	Undergraduate	E
PDP1220	Special Education - Part I	31	Education	Undergraduate	E
PDP1410	Primary Division	6	Education	Undergraduate	F
PDP1603	Intégration de la technologie de l'information et communication dans l'enseignement - partie I	14	Education	Undergraduate	F
PDP1615	Enseignement aux élèves aveugles	10	Education	Undergraduate	F
PDP1620	Éducation de l'enfance en difficulté - partie I	20	Education	Undergraduate	F
PDP1660	Français langue seconde - partie I	18	Education	Undergraduate	F
PDP2220	Special Education - Part II	7	Education	Undergraduate	E
PDP2603	Intégration de la technologie de l'information et communication dans l'enseignement - partie II	1	Education	Undergraduate	F
PDP2620	Éducation de l'enfance en difficulté - partie II	15	Education	Undergraduate	F
PDP2660	Français langue seconde - partie II	5	Education	Undergraduate	F
PDP2670	Cycle moyen	6	Education	Undergraduate	F
PDP3513	Éducation et enseignement au cycle intermédiaire (7e-10e)	10	Education	Undergraduate	F
PDP3603	Intégration de la technologie de l'information et communication dans l'enseignement - spécialiste	4	Education	Undergraduate	F
PDP3670	Éducation de l'enfance en difficulté - spécialiste	11	Education	Undergraduate	F
PDP3708	Français (7e-10e)	10	Education	Undergraduate	F
PED1599	Connaissances et habiletés reliées au français écrit en enseignement	9	Education	Undergraduate	F
PED1599	Connaissances et habiletés reliées au français écrit en enseignement	41	Education	Undergraduate	F

Course code	Course Title	Registrations	Faculty	Level of instruction	Language
PED2143	Professional Inquiry in Practice	5	Education	Undergraduate	E
PED3720	Didactique du français langue maternelle au cycle intermédiaire	16	Education	Undergraduate	F
PED3755	Didactique des arts à l'élémentaire	35	Education	Undergraduate	F
PED3755	Didactique des arts à l'élémentaire	42	Education	Undergraduate	F
PED3755	Didactique des arts à l'élémentaire	2	Education	Undergraduate	F
PED3756	Didactique des sciences humaines et sociales à l'élémentaire	14	Education	Undergraduate	F
PED3756	Didactique des sciences humaines et sociales à l'élémentaire	54	Education	Undergraduate	F
DCC2303	Legal aspects of human rights	17	Law	Undergraduate	F
DCC2703	Dimensions juridiques des droits de la personne	16	Law	Undergraduate	F
EDU5199	Synthesis Seminar	25	Education	Graduate	E
EDU5242	Trends In Second Language Teaching	31	Education	Graduate	E
EDU5253	Theories Of Learning Applied To Teaching	30	Education	Graduate	E
EDU5583	Créativité et éducation	27	Education	Graduate	F
EDU5584	Dimension, stratégies et gestion des apprentissages	20	Education	Graduate	F
EDU5590	Introduction à la recherche en éducation	27	Education	Graduate	F
EDU5599	Introduction à la recherche en éducation	20	Education	Graduate	F
EDU5616	Principales problématiques en éducation	26	Education	Graduate	F
EDU5642	Courants en didactique des langues secondes	11	Education	Graduate	F
EDU5830	Enjeux actuels en administration éducationnelle	21	Education	Graduate	F
EDU5833	Éducation et changement social	25	Education	Graduate	F
NSG4505	Soins infirmiers de la grossesse à risque - Volet antépartum	16	Health Sciences	Undergraduate	F
NSG5350	Pathophysiology for the nurse practitioner	7	Health Sciences	Graduate	E

Course code	Course Title	Registrations	Faculty	Level of instruction	Language
NSG5370	Advanced health assessment and diagnosis I	7	Health Sciences	Graduate	E
NSG5380	Therapeutics in primary health care I	7	Health Sciences	Graduate	E
NSG6150	Historical context in nursing practice	11	Health Sciences	Graduate	E
PDP1216	English as a Second Language - Part I	7	Education	Undergraduate	E
PDP1220	Special Education - Part I	10	Education	Undergraduate	E
PDP1603	Intégration de la technologie de l'information et communication dans l'enseignement - partie I	9	Education	Undergraduate	F
PDP1615	Enseignement aux élèves aveugles	8	Education	Undergraduate	F
PDP1620	Éducation de l'enfance en difficulté - partie I	23	Education	Undergraduate	F
PDP1660	Français langue seconde - partie I	14	Education	Undergraduate	F
PDP2603	Intégration de la technologie de l'information et communication dans l'enseignement - partie II	11	Education	Undergraduate	F
PDP2620	Éducation de l'enfance en difficulté - partie II	9	Education	Undergraduate	F
PDP2660	Français langue seconde - partie II	8	Education	Undergraduate	F
PDP2670	Cycle moyen	12	Education	Undergraduate	F
PDP3603	Intégration de la technologie de l'information et communication dans l'enseignement - spécialiste	3	Education	Undergraduate	F
PDP3660	Français langue seconde - spécialiste	5	Education	Undergraduate	F
PDP3670	Éducation de l'enfance en difficulté - spécialiste	11	Education	Undergraduate	F
PED3519	Le système scolaire franco-ontarien	13	Education	Undergraduate	F
PED3519	Le système scolaire franco-ontarien	53	Education	Undergraduate	F
PED3702	L'enseignement religieux à l'élémentaire	19	Education	Undergraduate	F
PED3702	L'enseignement religieux à l'élémentaire	17	Education	Undergraduate	F

Course code	Course Title	Registrations	Faculty	Level of instruction	Language
PED3702	L'enseignement religieux à l'élémentaire	2	Education	Undergraduate	F
PED3703	L'enseignement de la catéchèse au cycle intermédiaire	70	Education	Undergraduate	F
PED3712	Principes administratifs et professionnels en milieu scolaire	13	Education	Undergraduate	F
PED4766	Enseignement en contexte minoritaire pluriethnique	17	Education	Undergraduate	F
PED4766	Enseignement en contexte minoritaire pluriethnique	26	Education	Undergraduate	F
SAI4120	Interprofessional Health Care Practice	147	Health Sciences	Undergraduate	E
SAI4120	Interprofessional Health Care Practice	27	Health Sciences	Undergraduate	E
SAI4120	Interprofessional Health Care Practice	139	Health Sciences	Undergraduate	E
SAI4520	Pratique interprofessionnelle en soins de santé	73	Health Sciences	Undergraduate	F

B. Portrait of Online Learning in Ontario (Winter 2013)

Institution	Number of Online Programs (with courses offered in Winter 2013)	Number of online courses (offered Winter 2013)
Algoma University	0	2
Ontario College of Art and Design	0	4
Trent University	1	6
St. Paul University	2	7
University of Sudbury	2	12
Carleton University	5	16
Thorneloe University	0	21
Brock University	2	22
Lakehead University	4	25
University of Western Ontario	10	29
University of Windsor	7	31
Nipissing University	2	33
University of Ontario Institute of Technology	3	40
Royal Military College of Canada	8	51
McMaster University	17	62
Wilfrid Laurier University	2	68
University of Ottawa	5	76
Queen's University	3	95
York University	14	97
University of Toronto	17	107
University of Guelph	23	115
Laurentian University Université Laurentienne	26	117
Ryerson University	52	185
University of Waterloo	19	312

Source: Contact North. Note: this is only a snapshot of Winter 2013 and does not represent an exhaustive survey.

C. E-Learning in Medical Education[39]

HISTORICAL CONTEXT

Through the ages, medical education consisted of an apprenticeship, with close observation and guidance by a preceptor or mentor. Just over one hundred years ago, there was a revolution in medical education, as Abraham Flexner proposed a new model whereby medical students would spend 2 years learning the scientific basis for disease, followed by two years of practical experience in the clinical setting. This effectively created a distinction between the hospital and university, whereby medicine consisted of supervised training in a professional school. Over time, this concentrated apprenticeship grew to 4, 5 or 6 years of post-graduate training, followed by several more years of sub-specialty fellowship training. This is no longer tenable, as the gradual erosion of the apprenticeship model is now complete. We are in the midst of a second revolution in medical education. In the 1980's, "managed care" evolved in the US, with an emphasis on cost containment and efficiency of patient care. Overnight hospital stays were identified as the most expensive component of the system. According to the AHRQ, 16% of surgeries were outpatient in 1980, and by 2007, this had increased to 58%. At the same time, other forces have led to an increase in individual physician accountability, increased concerns around patient safety, and a reduction in duty hours for medical trainees.

