Tracking Online and Distance Education in Canadian Universities and Colleges: 2017

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EXECUTIVE SUMMARY

This report provides the results of a national survey conducted in the spring and summer of 2017 of all Canadian public post-secondary institutions. The survey was highly representative of types of institution, provinces and size of institution with a response rate of 69%, covering 78% of all Canadian post-secondary students.

Extent of activity

Online learning and distance education is clearly alive and well in Canada, with a strong annual growth rate in online enrolments and most institutions playing an active role in offering online and hybrid learning. Nearly all Canadian universities and colleges outside Québec offer *distance education* courses for credit.

In Québec, there is a central service, Cégep à distance, for distance education for the Québec colleges (CEGEPs), but nevertheless half of the responding CEGEPs also offered their own distance education courses.

Over the period 2011-2016, the number of institutions offering *online* courses has increased by 11%. Online course enrolments have increased by approximately 10% per annum in universities and 15% in colleges outside Québec. However, CEGEPs have seen a slight decline (3%) in online course enrolments since 2011.

Online *courses* can be found in every subject area, with online courses in business, education and health (including nursing) being the most frequently offered. Similarly, online *programs* are offered in most subject areas in all types of public post-secondary institutions in Canada.

The use of technology in online learning

Almost all institutions use the Internet as the primary means to deliver distance courses. Nearly all institutions use a learning management system for online courses but this is often supplemented with other technologies, especially conferencing and print.

In about a quarter of the institutions, technologies for synchronous delivery, in the form of interactive lectures or webinars, were used, and print is also used to support online learning in a similar number of institutions.

There is relatively limited use of open educational resources (OER) and open textbooks at the moment.

MOOCs

There is no MOOC mania in Canada. Less than 20% of responding institutions offered MOOCs in the previous 12 months, and those with offerings had only a few.

Institutional polices for online learning

Most Canadian post-secondary institutions see online learning as very or extremely important for their future plans and this is true in all sectors and provinces.

Most institutions either have a strategy or plan for online learning or are developing one. A substantial proportion of institutions are moving to expand online and hybrid teaching.

Benefits and challenges of online learning for institutions

The major reported benefit of online learning was that it provides greater access and more flexibility for students, although almost three-quarters of those responding also saw online learning as a means to increase enrolments. In almost two thirds of the institutions, innovative teaching was perceived as one of the benefits of online learning.

Most institutions reported that lack of adequate resources was a major barrier to online learning. Nearly half the institutions identified a lack of specialist learning technology support staff, and about two-thirds identified a lack of training and resistance from instructors, as main barriers or challenges. Just over a third of the institutions identified a lack of support from government as a challenge. This barrier was lowest in Ontario and highest in Québec.

The need for better data on online learning

Too many institutions are not systematically tracking their developments in online learning. It is difficult to see how institutions can manage their future if they do not have a good handle on how many students are taking online courses or what proportion of the teaching is now online, or how digital technologies are affecting classroom-based teaching. The report recommends a method of doing this tracking.

Tracking Online and Distance Education in Canadian Universities and Colleges: 2017

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This report provides the results of a national survey conducted in the spring and summer of 2017 of all Canadian public post-secondary institutions. The survey universe consisted of 203 institutions and 140 responses. A description of the methodology is presented at the end of this report in an appendix.

DISTANCE EDUCATION

A review of institutional offerings beyond the survey responses found that the vast majority of public post-secondary institutions in Canada offer some form of distance education, with 90% of the universities and 80% of colleges outside Québec involved. In Québec, half of the CEGEPs/colleges offered some form of distance education, even though there is a central service for distance education, Cégep à distance.

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Survey Definitions:

Distance education courses. Distance education courses are those where no classes are held on campus – all instruction is conducted at a distance. Distance education courses may use a variety of delivery methods, such as print-based, video/audio-conferencing, as well as internet-based.

Credit courses. These are courses that lead to institutional credits (degrees, diplomas). In other words non-credit programming for the purpose of this survey was excluded, except where specifically indicated (for instance, MOOCs). Information on all credit online courses was to be included, whether they were managed by a central service or by individual departments or by Continuing Studies.

Distance education includes all forms of delivery to students off-campus, not just online. Of the 140 institutions responding to the questionnaire, 116 (83%) answered 'yes' to this question, and 19 (13%) 'no.' In all provinces and territories, there was at least one institution offering distance education programs. Institutions responding that they did not offer distance education programs were smaller in size, with fewer than 7,500 students.

DOES YOUR INSTITUTION OFFER DISTANCE EDUCATION COURSES (SURVEY)


- Yes
- No
- No answer

4%

13%

83%
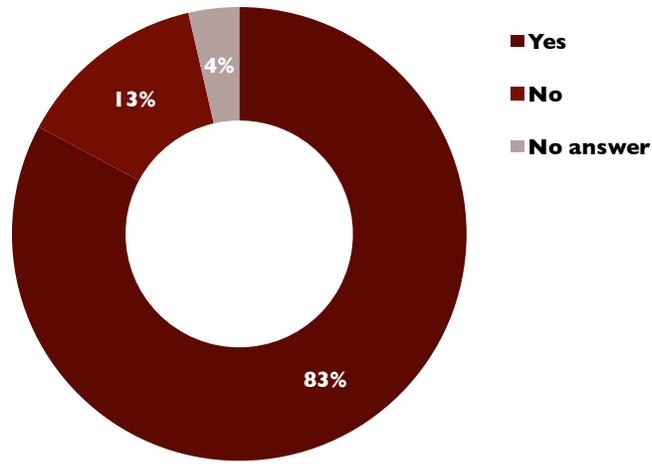
Almost all (51 out of 52) responding institutions with more than 7,500 enrolments offered distance education courses for credit.

Of the 19 institutions who replied that they do not offer distance education, 16 were CEGEPs. This is not surprising in that there is a central distance education program for CEGEPs, Cégep à distance. Nevertheless, in addition to the Cégep à distance program, 12 of the CEGEPs surveyed also offered their own distance education courses.

## DOES YOUR INSTITUTION OFFER ANY DISTANCE EDUCATION COURSES - INSTITUTION TYPE
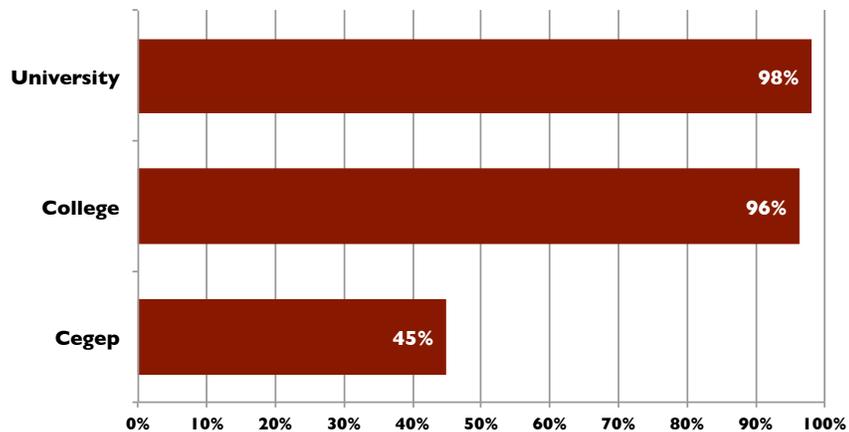
A concern of any survey is a response bias, where only those interested in the topic respond. To ensure that the results were not seriously impacted, other sources, such as institutional web sites, personal knowledge of the institutions, and provincial

agencies, were used to identify which of the institutions that did not respond to the

**DOES YOUR INSTITUTION OFFER DISTANCE
EDUCATION COURSES (ALL SOURCES)**

- ■ Yes
- ■ No
- ■ No answer

3%

20%

77%
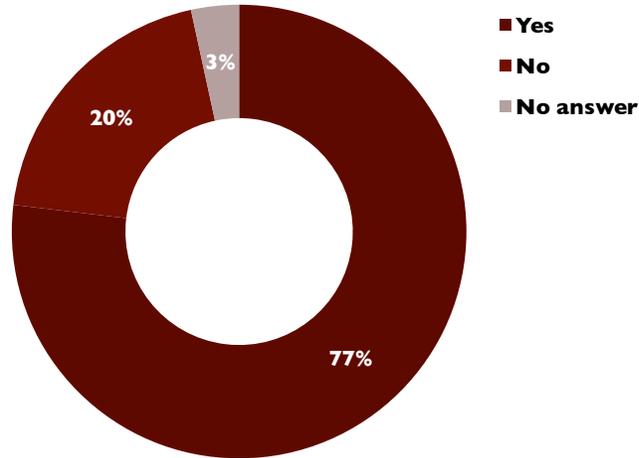
questionnaire offered any distance education courses or programs.

Using these additional sources produced information on 196 of the 203 institutions in the project universe. Among the 196 institutions 80% offer some form of distance education. Assuming that the seven institutions for which we do not have data did not offer any distance courses produces the minimum possible rate. Even with this strictest assumption, just over three quarters of all Canadian post-secondary educational institutions (77%) offer distance education courses or programs for credit. Using the same process of examining all institutions in our universe, and assuming no offerings for all those for which we lack data, for institutions offering distance education courses we see a minimum rate of 90% of universities, 80% of colleges outside Québec and 50% of CEGEPs within Québec.

**DOES YOUR INSTITUTION OFFER DISTANCE EDUCATION
COURSES (ALL SOURCES)**

University — 90%
College — 80%
Cegep — 50%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
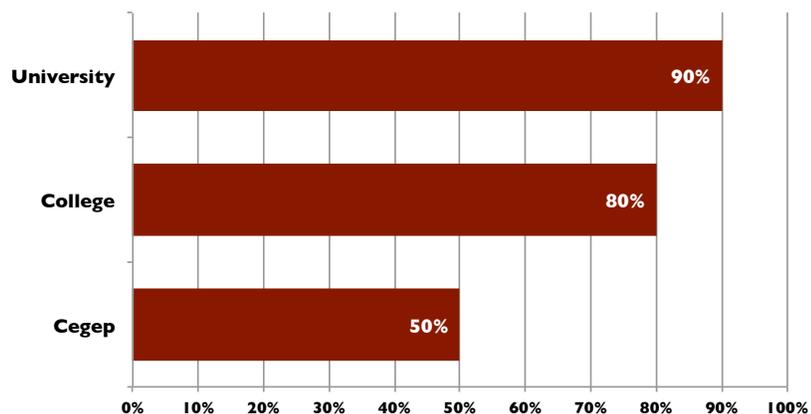
Method of Distance Education Delivery

All but two of the institutions offering distance education used the Internet as their primary delivery format. Just under half of responding institutions (44%) responded that they also used video- or audio-conferencing via telephone or closed networks for distance education. Universities (88%) were more likely to use conferencing technologies than the colleges (60%) or CEGEPs (31%).

TECHNOLOGIES USED IN THE DELIVERY OF DISTANCE COURSES

Technology	Percentage
Primary via the internet	98%
Video- or audio conferencing	45%
Print-based	22%
Other	12%
Live or recorded broadcasting	11%
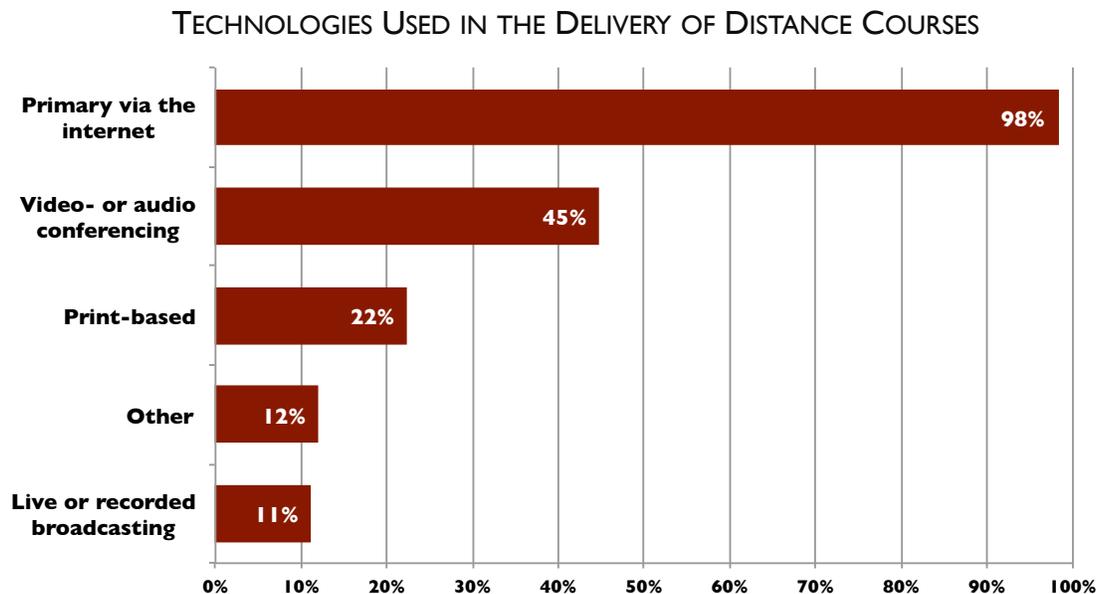
The purpose of this question was to identify which institutions were still using 'legacy' technologies for distance education delivery. Print is still being used to supplement Internet delivery in almost a quarter (22%) of the responding institutions, especially among colleges outside Québec (31%). Because of the high cost of conversion to online, print is still a 'legacy' main delivery format for a small number of courses in a few institutions whose courses are otherwise online.

CEGEPs rely on live or recorded broadcasting (TV or radio) far more (31%) than universities (12%) or colleges (6%). When averaging across all types of institutions, the use of broadcast technologies is quite small (11% of all institutions).

In summary, almost all Canadian institutions offering distance education courses and programs are using the Internet as the main delivery technology, but this is often supplemented with other technologies, especially conferencing and print. More information on the use of technology specifically for online courses can be found later in this report (pp. 28-33).

ONLINE COURSE OFFERINGS

Almost all responding universities and colleges outside Québec offered online courses in the fall of 2016, while less than half of the CEGEPs offered online courses.

With 85% of all responding institutions offering online courses in 2016, Canadian post-secondary education appears to be a relatively mature market for online learning.

Over the period 2011-2016, the number of institutions offering online courses grew by more than 10% with recent growth concentrated in the smaller institutions. Nevertheless, there still appears to be room for increases in overall online student enrolments.

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> Survey Definition:
>
> **Online courses**. A form of distance education where the primary delivery mechanism is via the internet. These could be delivered synchronously or asynchronously. All instruction is conducted at a distance.
>
> Synchronous instruction occurs with faculty and students participating at the same time. Asynchronous instruction allows faculty and students to communicate with each other at different times.

