

**THE NATIONAL SURVEY OF ONLINE AND DISTANCE EDUCATION IN  
CANADIAN POST-SECONDARY EDUCATION**

**Full technical report:**

***TRACKING ONLINE AND DISTANCE EDUCATION IN  
CANADIAN UNIVERSITIES AND COLLEGES: 2017***

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## **EXECUTIVE SUMMARY**

This technical report provides the detailed results of a national survey conducted in the spring and summer of 2017 of all Canadian public post-secondary institutions.

### **Responses**

A database of 203 post-secondary institutions was specially created, consisting of 72 universities, 81 colleges outside Québec, and 50 CEGEPs/colleges within Québec. A questionnaire was extensively piloted then distributed to all 203 institutions.

There was a response rate of 69% of the 203 institutions, covering 78% of all Canadian post-secondary students. The response was highly representative of types of institution, provinces and size of institution.

### **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 fully 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 for distance education for the CEGEPs, Cégep à distance, but nevertheless half of the responding CEGEPs offered their own distance education courses, although the CEGEP system in Quebec seems to be the least developed in terms of online student enrolments and growth rate.

Canada appears to be a relatively mature market for online learning. Many institutions have been offering online learning for 15 years or more.

Over the period 2011-2016, the number of institutions offering online courses has increased by 11%, a growth rate in the number of institutions moving into online education of around 2 per cent per annum. In the last few years, even the smaller institutions have moved to offer online learning courses and courses. However, with most institutions now offering online courses, there is little further room for growth in terms of institutions.

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

Online course enrolments constituted approximately 16% of all course enrolments in Canadian universities in 2015, and probably 12% in colleges outside Québec, although this is an estimate based on several other studies as well as this one. Obtaining from institutions accurate and reliable online student and course enrolment figures was a major challenge for this project.

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

Just under half of 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. It was reported that such blended/hybrid learning is resulting in some innovative teaching.

### **The use of technology in online learning**

All but two of the institutions that responded to the questionnaire use the Internet as the main way 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.

New, low-cost, easy to use technologies such as social media and mobile apps 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 at least some innovative projects using technology for teaching.

There is relatively limited use of open educational resources (OER) and open textbooks at the moment. Even more striking though was how few references there were in the questionnaire responses to adaptive learning, artificial intelligence, learning analytics and competency-based learning. It seems that these technologies or approaches have yet to prove their worth to Canadian instructors.

### **MOOCs**

There is no MOOC mania in Canada. Less than 20% of responding institutions offered MOOCs in the previous 12 months. In most institutions, MOOCs are being cautiously assessed, and used only where they are perceived to add value to standard programming.

### **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 fully online and hybrid teaching.

## **Benefits and challenges of online learning for institutions**

The major benefit of online learning perceived by responders was that it results in greater access and more flexibility for students, although almost three-quarters of those responding also saw online learning as a means to increase enrolments. This was particularly true for institutions in the Maritime provinces.

In almost two thirds of the institutions, innovative teaching was perceived as one of the benefits of online learning. This was particularly true for very large institutions (more than 30,000 students). In fact, a range of pedagogical benefits were listed by a significant number of responders.

Most institutions reported that lack of adequate resources was a major barrier to online learning. This is a particular problem for very small institutions. Nearly half the institutions identified lack of specialist learning technology support staff as a barrier

About two-thirds of the institutions identified lack of training and resistance from instructors as a main barrier or challenge. Faculty resistance was highest in Québec, especially in the CEGEPs.

Just over a third of the institutions identified a lack of support from government as a challenge. The lowest response to this was from institutions in Ontario (16%) and the highest in Québec (62%). CEGEPS also identified lack of government support at a much higher level than colleges outside Québec (57% compared to 29%).

## **The need for better data on online learning**

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 fully online, or how digital technologies are affecting classroom-based teaching.

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

This report discusses the methodological issues in collecting reliable and consistent data on online enrolments and makes a recommendation for how best this can be done.

# **TRACKING ONLINE AND DISTANCE EDUCATION IN CANADIAN UNIVERSITIES AND COLLEGES: 2017**

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The national survey of online and distance education in Canadian post-secondary  
education



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## **SECTION 1: ORIGIN OF THE PROJECT**

### **1. Rationale**

Currently no national data are 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. (Appendix 3 provides a discussion of those studies that have been done.)

In the USA, the Babson Survey Research Group's annual surveys recorded rapid growth in online learning 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. When IPEDS began collecting distance learning enrolments in the fall of 2012, BSRG switched to reporting the Department's statistics. For the most recent IPEDS data collection, BSRG analyzed the data with WCET (WICHE Cooperative for Educational Technologies) and the e-Literate blog under the partnership name of the Digital Learning Compass.

Institutional planners, state higher education officials and the media have made heavy use of the 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 is 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.

### **2. People**

Since 2003, the Babson Survey Research Group (BSRG) has conducted national surveys on enrolments, activities, and attitudes regarding online learning for U.S. colleges and universities.

e-Literate and WCET conducted their own separate and joint analyses of the IPEDS enrolment data. After noting small differences in the numbers reported, the three organizations harmonized the data sets they used and continued to share what was learned behind the scenes.

Pressure had been building for some time for a similar set of studies in Canada. In early 2016, Jeff Seaman and Russell Poulin initially approached Tricia Donovan, the Director of eCampus Alberta, with the 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.

### **3. Funding**

However, the survey started as an idea without any immediate institutional support and with no initial sponsorship. Money for the project had to be raised in three stages.

For the first stage, the various provincial government organizations mandated to support online learning were approached:

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

Each contributed \$5,000 to \$10,000 towards the first stage of the project (\$45,000 in total). 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.

### **4. Support**

The following organizations were approached. Some formally endorsed the work and actively promoted it. Others, in one form or another, 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).

The following 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.

## **5. Further funding**

The second and most expensive stage of the project was the piloting and 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, where Tony Bates is a distinguished visiting professor.

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 of \$20,000 each from Pearson Canada and D2L. Altogether a total of \$145,000 was raised for the project. This has proved to be a very tight budget, with nothing left for future developments.

Nevertheless, in addition to the funding, it can be seen then that many partners contributed in time and expertise to the design, development, analysis and dissemination of the survey. All deserve special thanks, as they each played a unique role in moving the project from concept to completion.

## **SECTION 2: METHODOLOGY AND RESPONSE RATE**

### **1. 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.

There are three main categories or types of public post-secondary institution in Canada:

- 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. Although in the main cities there are larger CEGEPs, the majority of CEGEPs are small to medium sized (70% have fewer than 4,000 students). Some CEGEPs have responsibility for very large but sparsely populated areas.

To manage the scope of the project, we have focused 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 still 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.

A number of aboriginal communities/First Nations also own and manage their own post-secondary colleges, and lastly there are at least two Federal post-secondary institutions, the Royal Military College/Collège Militaire Royal, and the Canadian Coast Guard College. Both the federal and indigenous institutions are unique in their organization and goals and operate relatively independently of the provincial systems, and would need a separate, more focused study.

It was therefore decided early on in the design of the project that the project would, in the first year, focus exclusively on provincially funded and accredited post-secondary educational institutions, which still represent by far the majority of post-secondary institutions in Canada.

## **2. 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 we were 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. Also not all members of Universities Canada are provincially accredited. Furthermore not all public post-secondary colleges are members of CICAN. Some universities are also members of CICAN as well as Universities Canada.

We also used provincial government web sites to identify provincially recognized colleges and universities (although not every province provides such a list on their web site).

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, so we included Cégep à distance, plus a provincially funded

francophone professional/vocational college in Québec, to the 48 campus-based CEGEPs.

Also in Québec, Université TÉLUQ is a publicly funded and accredited autonomous distance education university that operates in parallel with the other universities in Québec. However, unlike Cégep à distance for the CEGEPs, Université TÉLUQ does not offer programs on behalf of the other universities.

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 Appendix 1 for a full list of institutions included in the population base).

To manage the scope of the project we made an early decision to focus only on online and distance courses and programs that lead to institutional credits such as degrees or diplomas, although we recognise the importance of online learning and distance education for continuing education non-credit students. However, including non-credit courses and programs would have complicated the data collection, especially as this was the first year of the project. In future years, we wish to track also continuing education students and their use of online and distance education.

We explored a number of sources to find independent data about the number of students studying for institutional credit in each institution, including Maclean's Education Hub and the CICAN web site, but there was a lack of consistency with these numbers. Sometimes they included continuing education students; other times only full-time students, but not part-time.

Finally we decided the most reliable source for credit-based enrolment numbers was the official student headcount numbers for each institution made available on provincial government web sites. These figures though ranged from data collected in 2011 through to 2016, but nevertheless provided the most consistent source of comparative data on the size of institutions. In the few provinces or territories where we could not find this data, we used published institutional annual reports or government audits of student headcounts for individual institutions.