IMPLICATIONS FOR MEDICAL EDUCATION

The implications of these changes are that learners encounter patients far too late in their training, with reduced exposure. There is more to learn and fewer opportunities to learn it all in the patient setting. And we can't lengthen training, as many specialists are graduating in their late 30's with a high debt load. The "tipping point" seems to have arrived somewhere between 1998 and 2003. With fewer opportunities for preceptors to truly get to know and observe their trainees, medical education has embraced a "competency-based" approach. The question has been turned around, from "what should we train our medical students?", to "what do we want our MDs to look like when they graduate?". This competency-based system specifies a "basket" of competencies, such that our students must demonstrate competence in each before obtaining a medical license. These include medical expert, professional, communicator, health advocate, manager, and so on. Whereas in the past, it was enough to spend time with the trainee and monitor their progress, today the challenge is to ensure they are competent in a "basket" of competencies. Medical education has become far less personal. So we need solutions. Two solutions that have evolved over the past decade are simulation and eLearning.

THE IMPORTANCE OF EDUCATIONAL RATIONALE

With either technology, we need to insist on strong educational rationale in all curriculum programming decisions. We need to enlist education experts and instructional designers who understand the impact of technology on learning.

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[39] Prepared by Stanley J. Hamstra, Ph.D., Acting Assistant Dean, Academy for Innovation in Medical Education (AIME), Research Director, University of Ottawa Skills and Simulation Centre (uOSSC), Associate Professor, Departments of Medicine, Surgery and Anesthesia, Faculty of Medicine, University of Ottawa. Dr. Hamstra spoke to the Working Group on December 14, 2012 about a new approach to integrate e-learning and simulation in medical education.

SCHOLARSHIP IN MEDICAL EDUCATION

Our group has embarked on a systematic review of eLearning and simulation in medical education with colleagues from University of Toronto, UBC and the Mayo Clinic. We also need to create support for local innovations to allow for the study, collection, and sharing of best practices – this is where the university can support the hospital-based training programs. Currently, medical education largely exists in artificial "silos" - Undergraduate, Postgraduate, and Continuing Medical Education – which span the career of the medical practitioner. With our proposal to develop the position for iMed Director, we hope to share best practices across these levels to promote best practices and increase efficiency.

A PILOT PROJECT TO ILLUSTRATE THIS APPROACH

A current pilot project is underway to use eLearning and combine opportunities in simulation to meet the needs of "off-service" residents in Pediatrics. This is in response to pressure in the system to place more residents in these clinical services, which are already at full capacity. At the same time, there is also local pressure in Ontario to produce more Pediatricians. In essence, trainees are introduced to the specialty through eLearning modules, supplemented by simulation-based training so that they can enter the clinical setting with maximal efficiency and minimal strain on the system. Details of this project can be presented on request.

Information about AIME is available at: http://www.med.uottawa.ca/aime/eng/index.html University of Ottawa Skills and Simulation Centre (uOSSC): http://uossc.ca/

D. Costs associated with TLSS Blended Support and Training Program

TLSS BLENDED SUPPORT AND TRAINING PROGRAM

Resources and Costs Implications

Existing Resources

TLSS will devote:

- Human resources
  - Educational Developers
  - Instructional Designers
  - Graphic Designers
  - Others

- Infrastructure
  - Virtual Campus
  - Classrooms
  - Computer Labs
  - Multimedia Testing Boardroom
  - Others

- Multimedia tools and resources
  - Equipment
  - Echo360 system
  - Online material
  - Others

Individual consultations

Workshops and seminars

Cohort

Institute

Online resources

Multimedia tools

Mentoring Faculties

Communities of practice

Additional Resources Required

The University must invest:

- Human resources whose responsibilities will evolve through the following phases:
  - Development,
  - Implementation
  - Maintenance

- Required resources amount to 4 FTE including:
  - 1 Lead Developer
  - 3 Developers with specialized sets of skills

- University's investment: Equivalent to approximately **$315,000**/year

- To be considered: Infrastructure and Centre for e-Learning Revenue Obligations

HUMAN RESOURCES REQUIRED - BREAKDOWN PER YEAR

Development Phase – Human Resources Headcount	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Techno-pedagogical Lead Developer	1	1	1	0	0	0
Techno-pedagogical Developers	3	3	2	1	0	0
Total	**4**	**4**	**3**	**1**	**0**	**0**

Implementation Phase – Human Resources Headcount	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Techno-pedagogical Lead Developer	0	0	0	1	1	1
Techno-pedagogical Developers	0	0	1	2	3	3
Total	**0**	**0**	**1**	**3**	**4**	**4**

Summary – Human Resources Headcount	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Development Phase	$315,000	$315,000	$240,000	$75,000	$0	$0
Implementation Phase	$0	$0	$75,000	$240,000	$315,000	$315,000
Total	**$315,000**	**$315,000**	**$315,000**	**$315,000**	**$315,000**	**$315,000**
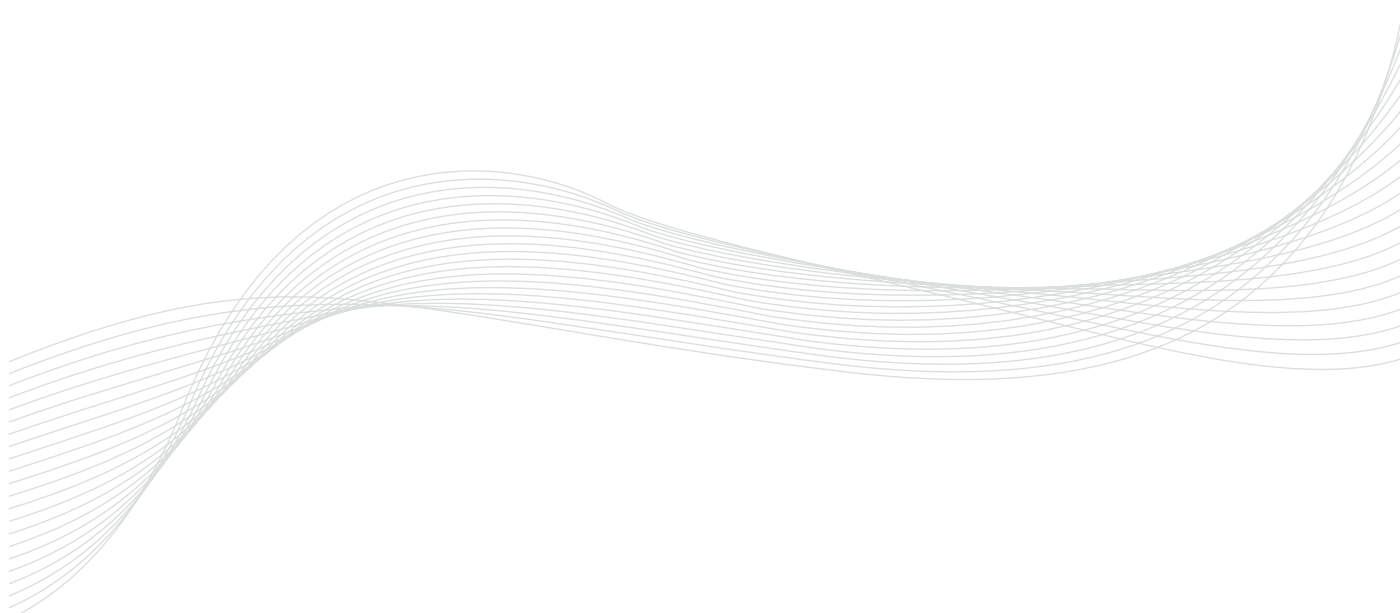
E. Massive Open Online Courses (MOOCs)[40]