Institutions were asked whether they offered online courses for credit in the fall of 2016. A large majority (85%) of those that responded indicated that they had offered online courses in the fall of 2016.

DOES YOUR INSTITUTION OFFER ANY ONLINE EDUCATION COURSES FOR CREDIT

■ Yes
■ No

15%

85%
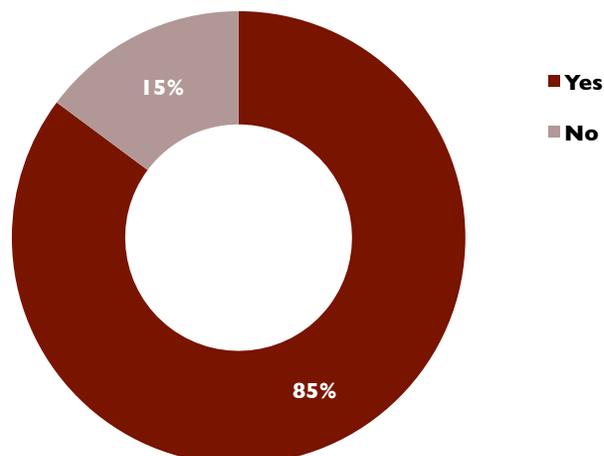
The overall figure is lowered by the CEGEPs (which historically have relied on the centralized Cégep à distance): approximately 98% of responding universities, and 94% of the colleges outside Québec, offered online courses in 2016, compared to 43% of the CEGEPs. As a result, 97% of all responding anglophone institutions offered online courses in 2016, compared with 61% of francophone institutions, although 89% of all francophone universities offered online courses in 2016

DOES YOUR INSTITUTION OFFER ANY ONLINE EDUCATION COURSES FOR CREDIT

University — 98%
College — 94%
Cegep — 43%
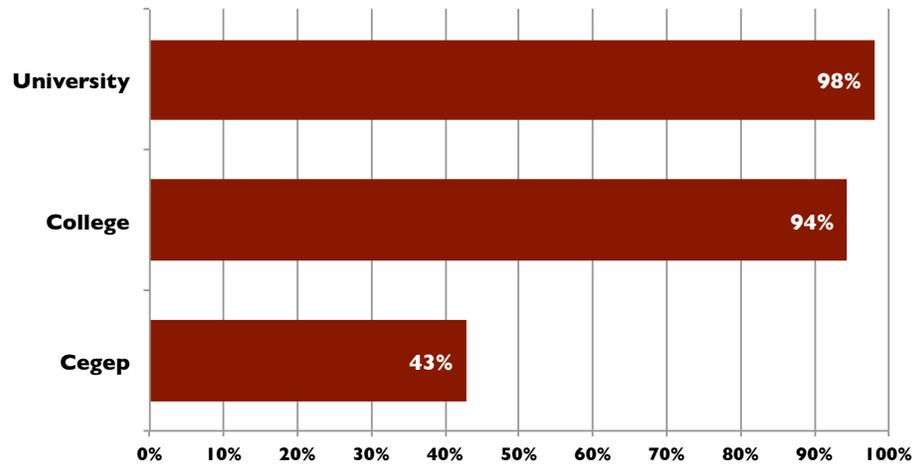
Larger institutions were more likely to offer online courses in 2016 (98% with 10,000 students or more compared to 72% of those with fewer than 2,000 students). Nevertheless, a surprisingly large number of very small post-secondary institutions (21 of the 29 institutions with 2,000 students or less that responded) offer online courses in Canada.

NUMBER OF INSTITUTIONS OFFERING ONLINE EDUCATION COURSES FOR CREDIT BY YEAR

Year	Number
2011	94
2012	96
2013	99
2014	100
2015	104
2016	105
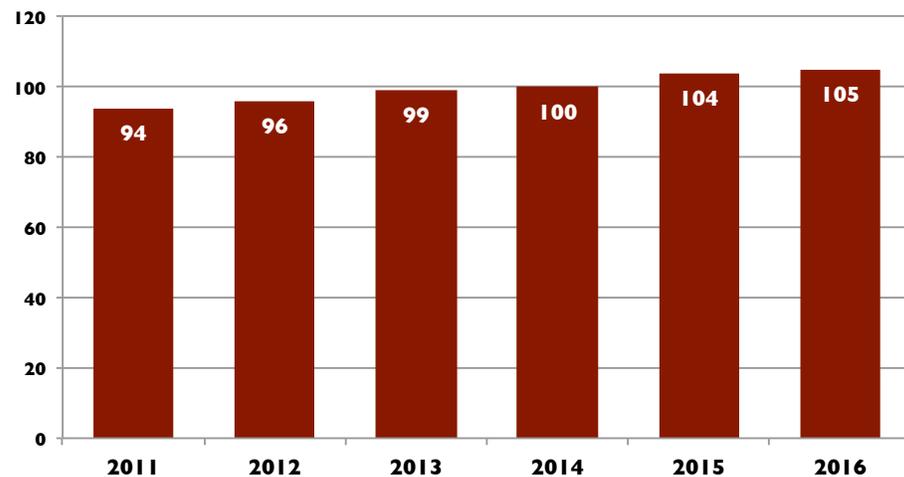
Over the six-year period, the number of institutions offering online courses has increased by 11% (from 94 to 105 responding institutions).

The main growth has come from the very small institutions. In 2011, only 12 responding institutions with fewer than 2,000 students were offering online programs, but by 2016 this had grown to 18, a growth rate of 50%. For responding institutions with more than 2,000 students, there were 82 institutions offering online courses in 2011, and 87 in 2016, a growth rate of 6% over six years.

With a growth rate in the number of institutions moving into online education of around 2% per annum, and with 85% of all responding institutions offering online courses in 2016, Canadian post-secondary education appears to be a relatively mature market for online learning. Indeed, although we did not ask specifically for this information, in the open-ended comments 26 institutions (18 universities, 8 colleges – 25% of all responding institutions) volunteered information that indicated that they have been offering online courses for more than 15 years.

ONLINE COURSE ENROLMENTS

Online learning has been growing rapidly over the last five years, with online course enrolments increasing by approximately 10% per annum in universities and 15% in colleges outside Québec. However, CEGEPs have seen a slight decline (3%) in online learning since 2011, and activity seems to be transitioning from a central service (Cégep à distance) to the individual CEGEPs.

By comparing our data with other survey data, we can make a tentative but reasonably justifiable claim that in 2015, online course enrolments constituted approximately 16% of all course enrolments in Canadian universities, and 12% in colleges outside Québec.

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The lack of consistent tracking and reporting of online enrolments was very clear from the survey responses. Many institutions took advantage of an open-ended question about the online course enrolment issue to outline the difficulties they had in providing this information or highlight anomalies in the data they did report.

All numbers are from departmental records; the Registrar does not regularly calculate online enrolment, but only does so on request -- Small anglophone university

The data from The Planning and Institutional Research Office provided us with a tableau chart with filters to obtain the data. However, the data were specific for individual students (so registration #s for courses only counted individual students once) -- Large anglophone university

Our management system does not have indicators that allow us to identify the activities offered online. So I cannot provide you with data. (Translation) -- Mid-size francophone university

Data collected only for the fall semester may miss a large number of online course enrolments in other parts of the year. For instance, course enrolments for online courses in some universities in the Maritime provinces are highest in the summer when they serve a large number of out-of-province students who return home for the summer.

Respondents were asked to report fall online enrolments for each year from 2011 to 2016. Unfortunately, though, the data provided for fall 2016 were often inconsistent with enrolment data for previous years, probably because this was not part of a regular annual enrolment check conducted after the end of the academic year. The online course enrolment data for the years 2011 to 2015, on the other hand, do appear to be consistent with reasonable year-to-year patterns within individual institutions. Overall trend analysis is therefore focused on only the 2011 to 2015 period to avoid an artificial impact of different reporting conditions for 2016.

CEGEPS

In the case of the CEGEPs, there are relatively few that offer online courses, since there is a centralised service for that sector. An actual figure from the main service provider, Cégep à distance, was provided as well as actual or estimated figures from eight of the other ten institutions that indicated that they offered online courses, so the information on trends in student online course enrolment for the CEGEPs is highly representative.

There was a slight overall decline of 3% in student online course enrolments in the CEGEP system between 2011-2015.

CEGEP ONLINE EDUCATION COURSES FOR CREDIT BY YEAR
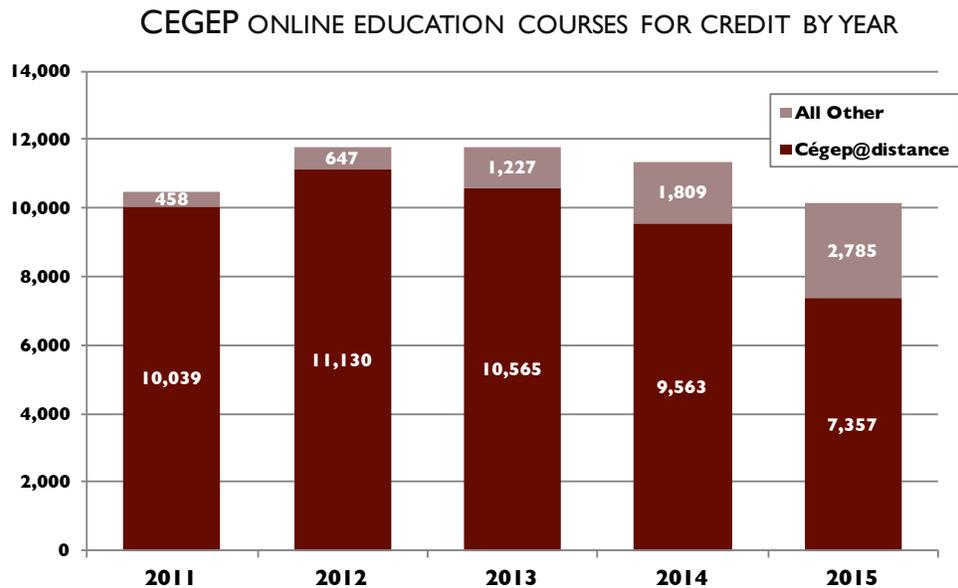
However, these results are strongly influenced by one institution, Cégep à distance. In 2011 with 10,039 student online enrolments, it counted for 96% of all CEGEP online course enrolments but in 2015, its online course enrolments totalled only 7,357, a decline of 27% from 2011, and now it constitutes only 74% of all CEGEP online course enrolments.

On the other hand, the other CEGEPs offering online courses increased from six to ten institutions in that period, and (excluding Cégep à distance) increased from an average of 152 student online course enrolments per CEGEP in 2011 to 348 in 2015. This more than doubling in growth by the other CEGEPs has clearly been at the expense of Cégep à distance. Even so, the picture is of little overall growth in online learning in CEGEPs over the last five or six years.

Colleges outside Québec

Respondents to this question seem to be representative of colleges as a whole outside Québec, in terms of size of institution, provincial representation, and language, and did not appear to be biased towards institutions with low or high levels of online activity.

It can be seen that there has been a constant and strong increase in online course enrolments in this sector, up by 60% over the period 2011-2015, or an average 15% per annum. Although the 2016 figures are not included, online course enrolments continued to increase in most colleges in 2016 compared with 2015.

COLLEGES OUTSIDE QUÉBEC ONLINE EDUCATION COURSES FOR CREDIT BY YEAR

Year	Enrolments
2011	60,002
2012	71,401
2013	79,784
2014	82,664
2015	96,578
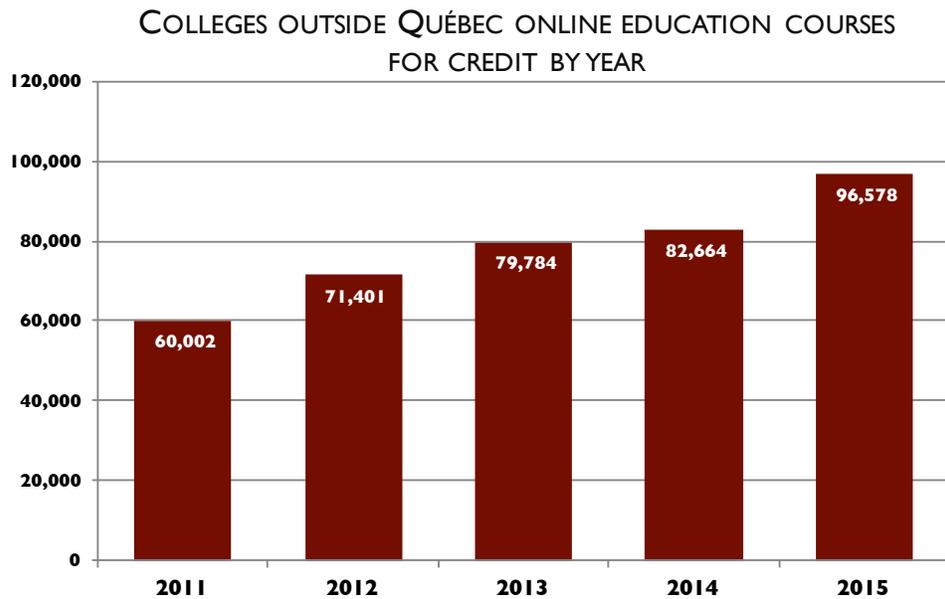
Only four of the 38 colleges (two in Alberta and two in British Columbia) with data for the four years had fewer students in 2015 than 2011. However, two colleges in Saskatchewan reported that they have stopped offering online courses in 2016 due to government funding cuts.

Universities

Of the 49 universities that responded to the full questionnaire, 33 (67%) provided data for this question. That represents 46% of all universities in Canada, a relatively low proportion. Furthermore, the online course enrolment figures are skewed towards the smaller university online course providers, so the data from those that did respond need to be treated with due caution.

What can be said with confidence from these results is that for the universities for which there were data, there was a steady growth in online course enrolments, up by 52% since 2011, at the rate of roughly 10% per annum over the years 2011 to 2015.