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 our population base with StatCan, we found the following differences in student enrolments.

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
Our 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, we cannot explain the difference between the two populations sets, but the differences are relatively small, except for CEGEPs. We used data for student places directly funded by the Québec government and as a result may have missed out-of-province and international students, and students funded from other sources. Overall, though, our population base appears to represent a very large proportion (93%) of students studying for institutional credit at Canadian public post-secondary institutions.

### 3. 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).

The questionnaire was piloted in six universities and six colleges distributed across the country in both francophone and anglophone institutions. Their feedback strongly influenced the final design. Also we made extensive efforts to consult with professional associations, university and college organizations, and senior administrators within different types of post-secondary institution before finalizing the questionnaire.

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.

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.

#### 4. Response rate

Table 2 below shows that the overall institutional response rate was 69% of institutions. Responses were higher from universities and lower for CEGEPs.

Table 2: Response rate by type of institution

	Full questionnaire			Short questionnaire	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

Resp. = responding institutions; Pop. = all institutions in population base

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

It can be seen that 15 out of the 19 colleges with more than 10,000 students responded (79%), compared to 59% for those 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 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, as can be seen from Table 4.

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

Questionnaire	Questionnaire responders			Student population	
	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%

Also there is a broad spread of institutional representation in the project for almost all the provinces and territories (Table 5):

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
<b>Total</b>	<b>49</b>	<b>7</b>	<b>56</b>	<b>72</b>	<b>79</b>	<b>5</b>	<b>84</b>	<b>131</b>	<b>140</b>	<b>203</b>

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

### **SECTION 3: DEFINITIONS OF ONLINE LEARNING AND DISTANCE EDUCATION**

There is no general agreement on definitions in this field. Furthermore we know from experience that online learning is a dynamic, fast-changing area of education. However, for a project of this kind, it is essential that all institutions as far as possible use the same terminology and understanding when completing the questionnaire.

Thus, for the purposes of this project, we used the following definitions, which we included in the introduction to the questionnaire:

**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.

**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 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, we wish to exclude inter-campus delivery where students are required to attend a different campus from the instructor. However, we wish to include delivery via the internet or other distance technologies to small learning centres in remote areas.

**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.

**Blended/hybrid courses.** These are courses are 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.

**Credit courses.** These are courses that lead to institutional credits (degrees, diplomas, etc.). In other words please exclude non-credit programming for the purpose of this survey, except where specifically indicated. Include information on all credit online courses, whether they are managed by a central service or by individual departments or by Continuing Studies.

**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. There was a specific question for contract training.

**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.

There was a separate section in the questionnaire about MOOCs.

## SECTION 4: DISTANCE EDUCATION ACROSS CANADA

### 1. Distance education courses for credit

Distance education includes all forms of delivery to students off-campus, not just online. The first question on the questionnaire was:

*Does your institution offer any distance education courses for credit? Distance education courses are those where no classes are held on campus – all instruction is conducted at a distance.*

Of the 140 institutions responding to the questionnaire, 83% (116) answered 'yes' to this question, and 13% (19) 'no.' Five institutions (4%) did not answer this question. 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. 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.

We were also able to identify from other sources such as institutional web sites, personal knowledge of the institutions, and provincial agencies, which of the institutions that did not respond to the questionnaire offered at least some distance education courses or programs (other sources in Table 6 below).

This is summarized in Table 6 below:

Table 6: Number of post-secondary institutions offering DE courses or programs

	Cégeps	Colleges	Univer- sities	Offering DE	% of Total
Survey	13	52	51	116	57%
Other sources	12	13	14	39	19%
Total offering DE	25	65	65	155	76%
% offering DE	50%	80%	90%	76%	
No (inc. other sources)	24	14	3	41	20%
Unknown	1	2	4	7	3%
Total	50	81	72	203	100%

It can be seen from Table 6 that approximately three quarters of all Canadian post-secondary educational institutions (76%) are known to offer distance education courses or programs for credit, with 90% of universities, 80% of colleges outside Québec and 50% of Cégeps within Québec, recognizing that there is a central service in Québec for distance education programs for Cégeps. This includes all forms of distance education, not just online courses and programs.

## 2. Method of delivery

The following question was asked:

*What format(s) are currently in use for distance education courses for credit within your institution?*

Respondents were given a list of possible formats for delivery from which to choose:

- *Online courses where the primary delivery mechanism is via the internet*
- *Print-based*
- *Live or recorded broadcasting (TV or radio)*
- *Video- or audio-conferencing via telephone or closed networks*
- *Other (please give details of method of delivery)*
- *Information not readily available*

The purpose of this question was to identify which institutions were still using 'legacy' technologies for distance education delivery and the extent to which the Internet is now the dominant technology for distance education.

Table 7: Formats used for DE delivery

	Internet	Confer- encing	Print	TV or radio	Other
Yes	113	51	26	13	13
No	2	64	89	102	102
Question responders	115	115	115	115	115
Missing	25	25	25	25	25
Total responders	140	140	140	140	140
All institutions	203	203	203	203	203

All but two of the institutions offering distance education used the Internet as their primary delivery format. One of the 116 institutions that responded to the previous question did not answer this question

Just under half of responding institutions (44%) responded that they used video- or audio-conferencing via telephone or closed networks for distance education. Universities (88%) were more likely to use this technology than the colleges (60%) or CEGEPs (31%). It is possible to do video- and audio-conferencing over the Internet, as well as through telephone or private networks. A few reported in the open-ended comments to this question that video conferencing is used only between campuses.

Print is still being used to supplement Internet delivery in almost a quarter (23%) 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 full online.

CEGEPs use live or recorded broadcasting (TV or radio) most (31%), although overall its use now 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 in Section 10 of this report.

## SECTION 5

# ONLINE LEARNING: INSTITUTIONAL COMMITMENT

The questionnaire then moved on to ask specifically about online courses. Institutions were asked whether they offered online courses for credit in the fall of 2016.

Table 8 below lists the number of institutions offering credit-based online courses in the fall of 2016:

Table 8: Institutions offering online courses in Fall, 2016

	CEG.	%	Coll.	%	Uni.	%	Tot.	%
Offered	12	43%	51	94%	52	98%	115	85%
Not offered	16	57%	3	5%	1	2%	20	15%
Question responders	28	100%	54	100%	53	100%	135	100%
Missing	1		1		3		5	
Total institutions responding	29		55		56		140	140
All institutions	50	24%	81	62%	72	72%	203	57%

CEG. = CEGEPS/colleges in Québec; Coll. = colleges outside Québec; Uni. = all universities.

For 2016, 135 (96%) of the 140 institutions that responded to the questionnaire answered this question.

115 of the institutions (85% of those that responded to this question and 82% of all institutions that returned a questionnaire) offered online courses in 2016, and 20 responded that they did not. There were five questionnaires (4%) where there were missing responses to this question.

The overall figure is lowered by the CEGEPs: 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.

It is likely that the responses to the questionnaire are biased towards those institutions that offer online courses, but if none of the 60 non-responding institutions offered online courses in 2016, at a minimum 57% of all 203 institutions in Canada offer online courses (72% of all universities, 62% of all colleges and 24% of all CEGEPs), and it is known from other sources that many of the non-respondents have significant numbers of online courses.

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.

As well as establishing how many institutions were delivering online courses in the fall of 2016, this question also aimed to ascertain the trend in the number of institutions offering online courses.

Table 9: Institutions offering online courses: 2011-2016

	2011	2012	2013	2014	2015	2016
Offered	94	96	99	100	104	105
Not offered	20	19	18	19	18	18
Don't know	8	7	5	3	0	0
Question responders	122	122	122	122	122	123
% of those responding	77%	79%	81%	82%	85%	85%
Missing	6	6	6	6	6	5
Total institutions responding	128	128	128	128	128	128
All institutions	203	203	203	203	203	203

Note that the 12 institutions that responded to the short questionnaire were not asked this question on trends, only about whether they offered online courses for credit in Fall 2016.

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 cent 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.

## **SECTION 6: ONLINE COURSE ENROLMENTS**

One goal for the project was to measure the amount and the extent of online learning in Canadian post-secondary education institutions, using the most recent data available. The survey was conducted between April and June, 2017, before the end of the 2016-2017 academic year, as the intent was to present the results at the ICDE World Conference on Online Learning in Toronto in October 2017.