OVERVIEW: PEDAGOGICAL STRENGTHS AND WEAKNESSES OF MOOCS

PROS	CONS
Like a research program, MOOCs give universities prestige and help build reputation. They bring international attention to the university's brand, as well as the possibility of attracting successful professors.	MOOCs were created not from an educational perspective, but rather a business perspective. MOOCs are not developed based on how students learn. They are non-interactive and passive, which may limit their effectiveness.
MOOCs can be used as additional course material for professors who would like to include them in their curriculum. MOOCs can be used as an experiment for universities.	As far as we know, companies who are developing MOOCs have not hired anyone with specialized training in educational technology, course design or similar fields. MOOCs are developed by programmers and faculty members.
MOOCs are not a big threat to traditional universities.	Institutions that want to self-host the MOOCs must have a sophisticated LMS-like platform, skilled technical support, and the ability to advertise the courses to students.
MOOCs could be used by some universities to reduce cost of personnel (if optimization is required).	Universities employing fewer professors could meet resistance from the unions. (We have not come across any institution doing this so far).
MOOCs will enable personal learning opportunities to a bigger audience. For student, they are a low cost and low risk alternative to education. Traditional universities charge fees to students, while MOOCs are free, or only charge a nominal fee.	A student who needs assistance and guidance will prefer the format and structure traditional university courses provide. With MOOCs, there is no platform for beginners to learn. The focus is more on the content to cover, rather than student understanding and learning.
Traditional online courses charge a tuition fee, give credits and the number of students per course is limited, while MOOCs are free, no credits are given and the number of students that can enrol is limitless. There have been experiments however in which MOOCs have been designed to include a for-credit student fee structure course that is contained within the larger free, not-for-credit MOOCs.	MOOCs do not simulate a classroom experience; the delivery of the teaching material is very static. Real education involves challenging, failing and changing on both the student and teacher's side. Education is a process; it is not inserting information in a static receptacle. Generally, MOOCs are seen to inform, rather than educate.
MOOCs may be used as a way to increase student recruitment and access to higher education for all.	The success rate of MOOCs has been based on subscription rate, not students' learning outcomes. Should MOOCs be offered for credit, evaluations tools and program would have to be developed to ensure they meet the Ministry' requirements regarding expected learning outcomes.

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[40] This analysis was prepared by the Teaching and Learning Support Service (TLSS)

PROS	CONS
Independent and motivated students will succeed with MOOCs. It is a good tool for self-improvement. Student must independently organize discussions or study groups.	The size of the course can make it difficult for professors to connect with the students. There is no meaningful student-teacher interaction. Plagiarism can be widespread which is why most institutions hesitate to make MOOCs courses for credit.
MOOCs could be adjusted to fit regular students enrolled in undergraduate degrees. In the past, American universities have posted lectures online. It may give students and professors the possibility to spend more in class time, focusing on hands-on learning, discussions and problem-solving.	Grading can be complicated. Coursera uses peer-to-peer grading. Student must show they are able to match the teacher's grading before being able to grade five peers. Grading in Coursera is constituted as a pass/fail. Course offerings are not for academic credits.
If credits from a degree program could be joined to a MOOC, one might see the low completion rate associated with a not-for-credit MOOCs drop.	MOOCs connect students to each other and to the content, but that doesn't cause learning to happen. We need to teach the students material that they will find useful and use at work or in life. Like for any other courses, students need to be motivated; they need to have a reason to learn.
	Given that MOOCs courses offer no credit, major adjustments would need to be made in order for MOOCs courses to be able to fit within a degree-granting program.
	Offering free material on an ongoing basis doesn't make sense financially for many universities. MOOCs should be seen primarily as a promotional vehicle for institutions that can afford to offer them.
	MOOCs will only evolve if educators take into consideration how people learn, the different styles of learning. Need to move away from traditional transmission mode of delivery of material (video-taped lectures) and towards a new design (interactive, learner-centered, and collaborative learning).
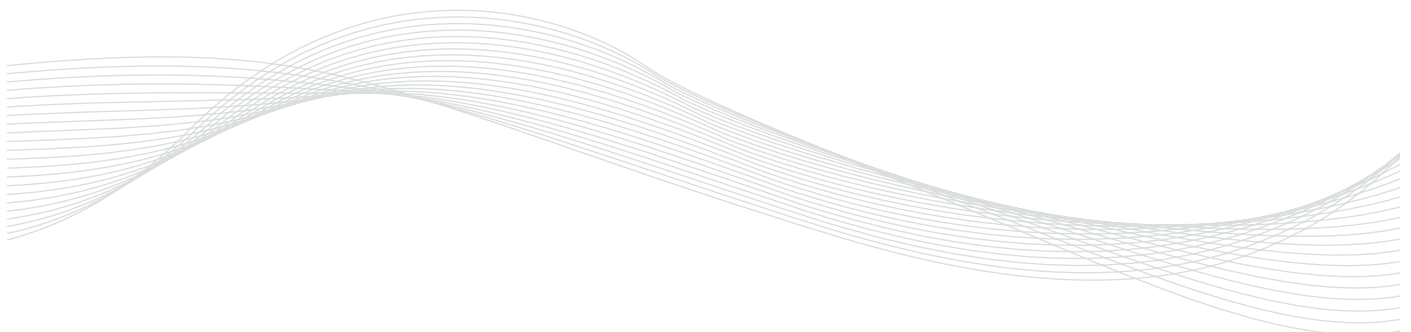
OVERVIEW: BUSINESS CASE OF MOOCS

PROS	CONS
Udacity would like to match students with employers, earning the company a commission by charging companies access to a list of those who have completed courses and/or programs.	By not charging for pedagogical material, they must find ways to repay their investors and operating expenses.
Students who have taken the course free of charge may be willing to pay for: human interaction, additional course materials, exams and other services that may allow them credit for the course.	Coursera, one of the largest MOOCs businesses, charges the student per certificate. As of December 2012, Coursera finances its operations from venture capital, but currently they are not generating revenues per se. Therefore, it is unclear, at this point, how the business model will evolve with time.
Ways in which revenues might be generated: Charging for certification and testing; Vending of tutorial services, translations facilitation of small-group discussion and peer learning, etc.; Direct tuition for courses or clusters of courses in relation to certification, standard distance education practice just with the new midscale Coursera brand; and Miscellaneous revenue sources, like advertising and employment-service revenue from job seekers and potential employers.	MOOCs cost a lot of money for the institutions and companies operating them. Obtaining copyright licensing for the course content can be very time consuming and costly.
The fact that the service is free appeals to the general public and that can lead the way for alternate services which will generate revenues. Ex: Employment placement, advanced assessment, individual counselling and publishing.	Our institution will have to determine what business model it wishes to adopt, which may include strategies for alternative revenues.
MOOCs reduce fees. They are free, easily accessible and flexible.	Udacity would like students to pay $80 to take exams at a testing center. In Ontario, similar fees would have to comply with the Ministry's ancillary fee policy.
MOOCs companies do not pay universities and universities do not pay MOOCs companies. Thus, revenues (however they might be generated) would be shared by both the university and the MOOCs companies.	

PROVIDER CHOICE CONSIDERATIONS

The list of MOOC providers is changing and the quantity and range of offerings varies. A summary research of providers yields this list with their current (January 2013) number of offerings:

MOOC Provider	# of Courses Offered
10genEducation	3
Canvas.net	13
Class2Go	1
Coursera	95
edX	24
Leuphana Digital School	1
openHPI	2
OpenLearning	3
Santa Fe Institute	1
Saylor.org	39
Udacity	22
UniMOOC - Tec	2

Below are the salient points for the models of the three providers most referred to in the media; and thus, potentially more attractive for the University if it is considering a MOOC for the prestige aspect.