Universities online education courses for credit by year

Year	Enrolments
2011	69,197
2012	86,119
2013	93,869
2014	99,693
2015	104,801
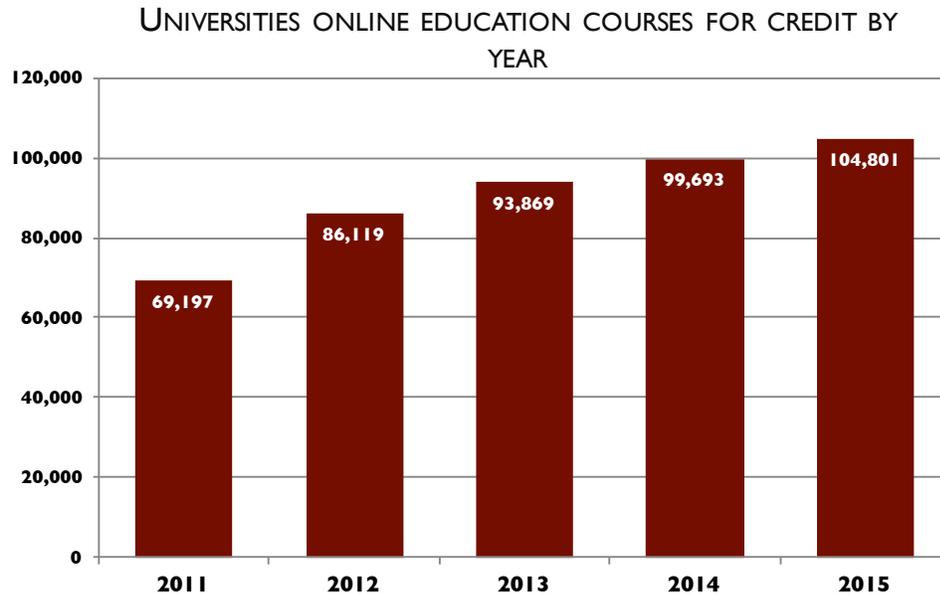
However, the larger online providers that are missing from this study are likely to have a somewhat slower rate of growth, because they have been offering online learning longer than many of the other universities (see below, especially the results from Canadian Virtual University). Nevertheless, the overall increase in numbers is still likely to be significant for these institutions.

Comparison with other studies

There are surprisingly few other publicly available reports that provide data on online course enrolments in Canada. These other studies were mostly limited to individual provinces or a particular sample of universities; nevertheless, a comparison with the other studies reveals some useful information that offers insight into the data from this questionnaire.

The Canadian Virtual University (CVU)

CVU is a consortium of eleven universities from seven provinces across Canada. These universities have been active in distance education for many years, engage in joint marketing of courses, and facilitate inter-institutional course enrolment.

CVU has collected distance education course enrolments for three-credit courses (six-credit courses are counted as double enrolments) over the full year for the fifteen years between 2000-2001 and 2014-2015. Over the whole period between 2000 and 2014, distance education enrolments in the CVU institutions doubled, at an annual rate of 7%. For the period 2011 to 2014, CVU's enrolments increased by 18%, or an average of 4.5% per annum.

Conseil Supérieur de l'Education, Québec

A report (2015) by the Council of Higher Education in Québec (Conseil Supérieur de l'Education) reported on students taking at least one asynchronous online course (i.e. headcounts), as registered in the fall semester, in their universities for the years 2001 to 2012. The report notes:

- steady growth in distance education students and enrolments at a higher rate than enrolments in general over the 12-year period up to 2012;
- the proportion of students enrolled in (asynchronous) distance education courses grew from 6% in 2001 to nearly 12% by 2012.

Ontario Ministry of Training, Colleges and Universities

The report from the Ontario Ministry of Training, Colleges and Universities in 2011 was a snapshot of annual course enrolment data 2010-2011, including both online and hybrid course activity (defined as 50% online or more). The report notes:

- at colleges, e-learning course registrations amounted to 7% of total registrations;
- at the undergraduate university level, total e-learning registrations amounted to 13%;
- at the graduate university level, total e-learning registrations amounted to 7% of total registrations.

The Ontario report is unique in Canada in that it also provided data on course completion rates for students taking e-learning courses. Both universities and colleges reported strong, positive results with respect to course completion rates:

- the median completion rate for the college sector was 76%,
- the median completion rate for the university sector was 89%.

Global Affairs/EduConsillium

The report, conducted for Global Affairs Canada, covers student enrolments (headcounts) in the 2013-2014 academic year. The report identified 360,000 students (29% of all Canadian university students) registered in online courses. However, the basis on which this number was calculated is questionable, because the sample was biased towards online institutions and results were then scaled up for the whole system.

Conclusions

The results from this survey and other reports indicate that online learning has been growing rapidly over the last five years, approximately 10% per annum in universities and 15% in colleges outside Québec. However, CEGEPs have seen a slight decline (3%) in online learning since 2011.

By comparing our data with other surveys, we can make a tentative but reasonably justifiable claim that in 2015, online course enrolments constituted approximately 16% of all course enrolments in Canadian universities, and 12% in colleges outside Québec. CEGEPs though have not grown online enrolments overall though in this period.

ONLINE OFFERINGS BY SUBJECT AREA

Online courses can be found in every subject area, with online courses in business, education and health (including nursing) being the most frequently offered.

Similarly online programs are offered in most subject areas in all types of public post-secondary institutions in Canada.

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Survey Definitions:

Synchronous online courses. Courses where students need to participate at the same time as an instructor, but at a separate location other than an institutional campus. These courses may be delivered by video conferencing, web conferencing, audio conferencing, etc.

Asynchronous courses. Courses where students are not required to participate in any sessions at the same time as the instructor. These may be print-based courses, or online courses using a learning management system, for instance.

For the purposes of this survey, inter-campus delivery where students are required to attend a different campus from the instructor was to be excluded. However, delivery via the internet or other distance technologies to small learning centres in remote areas was to be included.

Online program. A for-credit program that can be completed entirely by taking online courses, without the need for any on-campus classes. It could be delivered synchronously or asynchronously.

Respondents were asked to select, from a listing of different subject areas, the subject areas in which they offered online courses and programs. These listings were different for universities, anglophone colleges, and francophone colleges to reflect differences in course and program offerings between the sectors.

University Online Courses and Programs

Of the responding universities, more than 75% offer online *courses* in arts and social sciences, business and related areas, and education. It is worth noting that for every subject area listed, at least one university offered courses online in this area. Thus, while some subject areas are more popular than others, there was no subject area listed where online courses were not offered.

UNIVERSITY ONLINE COURSE OFFERINGS
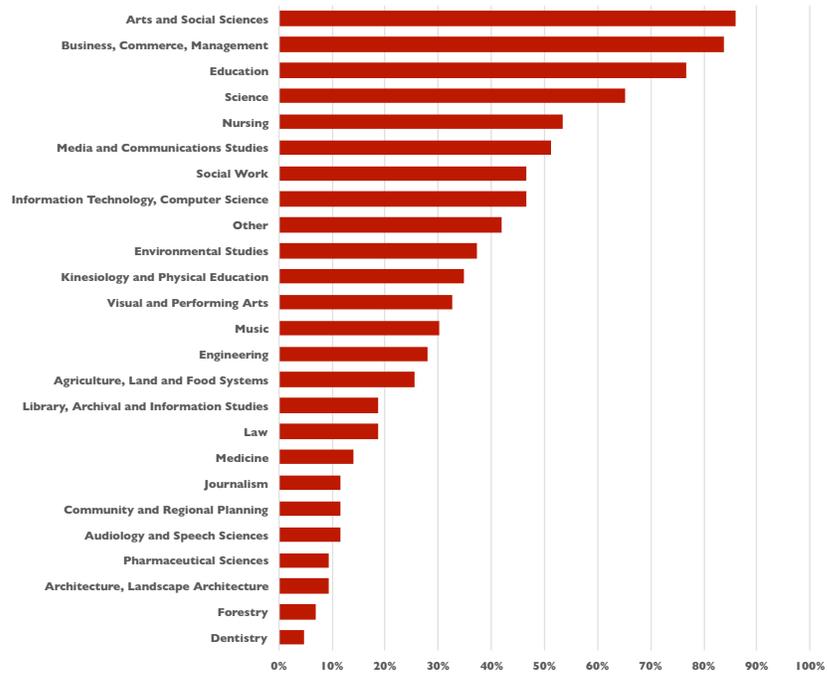
At least half the universities offer online *programs* in business, arts and social sciences, and education. However, none in the survey offered online programs in dentistry, engineering, forestry, medicine or pharmaceutical sciences.

UNIVERSITY ONLINE PROGRAM OFFERINGS
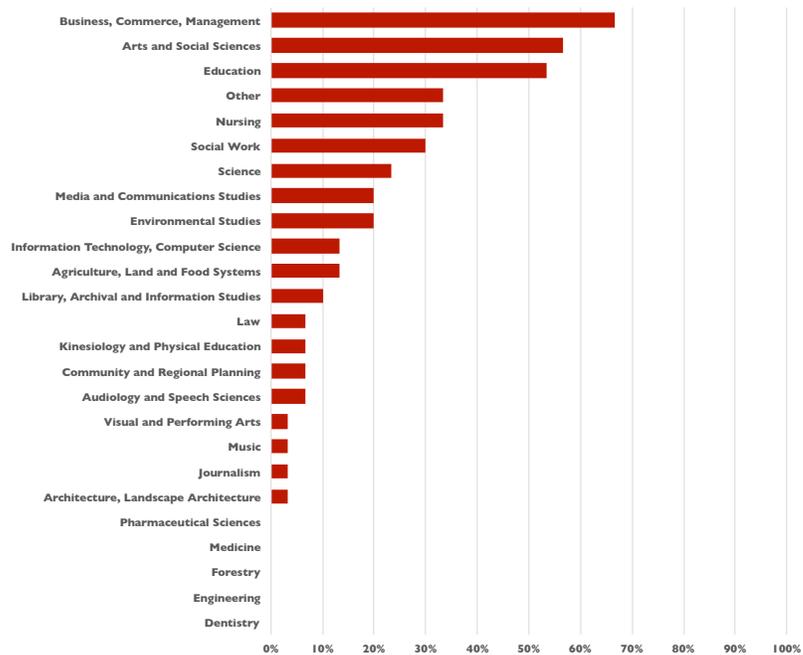
Anglophone Colleges Online Courses and Programs

Of the responding colleges, the two most common subject areas for online *courses* are health and business. More than 80% of the respondents offer courses in those two disciplines. Every subject area had at least four colleges offering courses online. Online courses were least likely to be offered in agriculture and transportation.

ANGLOPHONE COLLEGE ONLINE COURSE OFFERINGS
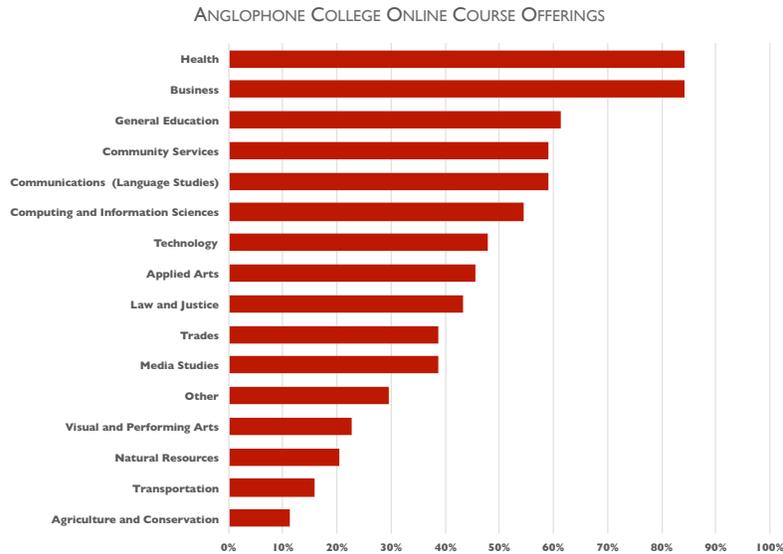
At least half the colleges offer online *programs* in business and health. Online programs are offered in every subject area listed by at least one Anglophone college.

ANGLOPHONE COLLEGE ONLINE PROGRAM OFFERINGS
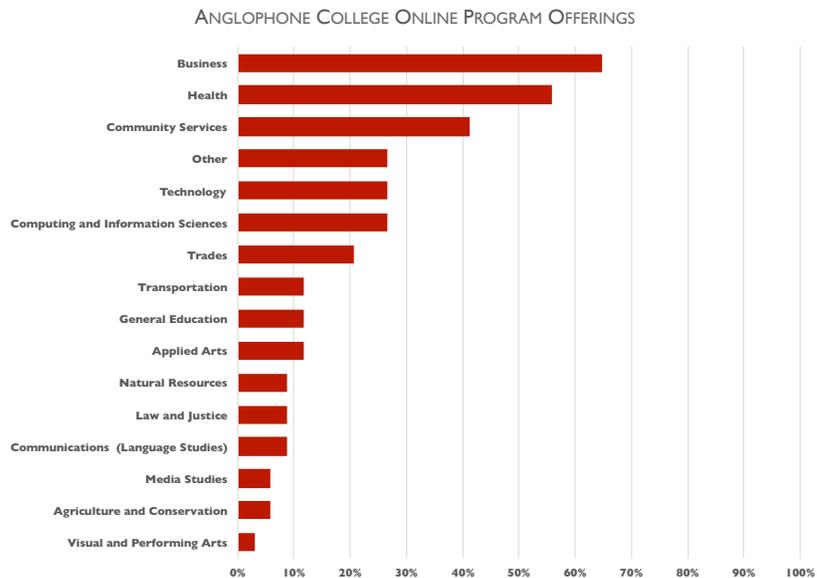
Programs are least likely to be offered in visual/performing arts, agriculture and media studies.

Francophone Colleges Online Courses and Programs

For this question, francophone colleges outside Québec were grouped with CEGEPs/francophone colleges in Québec, with the same questionnaire but with slightly different question wording from the anglophone colleges in terms of subject area. It should be noted though there are also some differences in programming between CEGEPs and francophone institutions outside Québec.

Only five out of the 30 (17%) of the francophone colleges/CEGEPs that responded to the questionnaire answered this question. (There may have been translation problems with some of the subject options.) Thus, these results should be treated with caution, although they are not too different from the anglophone colleges' responses, with business courses the most popular. It should be noted that, unlike anglophone colleges and universities, there are several areas for which no institution has an online offering.