### **1. The questions**

Statistics Canada's reports on Canadian post-secondary student enrolments are based on enrolments in the fall semester. Therefore institutions were asked to provide data regarding their online enrolments for the fall semester of 2016, as well as for the years 2011-2015, through the following two questions:

*Please provide the following counts for online courses for the fall of 2016. If you have a date for reporting student enrolment data to the province, please use the numbers at that date. If not, please use October 18, 2016, or any other date in the fall for which you have the numbers. Please click the appropriate button to indicate whether this figure is accurate, an estimate, or if data are not available.*

	Count	Quality of answer		
		Actual	Estimate	Don't know
Total student course registrations in online courses (the sum of registrations in each online course, i.e. course based)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The number of individual students who took at least one online course for credit (based on individual student records)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Please provide the total student course registrations in online courses (the sum of registrations in each online course, i.e. course based) for each of the following time periods. Please click the appropriate button to indicate whether this figure is accurate, an estimate, or if data are not available.*

	Total student course registrations in online courses	Quality of answer		
		Count	Actual	Estimate
Fall 2015		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2014		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2013		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2012		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fall 2011		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Please provide the following counts for online courses for the fall of 2016. If you have a date for reporting student enrolment data to the province, please use the numbers at that date. If not, please use October 18, 2016, or any other date in the fall for which you have the numbers. Please click the appropriate button to indicate whether this figure is accurate, an estimate, or if data are not available.*

These questions were included only in the full questionnaire, but were not included in the short questionnaire sent to institutions that did not initially respond. There were 128 responses to the full questionnaire.

## **2. Responses to questions on online student enrolments**

Table 10 below is focused on the institutions that provided course enrolment data for the fall of 2016. Note that all percentages in Table 10 are given based on all 203 institutions in Canadian public post-secondary education.

Table 10: Response rate to questions on Fall 2016 online course enrolments

	CEGEP		College		University		Total	
	No.	%	No.	%	No.	%	No.	%
Fall 2016								
<i>Actual</i>	7	14%	33	41%	31	43%	71	35%
<i>Estimate</i>	3	6%	10	12%	10	14%	23	11%
<i>Don't know</i>	0	0%	4	5%	4	6%	8	4%
Question responders	10	20%	47	58%	45	62%	102	50%
No online enrolments	13	26%	3	4%	2	3%	18	9%
Missing	27	54%	31	38%	25	35%	83	41%
All institutions	50	100%	81	100%	72	100%	203	100%

### *Overall response to this question*

Information on online course enrolments for fall 2016 was provided by 50% of all Canadian public post-secondary institutions. One hundred and two institutions responded to this question; another 18 institutions are known to have no online course enrolments, resulting in information on online course enrolments for 120 institutions.

### *CEGEPs*

Information on online course enrolments for fall 2016 was provided for 46% of all 50 CEGEPs/colleges in Québec. Ten (20%) gave actual or estimated data for online course enrolments; another 13 (26%) are known to have no online course, resulting in information on online course enrolments for 23 CEGEPs.

### *Colleges outside Québec*

Information on online course enrolments for fall 2016 was provided for 57% of all 81 colleges outside Québec. Forty-three (53%) gave actual or estimated data for online course enrolments; another three are known to have no online course enrolments, resulting in information on online course enrolments for 46 colleges outside Québec.

### *Universities*

Information on online course enrolments for fall 2016 was provided for 60% of all universities. Forty-one (57%) gave actual or estimated data for online course enrolments; another two are known to have no online course enrolments, resulting in information on online course enrolments for 43 universities.

However, data on online course enrolments are missing from a substantial number (10) of the largest online course providers among the universities, even though most of them responded to the questionnaire as a whole. Thus the online course enrolment figures are skewed towards the smaller university online course providers.

*Other years*

When we examined the responses to the question on online course enrolments for 2011-2015, the results were very similar.

The responses are somewhat lower to this question than to most of the other questions in the survey, raising some concern over the representativeness of these responses.

**3. Quality of the data**

Institutions were also asked an open-ended question immediately after the question on online student enrolments:

*What comments would you like to share about the numbers and trends in the registrations above?*

Almost half the institutions added comments (62 out of 128). Of these, 19 reported difficulties in providing this information, or anomalies in the data they did report.

For instance:

*The total annual course registrations are approximately 2.5 times the Fall registrations.*

Small anglophone university

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

Small anglophone university

*Numbers reported above reflect online courses offered through continuing education (degree credit). There are also approximately 72 sections of online courses offered by programs. That would add approximately 200 students to each fall number.*

Large 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 was 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

*We cannot report the number of course registrations accurately as the SIS system tracks all students in one 'course' - Med 1, Med 2, etc, - rather than in individual course registrations.*

Mid-size anglophone university

*This is the best available representation of our data. As we upgrade our systems, more accurate data may be available in the future.*

Small anglophone college

*Figures include courses leading to credit, but also refresher courses for companies or individuals (continuing education and business services)  
(Translation)*

CEGEP

Furthermore, data collected only for the fall semester misses a large number of online course enrolments in other parts of the year. For instance, it was discovered independently of the questionnaire (and after it had been administered) that course enrolments for online courses in some universities in the Maritime provinces are highest in the summer, because they have a large number of out-of-province students who return home for the summer. Offering online programs for these students helps reduce the number of letters of permission to take courses from a university in their own province during the summer. However the questionnaire did not capture this information.

As well as the caveats from institutions in the open-ended comments about the difficulty in providing data and its reliability, there were considerable inconsistencies in the data provided by individual institutions. In particular, in a large number of the institutions, the student online course enrolments for fall 2016 were inconsistent with enrolments in previous years, probably because this was not part of a regular annual enrolment check conducted after the end of the academic year. Indeed we discovered during the project that there is an overall issue of a lack of clear and consistent data collection by institutions on online students and enrolments.

Consequently, because of the relatively low response rate to this question, with data missing from some of the largest online programs, and inconsistencies or concerns from institutions about the data provided, it was reluctantly decided that it would be unwise to use the fall 2016 online course enrolment data in our analysis.

Nonetheless, the online course enrolment data for the years 2011 to 2015 do appear to be reasonably consistent within specific contexts, and although the figures differed somewhat from year to year with other studies, the pattern of results were similar, particularly regarding trends in growth.

#### 4. Trends in online course enrolments

The analysis is presented by type of institution (CEGEPs, colleges, and universities) because of the differing levels of reliability within each type. It should be remembered that the institutions were asked for data for just one semester (Fall) each year. Also there was little difference in the trends between actual compared to estimated data, so we have combined actual and estimated data in the tables, just for the purpose of examining trends.

##### *CEGEPs*

In the case of the CEGEPs, there are relatively few that offer online courses, since there is a centralised service for that sector. We did get an actual figure from the main service provider, Cégep à distance, and 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 reliable.

Table 11: Trends in online course enrolments in CEGEPs

	2011	2012	2013	2014	2015
No. offering online courses	7	9	10	11	11
No. of institutions with data	4	6	8	9	9
Sum of online enrolments	10,497	11,777	11,792	11,372	10,142
Annual change (%)		12%	0%	-4%	-11%

It can be seen from Table 11 that there appears to have been a slight overall decline of 3% in student online course enrolments in the CEGEP system between 2011-2015.

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 overall picture is of little growth in fully online learning in CEGEPs over the last five or six years.

##### *Colleges outside Québec*

On examining the distribution of those colleges outside Québec, compared to the distribution of the total population as a whole in terms of size of institution,

province and language, we found that the respondents to this question were not unrepresentative and were not skewed towards high or low overall provision of online learning, as far as we could tell all sources consulted.

Table 12: Trends in online course enrolments in colleges outside Québec

	2011	2012	2013	2014	2015
No. offering online courses	46	46	46	46	49
No. of institutions with data	38	38	38	38	40
Sum of online enrolments	61,208	72,575	81,408	84,215	98,036
Annual change (%)		19%	12%	3%	16%

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 we have not included the 2016 figures, online course enrolments continued to increase in most colleges in 2016 compared with 2015.

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, or 46% of all universities in Canada. It should be remembered that the online course enrolment figures are skewed towards the smaller university online course providers, so the data from those that did respond in Table 13 needs to be treated with due caution.

Table 13: Trends in online course enrolments in universities

	2011	2012	2013	2014	2015
No. offering online courses	41	43	43	44	44
No. of institutions with data	31	32	34	33	33
Sum of online enrolments	67,991	84,495	92,245	98,412	103,343
Annual change (%)		24%	9%	7%	5%

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

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 CVU).

## **5. Comparison with other studies**

There are surprisingly few other publicly available reports that provide data on online course enrolments in Canada. Even where there are such reports, it is difficult to make comparisons. The other studies were mostly limited to individual provinces or a particular sample of universities, while this project covered all universities and colleges. Some were snapshots in a particular year, while others recorded data over quite lengthy periods.