COURSERA	edX	UDACITY
→ Commercial venture. → The company screens potential participating universities and has so far concentrated on top-tier institutions. → Monetization model is still evolving. → The university providing the course is responsible for all course development and delivery related costs. → Course format is fixed: recorded video content delivery with auto-grading assessments.	→ University consortium. → Financial viability model development in progress. → Currently 24 courses offered from 3 institutions (MIT, Berkeley, Harvard). (January 2013)	→ Private educational organization. → Venture capital funded ($15 million). → Currently 22 courses offered, some from a partner institution (San Jose State University). (January 2013)

APPROXIMATE ESTIMATE OF POTENTIAL COSTS ASSOCIATED WITH THE OFFERING OF A MOOC COURSE (USING COURSERA) – STAND-ALONE COURSE, NOT FOR CREDIT

Course development (once every 3 years)	Faculty release (1/4 full professor mean salary)	$35,000
	Material copyright	$5,000
	Course building team[41]	$25,000
	Administrative framework (with Coursera and technical support to the University)	$20,000
	Accessibility (captions, transcripts, etc.)	$15,000
	Legal services (approximate)[42]	$10,000
Total		**$110,000**
Basic course delivery (every time the course is offered)	Professor stipend (course responsibility)	$7,000
	Teaching assistant(s) (answer questions from students, relations with students, etc.) (dependent upon the number of students)	$10,000
	Library support	$7,000
	Technical support	$5,000
Total		**$29,000**

RESPONSIBILITIES OF THE UNIVERSITY (WHEN SIGNING-UP WITH COURSERA)[43]

→ Creating the video lecture Content (including video editing and chunking into short videos).

→ Creating appropriate assessments, so as to have rigorous, meaningful, measure of End User Learning.

→ Software development on any special-purpose assessments required for the Course, except by agreement of Company, at its own discretion, to help develop such assessments.

→ Copyright clearance: Ensuring that the content (lectures + assessments) are clear of copyright issues, as per University-provided guidelines.

→ Uploading the video Content, assessments (quizzes), and slides used to the hosting Platform (together with any other relevant Content, such as web pages, etc.).

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[41] One institution (already providing a MOOC course consulted in the preparation of this document) indicated incurring considerable production costs as the video material produced was to be of broadcast quality as the professor involved insisted on this aspect as he was going to be seen by several hundreds of thousands of student viewers as well as his colleagues in the field.

[42] Another institution indicated having invested considerably in legal costs to ascertain its legal obligations in regard to MOOC students locally and abroad as well as Patriot Act considerations as the provider is U.S. based. The institution did not have the required in-house legal expertise and was obligated to seek external opinions at considerable expense.

[43] According to an existing Coursera contract with an institution.

→ Uploading any slides used in the videos together with the videos.

→ Uploading appropriate text descriptions of images in quizzes.

→ Working with University and Company to provide any necessary accommodations for End Users with disabilities.

→ Should Instructor, in the process of preparing the Course, decide to make material changes to the agreed upon Course specifications, Instructor shall notify Company promptly and in any event no fewer than 30 days prior to the first scheduled launch of the Course on the Platform.

→ In the first Course offering, monitoring the Q&A forum to ensure that major problems in video content or assessments are addressed.

WHAT STUDENTS CAN EXPECT TO SEE WHEN THEY LOG ONTO THEIR COURSE (USING COURSERA)

→ Name of University

→ Name of Course

→ Name of Professor

→ Short Description of Course (one sentence)

→ Video Preview of Course by Professor (optional)

→ Commencement and Completion dates of Course

→ Estimated Workload per week

→ About Course (more detailed description of Course)

→ FAQ. Examples:

- What is the format of the class? The class will consist of 12 modules, which will include readings for each module, additional references and clips of lecture videos. There will also be short assignments, and short auto-evaluated quizzes at the end of each module.

- Do I need to purchase a textbook for this course? No, all readings are to be found in the course itself.

- Will I get a statement of accomplishment after completing this class? Yes, students who successfully complete the class will receive a statement of accomplishment signed by the instructor.

→ About the Instructor

MONETIZATION MODELS AND EXAMPLES OF MONETIZATION STRATEGIES SUGGESTED BY COURSERA

	Coursera Monetization Model	Coursera University Monetization Model
MOOC Business Model	Under the Coursera Monetization Model, at no cost to the University, the University (through its Instructors) may develop, produce and submit courses to Coursera, and Coursera will host and make any such courses available through the platform, provided that such courses fully satisfy the course criteria. The University will be responsible for providing Coursera the content in a format that can be hosted and streamed via the platform.	Under the University Monetization Model, the University (through its Instructors) will develop, produce and submit courses, and Coursera will host and make such courses available through the platform. The University will be responsible for providing Coursera the content in a format that can be hosted and streamed via the platform, and such content, while not required to satisfy course criteria in order to be made available on the platform, must satisfy the quality standards. Coursera may make such content that it reasonably determines not to satisfy fully the quality standards or the course criteria available on a separate page on the Coursera Website that is different than the main portion of such website.
	<u>Coursera will be responsible for monetizing and otherwise generating revenue from the offering of such courses through the platform and collecting such revenue.</u> All such revenue collected by Coursera will be shared between Coursera and the University as set forth below.	As between the University and Coursera, <u>the University will be responsible for monetizing and otherwise generating revenue from the offering of such courses through the platform and collecting such revenue.</u> All such revenue collected by the University will be shared between Coursera and the University on a pre-agreed course-by-course basis according to Monetization Strategies suggested by Coursera and the University.
	The applicable percentage of the revenue share will be determined on a per-course, basis, consistent with the following parameters, and will be set forth on the Course Development Agreement for each course.	
	Coursera will pay the University:	
	Six percent (6%) of gross revenues for a course with a three-month course lifespan;	
	Nine percent (9%) of gross revenues for a course with a 12-month initial period;	
	Twelve percent (12%) of gross revenues for a course with a 24-month initial period;	
	Fifteen percent (15%) of gross revenues for a course with a 36-month initial period.	
	In addition, Coursera will pay the University twenty percent (20%) of gross profits on the aggregate set of courses provided by the University.	
	Note 1: Coursera is a California based company and thus the provisions of the Patriot Act of U.S.A. apply. This is a consideration under the University Monetization Model if the University is to charge tuition fees for Canadian citizens. (Does this concern apply for foreign students?)	Note 2: Coursera course format is restricted (by contract) to a model of recording (video and audio) of lectures with auto-grading assessments.

EXAMPLES OF MONETIZATION STRATEGIES SUGGESTED BY COURSERA

1. **Certification**: Coursera will provide university-branded certificates that can be purchased by end users; these certificates, which do not carry University credit, will certify achievement by end users of an instructor-specified threshold of performance for a particular course. These certificates might be provided either as (a) a signed PDF document, or (b) a badge posted on LinkedIn, Facebook, Google+, or other community websites, via a recognized badging system.

2. **Secure assessments**: Coursera may provide an end user, for a fee, the capability to undergo identity-verified testing at a private location or in a certified testing location.

3. **Employee recruiting**: With end user consent (via opting into emails of this type), Coursera will allow prospective employers (whether an employer or a recruiter) to execute queries against end user records. These queries might involve student performance in relevant courses (as specified in the query), as well as student-supplied demographic information (such as education or geographical location). Coursera will then allow employers to email end users via the platform, to propose employment opportunities. Coursera will not reveal student contact information to the employer. Students may choose to respond to the email with their contact information at their discretion.

4. **Employee or University screening**: Coursera will provide a prospective capability to assess prospective employees for a given level of expertise courses provided by Coursera, by having the prospective employee take a set of assessments in a proctored environment at the employer site. A similar model will be offered to universities who want to verify a level of knowledge in incoming end users (e.g., for evaluating course waiver requests).

5. **Human-provided tutoring or manual grading**: Coursera will provide access to (paid) human tutoring, grading, or other forms of human academic support.

6. **Corporate/university enterprise model**: Coursera will provide employers access to an enterprise version of the platform which will allow employers to (a) use the content for training employees (trainees) using courses provided on the platform, (b) provide employer instructors access to trainee performance records, for the purposes of gauging performance and assisting trainees in learning. Employers might also augment university-provided courses on the platform with additional content of particular relevance to their own employee pool. Such content will be accessible only to employer's trainees. The same model can be used to provide an enterprise version of the platform to non-university academic institutions (e.g., community colleges higher quality courses at a lower cost, for credit at these non-university institutions.