FRANCOPHONE COLLEGE ONLINE COURSE OFFERINGS
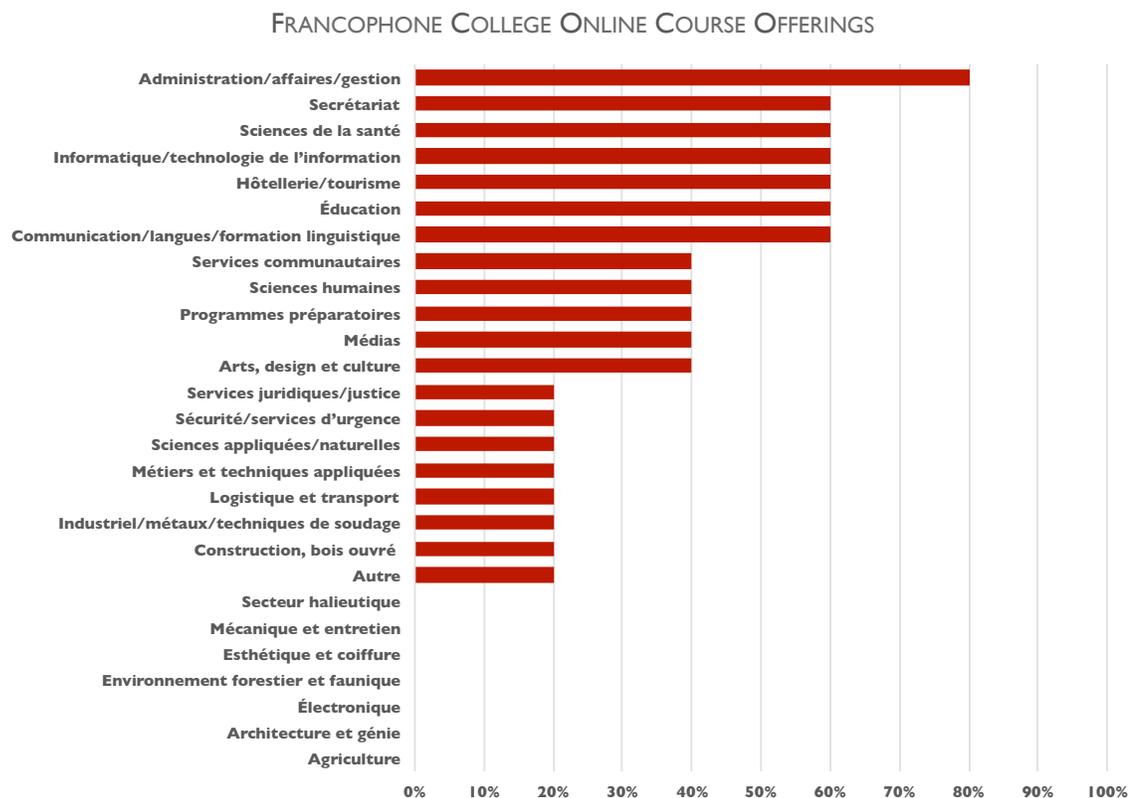
While the responses were limited for this question, education, health sciences and tourism/hotel management were the most likely *programs* to be offered online. The

chart also shows that more technical or hands-on types of programs are less likely to be offered online.

FRANCOPHONE COLLEGE ONLINE PROGRAM OFFERINGS

Subject Area	Percentage
Éducation	~80%
Administration/affaires/gestion	~81%
Sciences de la santé	~60%
Informatique/technologie de l'information	~60%
Hôtellerie/tourisme	~60%
Services communautaires	~40%
Secrétariat	~40%
Sciences humaines	~40%
Programmes préparatoires	~40%
Communication/langues/formation linguistique	~40%
Sécurité/services d'urgence	~20%
Médias	~20%
Industriel/métaux/techniques de soudage	~20%
Construction, bois ouvré	~20%
Autre	~20%
Arts, design et culture	~20%
Services juridiques/justice	0%
Secteur halieutique	0%
Sciences appliquées/naturelles	0%
Métiers et techniques appliquées	0%
Mécanique et entretien	0%
Logistique et transport	0%
Esthétique et coiffure	0%
Environnement forestier et faunique	0%
Électronique	0%
Architecture et génie	0%
Agriculture	0%

Conclusions

In all three types of institutions, online *courses* can be found in every subject area, with online courses in business, education and health (including nursing) being the most frequently offered.

Online *programs* are offered in most subject areas in all types of public post-secondary institutions in Canada.

INSTITUTIONAL POLICIES

Most Canadian post-secondary institutions see online learning as very important for their future plans, and most either have a strategy or plan for online learning or are developing one. A substantial proportion of institutions are moving to expand online teaching.

Institution-wide goals are being set in terms of quantity and type of online learning or level of study, as well as strategies for ensuring implementation, quality control and adequate support and resources for online learning. This suggests that in the future the decision about whether or not to offer an online course or program is less likely to be made by an individual instructor in isolation.

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Almost two thirds of the responding institutions considered online learning to be extremely or very important for their future long-term plans. Only 13% considered it slightly or not at all important, and more than half of these institutions were CEGEPs.

HOW IMPORTANT IS ONLINE LEARNING FOR YOUR INSTITUTION LONG-TERM

- Extremely important
- Very important
- Moderately important
- Slightly important
- Not important

39%
27%
21%
11%
2%

HOW IMPORTANT IS ONLINE LEARNING FOR YOUR INSTITUTION LONG-TERM

Institution	Extremely important	Very important	Moderately important
University	40%	29%	25%
College	52%	23%	15%
Cegep	12%	31%	23%
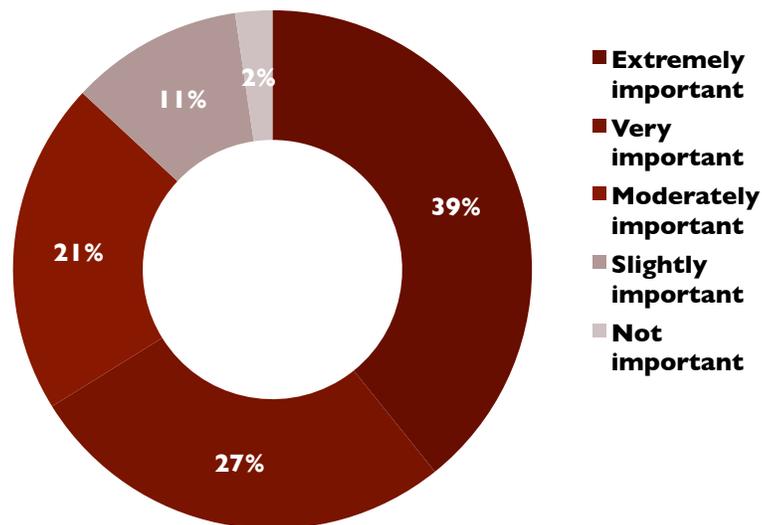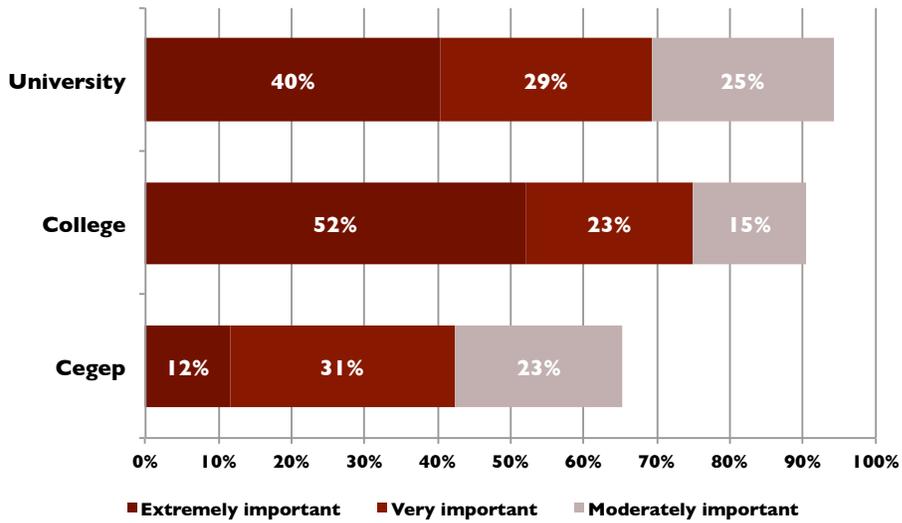
A full 40% of institutions report that they have a strategic plan or strategies for online learning, and a further 32% are currently developing one. Only 6% of institutions did not feel a plan was necessary and virtually all of these were either CEGEPs or colleges outside Québec.

DOES YOUR INSTITUTION HAVE A STRATEGIC PLAN FOR E-LEARNING

- Yes, fully implemented — 14%
- Yes, being implemented — 26%
- Currently developing — 32%
- Not yet — 21%
- Not necessary — 7%
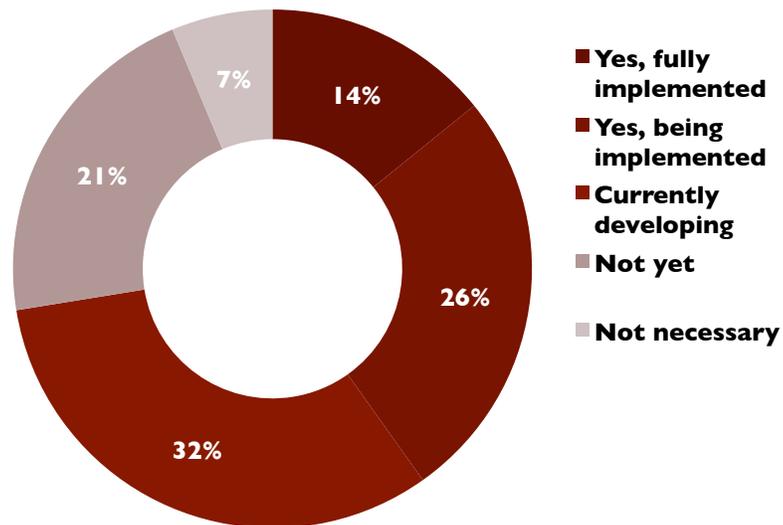
Responses to an open-ended question about the future role of online education makes it clear that many institutions are moving to expand online and hybrid

teaching. Some institutions have set a clear target for the number or proportion of online courses in the future, and strategies to reach that target:

We have set a strategic goal that all post-secondary programs will provide at least 5% online delivery by 2020. Some academic Schools already exceed this %, others will need to develop a plan to meet that %. -- Anglophone college

Others have clarified the role of online in terms of level of study:

We are in the process of implementing a centralized support system for the development and delivery of online learning programs, prioritizing graduate education. -- Anglophone university

Others are looking to online and blended learning to drive enrolments and/or meet space shortages:

As it stands right now, most of our online course and program development has been based on the desires of individual departments or programs, rather than a coordinated institutional strategy. As we revise our Strategic Enrolment Management plan, we are actively considering how online, distributed, and hybrid learning will be part of our suite of courses/programs. For us to grow our enrolment significantly (should that be desired) we would require a significant increase in online courses. -- Anglophone university

Other institutions stressed the ongoing and continuous nature of planning in this area:

Our existing digital learning strategy is out-dated and we are currently developing a new one to better reflect the new strategic plan of the College, as well as the Strategic Mandate Agreement with the provincial government. -- Anglophone college

For some institutions, the plan is dealing with organizational and support issues, to strengthen the rollout and/or quality of online learning:

Our strategy going forward will be focussed on developing full programs that will be available online. We are also moving to amalgamate our Teaching and Learning Centre with Distance Learning, to support the continuum of online implementation across the full spectrum from technology-assisted teaching/learning to online teaching/learning. -- Anglophone university

In progress: creation of a high-level, campus-wide Steering or Executive Committee that is charged with overseeing the university's efforts in online learning and accelerating implementation in this area -- Anglophone university

Some institutions are grappling with the implications of collective agreements for a greater move to online learning:

Even if we want to make our training more accessible, we are enormously constrained by the collective agreements of our employees. Teachers in regular education are fiercely opposed to e-learning. On the other hand, continuing education, the demands of the world outside the college to make the training more accessible are numerous, and we are working on it. The goal of the college is to transform 25% of its post-secondary programming to online by 2020. -- CEGEP

Lastly, a couple of institutions (or at least someone within those institutions) expressed their frustration at the lack of a plan or its inadequacy:

Our strategic plan seems to be in limbo. Nothing is happening. Faculty are implementing technology without reference to the strategic plan. – Anglophone university

After over 40 years of offering distance/online courses our institution still has not developed a strategic plan or institutional strategy for distance/online (or e-learning, hybrid), so students complain about not getting as many online courses as they would like or about not being able to complete programs. – Anglophone university

Online learning then is perceived by many Canadian post-secondary institutions as being very important for their future, and most either have a strategy or a plan for online learning or are developing one.

TECHNOLOGIES USED IN ONLINE LEARNING

The learning management system is still the main technology used for online learning, with other technologies being used to supplement the LMS. Although the LMS remains the bedrock of online learning, the responses indicated that use of technologies for synchronous delivery is significant, especially in the form of interactive lectures or webinars.

Despite a strong push from government agencies and the open education movement, there is relatively limited use of open educational resources (OER) and open textbooks at the moment, although a number of institutions are actively aiming to make more use of these resources.

In terms of the future, about a fifth of responders were focused on adding, or improving on, current Internet-based video- or audio-conferencing technologies.

There were few if any references though in the survey responses to adaptive learning, artificial intelligence, learning analytics and competency-based learning.

_____

The results from earlier sections show that almost all Canadian post-secondary institutions are using online courses for distance delivery. Institutions were asked to identify which technologies they were using for the delivery of online courses by choosing from nine pre-determined categories:

Learning management systems (LMS). An online tool for structuring and organizing content and student activities around which an online course or online activities can be based. It is an asynchronous technology. Blackboard, Moodle, Canvas and D2L are examples of commonly used LMSs.

Video lectures. Tools that enable a lecture to be recorded for students to download or stream at a time and place of their convenience. This is an asynchronous technology.

Live webinars. Multi-point Internet-based communications that enable online seminars to take place, where participants (students) can interact with the instructor, either by voice or through textual questions or comments. These can be live (synchronous) or recorded and downloaded later (asynchronous).

Video- or audio-conferencing (synchronous). Unlike webinars, which are delivered through the Internet, audio- and video-conferencing in the past used either the public telephone system or cable or other dedicated networks. However, webinars and audio- and video-conferencing are terms often used interchangeably, so there may be some duplication or confusion in how institutions responded to these two options.

Social media. Social media are websites and applications that enable users to create and share content or to participate in social networking. The emphasis is on user (student) authorship and control. These would include the use of Twitter, Facebook,

blogs or wikis.

Open educational resources (OER). These are freely accessible, openly licensed online text, media, and other digital assets that are useful for teaching and learning. Several Canadian provincial governments are supporting the development and use of locally produced OER.

Open textbooks. A specific form of open educational resources, these textbooks are peer reviewed and can be downloaded for free by students and instructors. Open textbooks can be edited or amended by the instructors under the licensing agreement.