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. They do 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'Éducation, Québec*

A report by the Council of Higher Education in Québec (Conseil Supérieur de l'Éducation) (Conseil supérieur de l'éducation (2015) 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; for instance the overall number of students in universities in Québec over this 12 year period grew by 27%, or 2 per cent per annum, whereas the number of distance students grew by 138%, or almost 13% per annum; however more recently the annual growth rate between 2008-2012 for distance education students was 6%;
- the proportion of students enrolled in (asynchronous) distance education courses grew from 6% in 2001 to nearly 12% by 2012.

### *Ontario*

The report from the Ontario Ministry of Advanced Education in 2011 was a snapshot of activity for the academic year 2010-2011. The data was about e-learning activities that included both fully online and hybrid course activity (defined as 50% online or more). It was based on annual course enrolment data for 2010-2011. 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 in the college sector for the 20 colleges that responded to the question was 76.1%, with most institutions reporting results between 70% and 79%;
- the median in the university sector for the 15 universities that responded was 89%, with most universities reporting results from 85% to 95%.

*Global Affairs/EduConsillium*

The report covers student enrolments (hadcounts) in the 2013-2014 academic year. The report (Martel, C., 2015) 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 fully online institutions and results were then scaled up for the whole system.

*Summary*

The following compares the proportion of online course enrolments of all course enrolments across the different surveys:

Year		% online course enrolments	% of students online
2012	Québec survey (universities)	12%	
2011	Ontario survey (universities)	13%	
2011	Ontario survey (colleges)	7%	
2014	Global Affairs (universities)		29%

The following compares growth rates in online course enrolments across the different surveys:

Year		Annual Growth rate
2011-2015	This survey (colleges)	15%
2011-2015	This survey (universities)	10%
2011-2014	CVU survey (universities)	5%
2008-2012	Québec survey (universities)	6%

It can be seen how difficult it is to make comparisons. Different surveys use different definitions, different years and different samples. Nevertheless, some tentative conclusions can be drawn:

- Online course enrolments in Canada's two largest provinces constituted between 12-13% of all university undergraduate course enrolments in 2011 or 2012;
- Over the last four years, online course enrolments in universities have been increasing at a rate of between 5-6% (CVU and Québec) to 10% (our survey);
- If we take the mid-point of 7.5 per cent annual growth in universities, and 12.5% of all course enrolments being online in 2011 as the base, then we can estimate that over the four years since 2011, approximately 16% of all course enrolments would be online in 2015, at least in Ontario and Québec.
- If we take the figure of 15% for the annual growth in colleges in Ontario, and 7% of all course enrolments being online in 2011 as the base, then we can estimate that over the four years since 2011, approximately 12% of all course enrolments would be online in 2015, at least for colleges in Ontario.

## 5. Conclusions

### *The growth of online learning, 2011-2015*

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

### *The proportion of online course enrolments*

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 probably 12% in colleges outside Québec.

### *The need for better data*

It is very difficult to give a reliable figure 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 this 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:

- the main one is internal: we shall see from a later question that 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;
- 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;
- 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 work together to:

- define and agree upon the best way to measure online learning activity,
- identify what data need to be systematically collected,

- put in place 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 Recherche Institutionnelles (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.

## **SECTION 7: ONLINE COURSE OFFERINGS BY SUBJECT AREA**

To find out if there were certain subject areas more frequently offered as online courses or programs, we asked the following question:

*Did your institution offer online for-credit courses or online for-credit programs in the following fields of study in the fall of 2016? (Please select all that apply.)*

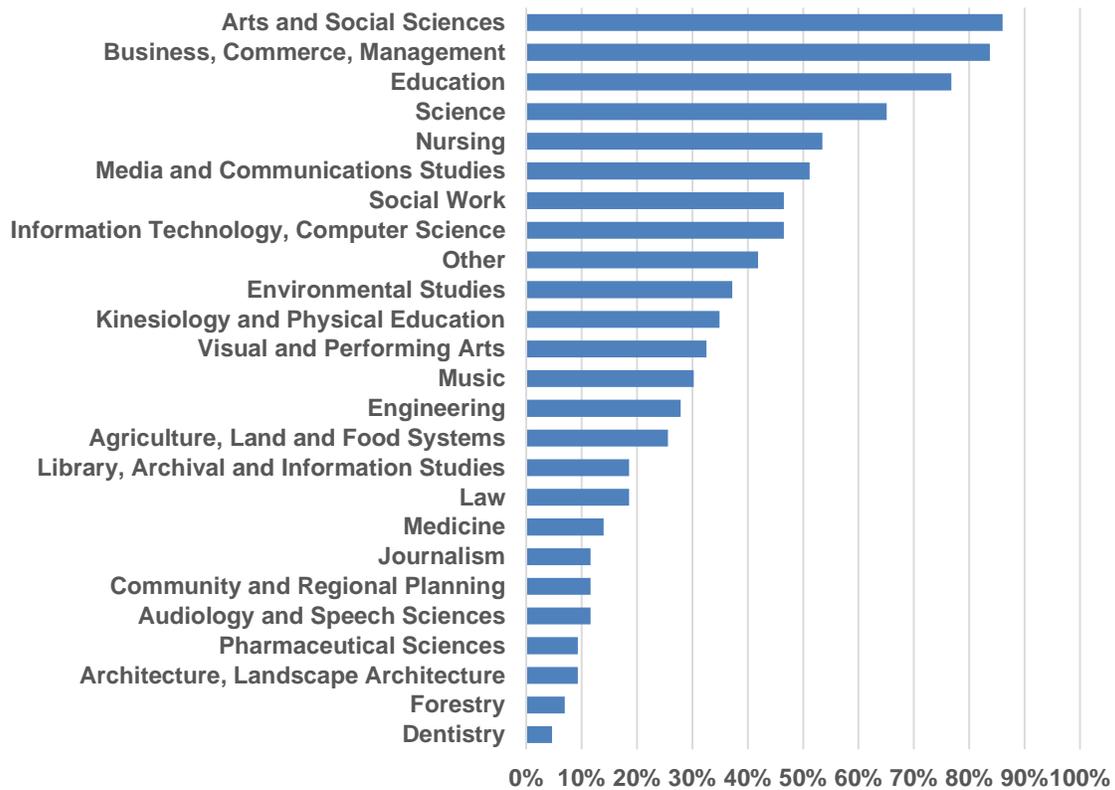
Respondents were provided with a listing of different subject areas to choose from, with a box to select for both courses and programs in a particular subject area. The listing of subject areas was different for universities, anglophone colleges, and francophone colleges to increase relevance and ease of responding. This question was asked only in the full questionnaire.

### **7.1 University online courses and programs**

Of the 49 universities that responded to the full questionnaire, 43 (88%) provided answers to the question on courses, and 30 (61%) on programs. This probably reflects a difference between universities where courses are offered at less than the program level and those which offer entire programs online.

Figure 1: Universities offering online courses in various subject areas

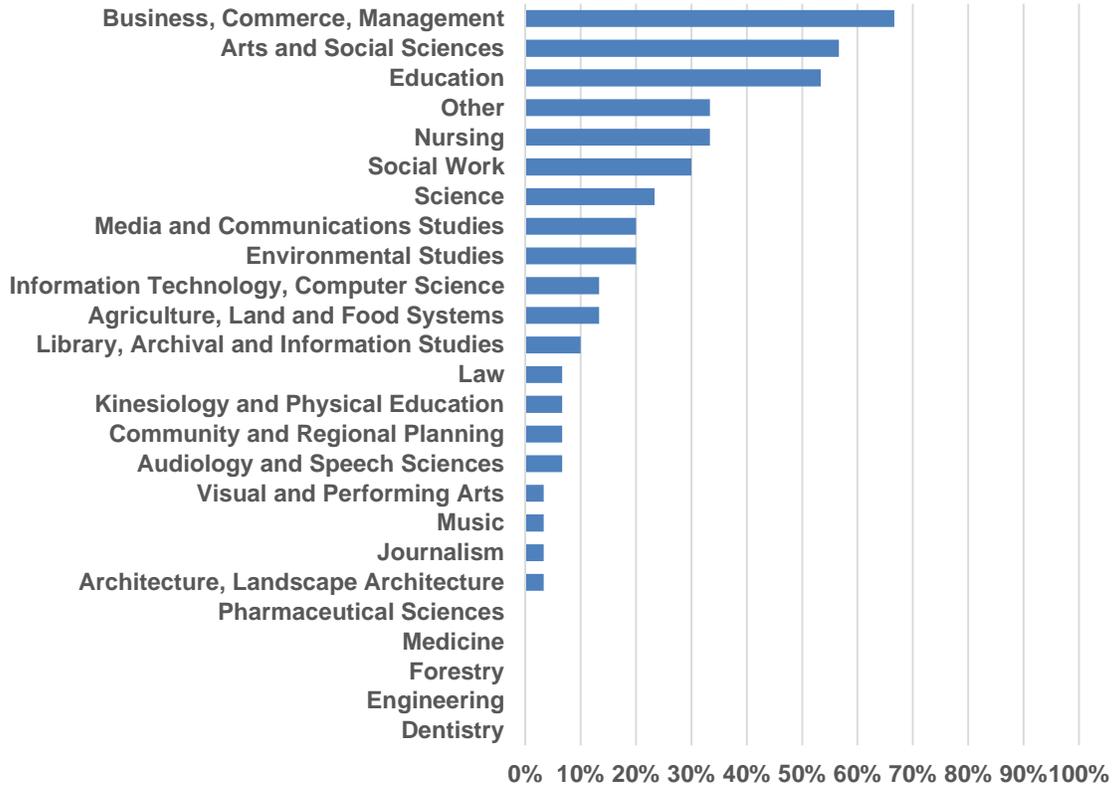
## UNIVERSITY ONLINE COURSE OFFERINGS



It can be seen that most 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, although courses were least likely to be offered in dentistry and forestry. Thus although some subject areas seem to be more popular than others, there was no subject area listed where there have not been online courses offered.