7. **Sponsorships**: Coursera will allow third party sponsorships of courses, by foundations or companies, using appropriate and non-intrusive visual elements on the course webpage. A sponsor will require the approval by University and instructor, but such approval will not be unreasonably withheld without cause.

8. **Tuition fees**: For certain course, tuition free may be charged of students for access to the course content (usually after a short initial viewing period where access is free). This fee will be mutually agreed to by University and Coursera. In the standard procedure, an end user will be allowed to indicate "financial hardship", upon which tuition fees are automatically waived with respect to access to course content. Certification to an end user declaring financial hardship may or may not be provided, as agreed upon by University and Coursera.

F. The Learning Centre

Examples of spaces at other universities are presented below.

Technology-Enabled Active Learning (TEAL) Project at Massachusetts Institute of Technology (MIT): [44]

This project included the renovation of two classrooms. Some highlights are:

➔ The two 3,000-square-foot TEAL classrooms each contain an instructor's workstation in the center of the room surrounded by 13 round tables, each seating nine students. Thirteen whiteboards and eight video projectors with screens dot the room's periphery. Each table holds three groups of three. Groups are formed by mixing students of varying levels of knowledge in a single group to facilitate peer instruction. Each group uses a computer to view lecture slides and collect data from experiments.

➔ A typical class incorporates lecture, recitation, and hands-on experiments in one presentation. Instructors deliver 20-minute lectures interspersed with discussion questions, visualizations, and pencil-and-paper exercises. Students use animated simulations designed to help them visualize concepts, and carry out experiments in groups during class. Instructors periodically ask concept questions, which students discuss and answer through an electronic polling system with handheld voting keypads.

➔ Instructors no longer lecture from a fixed location, but walk around with a wireless microphone talking to students about their work, assessing their understanding, facilitating interaction, and promoting better learning.

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[44] More information at: http://web.mit.edu/edtech/casestudies/teal.html

Photo: Technology for active learning, http://web.mit.edu/edtech/casestudies/pdf/teal2.pdf (page 45)

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Transform, Interact, Learn, Engage (TILE) Classrooms at the University of Iowa:

Photos: VAN HORNE, S., MURNIATI, C., GAFFNEY, J., JESSE, M.. Promoting Active Learning in Technology-Infused TILE Classrooms at the University of Iowa. Journal of Learning Spaces, North America, 1, jun. 2012. Available at: http://libjournal.uncg.edu/ojs/index.php/jls/article/view/344/286. Date accessed: 19 Apr. 2013.

G. Insights and Considerations on the Impact of a Blended Learning Strategy on Classroom Use and on Future Needs with Respect to New Construction Projects (Learning Centre and Lees)[45]

TLSS PROPOSAL FOR BLENDED LEARNING FOR THE NEXT FIVE YEARS

The Table 1 summarizes the TLSS proposal for blended learning.

Table 1. Five-year Proposal put forth by TLSS for blended learning

	No. of sections (blended courses)	No. of students
Year 1	80	1,920
Year 2	240	5,760
Year 3	440	10,560
Year 4	700	16,800
Year 5	1000	24,000

Expected space savings as a result of the implementation of a blended learning strategy

Table 2 presents an estimate of the savings in classroom space expected by the implementation of a blended learning strategy. This strategy is based on the assumption that 17% of course sections offered at the University will be a blended course format—50% in-person instruction and 50% online instruction. This represents a classroom savings of approximately 8.5%.

To determine the number of classrooms available on campus, we used data from a study completed by the University of Ottawa's Institutional Research and Planning that used 2009 figures. To these numbers, we added the classrooms in the Social Sciences Building and the room at the Sacré-Coeur church.

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[45] Prepared by Yves Herry (Associate Vice-President, Teaching and Learning Support), Éric Bercier (Registrar) and Alain Erdmer (Director of the Centre for Mediated Teaching and Learning, Teaching and Learning Support Service).

Table 2. Expected classroom savings by the development of blended courses—calculations based on actual number of classrooms available on campus in 2013

Seating capacity	A) No. of Registrar classrooms	B) No. of faculty classrooms	C) Total no. of classrooms	D) Classroom savings (8.5%)
1-29	53	73	126	10.7
30-60	71	61	132	11.2
61-100	31	7	38	3.2
101-250	29	5	34	2.9
251 +	2	0	2	0.2
Total	165	140	332	28.2

According to Table 2, we would require **28.2 fewer classrooms**:

10.7 classes with 1-29 seats

11.2 classes with 30-60 seats

3.2 classes with 61-100 seats

2.9 classes with 101-250 seats

0.2 classes with 251 or more seats

Number of additional sections that could be offered, by classroom size, due to space savings created by blended courses.

The number of additional sections that could be offered as a result of space savings from the development of blended courses (from Table 2) are presented by classroom size in Table 3.

Table 3. Number of additional sections that could be offered as a result of space savings

A) Seating capacity	B) Space savings in year five (classroom units; column D in Table 2)	C) No. of additional sections that could be offered (20 sections per classroom per session; column B*20)
1-29	10.7	214
30-60	11.2	224
61-100	3.2	64
101-250	2.9	58
251 +	0.2	4
Total	28.2	564

Elements not considered in tables 1 to 3

At least four elements were not taken into account in the data presented in tables 1 to 3. The following section outlines each element and suggests the possible impacts of each one on classroom requirements.

Element 1. We have assumed that the number of classrooms in each size category meets current faculty needs and that student registration at faculties will not increase or decrease.

Element 2. Data does not take into account requests by professors to change the structure of the meetings between professors and students.
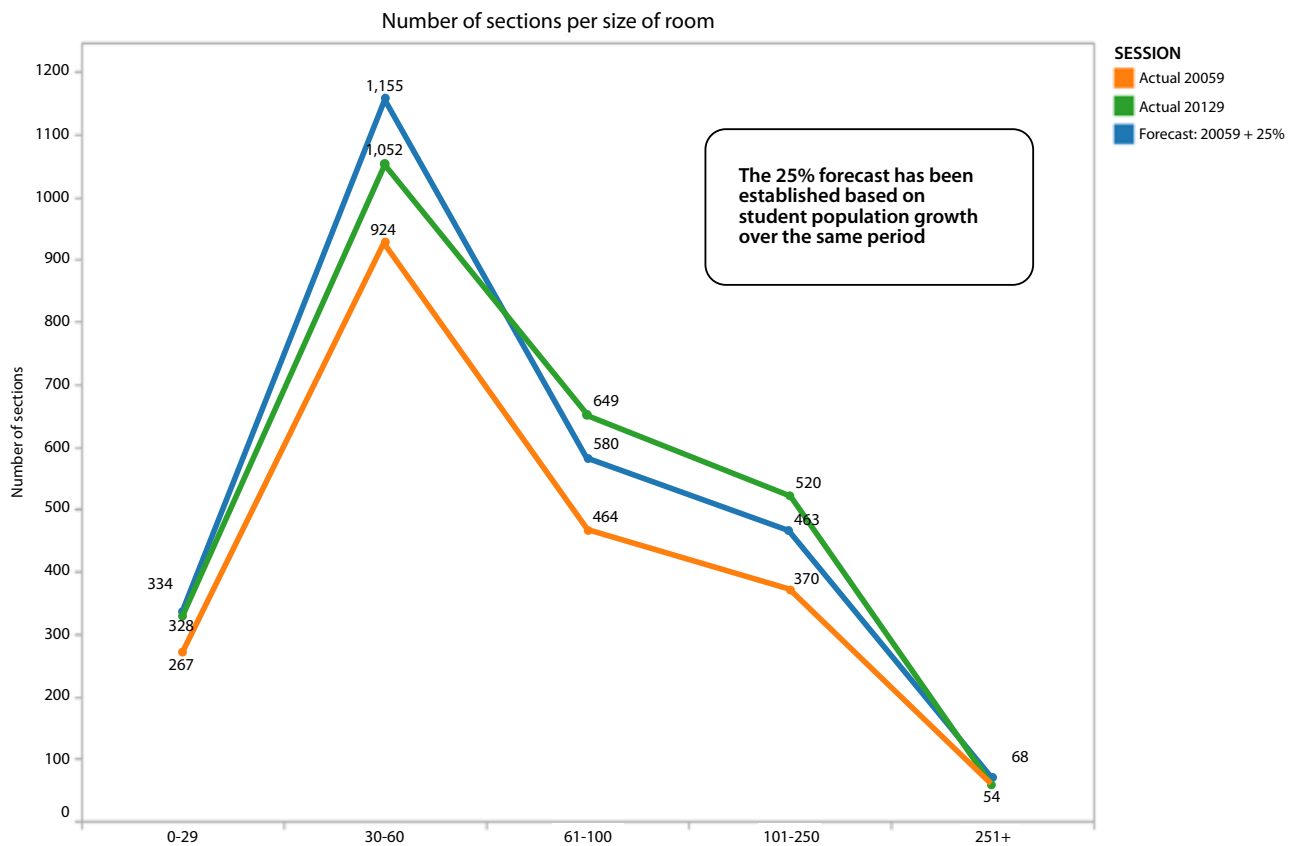
Element 3. Data does not take into account the increase in the number of students over time.