Print. This includes commercially published textbooks or study materials specially developed by instructors. Printed textbooks may have an accompanying web site with student exercises and other ancillary materials, such as tests.

It should be noted that a relatively high percentage of those that returned the questionnaire did not answer this question (from a quarter to a third, depending on the technology) and another 16%-18% did not know whether OER or open texts are being used. This, together with analysis of the open-ended questions on this section suggest that, apart from the LMS, the use of other technologies is not being tracked or the decision is devolved to individual instructors. The following comment is typical:

With a large offer of courses, it is difficult to know the pedagogical material used since each teacher has the freedom to use the technologies he desires while respecting the principles underlying copyright. It is important that teachers use blogs and social media and OERs but they are difficult to quantify. ---Small Francophone College

Nevertheless, from the chart below, it is quite clear that in most Canadian post-secondary institutions offering online or blended courses (87% of responding institutions), the LMS continues to be the main technology, with other technologies being used to supplement, or used in parallel with, the LMS.

Video streaming is moderately or extensively used in 62% of responding institutions and Webinar and/or conferencing use is found in well over half (57%) of responding institutions. These technologies were more extensively used in CEGEPs than in the other type of institutions.

Print is still being quite heavily used together with online learning. Just over half (55%) of all institutions use print extensively or moderately.

Social media were used in almost half (49%) of the institutions, but more so in universities (61% more or extensively used) and less so in CEGEPs (25%).

Perhaps somewhat surprisingly, given the support of several provincial government agencies and the number of professional articles devoted to the topic, OER (and open textbooks in particular), are still less favoured than other digital resources.

TECHNOLOGIES USED IN ONLINE LEARNING

Technology	Extensively used	Moderate use
LMS	87%	5%
Print	26%	29%
Conf.	24%	33%
Video streaming	20%	42%
Social media	10%	39%
Webi-nars	9%	26%
OER	5%	35%
Open texts	3%	15%
Other	22%	28%
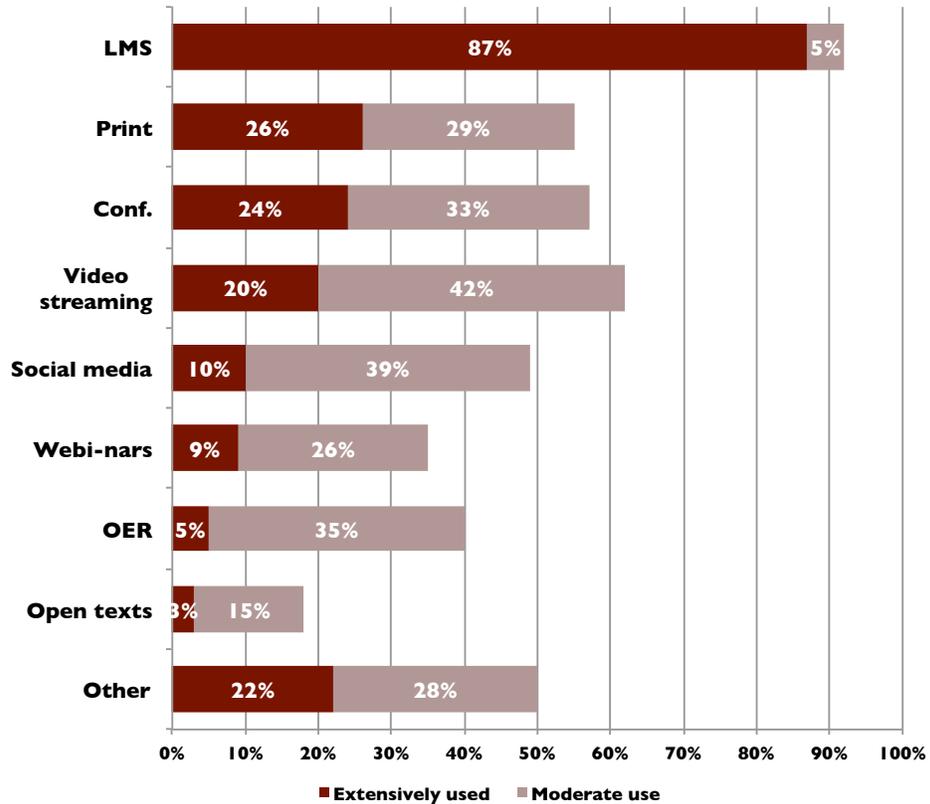
Only 5% of institutions use OER extensively, although a little over a third report moderate use. Open textbooks are used moderately or extensively by just 18% of responding institutions. However, in the open-ended comments several institutions mentioned that they have just recently introduced OER or are using them on an experimental basis, so it will be particularly important to track the adoption of OER over the next few years.

Institutions selecting 'other' as a response were asked to provide details in an open-ended comment, with 18 institutions using or experimenting with the following technologies (none of these was mentioned more than once):

- Automated assessment
- Gamification
- Simulations
- Animation
- YouTube
- myMathLab
- plagiarism detection
- student response systems/clickers
- Padlet

- E-portfolios
- Remote exam proctoring
- Online synchronous simulated scenarios

Notably missing in the 'other' or open-ended comments were learning analytics or artificial intelligence applications, although there no specific category offered for these technologies on the questionnaire.

The following open-ended question was asked though:

> What comments would you like to share about the technology and resources currently used in your online courses and programs?

A surprisingly large number of institutions (58) responded to this question. Most responders expanded on their use of the LMS, and especially the integration of other technologies within the learning management system.

Main technology for online and blended courses is our LMS. The LMS is used as a one-stop shop for faculty and students that contains tools for content sharing, communication, and collaboration. Publisher resources, library resources, streaming video services, and synchronous tools are integrated within our LMS. – Anglophone University

Several institutions mentioned the integration of library resources within the LMS and one college referred to a technology lending service for instructors:

the college's libraries have introduced a new technology lending program for students and faculty, including virtual reality headsets, creative software application/invention kits and other new and emerging technologies. This encourages experimentation and creativity in curricular enhancements in simulation, labs, learning spaces and course assignments. – Anglophone College

Several institutions mentioned the importance of instructional design teams, where central support staff such as instructional designers and technical staff work collaboratively with faculty or instructors to choose and apply technology appropriately. Such teams usually pay special attention to accessibility issues.

The University … takes a team based approach to course design and development, which includes instructional design, technical, multimedia, quality and copyright support. The team follows a clear set of technical, instructional and graphic design standards. Pedagogical and technical accessibility standards are considered during the course design process and in course maintenance to reduce barriers to student learning and foster inclusive learning environments, for example, ensuring all videos have captions and transcripts. – Anglophone University

Similarly, several institutions mentioned the relationship between the use of technology and different pedagogies such as experiential learning and game-based learning. For instance:

Combining online learning modules and virtual simulation, we design game-based environments to augment the teaching communication, and to practice new skills, techniques, and critical thinking in a safe setting that is realistic and allows the user to make optimum choices within a safe environment. We are particularly interested in game-based learning because it is rapidly growing in popularity as an approach that helps to engage students in the learning process. – Anglophone University

There appears to be extensive experimentation taking place, with a wide range of technologies under exploration in a wide range of institutions.

Lastly, institutions were asked where they were heading in the near future with technology for online learning. The question was:

> What technologies or resources, if any, are you actively considering to add to your courses in the near future?

An even larger number of institutions (77 – over half of all responding institutions) responded to his question. There was a wide range of technologies mentioned in response to this question.

Some of the more interesting of these technologies include:

- Pre-loaded Rumie tablets {https://www.rumie.org/rumie-tablets/} for use in areas without adequate Internet access,
- YOUSEEU: {https://www.youseeu.com/} a video-based platform allowing for student and instructor video recording and one-on-one or group interaction,
- VoiceThread {https://voicethread.com/products/highered/}: a multimedia platform that both students and instructors can use to create and present multimedia materials, with synchronous online discussion in audio and video
- Riipen: {https://www.riipen.com/} a project-based recruitment tool connecting potential employees with employers

Although the LMS remains the bedrock of online learning in most institutions, the use of technologies for synchronous delivery, especially in the form of interactive lectures or webinars, was greater than anticipated.

New, low-cost, easy to use technologies are providing both instructors and students with new ways of teaching and learning. There appears to be a great deal of experimentation going on: or rather a large number of institutions appear to have some innovative projects, although it is difficult to know from this survey how widespread these innovations are across an institution.

The use of OER and open textbooks appears to be limited at the moment, although in a number of institutions there is an intention to make more use of these resources.

Even more striking though was how few references there were in the survey responses to adaptive learning, artificial intelligence, learning analytics and competency-based learning. This is not because institutions or instructors are unwilling to innovate – there is plenty of evidence that innovation is extensive if not

deep in Canadian post-secondary institutions – but because these technologies or approaches have yet to prove their worth or to appeal to Canadian instructors. However, as with some of the other technologies, the failure to mention such technology applications may be due to the difficulty of accurately tracking at an institutional level individual faculty use of such technologies.

BENEFITS OF ONLINE LEARNING

Nearly all institutions (99%) responded that online learning leads to greater access and more flexibility for learners. Almost three-quarters of those responding also saw online learning as a means to increase enrolments, particularly by institutions in the Maritime provinces – Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland – where they are facing a decline in population. The very smallest institutions (those with fewer than 1,500 students) were the least likely to see increased enrolments as a benefit, but nevertheless even half of these supported the statement.

Almost two thirds of the institutions (especially institutions with more than 30,000 students) perceived innovative teaching as one of the benefits of online learning.

Online and particularly hybrid learning were perceived by just under a half of the responding institutions as helping with a shortage of physical spaces (particularly in Ontario and British Columbia).
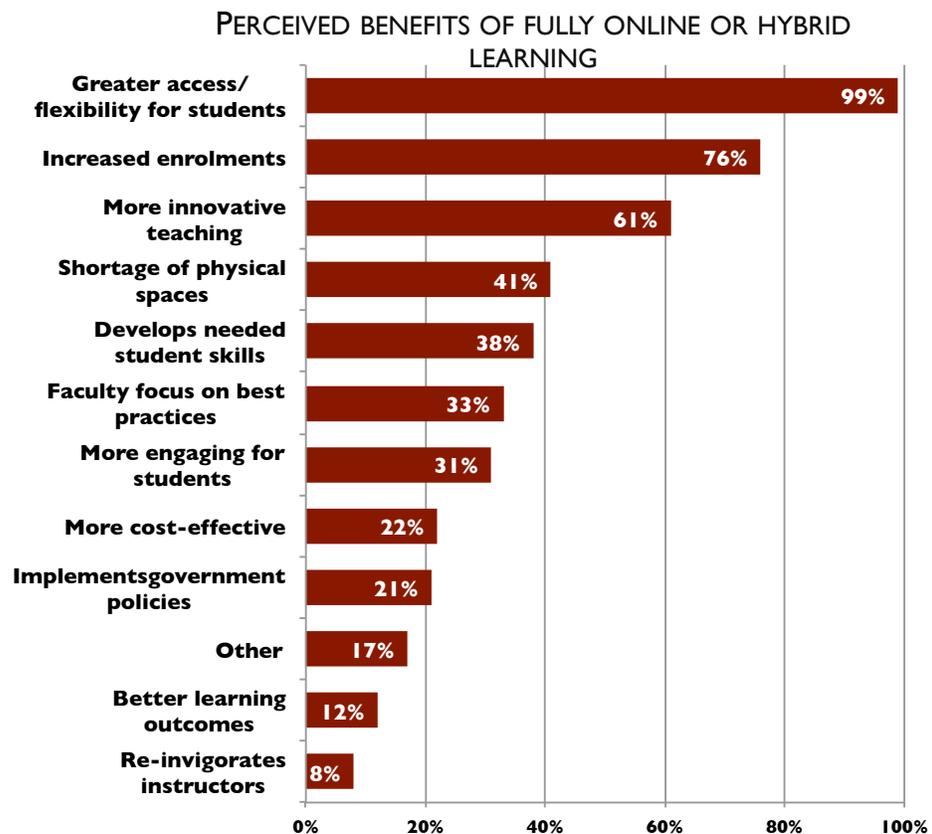
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PERCEIVED BENEFITS OF FULLY ONLINE OR HYBRID LEARNING

Benefit	Percentage
Greater access/flexibility for students	99%
Increased enrolments	76%
More innovative teaching	61%
Shortage of physical spaces	41%
Develops needed student skills	38%
Faculty focus on best practices	33%
More engaging for students	31%
More cost-effective	22%
Implements government policies	21%
Other	17%
Better learning outcomes	12%
Re-invigorates instructors	8%

Nearly all institutions (99%) responded that online learning leads to greater access and more flexibility for learners. Almost three-quarters of those responding also saw online learning as a means to increase enrolments.

Just over 60% of institutions saw online learning resulting in more innovative teaching. This was particularly true for very large institutions (more than 30,000 students), where nine out of eleven institutions selected this response. The responses though do not indicate whether online learning resulting in innovative teaching is an institutional aspiration or an observation of what has actually happened.

About a third of the institutions saw online learning as having other pedagogical advantages:

- helping develop the skills students need in today's society. This response was selected by more than half the institutions with more than 10,000 students,
- getting faculty to focus on best teaching practices – especially in institutions with 10,000 students or more, where two-thirds of the institutions chose this statement,
- more engaging for students.

Large institutions (10,000 students or more) selected all three of the pedagogical benefits of online learning more frequently than smaller institutions.

About a fifth of the institutions saw online learning as a means of implementing provincial government policy. Interestingly this response was slightly higher for those provinces that have province-wide e-campuses (Manitoba, British Columbia and Ontario) established by government to encourage online learning.

Another fifth saw online learning as being more cost-effective than classroom teaching, mainly in small to medium sized institutions (1,000 – 4000 students), where up to 40% saw online learning as more cost-effective.

CHALLENGES OF ONLINE LEARNING

Most institutions appear to be struggling to find adequate resources for online learning. This is a particular problem for very small institutions (fewer than 1,500 students). Nearly half the institutions identified lack of specialist learning technology support staff as a barrier.

About two-thirds of the institutions identified lack of suitable training and resistance from instructors as a main barrier or challenge. Faculty resistance was cited the most in Québec, especially in the CEGEPs, and perceived lack of training/pedagogical knowledge cited the most in British Columbia and Manitoba.

Just over a third of the institutions identified a lack of support from government as a challenge. Fewer institutions in Ontario, where the government has invested heavily in online learning course development and created eCampusOntario, mentioned this, but nearly two-thirds of responders from Québec indicated that the lack of government support was a challenge.