Figure 2: Universities offering online programs in various subject areas

## UNIVERSITY ONLINE PROGRAM OFFERINGS



The chart above shows that at least half the universities offer fully online programs in business, arts and social sciences, and education. However, none in the survey offered fully online programs in dentistry, engineering, forestry, medicine or pharmaceutical sciences. What is noteworthy from these results is the very wide range of programs offered fully online in Canadian universities.

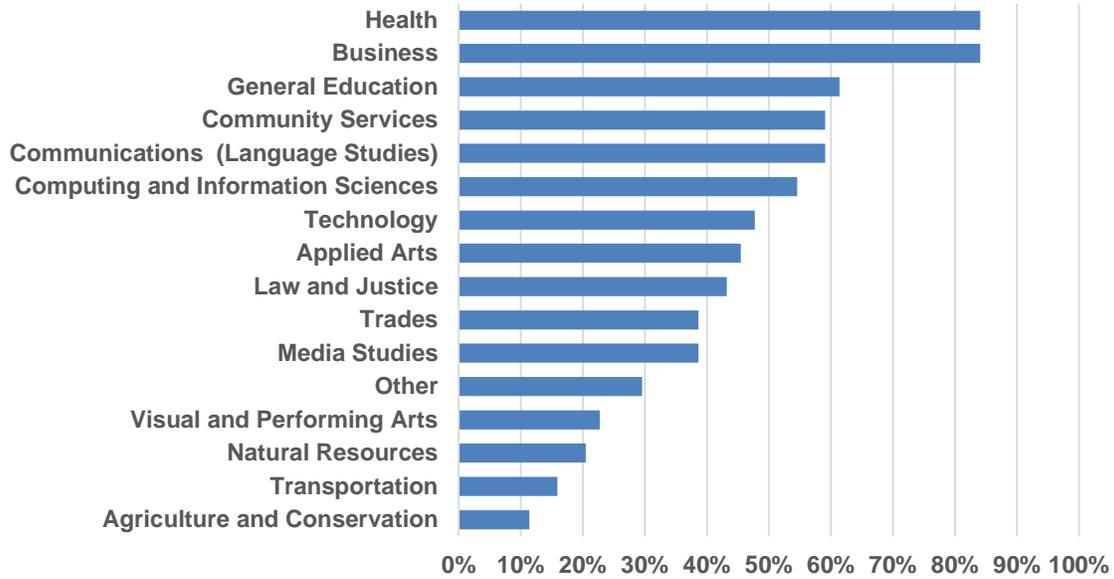
### 7.2 Anglophone colleges

Of the 79 colleges that responded to the full questionnaire, 44 (56%) provided answers to the question on courses, and 34 (43%) on programs.

There are at least two possible explanations for the low response rate for the question about online college programs. It could reflect a difference between colleges where courses are offered at less than the program level and those which offer entire programs online. Another explanation might be that this data is not being recorded centrally for the institution to be able to respond properly.

Figure 3: Anglophone colleges offering online courses in various subject areas

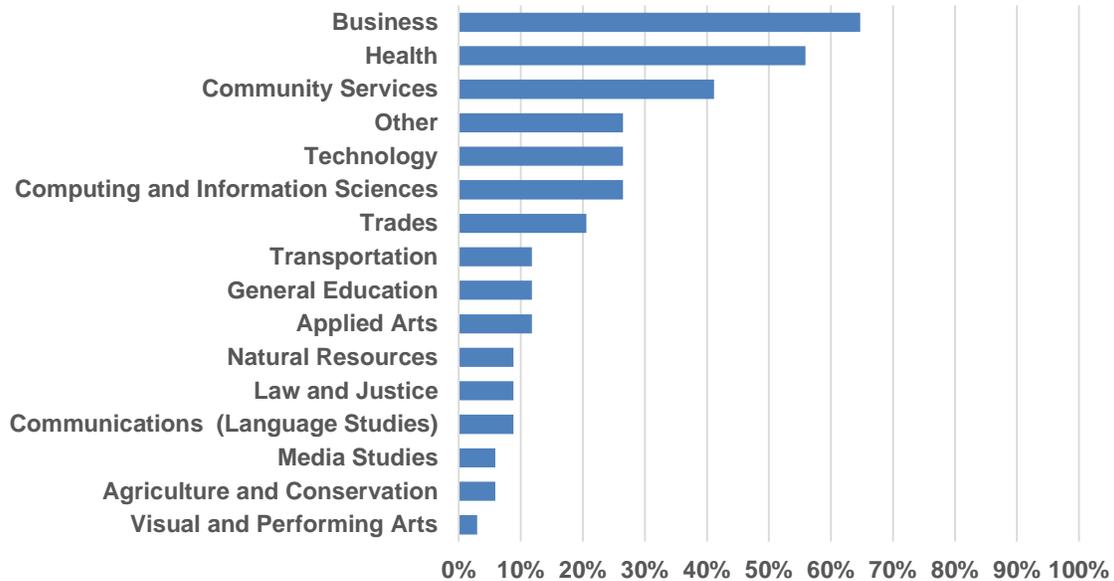
## ANGLOPHONE COLLEGE ONLINE COURSE OFFERINGS



It can be seen that the two most common subject areas (more than 80% of institutions) for online courses in colleges are health and business. It is worth noting that for every subject area listed, at least four colleges offered courses online in this area. Courses that were least likely to be offered were in agriculture and transportation. While some subject areas were reported to have more online courses, there is no subject area where there are no online courses offered.

Figure 2: Anglophone colleges offering online programs in various subject areas

## ANGLOPHONE COLLEGE ONLINE PROGRAM OFFERINGS



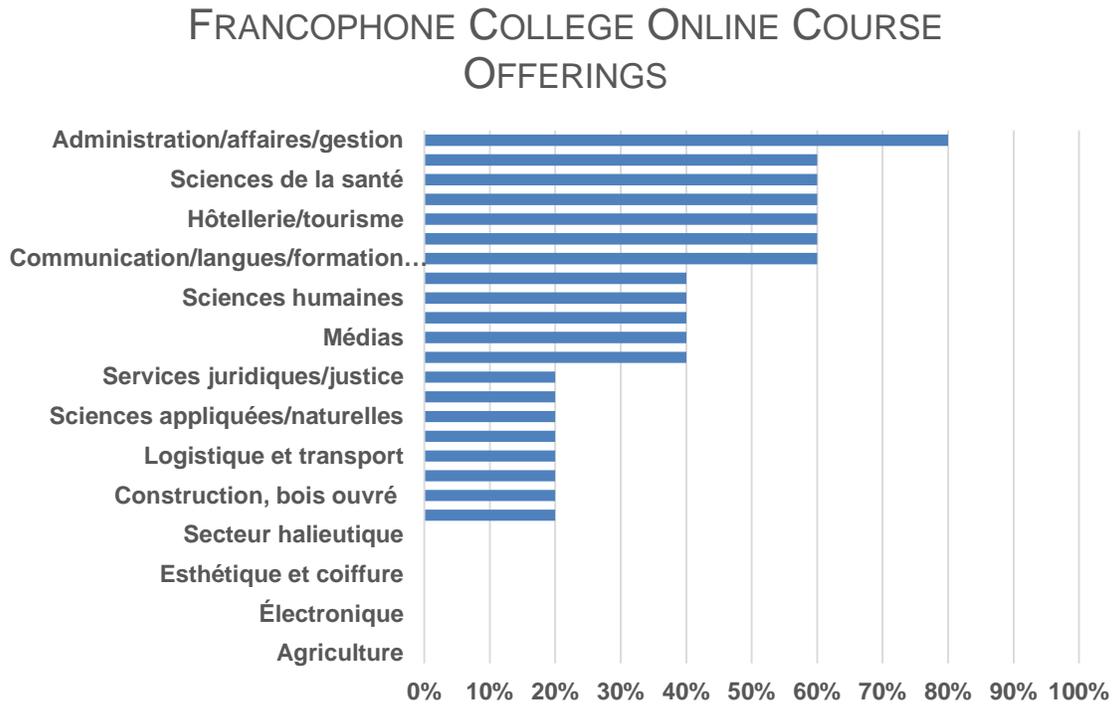
This chart illustrates that at least half the colleges offer fully online programs in business and health. It is worth noting that for every subject area listed, at least one anglophone college offers programs online in this area, although programs are least likely to be offered in visual/performing arts, agriculture and media studies. While some subject areas seem to be more popular for online programs than others, there is no subject area where there have not been online programs offered by at least one anglophone college. This finding illustrates the very wide range of programs offered fully online in Canadian anglophone colleges.