Element 4. Data does not take into account the move of Health Sciences back to Lees.

Element 1. We have assumed that the number of classrooms available in each size category meets current faculty needs and that student registration at the faculties will not increase or decrease per group.

To assess the impact of this element, we looked at figures 1 and 2. Figure 1 illustrates classroom use for the Fall 2005 session (orange) and the Fall 2012 session (green). The third line (blue) illustrates expected classroom use when taking into account the 25% increase in student numbers between 2005 and 2012. Classroom use increased approximately 25% as well, in keeping with the increase in number of students. Nonetheless, the changes become evident when we break down the sections by classroom size.

Figure 1

Number of sections per size of room

The 25% forecast has been established based on student population growth over the same period

A) Actual classroom use for rooms with 30 to 60 seats compared with estimates (blue)

The actual demand for classrooms with 30 to 60 seats was lower than the estimates, as shown by the blue line. In the fall of 2012, the faculties offered 1,062 course sections in classrooms of this size, yet the projected number of course sections offered is 1,155, a difference of -8.5%.

B) Use of classrooms with more than 61 seats compared with estimates (blue)

There was a greater demand for classrooms with greater than 61 seats. In the fall of 2012, faculties offered a total of 1,237 course sections in classrooms of this size, yet we would expect the number of course sections offered in classrooms of this size to be 1,097, a difference of +12.8%.

Faculties may have had to increase the number of students per section:

1. to reduce the number of sections offered,
2. to allow more students to register for the courses, or
3. because they were unable to find enough teaching staff to give the courses.

C) Use of classrooms with more than 250 seats compared with estimates (blue)

The University has two classrooms with more than 250 seats, the Marion Auditorium (100%) and the Unicentre Auditorium (shared with Student Life). It's important to remember that an increase in the use of rooms with 250 or more seats is not possible because 1) the University did not build any rooms of this size during this period and 2) use of existing rooms in this category is at capacity. However, as shown by the blue line in Figure 1, we should have been able to offer 68 sections in the classrooms with more than 250 seats. In theory, this represents 14 more sections, or one extra room.

Would one more classroom of this size, however, be enough to meet the needs of our faculties? To try and answer this question, we used the same data as in Figure 1 (orange and green lines) but extrapolated it to follow the same growth rate as classrooms with 61 to 100 seats and those with 100 to 250 seats. Figure 2 presents the same data as Figure 1 (orange and green lines), except that we have extrapolated current usage so it remains in line with the increase in the number of rooms with 61 to 100 seats and 100 to 250 seats.

From this, we conclude that if the classrooms had been available, faculties could have had scheduled 200 more courses per session in rooms with more than 250 seats. This number corresponds to the use of an additional 7.3 classrooms. Although we consider this number too high, requests for classrooms with more than 250 seats remains between 1 and 7 rooms. The addition of two new classrooms seems appropriate, although it is difficult to predict the number with greater accuracy.

Figure 2

Number of sections per size of room
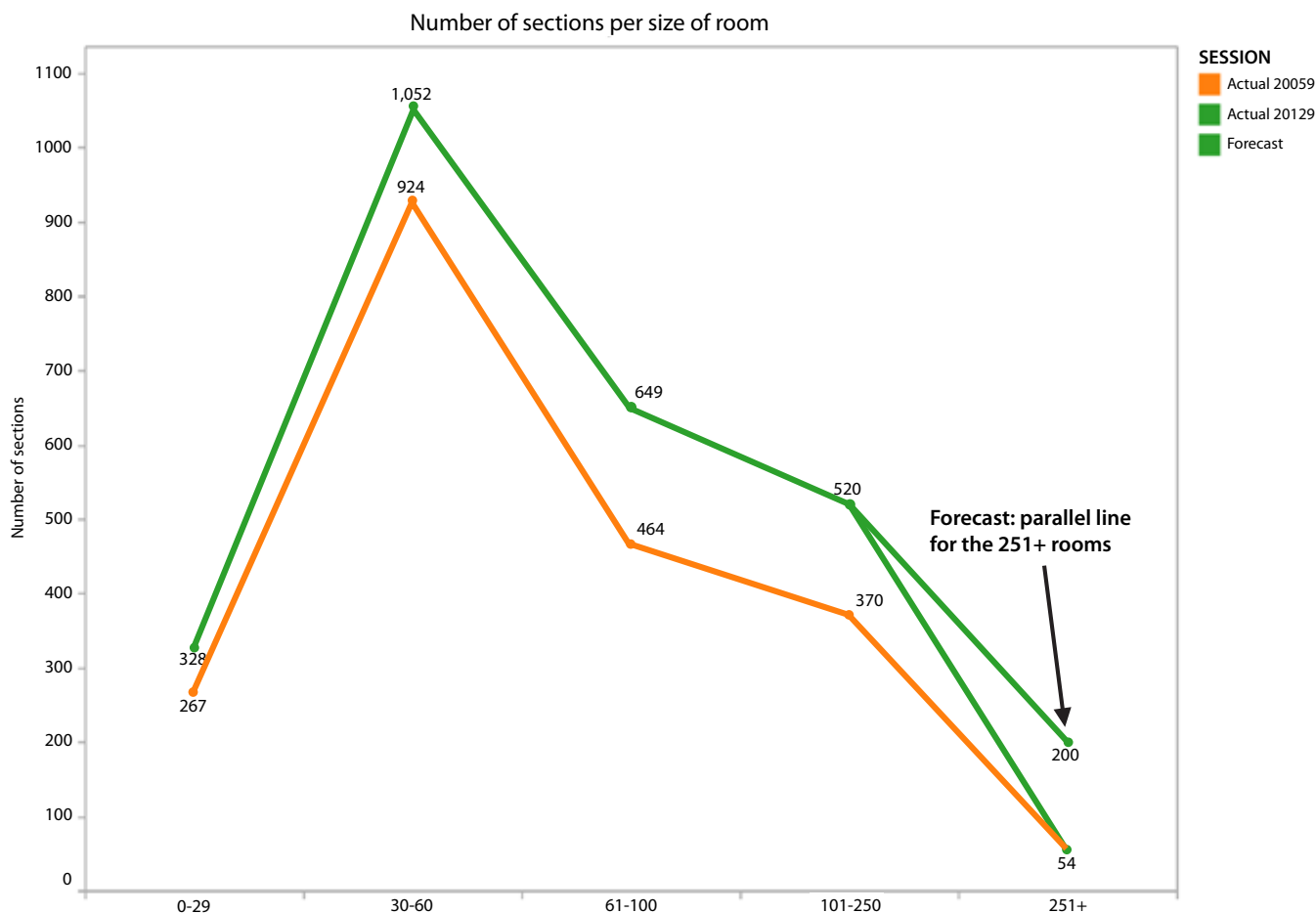
Element 2. Data does not take into account requests by professors related to the structure of meetings with students.