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PERCEIVED BARRIERS/CHALLENGES FOR ONLINE LEARNING

Most institutions (83%) appear to be struggling to find adequate resources for online learning. This is a particular problem for very small institutions (fewer than 1,500 students) where 18 of the 19 responders in this category identified this as a challenge. However, the questionnaire did not ask institutions to compare lack of resources for online learning with other areas of activity; lack of resources is a common complaint

in all kinds of teaching.

More specifically, nearly half the institutions (48%) identified lack of specialist learning technology support staff as a barrier, particularly in British Columbia (62%) and Saskatchewan (60%), and this is a particular challenge for institutions with fewer than 1,500 students (63%). CEGEPs in particular, but also colleges outside Québec, were more likely to cite lack of specialist learning technology support staff than universities.

About two-thirds of the institutions identified lack of suitable training/pedagogical knowledge, and resistance from instructors, as a main barrier or challenge. Faculty resistance was cited most frequently in Québec (75%), especially in the CEGEPs, and perceived lack of training/pedagogical knowledge was highest in British Columbia (88%) and Manitoba (83%).

Just over half the responding institutions identified the perceived quality of online learning as a challenge, which may partially explain the faculty resistance responses. Quality concerns were particularly strong in the universities, where 62% of responders expressed concerns over this, compared with 36% of CEGEPs. In the provinces, five of the six responding institutions in Manitoba were concerned about the quality of online learning, and Albertan institutions had the least concern, where only three of the 13 responding institutions identified this as a challenge.

Just over a third of all institutions identified a lack of support from government as a challenge. The highest response to this was in Québec (62%) and the lowest in Ontario (16%). In Ontario, the government has over the past few years been investing heavily in online learning course development through its newly formed eCampusOntario. CEGEPS also identified lack of government support at a much higher level than colleges outside Québec (57% compared to 29%).

About a third of institutions identified as challenges:

- strategies for open educational resources (half of institutions with more than 10,000 students),
- lack of clear rationale for online learning (again, half of institutions over 10,000 and half of the universities), and
- inappropriate organizational structures.
- Thus a lack of resources, inadequate training, and faculty resistance were identified as the main barriers to an increased use of online learning.

BLENDED AND HYBRID LEARNING

In most institutions, the importance of the integration of online and face-to-face teaching was clearly recognised. Just under half the responding institutions reported that in up to 10% of their courses, some of the face-to-face teaching has been replaced by online study, and in about a quarter of the institutions, more than 10% of the teaching was in this format. In other words, some form of blended/hybrid learning is occurring in nearly three quarters of all the institutions that responded to this question.

More importantly, this move to blended/hybrid learning is reported as resulting in innovative teaching, with instructors using hybrid learning to make classes more engaging and interactive.

However, most institutions do not track classes with reduced face-to-face time, although some are beginning to collect these data.

_____

> Survey Definition:
>
> **Blended/hybrid courses**. These are courses designed to combine both online and face-to-face teaching in any combination. For the purposes of this questionnaire, we are interested in those courses where some, but not all, of the face-to-face teaching has been replaced by online study.

One of the most interesting and challenging areas of post-secondary education is the extent to which online learning is impacting classroom teaching. An online course is quite distinct from a face-to-face class. However, when instructors and students begin to combine online learning with classroom or lab-based teaching, definitions become more difficult, boundaries less clear, and the possible combinations or designs become much more varied and complex.

There are many ways in which students now study online informally, such as viewing lectures on MIT's OpenCourseWare, or using Facebook for discussion of some course topic with other students. However, the focus of this survey is on those courses where the instructor deliberately and explicitly combines online and face-to-face learning in their teaching.

This is such an important development that it is necessary to track it as well as possible. However, there is no general agreement on the definitions of 'blended' or 'hybrid' learning, which in practice are often used inter-changeably. During the piloting of the questionnaire, though, it was suggested that a key factor was some reduction in face-to-face teaching time with online learning providing the replacement.

From the survey responses, the following was identified:

Blended/hybrid is an important trend. Most responding institutions recognized the importance of this trend. A large number of institutions were willing to respond to this question (111 out of 139 – 80%) and to provide information in the open-ended comment (68 out of 111 – 61% of all responders);

Tracking blended/hybrid counts is difficult. Most institutions do not track classes with reduced face-to-face time, although some are beginning to, as can be seen from the following open-ended comments to this question, from two different institutions:

Hybrid courses have not been designated as such in the course calendar or the yearly course schedule, so it is difficult to know how many exist. As of Fall 2017, these courses can now be designated as online in the yearly course schedule, but this depends on professors volunteering this information; -- Anglophone University

Blended learning opportunities are occurring, but in an informal way. The decision is approached more as an instructional strategy versus a formalized delivery method. The university is, however, in the process of formalizing definitions of blended learning as a delivery method so students will have a clear indication of the % of blend between on-campus and online components. -- Anglophone University

Many institutions, but few courses. Almost three quarters of the responding institutions reported that this type of teaching was occurring in their institution. However, two thirds of the institutions reported that fewer than 10% of courses are in this format.

PROPORTION OF COURSES OFFERED AS
BLENDED/HYBRID

- None
- Up to 10%
- 10%-30%
- 30%+
- Don't know

17%

49%

11%

12%

11%
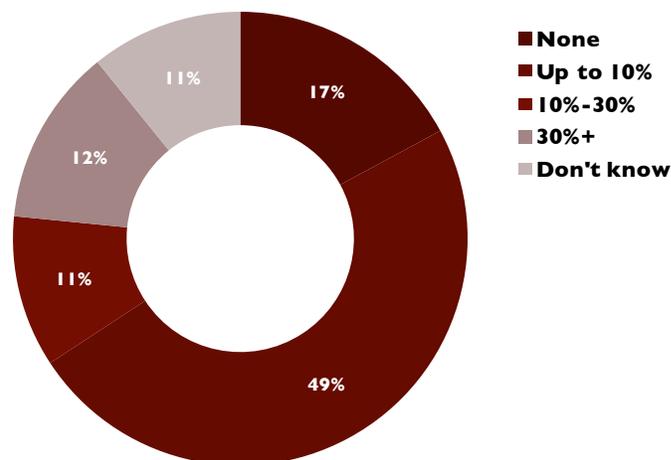
A few institutions have a substantial number of courses in this format.
There is a small but significant group of colleges (14) where more than 30% of the courses are now in a hybrid format.

As a result of this move to blended/hybrid learning, some innovative teaching is emerging. Two examples from the open-ended comments are provided:

Instructors in our Faculty of Nursing have blended their cardiology unit (one of the units that students struggle with the most). They created gamified "quest-based learning" activities in Rezzly's 3D Game Lab that students complete at home. The unit normally takes five class periods in a traditional lecture format, but after moving content into 3D Game Lab, the remaining content for the module is now covered in 3 face-to-face class periods, instead of 5. -- Anglophone University

The CBE Police Cadet Training program is an example of an innovative blended learning approach. Students in this program learn from many different instructors and subject matter experts from both the College and xxxx Police Service, and are tested in scenario assessments based on the most common calls they will encounter as new police Constables… students are able to view video scenarios, complete reflective exercises, access their calendar, communicate with instructors, and monitor their grades. -- Anglophone College

For further Canadian examples of innovative approaches to blended and hybrid learning, see Contact North's Pockets of Innovation {https://teachonline.ca/pockets-innovation/overview}.

Institutions generally recognize the importance of blended/hybrid learning, which can be found in most Canadian institutions, but at the moment in relatively few courses. More importantly blended/hybrid learning was associated frequently with more innovative teaching approaches.

CONTRACT TRAINING

Online contract training leading to institutional credit was offered by just over a third (37%) of the responding institutions.

_____

> Survey Definition:
>
> **Online contract training.** These are online training programs that may or may not be for credit recognition but are designed to meet a particular industry or training need.

CONTRACT TRAINING

Legend:
- Yes
- No
- Don't know

6%
36%
58%

Online contract training leading to institutional credit was offered by just over a third (37%) of the responding institutions. Online contract training for credit is offered by all types of institution, but most commonly by colleges (outside Québec). The CEGEP sector appears to have the least amount of contract training for credit.
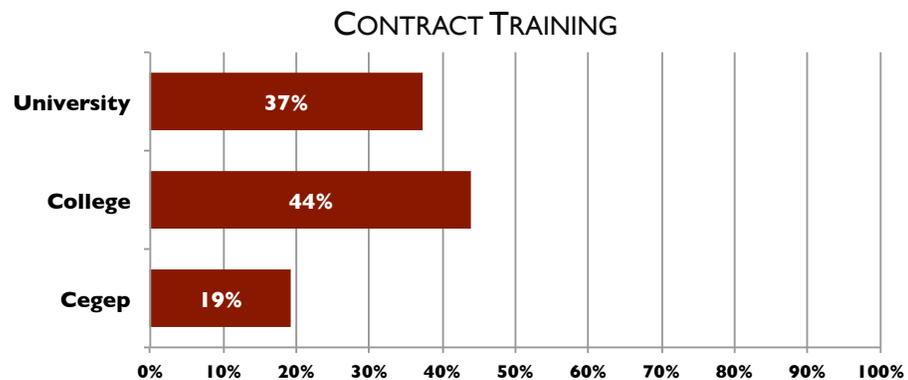
CONTRACT TRAINING

University	37%
College	44%
Cegep	19%

MOOCs

There is no MOOC mania in Canada. Less than 20% of responding institutions offered MOOCs in the previous 12 months. Sixteen were universities, seven were colleges outside Québec, and one was a CEGEP. Only one institution, a university, had offered more than five in the year.

Canadian institutions' future interest in MOOCs seems to be mixed. Only fourteen institutions clearly stated they would support the use of MOOCs in the future, while most of the rest of the respondents displayed cautious or no interest in adding MOOCs to their future offerings.

_____

> Survey Definition:
>
> **MOOCs.** These are massive, open, online courses. The key features are:
>
> No fee (except possibly for an end of course certificate),
>
> The courses are open to anyone: there is no requirement for prior academic qualifications in order to take the course,
>
> The courses are not for credit.

The focus of this project is primarily on for-credit programs, but massive open online courses (MOOCs) have been a more recent phenomenon attracting a good deal of media attention. Among responding institutions only 19% had offered MOOCs within the last 12 months, most of which (16 of 24) were universities, seven were colleges outside Québec, and one was a CEGEP. Only one institution, a university, had offered more than five in the year.

HAS YOUR INSTITUTION OFFERED ANY MOOCS

- Yes 19%
- No 81%
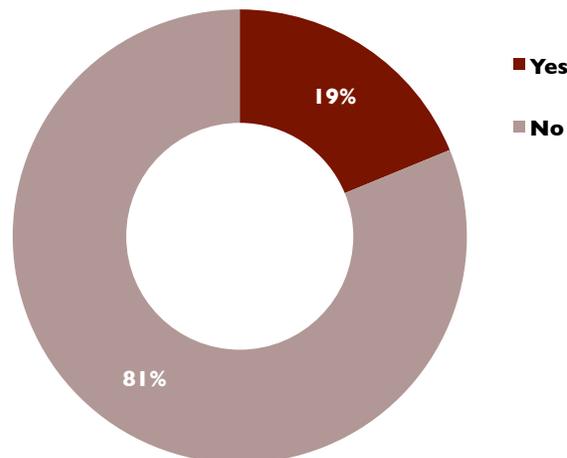
Larger institutions were more likely to offer MOOCs. More than half of the institutions offering MOOCs had more than 10,000 students. Nevertheless, the smallest institution offering a MOOC had only 1,240 students. Francophone institutions were just as likely to offer MOOCs as anglophone institutions.

Canadian institutions' future interest in MOOCs seems to be mixed. Just over a third indicated no interest in offering MOOCs and another 19% responded that they will leave it to individual faculty to decide. Another 31% were unsure (particularly colleges outside Québec), leaving only 16% stating that they will support the increased use of MOOCs in the future.

WHAT ARE YOUR INSTITUTION'S PLANS FOR MOOCS IN THE FUTURE?

Legend:
- No interest
- Left to individual faculty
- Support increased use of MOOCs
- Only support existing MOOCs
- Unsure
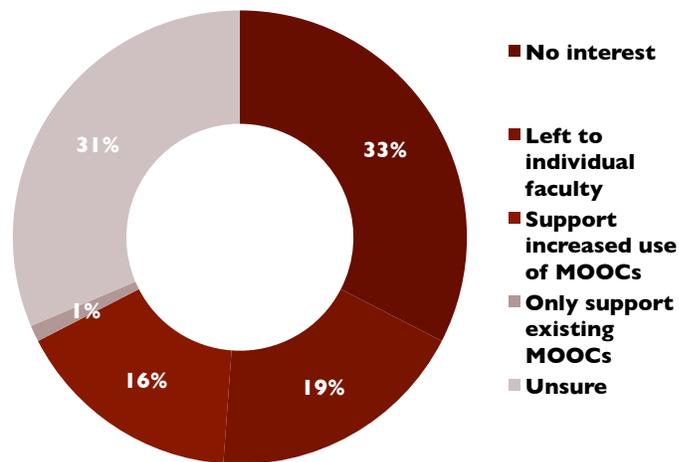
Only a single institution (a university) provided unconditional support for MOOCs in the open-ended comments:

Globalization married to the digital era in which we live dictates that the survival of educational institutions depends on the abolition of the walls of our classrooms in order to move towards the new resources and platforms of massive learning.

Some institutions see a clear 'niche' for MOOCs. One university commented:

edX Micromasters is our current focus….. MicroMasters programs are a series of graduate level courses from top universities designed to advance [students'] careers. Students may apply to the university offering credit for the MicroMasters certificate and, if accepted, can pursue an accelerated …..Master's Degree. – Anglophone University

Others commented on their uncertainty about their future strategy concerning MOOCs, with a tendency to leave it to faculty or academic departments to make the decision:

We have offered MOOCs in the past … These were strategically developed at the Faculty level, rather than institutional level, though their development was supported through the Centre for Learning and Teaching. It is unknown whether we would pursue further MOOCs in the future. – Anglophone University

Many institutions though have made a clear decision not to offer MOOCs in future:

I believe MOOCs are on the way out. Based on research conducted by EAB, the interests in MOOCs have decreased somewhat. Even with a high registration, the completion rates are very low. At this time there is no appetite to invest. – Anglophone University

COMPARING CANADA AND THE UNITED STATES

There is considerable similarity between Canada and the United States in online and distance education, in terms of growth rates and institutional commitment. Both lack universally agreed definitions and both have challenges with collecting reliable and comparable data. Distance education tends to be more prevalent in the larger institutions in both countries. Most institutions in both countries see online learning as strategically important for their future. Canada has a slightly higher proportion of institutions in more or less comparable categories engaged in online and distance learning, but the differences are not significant, given the difficulties of direct comparison.