### 7.3 Francophone colleges

For this question, we grouped francophone colleges outside Québec 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 that there are also differences between CEGEPs and francophone institutions outside Québec in their programming.

However, only five out of the 30 francophone colleges/CEGEPs that responded to the questionnaire answered this question (17%). (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.

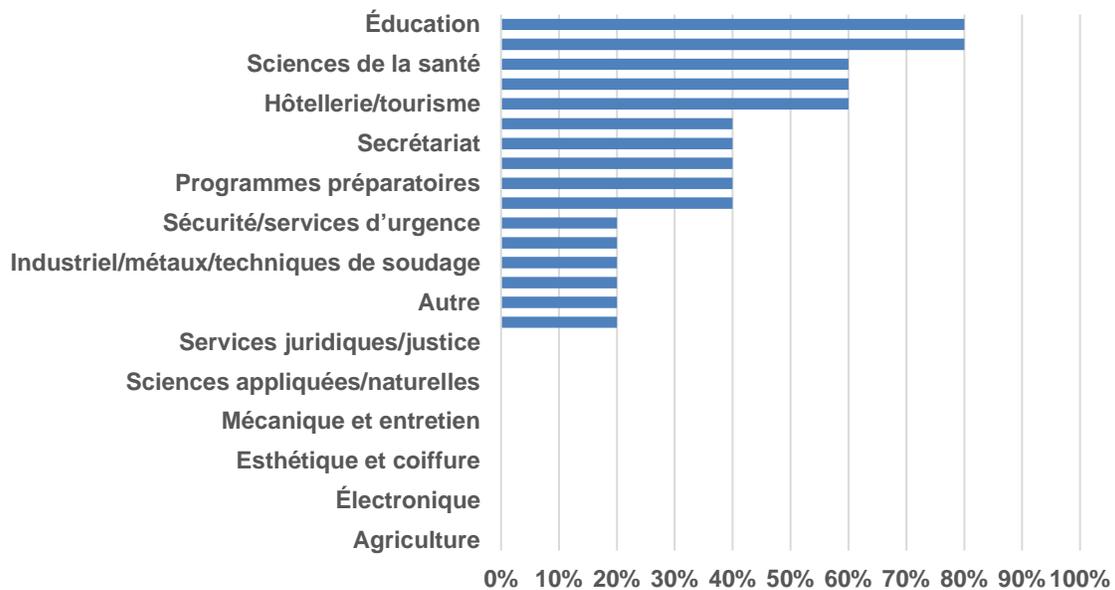
Figure 5: Francophone colleges offering online courses in various subject areas



Similarly, only five francophone colleges answered the question on online programs, although the results are similar to anglophone colleges, with business the most likely area to have fully online programs.

Figure 6: Francophone colleges offering online programs in various subject areas

## FRANCOPHONE COLLEGE ONLINE PROGRAM OFFERINGS



While the responses were limited for this question, the chart shows that 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.

### 7.4 Conclusions

In all three types of institution, 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 fully online programs are offered in most subject areas in all types of public post-secondary institutions in Canada.

## **SECTION 8: BLENDED AND HYBRID LEARNING**

### **8.1 Definitions**

One of the most interesting and challenging areas of post-secondary education is the extent to which online learning is impacting on classroom teaching. A fully 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, our focus is on those courses where the instructor deliberately and explicitly combines online and face-to-face learning in their teaching.

One institution, in an open-ended comment to the questionnaire, defined blended learning as follows:

*blended learning is conceived as the thoughtful integration of face-to-face and fully online instructional components that best guide students through their learning and encourage deep engagement with the curriculum in order to accomplish the expected outcomes.*

This is such an important development that we wanted to track it as best as we can. However, we are aware there is no agreement on the definitions of 'blended' or 'hybrid' learning, which in practice are often used inter-changeably. When piloting 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

### **8.2 Tracking blended/hybrid learning**

As a result, on the questionnaire, the following definition and guidance was offered, the following question was asked:

*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.*

*Which best describes the current situation regarding courses for credit where some, but not all, of the face-to-face teaching has been replaced by online study?*

- Have not started and it is unlikely that we will*
- Have not started and don't know if we will*
- Have not started but we plan to start*
- A few courses (up to 10%) are already in this format*
- Between 10%-30% of the courses are now in this format*
- More than 30% of all our courses are now in this format*
- Don't know*

We also asked institutions the following open-ended question:

*Please provide a brief description or descriptions of the design(s) used in your institution that demonstrate best or innovative practices for courses for credit where some, but not all, of the face-to-face teaching has been replaced by online study:*

### 8.3 Results

Table 14 below shows the breakdown of responses by type of institution:

Table 14: The development of hybrid learning

	CEG.	Coll.	Univ.	Total	%
Have not started and it is unlikely that we will	0	3	2	5	5%
Have not started and don't know if we will	3	2	1	6	5%
Have not started but we plan to start	6	2	0	8	7%
A few courses (up to 10%) are already in this format	8	18	28	54	49%
Between 10%-30% of the courses are now in this format	2	7	3	12	11%
More than 30% of all our courses are now in this format	0	13	1	14	13%
Don't know	0	4	8	12	11%
Question responders	19	49	43	111	100%
Total institutions responding	29	54	56	139	
All institutions	50	81	72	203	

## 8.4 Conclusions

From Table 14 and the accompanying open-ended comments to this question, we draw the following conclusions about the integration of online and face-to-face teaching:

- **Blended/hybrid is an important trend.** In most institutions, there is a recognition of the importance of this trend. We were pleasantly surprised by the number of institutions that 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;*

*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.*

- **Many institutions, but few courses.** Almost three quarters of the responding institutions reported that this type of teaching was occurring in their institution. However, three quarters of the institutions reported that fewer than 10% of courses are in this format.
- **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. We provide just two examples from the open-ended comments:

*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.*

*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. Their online learning course in the Learning Management System, Canvas, is a culmination of readings, videos, assignments, and interactive content which brings together all of their learning from all instructors into one virtual space. Through Canvas, students are able to view video scenarios, complete reflective exercises, access their calendar, communicate with instructors, and monitor their grades. The analytic and competency-based features in Canvas make it easy to track and monitor the cadets as they work at achieving mastery.*

For further examples of innovative approaches to blended and hybrid learning, see Contact North's Pockets of Innovation [<https://teachonline.ca/pockets-innovation/overview>] and Drexel University's Virtually Inspired [<http://virtuallyinspired.org/>].

## SECTION 9

# CONTRACT TRAINING

We were interested in whether institutions are developing online courses or programs under contract for business and industry that may or may not be for credit recognition but are designed to meet a particular industry or training need. After giving this definition, we asked the following question:

*Does your institution deliver courses for credit to Business and Industry through online learning?*

Table 15: Provision of contract training by type of institution

	CEGEP	College	University	Total	%
Yes	5	22	19	46	37%
No	20	24	29	73	58%
Don't know	1	3	3	7	6%
Question responders	26	49	51	126	100%
Missing	3	4	5	13	9%
Total institutions responding	29	54	56	139	
All institutions	50	81	72	203	

It can be seen that online contract training leading to institutional credit was offered by just over a third (37%) of the 126 institutions that responded to the question. 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.

However, it is important to note that contract training is focused on meeting employers' needs and does not therefore necessarily lead to institutional credit. This is an area we wish to explore further in the next survey.

We also asked how many courses and how many programs each institution was offering through online contract training. However, less than half of those offering contract training provided data on this question. Indeed, nearly a third indicated that they did not know.