Is it possible that faculties and professors change the format of face-to-face meetings in order to meet the needs of their courses? For example, a professor with 400 students in a course can decide to meet the 400 students as a group once at the beginning of the session, once in the middle of the session and once at the end. The professor may divide the class into five groups of 80 students and meet each group on a rotating weekly basis. Students complete online activities during the weeks they don't meet the professor in person. This type of structure is difficult to predict and would make managing classrooms very difficult. Nonetheless, we believe we could free up enough classrooms with 60 or fewer seats to accommodate the break-out groups.

Element 3. Data does not take into account the increase in the number of students over time.

Destination 2020 aims to increase student enrolment by 4,000 by 2020, with 1,000 of these students at the graduate level and 3,000 at the undergraduate level. Since the classrooms currently being planned won't be available until 2017-2018, we must also take into account the increase in the number of student over and above this after 2020. Keeping in mind the increase in number of students, we estimate the need for space for an additional 3,000 undergraduate students. Table 4 presents this data along with the number of classrooms needed per session in order to accommodate these students.

Table 4. Impact of increased student numbers in 2020 and beyond on classroom needs

Level of study	No. of additional students in 2020	A) No. of additional course sections needed per session*	B) No. of additional classrooms needed (20 sections per week per classroom) per session
Destination 2020			
Graduate	1,000	50	2.5 classrooms with 1 to 25 seats
Undergraduate	3,000	187.5	9.5 classrooms of various sizes
Total	4,000	237.5	12
After 2020			
Undergraduate	3,000	187.5	9.5 classrooms of various sizes
Total			
	7,000	662.5	21.5

* Graduate: Average of 20 students per course (1 course per session per student)
  Undergraduate: Average of 80 students per course (5 courses per session per student)

Table 5 shows the total space saved by taking into account student growth to 2020, as set out in *Destination 2020*, and in the years beyond as well as the decrease in classroom demand due to the creation of blended courses.

Table 5. Space savings over time due to creation of blended courses, taking into account student growth

Seating capacity	Number of classrooms used, by size, as a percentage of all classrooms (based on data from the 2009 course evaluations)*	A) Space savings in year five as a result of creating blended courses (column D in Table 2)	B) No. of classrooms required to meet needs of increase in student population to 2020 and beyond (column B in Table 4)	C) Space savings after taking into account student growth to 2020 and beyond (A - B)
1-29	32.7	10.7	7.0	3.7
30-60	45.6	11.2	9.8	1.4
61-100	9.1	3.2	2.0	1.2
101-250	11.8	2.9	2.5	0.4
251 +	0.8	0.2	0.2	0.0
Total	100	28.2	21.5	6.7

* For example, 32.7% of all classrooms used for teaching are those with 29 or fewer seats, and 11.8% of rooms used are those with 101 to 250 places.

Element 4. Data does not take into account Health Sciences returning to Lees.

If the University brings all Faculty of Health Sciences course activities together at the Lees Campus, teaching needs must be clearly identified. We think the Lees Campus must be autonomous and that the Faculty's students should be able to take all their Health Sciences courses at this location.

This move would mean that classrooms on the main campus currently being used by Health Sciences will be freed up. Table 6 presents expected space savings on the main campus as a result of Health Sciences courses being offered at the Lees Campus.

Table 6. Space savings on the main campus if Health Sciences courses are given at the Lees Campus

Session 20129	No. of sections offered by Health Sciences	No. of course hours represented by HS courses	Classroom equivalent
0-29	16	48	0.8
30-60	44	132	2.2
61-100	24	72	1.2
101-250	44	132	2.2
251+	1	3	0.05
Total	129	387	6.45

CONCLUSION

First, we would like to emphasize that estimates are based on a number of hypotheses and that any increase or decrease in the numbers used in these hypotheses would affect the scenarios presented in the tables above. The main hypotheses are:

→ Within the next five years, 17% of course sections will be hybrid (50% in-person instruction and 50% online instruction)

→ Faculties will identify blended courses in SIS to ensure the classroom savings.

→ The student population will grow by 4,000 between now and 2020 and by 3,000 after 2020.

→ The average classroom use per week is 60 hours. This is higher than the standard published by the Council of Ontario Universities, which is aiming at 70% classroom use over 50 hours per week.

→ The new building at the Lees Campus meets the Faculty of Health Sciences classrooms needs.

→ Our surveys show increased requests by students for courses offered completely online. We currently offer a limited number of courses this way. If the faculties decide to increase the number of courses offered completely online, the number of classrooms required will decrease.

Table 7. Summary of data presented in this document

		Seating capacity					
		1-29	30-60	61-100	101-250	250+	Total
	Classrooms currently available on the main campus						
1	Number of available classrooms in 2009	110	126	36	31	2	305
2	Addition of classrooms in the Social Sciences Building (2012)	16	6	2	2	0	26
3	Addition of the classroom in Sacré-Coeur church	0	0	0	1	0	1
4	Total number of classrooms at the University of Ottawa (2013)	126	132	38	34	2	332
	Space savings						
5	Savings through creation of blended courses	10.7	11.2	3.2	2.9	0.2	28.3
6	Classrooms freed up on main campus as a result of SSAN at Lees	0.8	2.2	1.2	2.2	0.05	6.45
8	Total space savings	11.5	13.4	4.4	5.1	0.25	34.75
	Additional classrooms required to meet growth in student population						
9	In 2020	3.9	5.5	1.1	1.4	0.1	12.0
10	Beyond 2020	3.1	4.3	0.9	1.1	0.1	9.5
11	Increase in faculty requests for rooms with more than 200 seats	0	0	0	0	2	2.0
12	Total additional classrooms required due to growth	7	9.8	2	2.5	2.2	23.5
	Total space savings – negative indicates deficit						
13	Total classrooms available (total of lines 8 to 12)	4.5	3.6	2.4	2.6	-1.95	11.25
	Other considerations						
14	Construction of learning centre classrooms	0	0	3	1	2	6.0
15	Net surplus or net deficit (total of lines 13 and 14) – negative indicates deficit	4.5	3.6	5.4	3.6	0.05	17.25
16	Number of possible course sections available (per session)*	90	72	108	72	1	345

* 90 additional sections in classrooms with fewer than 30 seats, which represents 27.4% of sections currently being given in this size room.

72 additional sections in classrooms with 31-60 seats, which represents 6.8% of sections currently being given in this size room.

108 additional sections in classrooms with 61-100 seats, which represents 16.6% of sections currently being given in this size room.

72 additional sections in classrooms with 101-250 seats, which represents 13.8% of sections currently being given in this size room.

1 additional section in classrooms with 251 or more seats, which represents 1.9% of sections currently being given in this size room.

The total of 345 possible course sections corresponds to 13.3% of the 2,603 sections given in the fall of 2012.

A large part of this scenario is based on reaching the objective of creating 1,000 blended courses within the next five years. Reaching this objective is conditional upon strong support for this project by the faculties and central administration. This could mean going as far as working with the faculties to set quotas to be met each year and putting in place the additional resources needed based on faculty requirements. Table 8 presents classroom availability if we don't develop a strategy for creating hybrid courses.