History of Distance Education Data in the United States

The United States has its own uneven past in collecting statistics on the distance education enrolments at the postsecondary level. For a short time in the 1990's the United States Department of Education collected a limited amount of data about distance education enrolments, but it ceased that data collection due to budget-cutting. To fill that void, beginning in 2003 the Alfred P. Sloan Foundation supported the Babson Survey Research Group in conducting institutional surveys collecting data on distance education headcounts and other strategic issues in innovative uses of educational technologies.

In 2012 the United State Department of Education resumed its collection of distance education activity by focusing on distance education headcounts for the Fall term of each year. The Department shared the data openly, but its analyses were minimal and sometimes published much later than when the data were available. To avoid duplication, the Babson Survey Research Group ceased collecting its own enrolment data and began analyzing the data collected in the Department's Integrated Postsecondary Education System's (IPEDS) survey. Both WCET and the e-Literate blog were also analyzing those data either separately or in partnership with Babson. In 2016 those three organizations formed a partnership, the Digital Learning Compass, to jointly perform and publish the analyses of the IPEDS distance education data.

Mandatory Reporting in the U.S.

In the United States, all institutions participating in federal financial aid are required to complete the IPEDS survey. Only a very small number of institutions do not participate. Therefore, survey results are very close to reflecting the entire universe of postsecondary activity in the country. The Canadian survey was voluntary and while the coverage is extensive, it is missing some key players with significant enrolments.

Both Countries Have Problems with Definitions

The Canadian survey suffered from how the provinces and institutions define "distance education" differently. The same is true in the United States as institutions are expected to report to (federal, state, accrediting) agencies using different definitions. The IPEDS definition[1] of a "distance education course" is very close to the definition used for this report:

"A course in which the instructional content is delivered exclusively via distance education. Requirements for coming to campus for orientation, testing, or academic support services do not exclude a course from being classified as distance education."

A problem arose in the United States in that institutional personnel became accustomed to the definition used by the Babson survey, which allowed for a course to offer up to 20% of the course face-to-face and still be counted. A recent survey by the National Council for State Authorization Reciprocity Agreements used the IPEDS definition to collect enrolments and received considerable pushback. It turns out that many in the distance education community did not know about the IPEDS definition being employed by the institutional researchers at their own institution. Based upon feedback to the survey used to generate this report, both Canada and the United States are similar in that there is no universal agreement on a single distance education definition.

Caveats about Timelines and Enrolments vs. Headcounts

Since nearly all institutions in the United States complete the IPEDS surveys, the data set is quite large. This results in a delay in the release of data as the Department of Education verifies, cleanses, and compiles the dataset. The most recent data available in the United States are from the Fall of 2015. The survey of Canadian institutions was conducted in the 2017 and requested information about the period of 2011 to 2016.

The Canadian survey focuses on enrolments while the U.S. survey focuses on student "headcounts." A single student may have multiple distance education enrolments in the fall term being surveyed, whereas headcounts count each individual student, regardless of the number of courses in which that student is enrolled. As a result, it is difficult to make direct comparisons between the two countries on those measures.

Institutional Participation in Online Learning

In analyzing the number of institutions participating in online learning, 85% of all respondents to the Canadian survey said that their institution is offering online courses. As can be seen in the table, there are huge differences across institutional types.

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[1] U.S. Department of Education National Center for Education Statistics, IPEDS Glossary: https://surveys.nces.ed.gov/ipeds/VisGlossaryAll.aspx

CANADA (Fall 2016) Survey Results	Number	Percentage
CEGEPS	12 of 28 responses	43%
Colleges	51 of 54 responses	94%
Universities	52 of 53 responses	98%
Total	115 of 135 responses	85%

UNITED STATES (Fall 2015)		Percentage
Two-year		69%
Four-year or above		72%
Total		71%

In the United States, 71% of all institutions offer distance education courses. In comparing these numbers to the Canadian responses, the percentage for the U.S. is lower than the overall percentage for Canada. When specialized institutions are omitted from the U.S. numbers and the comparison is to US Colleges and Universities (83% with distance offerings) and Associates Colleges (83% with distance offerings) the rates are much closer. The U.S. numbers also reflect the impact of a large number of smaller institutions (more than 2,000 U.S. institutions enroll fewer than 1,000 students). Over 97% of all U.S. institutions with at least 5,000 students offer distance education, while only 48% of those with under 1,000 students have distance offerings.

Online Learning as a Strategic Asset

A question about the strategic importance of online learning was asked in the Canadian survey and was last asked in survey by the Babson Survey Research Group of United States institutions in 2014. The questions are slightly different, but the results are fairly comparable.

About two thirds (66%) of Canadian respondents thought that online learning was either "extremely" or "very" important for their institution's long-term strategic or academic plan. Online learning was "not at all important" for only 2% of respondents with an additional 11% finding it to be only "slightly" important.

For the United States, slightly more than two thirds (71%) of respondents agreed with a statement that online education is critical for the long-term strategy of the institution. Only 9% disagreed with that statement.

For both countries, about two thirds of respondents believe that online learning is an important strategic asset.

CANADA: HOW IMPORTANT IS ONLINE LEARNING FOR YOUR INSTITUTION'S LONG-TERM STRATEGIC OR ACADEMIC PLAN?

CANADA (Fall 2016)	Percentage

Extremely Important	39%
Very important	27%
Moderately important	21%
Slightly important	11%
Not at all important	2%

UNITED STATES: ONLINE EDUCATION IS CRITICAL TO THE LONG-TERM STRATEGY OF MY INSTITUTION.

| UNITED STATES (Fall 2014)	Percentage
Agree	71%
Neutral	21%
Disagree	9%

Larger Institutions Have More Distance Education Activity

While different measures were used in the surveys in each country, the size of the institution appears to have an impact on participation in distance education activities. For Canada, of the institutions responding to the survey, almost all (98%) of the large institutions offer online courses and nearly three quarters (72%) of the smallest institutions offer online courses.

DOES YOUR INSTITUTION OFFER ANY ONLINE EDUCATION
COURSES FOR CREDIT - BY INSTITUTION SIZE
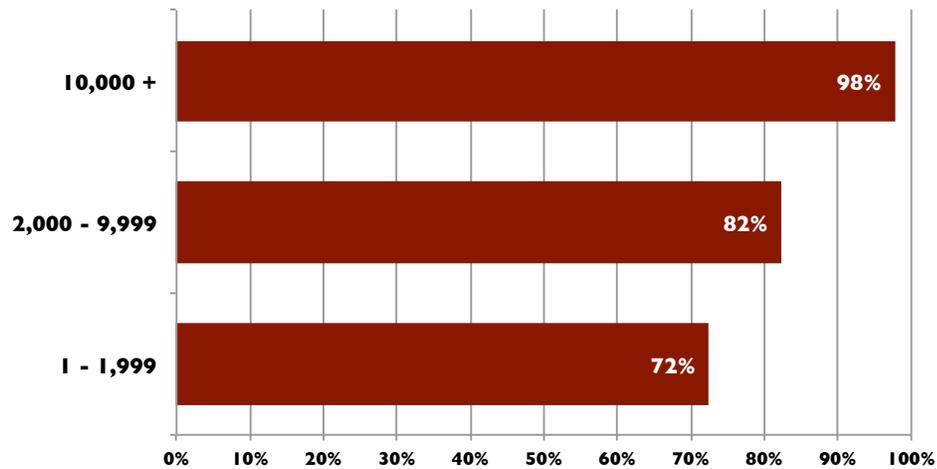
In the United States, there is a similar pattern of more engagement with distance education as the size of the institution increases. Virtually all U.S. institutions with 5,000 or more enrolments have some form of distance education offering.

PERCENTAGE OF U.S. INSTITUTIONS THAT OFFER DISTANCE
EDUCATION - BY INSTITUTION SIZE

Institution Size	Percentage
20,000 and above	100%
10,000 - 19,999	98%
5,000 - 9,999	97%
1,000 - 4,999	84%
Under 1,000	48%
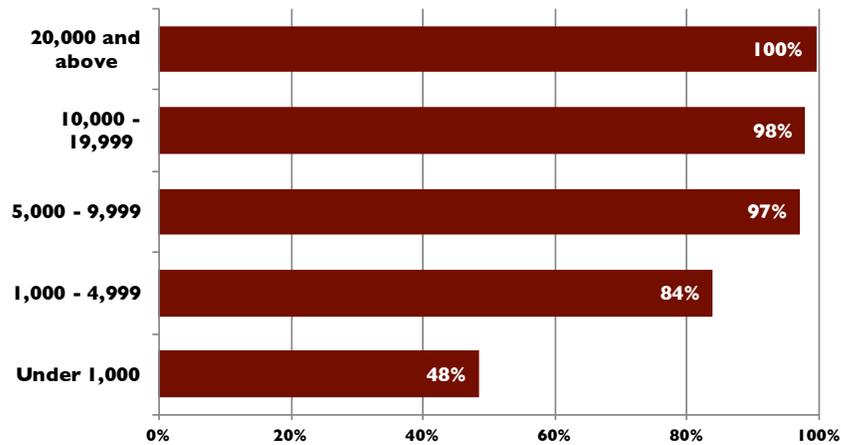
Growth and Reach of Distance Education

In Canada, between 2011 and 2015 there appears to have been considerable growth in online learning. Over the last five years, growth of approximately 10% per annum in universities was realized. Colleges outside of Quebec experienced about 15% growth per annum, while CEGEPs had a decline of about 3% in online learning.

In the United States, the data cover 2012 through 2015. Over that period overall growth in distance education student headcount was between 3.3% to 3.9% per annum. However, that year to year growth was quite variable by higher education sector: public colleges grew between 3.0% and 5.4%, private non-profit colleges grew by more than 11.0% each year, and for-profit colleges experienced a decline in distance students each year.

Again, the difference between measuring student course enrolments in this Canadian survey and the United States surveys measuring student headcount may be significant. A small growth in students taking several online courses could result in a larger increase in the enrolment numbers.

As to the reach, or overall impact of online learning, comparing this project with other Canadian surveys, online course enrolments constituted approximately 16% of all course enrolments in universities and 12% in colleges outside of Quebec.

For the United States, student headcounts represented 14% of students taking all of their courses at a distance and another 15% taking a combination of distance education and face-to-face courses. Combining these two categories, more than a quarter (29.7%) of all students enrolled in at least one distance education course in the fall of 2015.

CONCLUSIONS

Results

There was an overall positive response from the institutions to the questionnaire. Online learning is clearly alive and well in Canada, with a strong annual growth rate in online enrolments and most institutions playing an active role in offering online and hybrid learning, although in the CEGEP system online learning is less common than in the rest of Canada, and is at a more steady state.

A clear majority of institutions see online learning as very or extremely important for their long-term development. This is true in all sectors and provinces. Small institutions (below 2,000) may have more difficulties supporting online learning because of lack of resources, but a majority of even small institutions see online learning as an important part of their future. A majority of the institutions also see online learning as an opportunity to provide more innovative teaching.

However, far too many institutions are not systematically tracking developments in online learning. It is difficult to see how institutions can manage their future if they do not have a good handle on how many students are taking online courses or what proportion of the teaching is now online, or how digital technologies are affecting classroom-based teaching.

Finally, many institutions are now recognizing the need for strategic planning around online learning, hybrid learning and digital technologies. Some institutions are more advanced than others in this process, suggesting that there are opportunities to learn from best practises in planning in this area.

The Need for Better Data

It is very difficult to give a reliable figure from this project for the overall proportion of online learning compared with classroom learning in Canadian post-secondary education, because of inconsistent and unreliable reporting of online course enrolments. There are too many gaps and inconsistencies in the data provided.

There are several reasons for this:

- most provincial governments do not require reporting of such data, at least not on a regular basis;
- for many institutions, this was the first time they have been asked to provide such data; their systems are not set up so the information could easily be extracted;
- there is a cost, both in time and money, in collecting these data; there needs to be a clear reason for doing this, and it has to be set against other priorities for data collection and analysis;
- there is no general agreement across Canada, between provinces or between sectors, on what data should be collected and on definitions; therefore, when

online student enrolments figures are collected, there are inconsistencies, both between institutions and between provinces.

However, there are also very good reasons why it is worth the effort to systematically collect data on online course enrolments.

Tracking what institutions consider a strategic asset. Almost two thirds (86) of the 130 institutions that responded to this question considered online learning to be extremely or very important for their future long-term plans. If this is to be a strategic direction for an institution, accurate tracking of actual online learning activity becomes essential.

Tracking the effectiveness of provincial funding. A second reason is external: several provincial governments have put in place strategies and in some cases, funding to encourage the growth of online learning. Other provincial jurisdictions are wondering whether they should follow suit. Again, without tracking the activity, it will be impossible to judge whether the investment has been justified.

Tracking the impact on teaching. The third reason is perhaps the least obvious but the most important: online learning is having a major impact on the actual practice of teaching. Other parts of this report provide evidence that major changes are happening in how courses and programs are being delivered both on and off campus. Boundaries between face-to-face and online learning are breaking down. Online (or more accurately digital learning) has the potential to help develop the knowledge and skills students need in a digital age. Tracking the extent to which online learning is being used, including data on enrolments in different kinds of teaching, will be essential to understand and manage these changes better.

For this to happen, though, provincial governments and institutions will need to:

- define and agree upon the best way to measure online learning activity,
- identify what data need to be systematically collected,
- establish mechanisms for collecting and reporting consistently on online learning activities, including responsibilities for data collection
- make available the resources needed to provide such information.

This is not an impossible task. In most cases, the basic infrastructure is in place, in the form of student information systems and planning and institutional research departments. It will be important to engage organizations such as the Canadian Institutional Research and Planning Association/Association Canadienne de Planification et de Recherché Institutionelles (CIRPA/ACPRI) in determining the methodology for data collection. Collecting the necessary data is more a question of priorities and delegation of responsibility.

However, the most important consideration is that all institutions as far as possible follow the same method in collecting data on online course enrolments in future surveys.

Recommendation

A more systematic effort needs to be made by institutions and provincial governments to collect reliable and comprehensive data on student online course enrolments in future years, both for online and for hybrid courses where classroom teaching is reduced, but not eliminated, to accommodate more online learning.