## SECTION 10

# TECHNOLOGIES USED IN ONLINE LEARNING

We know from an earlier question that almost all Canadian post-secondary institutions are using online courses for distance delivery, but within online learning, what technologies are currently being used for its delivery?

### 10.1 Definitions

We asked a question to identify which technologies institutions were using for the delivery of online courses. Responding institutions could choose from nine pre-determined categories. However, as Wikipedia states:

*Terminology related to these technologies is inexact, and no generally agreed upon source or standards organization exists to provide an established usage reference.*

Thus before looking at the results, it is necessary to clarify the categories we used (although these were not defined as such on the questionnaire, as we wanted the institutions themselves to interpret the terminology used, perhaps, in hindsight, not a wise decision on our part).

*Learning management systems (LMS).* This is one of the oldest technologies extensively used in online learning, dating back to 1995. It is basically 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.* In recent years, lecture capture systems such as Kaltura, Echo360, Sonic Foundry and even widely available commercial technology such as mobile phones and tablets, enable a lecture to be recorded, then stored on an institutional server or web sites such as YouTube or Vimeo. Students can then download or stream the videos at a time and place of their convenience. Again, this is an asynchronous technology.

*Live webinars.* These are multi-point Internet-based communications that enable online seminars to take place, that is, there is a means by which participants (students) can interact with the instructor, either in smaller groups, by voice, or in larger groups through textual questions or comments. These can be live (synchronous) or can be recorded and downloaded later (asynchronously). The difference between a recorded webinar and a streamed video is that in webinars, student or participant communication is part of the experience. Adobe Connect, Blackboard Collaborate, WebEx and VIA (for francophones) are common technologies used for webinars, although again there are many different providers.

*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, although again there are many different technologies and applications.

*Open educational resources (OER).* These are freely accessible, openly licensed text, media, and other digital assets that are useful for teaching and learning. Examples are MIT's OpenCourseWare (a collection of recorded MIT lectures available for free downloading), MERLOT (a collection of peer reviewed open access educational materials), and Khan Academy (videos on mathematics). Several Canadian provincial governments are supporting the development and use of locally produced OER.

*Open textbooks.* Open textbooks are a specific form of open educational resources. Open 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. The following provinces have open textbook projects: British Columbia, Alberta, Saskatchewan, Ontario,

*Print.* This would include commercially published textbooks (used alongside online teaching or learning) or study materials specially developed by instructors, usually for distance learners. Often commercially printed textbooks have an accompanying web site with student exercises and other ancillary materials, such as tests.

## 10.2 Quantitative data

The question we asked was:

*What technologies and resources were being used in your fall 2016 online courses (blended/hybrid and/or fully online)?*

So the results below apply both to fully online and blended/hybrid courses.

Table 16: Technologies used in online learning: number of institutions

	LMS	Print	Conf.	Video streaming	Social media	Webinars	OER	Open texts	Other
Extensively used	90	26	24	20	10	9	5	3	8
Moderate use	5	29	34	42	39	25	33	14	10

Rarely used	1	19	35	28	33	34	34	46	2
Not used	4	16	5	6	10	18	8	13	4
Don't know	3	9	4	3	8	9	15	17	12
Question responders	103	99	102	99	100	95	95	93	36
Missing	37	41	38	41	40	45	45	47	109
Total responders	140	140	140	140	140	140	140	140	140
All inst.	203	203	203	203	203	203	203	203	203

Table 17: Technologies used in online learning: percentages of institutions

	LMS	Print	Conf.	Video streaming	Social media	Webinars	OER	Open texts	Other
Extensively used	87%	26%	24%	20%	10%	9%	5%	3%	22%
Moderate use	5%	29%	33%	42%	39%	26%	35%	15%	28%
Rarely used	1%	19%	34%	28%	33%	36%	36%	49%	6%
Not used	4%	16%	5%	6%	10%	19%	8%	14%	11%
Don't know	3%	9%	4%	3%	8%	9%	16%	18%	33%
Question responders	103	99	102	99	100	95	95	93	36
	100%	100%	100%	100%	11%	100%	100%	100%	100%
Missing	26%	29%	27%	29%	28%	32%	32%	33%	109
Total responders	140	140	140	140	140	140	140	140	140
All inst.	203	203	203	203	203	203	203	203	203

It should be noticed 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.*

To get a better understanding of the extent of use of other technologies, individual faculty will probably need to be surveyed in future.

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

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.

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 amount of professional articles devoted to the topic, OER, and open textbooks in particular, are still less favoured than other technologies, with 5% of institutions using OER extensively (although a little over a third with moderate use), and open textbooks 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 OERs or are using them on an experimental basis. It will be interesting to follow these developments in particular over the next few years.

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

### **10.3 Qualitative data**

We asked institutions selecting 'other' as a response to provide details in an open-ended comment.

In terms of 'other' technologies, 18 institutions mentioned they are 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

Although we did not ask specifically about these technologies, notably missing in the 'other' or open-ended comments were learning analytics or artificial intelligence applications.

We also asked the following open-ended question:

*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.*

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.*

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.

*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. Technical support is also centralized so that students and instructors can access this support when needed.*

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.*

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

#### 10.4 Future directions

Lastly, we asked institutions 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?*

Once again we were surprised and pleased with the even larger number of institutions (77 – over half of all responding institutions) that responded to his question. There was an even wider range of responses to this question.

Table 18: Technologies under active consideration for the future

Technology	Responses
Adding/improving video-/audio-conferencing services	17
Open educational resources (OER)	9
Game-based learning, simulations, animations	9
Remote proctoring of exams	7
Using video more extensively	7
Replace LMS	6
Open textbooks	5
e-Portfolios	5
Data and learning analytics	5
Virtual/augmented reality	4
Peer (student) review and assessment	3
Badges (for credentialing)	3
Integrate LMS and student information system	2
Automated assessment	1

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: } a project-based recruitment tool connecting potential employees with employers

## 10.5 Conclusion

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 we 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, not because institutions or instructors are unwilling to innovate – there is plenty of evidence here 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.

## SECTION 11

# MOOCS IN CANADIAN POST-SECONDARY EDUCATION

The focus of our 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.

### 11.1 Definition

A MOOC is an online course aimed at unlimited participation and open access via the web. MOOCs originated in Canada in 2008 in a credit-based setting that invited the public to join students seeking credit. It then took off in the non-credit world, as mass-assessment was difficult. In recent years MOOC-based credit courses and entire programs have emerged.

One feature of MOOCs is that they have been heavily promoted and developed by high status universities in the USA, such as Stanford, MIT and Harvard, institutions that had not previously been engaged in for-credit online learning.

### 11.2 MOOCs in Canada

We were interested in the extent to which MOOC mania has swept Canadian post-secondary education. We asked the following question:

*Has your institution offered any MOOCs in the last 12 months?*

Table 19: Canadian post-secondary institutions offering MOOCs in 2016-2017

	CEGEP	Coll.	Univ.	Total	%
<i>More than five</i>	0	0	1	1	1%
<i>One to five</i>	1	7	15	23	19%
<i>None</i>	24	44	35	103	81%
Question responders	25	51	51	127	100%
Total institutions responding	29	55	56	140	
All institutions	50	81	72	203	

Out of 140 responding institutions, 127 (90%) answered this question. Of these 127, 24 (19%) had offered MOOCs within the last 12 months, of which 16 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.

Larger institutions were more likely to offer MOOCs. More than half the institutions offering MOOCs (13) had more than 10,000 students, although they constituted only one third of the responding institutions. Nevertheless, the smallest institution

offering a MOOC had only 1,240 students. Francophone institutions were just as likely to offer MOOCs as anglophone institutions.

### 11.3 MOOC platforms

We also asked what platform (technology) they used. Somewhat surprisingly, few used any of the more popular platforms. Only three used edX (universities), three Coursera (one college and two universities), and none used Udacity or FutureLearn. Four (all universities) used their own, self-designed platforms and the rest mainly used their standard LMSs such as Canvas, Blackboard or D2L adapted to the needs of MOOCs.

### 11.4 Future plans

We also asked about future plans for MOOCs. Of the 140 institutions that responded to the survey, 86 (61%) responded to this question: 37 universities (43%), 38 colleges outside Québec (44%), and 11 CEGEPs (13%).

Table 20: Future plans for MOOCs

	CEG.	Coll.	Univ.	Total	%
There is no interest in offering MOOCs	3	12	13	28	33%
It will be left to individual faculty to decide but there will be no institutional support for MOOCs	1	4	11	16	19%
We will support the increased use of MOOCs in the future	4	4	6	14	16%
The institution will support existing MOOCs but not future ones	0	1	0	1	1%
The institution will decrease its support for MOOCs	0	0	0	0	0%
Unsure	3	17	7	27	31%
Question responders	11	38	37	86	100%
Total institutions responding	29	55	56	140	
All institutions	50	81	72	203	

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% (14 institutions) stating clearly that they will support the increased use of MOOCs in the future.