Table 8. Classroom availability without a strategy on blended learning

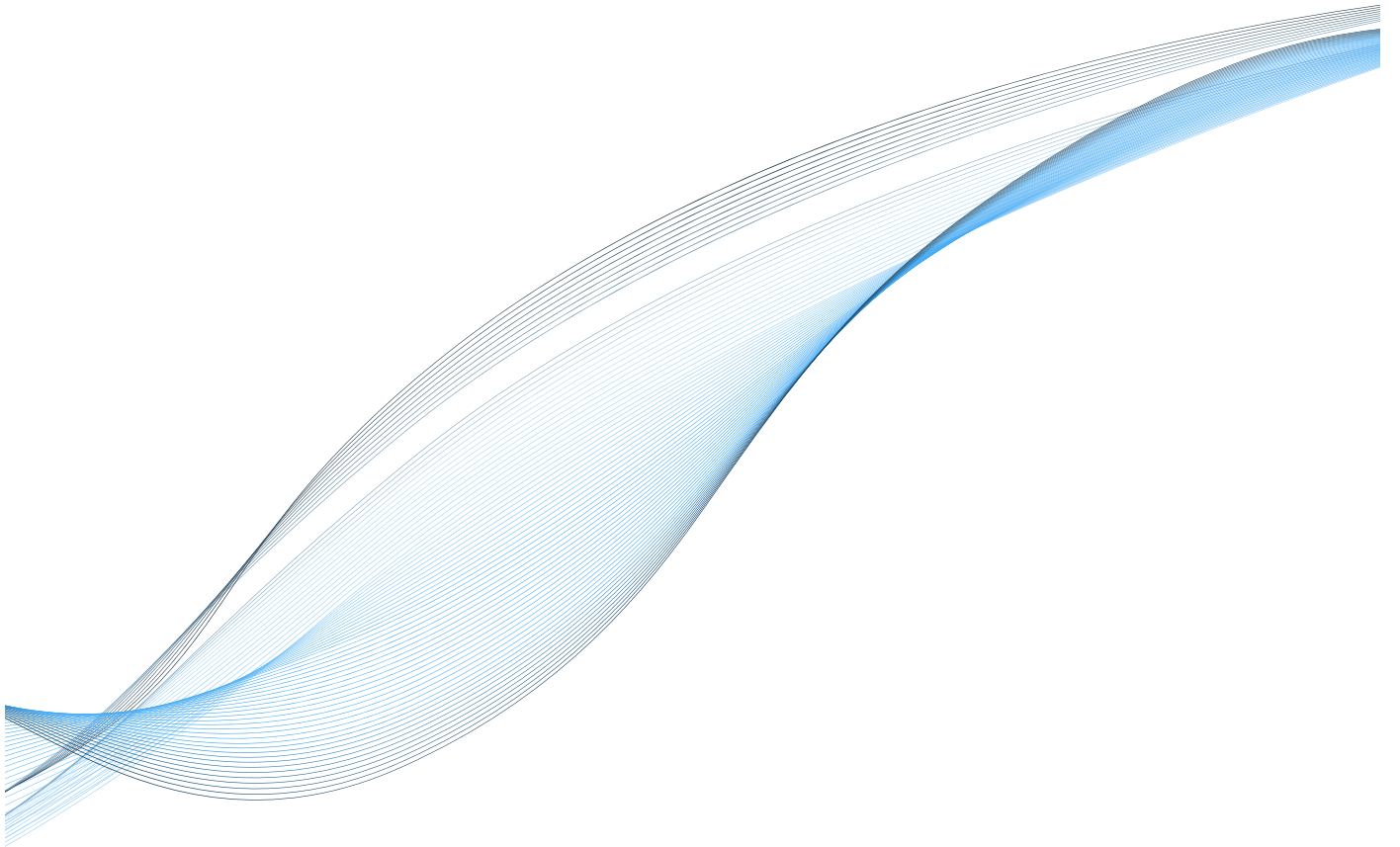|	Seating capacity					
	1-29	30-60	61-100	101-250	250+	Total
Classroom surplus or deficit (-) without strategy in place	-6.2	-7.6	2.2	0.7	-0.15	-11.05

ADDITIONAL INFORMATION RELATED TO THE REQUEST FOR ADDITIONAL CLASSROOMS WITH SEATING CAPACITY ABOVE 250 FOR THE FALL 2013 SESSION (COMPARED WITH THE FALL 2012 SESSION)
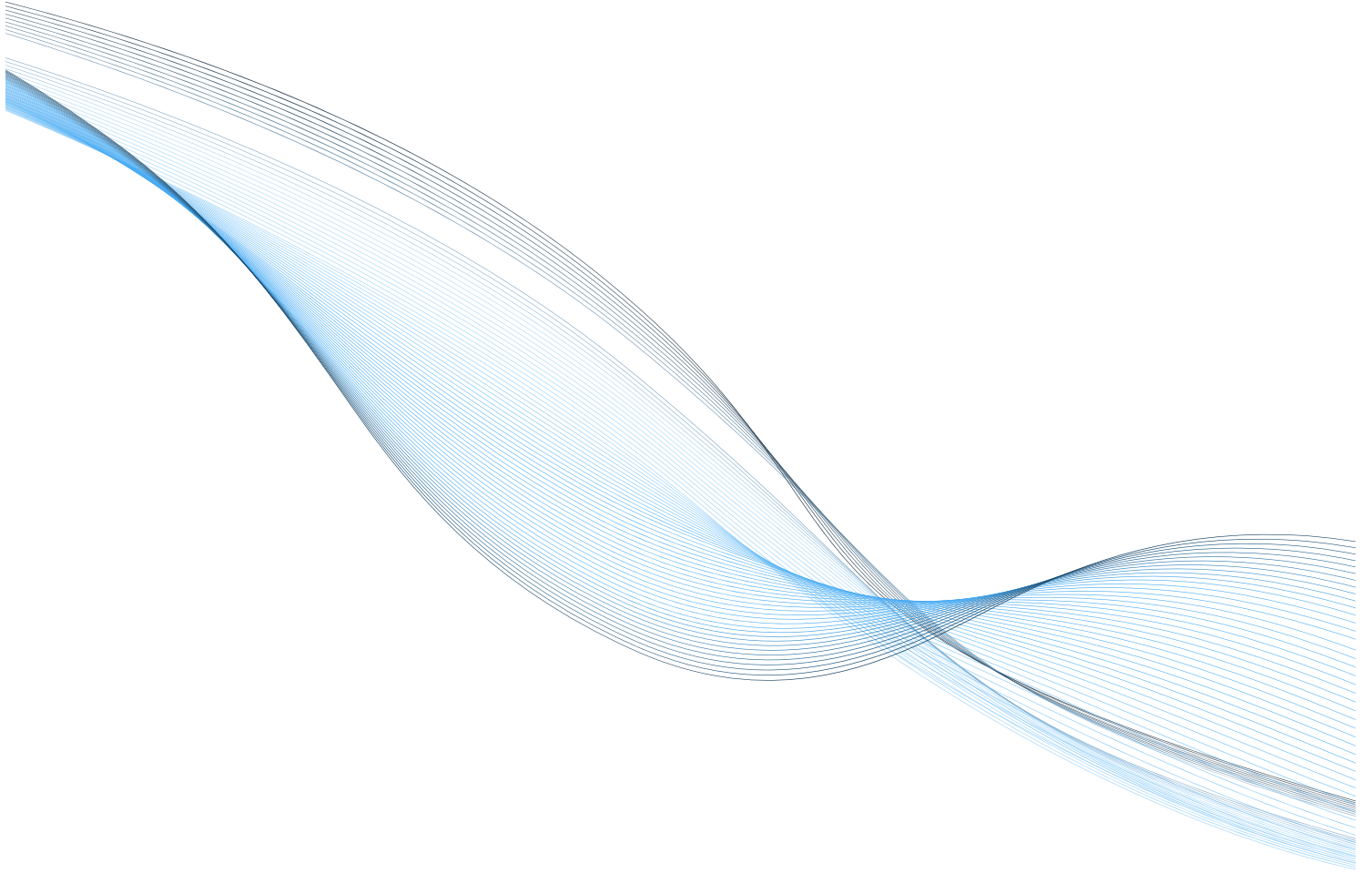
Here we present additional information on the use of classrooms with 251 or more seats:

→ The table below shows an increase in requests in 2013 compared with 2012 for the two classrooms with 251 or more seats. All the time periods available for 2013 have not yet been assigned for the University Centre Auditorium.

→ We believe the number of requests is greatly influenced by classroom availability. After advising the faculties that we had a greater number of time periods available for the Unicentre Auditorium, the number of requests for this room increased (+42%).

→ 85% of time slots for Marion Auditorium are used by the Faculty of Science. Would other faculties like to use a large room if the option was available to them? We are aware that this would not be the case for all faculties.

MARION AUD (420 seats)	20129	20139
Time periods available	45	45
Time periods requested for rooms with between 420 and 304 seats	30	36, including 1 discussion group (DGD)
Time periods assigned	39	42

UNICENTRE AUD (299 seats)	20129	20139
Time periods available	27	33
Time periods requests for rooms with between 300 and 250 seats	28	40
Time periods assigned	24	29