Based on the results of this year's survey, we recommend:

- identification of the number of students (headcount – full-time and part-time) taking at least one online course for credit;
- compare this number with total student headcount (full-time and part-time) taking credit courses, to identify the percentage of students taking at least one online course;
- count over the whole academic year the total of enrolments in each online course offered for credit based on a three-credit course (for six credit courses double the enrolment number);
- compare this number with the total of enrolments in all types of teaching for credit over the whole academic year, to identify the proportion of teaching that is being done online;
- ideally this process could be repeated for non-credit courses and programs as well, but as a separate count;
- track the number of courses, and the student enrolments, for courses that have reduced but not eliminated face-to-face teaching time replaced by time for online learning; compare this with the total number of courses and student enrolments for all types of teaching.

In order for this recommendation to be implemented, though, there needs to be a nation-wide effort to agree on the best way to collect such data.

This means that not only should this survey be conducted on a regular basis, but that it also needs to be embedded in a sustainable, cross-provincial organizational structure with a wider remit to track digital learning developments in Canadian post-secondary education. We look forward to participating in discussions on how best to achieve this.

Further information

See the project web site for more detailed information on the survey [http://www.onlinelearningsurveycanada.ca/]. The francophone web site for the survey is at http://www.formationenlignecanada.ca/.

The web sites include:

- access for downloading this public report as a pdf, either in English or French
- access for downloading a full technical report with detailed information on the responses to each question
- sub-reports for certain sectors
- appendices on methodology and the construction of the database

- the list of institutions in the project universe

- the data tables

- discussion and comments about the report

- news about future surveys and other relevant publications.

- The raw data with the identity of each institution removed and replaced with a security code is being lodged with the Ontario College Application Service (OCAS): http://www.ontariocolleges.ca/home. This data will be publicly available on application to OCAS for bona fide research purposes.

Contact: tony.bates@ubc.ca

APPENDIX

BACKGROUND AND METHODOLOGY

Rationale for the project

At the time of the survey (spring/summer 2017) no national data had been regularly collected on how many students are taking online or distance courses, or what proportion of courses are full or partly online, within Canadian universities or colleges.

The Babson Survey Research Group's (BSRG) annual US surveys recorded rapid growth in online learning from 2004 on and identified policies and directions being taken by U.S. universities and colleges. In 2012, the United States Department of Education started collecting similar data through its IPEDS (Integrated Postsecondary Education System Data) survey, and BSRG switched to reporting the Department's statistics.

Institutional planners, state higher education officials and the media have made heavy use of the US annual survey reports. These reports have had a large impact on both public policy at federal and state levels, and on institutional policies and practices regarding online learning.

Without similar data from and about online learning in Canadian institutions, it has been difficult for university and college leaders to track their comparative progress in online learning, the likely future demand, the use of open educational resources, the impact of online learning on teaching, or what strategies are succeeding or failing.

Implementing the project

In early 2016, Jeff Seaman from BSRG and Russell Poulin from WCET approached Tricia Donovan, the Executive Director of eCampus Alberta, with a proposal for a Canadian survey. Tony Bates, a Research Associate for Contact North and a Distinguished Visiting Professor in Continuing Studies at Ryerson University was then approached. He had been strongly advocating for such a survey through his blog, and agreed to take leadership of the project.

It was recognized from the start that strong and direct liaison with individual universities and colleges would be critical for the success of the survey. Also, it was essential to ensure the participation of francophone as well as anglophone institutions. As a result, three consultants were brought on board:

- Brian Desbiens, a former college president, to liaise with the anglophone college sector;
- Denis Mayer, a former Vice President, Student Services, to liaise with the francophone universities, colleges and CEGEPs;

- Ross Paul, a former Canadian university president, to liaise with the anglophone university sector.

These three consultants, with their extensive experience, knowledge and network of contacts within their sector, were critical elements of the study.

Funding for the project was raised in three stages, the first of which saw contributions from the following organizations:

- Contact North (Ontario),
- BCcampus,
- eCampus Alberta,
- Campus Manitoba, and
- eCampus Ontario.

This stage focused on winning widespread support for the project within the Canadian post-secondary education sector, developing the initial design and piloting of the questionnaire, and the development of a database on every public Canadian post-secondary educational institution, including identification of appropriate contact people in the institutions.

Additional organizations either formally endorsed the work and actively promoted it, or played an important supportive role in ensuring that the survey was well received by the institutions:

- Colleges and Institutes Canada (CICAN),
- Colleges Ontario,
- The Canadian Institutional Research and Planning Association (CIRPA),
- The Council of Ontario Universities,
- Universities Canada,
- The Canadian Virtual University,
- Réseau des Cégeps et des Collèges Francophones du Canada (RCCFC),
- Association des Collèges et Universités de la Francophonie Canadienne (ACUFC),
- Réseau d'Enseignement Francophone à Distance du Canada (REFAD).

A number of universities and colleges participated in the piloting of the questionnaire and provided strong encouragement for the project:

- University of British Columbia,
- University of Regina,
- University of Waterloo,
- Queen's University,
- Université Laval,
- Acadia University,

- Yukon College,
- Southern Alberta Institute of Technology,
- Algonquin College,
- Collège Boréal,
- Cégep de la Pocatière,
- College of the North Atlantic.

The second stage of the project was the administration of the questionnaire. This involved sending invitations to participate to each of 203 institutions, and follow-up contacts to ensure a high response rate. This stage was made possible by a grant of $80,000 from eCampus Ontario's Research and Development fund to Ryerson University.

The third stage of the project involved analysis of the data, writing up of the report and its dissemination, including a special francophone report and translation. This was funded partly through the eCampus Ontario grant and grants from each of Pearson Canada and D2L.

The Canadian Post-Secondary Education System

To understand the methodological approach, a brief explanation of the Canadian post-secondary education system is necessary.

Education is constitutionally the responsibility of the ten provinces and the three territories. Thus, there is no *national* higher education system in Canada. There is no Federal Ministry or Department with responsibility for post-secondary education, although the federal government does provide student aid and tax breaks for students and their parents, and funding for research and innovation. The federal government is largely responsible for funding higher education opportunities for aboriginal learners, although aboriginal students who go on to post-secondary education in most cases attend a provincially funded institution.

The three main categories or types of public post-secondary institutions in Canada are:

- Universities,
- One- and two-year professional and vocational colleges, including polytechnics and institutes of technology,
- CEGEPs (general and vocational colleges) in Québec.

Some explanation of CEGEPs (Collèges d'Enseignement Général et Professionnel) is needed, as they are unique to the province of Québec. CEGEPS provide a step between secondary high school and university. The vast majority of Quebec students start CEGEP at age 17. Depending on their educational objectives, some will then continue on to university, while others will enter the workforce with strong practical skills and knowledge following three years of technical studies. Students in CEGEPs can cover what in other parts of Canada would be the first year of university-type education. In the rest of Canada, students leaving high school and entering post-secondary education go either to a four-year university or a two- to three-year college or straight into the workforce.

The project focuses solely on public, provincially funded post-secondary institutions. Almost all universities are provincially funded and there are almost no private, for-profit online universities in Canada. There are private, mainly religious-based, universities with provincial legal status but they are quite small, and few in number. There are numerous private, for-profit vocational colleges, but the majority of two-year college students in Canada attend provincially funded institutions.

The other important factor is language. There are 43 francophone and five anglophone CEGEPs in Québec as well as a provincially funded francophone professional college. The majority of universities in Québec are also francophone, but there are also three anglophone universities. In the rest of Canada, the majority of post-secondary institutions are anglophone, but in most provinces there is at least one francophone institution, or a separate francophone program in a bilingual university.

Creating a Database of Institutions

One challenge the project faced was the lack of a commonly used, publicly accessible database of all Canadian public post-secondary educational institutions. Statistics Canada (StatCan) collects and publishes aggregate national data on topics such as the funding of post-secondary education, overall student enrolments and student workforce participation, but the research team was unable to locate a single, publicly available source that listed all public post-secondary institutions in Canada.

Universities Canada and Colleges and Institutes Canada (CICAN) both publish a list of their members, but with regard to the universities, a number of members are colleges or affiliates of a larger institution that awards their credentials. Although we have used the membership of Universities Canada as a major source to identify Canadian universities, we integrated the affiliated institutions and religious-based colleges into their parent university in order to avoid duplicating data collection.

Where possible, we also used provincial government web sites to identify provincially recognized colleges and universities.

In the province of Québec, we searched the web-sites of Fédération des CÉGEPs du

Québec and le Réseau des universités du Québec. In addition to the 48 campus-based CEGEPs, there is a central distance education service for the CEGEP system, Cégep à distance, and a provincially funded francophone professional/vocational college in Québec. In addition, Université Téluq is a publicly funded and accredited autonomous distance education university that operates in parallel with the other universities in Québec.

The result was a population base of 203 institutions for the survey:

- 72 universities (35%),
- 81 colleges outside Québec (40%),
- 50 CEGEPs/colleges within Québec (25%).

Of the 203 institutions, 70 (34%) were either francophone institutions or were bi-lingual institutions with a separate francophone program. (See the web site for a full list of institutions included in the population base).

The project focuses on online and distance courses and programs that lead to institutional credits such as degrees or diplomas.

Data about the number of students studying for institutional credit in each institution was derived from a number of sources, the most reliable of which was the official student headcount numbers for each institution made available on provincial government web sites. Where these data were not available information was taken from institutional annual reports or government audits of student headcounts for individual institutions, Maclean's Education Hub, or the CICAN web site.

Statistics Canada (StatCan's) most recent figures for Canadian post-secondary student enrolments are for the fall of the 2014/2015 academic year. [http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/educ71a-eng.htm] Their enrolment numbers are based on program counts and not student counts. If a student is enrolled in more than one program as of the snapshot date, then all of their programs are included in the count.

Comparing the project population base with StatCan, the following differences in student enrolments were found.

Table 1: Comparison of StatCan student enrolment numbers, and student headcount totals from institutions in the survey population base

	Universities	Colleges	CEGEPs	Total
StatCan	1,306,110	526,989	221,844	2,054,943
This project	1,239,801	512,785	162,762	1,915,348
Difference	66,309	14,204	59,082	139,595
%	5%	3%	27%	7%

Without knowing more about the basis on which StatCan built its data, it is difficult to explain the difference between the two populations sets, but the differences are relatively small, except for CEGEPs. Overall, though, the project population base appears to represent a very large proportion (93%) of students studying for institutional credit at Canadian public post-secondary institutions.

Designing the Questionnaire

The questionnaire design was initially based on the design of the Babson surveys, but was heavily modified to meet the Canadian context. However, for comparison purposes several key questions remain common to both surveys.

There are in fact several versions of the Canadian questionnaire, for:

- Anglophone universities,
- Francophone universities,
- Anglophone colleges,
- Francophone colleges (outside Québec),
- CEGEPs (within Québec).

For the universities, an invitation to participate was sent initially to the Provost. For those colleges and some universities that were members of CICAN, the invitation to participate was sent by CICAN, using CICAN's e-mail list of member contacts, while in some cases, the invitation went to Direction des études in the francophone institutions.

The questionnaire itself was online and was accessed using a link unique for each participant institution. Members of the project team actively followed up with institutions to encourage them to participate. The project was also promoted through post-secondary educational networks or provincial organizations. The invitations went out in early May and the final cut-off date for the full questionnaire was June 30, 2017.

At this point, for those institutions that had not responded, an invitation was sent to the Vice-President Academic, and their equivalent in colleges and CEGEPs, to complete a shorter questionnaire that excluded questions on student enrolments.

Response rate

The overall institutional response rate was 69% of institutions. Responses were higher from universities (77%) and lower for CEGEPs (58%).

Table 2: Response rate by type of institution

	Full questionnaire			Short quest		Total response	
	Resp.	Pop.	%	Resp.	Resp.	Pop.	%
Universities	49	72	68	7	56	72	77
Colleges (except Quebec)	54	81	67	1	55	81	68
CEGEPs (Québec)	25	50	50	4	29	50	58
Total	128	203	63	12	140	203	69

The response rate tended to be lower from the smaller institutions (see Table 3).

Table 3: Response rate by size range of colleges (including CEGEPs)

		Total response	
	Resp.	Pop.	%
<2,000	27	46	59
2,000-9,999	42	66	64
10,000+	15	19	79
Total	84	131	64

Among colleges with more than 10,000 students 15 out of 19 responded (79%), compared to 59% for colleges with fewer than 2000 students.

Larger universities were also more likely to respond. For the 29 universities with fewer than 7,500 students, the response rate was 62%, but 86% for the 43 with more than 7,500 students. Nevertheless, the lowest response rate for all size ranges of institution was 50% or more, including for small colleges and CEGEPs.

Since there was a higher response from the larger institutions, the questionnaire responders represent institutions with 78% of the student population base.

Table 4: Student headcounts for institutions responding compared to overall student headcounts

	Questionnaire responders			Student population	
Questionnaire	Full	Short	Total	No.	%
Universities	916,544	104,978	1,021,522	1,239,801	82%
Colleges	372,565	167	372,732	512,785	73%
CEGEPs	80,063	12,518	92,581	162,762	57%
Total	1,369,172	117,663	1,486,835	1,915,348	78%

There is a broad spread of institutional representation in the project for almost all the provinces and territories:

Table 5: Response rate by province

Questionnaire	Universities				Colleges/CEGEPs				Total	
	Full	Short	Both	All inst.	Full	Short	Both	All inst.	Resp.	All inst.
Alberta	6	0	6	6	10	0	10	14	16	20
British Columbia	9	1	10	11	9	0	9	15	19	26
Manitoba	3	0	3	4	3	0	3	4	6	8
N. Brunswick	2	0	2	4	1	0	1	4	3	8
Newfoundland	1	0	1	1	1	0	1	1	2	2
NW Territories	0	0	0	0	1	0	1	2	1	2
Nova Scotia	5	0	5	8	1	0	1	1	6	9
Nunavut	0	0	0	0	0	0	0	1	0	1
Ontario	15	3	18	20	21	0	21	26	39	46
PEI	0	0	0	1	1	1	2	2	2	3
Quebec	7	3	10	15	25	4	29	50	39	65
Saskatchewan	1	0	1	2	5	0	5	10	6	12
Yukon	0	0	0		1	0	1	1	1	1
Total	**49**	**7**	56	**72**	**79**	**5**	**84**	**131**	**140**	**203**

Responses from Quebec as a whole were slightly lower than average (60% for all Quebec institutions) compared with that for the universities and colleges outside Québec (72%). The response to the national survey may have been influenced by a similar request for extensive enrolment data at the same time by the Québec Ministère de l'Éducation et de l'Enseignement Supérieur.

Overall, considering that this was a voluntary questionnaire, the responses provide a representative sample of colleges and universities across all provinces, and across all sizes of institution, covering 69% of all institutions and 78% of all students studying for institutional credit at Canadian public post-secondary institutions.