### 11.5 Qualitative data

We asked:

*Any other comments you would you like to share on role of MOOCs in the future for your institution?*

There were 37 institutions that responded to this question.

Just one 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.*

More institutions see a clear 'niche' for MOOCs. One of Canada's largest and most established universities 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.*

On the other hand, one of Canada's smallest and newest universities commented:

*MOOCs (or LOOCs - "Little Open Online Courses") play into our strategy to broaden our online courses and programs. Building on the success of an initial MOOC in 2015, we offered three LOOCs for credit, certificate of participation, or curiosity in the 2016 academic year, which were very successful. Both asynchronous and live broadcast/synchronous formats and social media were employed.*

Others commented on the value of MOOCs for publicising areas in which the institution excels in research and making this knowledge more widely available:

*We do have a large international research project that is considering a MOOC as a way to connect the public with the global group of educators/researchers involved in the project.*

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, predominantly through our Faculty of Health Professions in areas of particular research strength... 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.*

Several institutions though have made a clear decision not to offer MOOCs in future. For example:

*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.*

Consistent with the Canadian stereotype of moderation, there is no mania here with regard to MOOCs, with less than 20% of responding institutions offering MOOCs in the last 12 months. It appears that in Canada, MOOCs are being cautiously assessed and used where it is believed that they can add value to standard programming.

## SECTION 12

# INSTITUTIONAL POLICIES FOR ONLINE LEARNING

In this section of the questionnaire we sought to identify the extent to which online learning is becoming an institutional priority or strategy.

### 12.1 The importance of online learning long-term

The first question we asked in this section was:

*How important is online learning for your institution's long-term strategic or academic plan?*

Table 21: Importance of online learning for long-term plan

	CEGEP	College	University	Total	%
Extremely important	3	27	21	51	39%
Very important	8	12	15	35	27%
Moderately important	6	8	13	27	21%
Slightly important	6	5	3	14	11%
Not at all important	3	0	0	3	2%
Question responders	26	52	52	130	100%
Total institutions responding	29	55	56	140	
All institutions	50	81	72	203	

It can be seen that 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. Only 17 (13%) considered it slightly or not at all important, and more than half of these institutions were CEGEPs. This is probably because the larger the institution, the more important online learning becomes (80% very or extremely significant for institutions with more than 10,000 enrolments, compared to 52% for those with fewer than 1,500 students).

It is of course likely that the responses to the questionnaire are biased towards those institutions that already believe that online learning is important, but if none of the 73 non-responding institutions believe that online learning is important for their future plans, at a minimum 42% of all 203 institutions think that online learning is very or extremely important in their future long-term planning, and if moderately important is included, this goes up to more than half (57%) of the 203 institutions.

### 12.2 Institutional strategies for online learning

We then asked whether institutions had a strategic plan or strategy for online learning:

*Does your institution have a strategic plan or institutional strategy for e-learning, hybrid learning and/or online learning?*

Table 22: Institutions with a strategic plan or strategy for online learning

	CEGEP	College	University	Total	%
Yes, and it is fully implemented	6	5	7	18	14%
Yes, and it is being implemented	3	17	13	33	26%
We are currently developing one	6	16	19	41	32%
Not yet, but we need one	7	10	10	27	21%
No, and it is not necessary	4	3	1	8	6%
Question responders	26	51	50	127	100%
Total institutions responding	29	55	56	140	
All institutions	50	81	72	203	

From Table 22, 40% of question responders already have a strategic plan or strategies in place for online learning, and a further 32% are currently developing one. Only eight institutions (6%) did not feel a plan was necessary and seven of these were either CEGEPs or colleges outside Québec.

Again, if we take a minimalist approach we know that at least a quarter of all 203 institutions have a strategic plan or strategies in place, with another fifth developing one. At least half of all 203 institutions either have a plan or feel they need one.

### 12.3 Future developments

We also asked the following open-ended question:

*Any comments on likely future developments regarding e-learning, hybrid learning and/or online learning?*

Altogether, 57 institutions responded to this question (24 universities, 28 colleges outside Québec, and seven CEGEPs). These comments provide a rich source of information about how institutions are planning for online learning. It is clear that many institutions are moving to expand fully online and hybrid teaching, for a number of reasons, most of which are complex and multi-faceted.

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 %. Elements of the plan include an approved teacher training pathway, a course quality framework, standardized course templates, a student readiness self-assessment tool, centralized administration of remote tests/exams, and a pilot for accepting registrations by part-time students in online programs.*

Anglophone college

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

*Blended learning will be the future focus for undergraduate course development. Professional, on-line only programs will continue to be developed at the graduate level.*

Anglophone university

*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. And as we continue to grapple with limited classroom capacity, there may be a move to more hybrid learning across the institution.*

Anglophone university

*The decrease in the number of students may have accelerated the implementation of distance education, in a top-down manner, but the advent of digital technology will establish a culture of distance education among teachers from the bottom -up.*

CEGEP

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

*The current ... Strategic Plan takes the unit to 2018 and plans are already underway for the development of the next one with clear goals for the*

*expansion of the integration and support of the effective use of learning technology cross the university.*

Anglophone university

*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

*This is a big part of our future although we are still developing courses, systems and approaches to online learning that are not quite ready to roll out. e-Learning, hybrid learning and fully online learning will contribute significantly to our access agenda, our utilization strategies and the emerging flexible learning strategies.*

Anglophone university

For some institutions, the plan is dealing with organizational and support issues, to strengthen the roll-out 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 fully 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 is being put together. The responsibilities of the group will be to provide overall direction to campus, make recommendations concerning strategic priorities and allocate additional resources to help realize these priorities (this is subject to change).*

Anglophone university

A couple of 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

*Currently we need to see where these delivery types intersect with our collective agreement before we meaningfully move forward.*

Anglophone university

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

## **12.4 Conclusion**

The questionnaire data strongly suggest that 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.

If an institution is going to have any scale in its use of digital technologies, it needs to be sure that its academic and student support services can handle the expectations. As a result, 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.

## SECTION 13

### BENEFITS AND CHALLENGES OF ONLINE LEARNING FOR INSTITUTIONS

#### 13.1 Benefits: quantitative data

The question we asked was:

*What are the main benefits or reasons for the use of online learning (hybrid or fully online) at your institution? (Please select all that apply.)*

Of the 140 institutions that returned the questionnaire, 113 (81%) answered this question. Note that institutions were provided with eleven pre-determined answers to choose from, plus 'other'. The wording of some of the pre-determined responses in the table below is slightly abbreviated from the actual wording on the questionnaire.

Table 23: Perceived benefits of fully online or hybrid learning

	CEG.	Coll.	Univ.	Total	%
Greater access/flexibility for students	14	49	49	112	99%
Increased enrolments	10	36	40	86	76%
More innovative teaching	10	28	31	69	61%
Shortage of physical teaching spaces	1	25	20	46	41%
Develops students with the skills they need	5	18	20	43	38%
Faculty focus on best teaching practices	3	10	24	37	33%
More engaging for students	4	11	20	35	31%
More cost-effective than class teaching	4	15	6	25	22%
Implements policies set by government	3	7	14	24	21%
Other	1	7	11	19	17%
Better learning outcomes	1	4	9	14	12%
Re-invigorates jaded instructors	1	3	5	9	8%
Question responders	14	49	50	113	100%
Total institutions responding	29	55	56	140	
All institutions	50	81	72	203	

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. The responses were particularly high from Maritime provinces – Nova Scotia, New Brunswick 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.

Online and particularly hybrid learning were perceived as helping with a shortage of physical spaces in 41% of the institutions (particularly in Ontario and British Columbia).

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. We do not know though 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 having other pedagogical advantages:

- helping develop the skills students need in today's society (again, stated 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 four 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-campus (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.

### **13.2 Benefits: qualitative data**

There were 16 'other' comments. Two institutions added 'additional revenue' (as an outgrowth of additional enrolments) as a benefit of online learning, and another two emphasised the consistency that online learning can provide across campuses:

*Allows for consistency and continuity in programming across our three campuses within the same program.*

Anglophone college

*Enables us to reach students across 7 campuses and large geographical areas.*

Anglophone college

One institution suggested it was a solution to teaching large classes. Most of the others were comments on the choices made.

Overall, the main benefits were perceived as access and flexibility for students, but there was also a range of pedagogical benefits listed by a significant number of institutions, particularly the larger institutions.

### 13.3 Challenges or barriers: quantitative data

In contrast, we also asked what challenges or barriers institutions faced with online learning:

*What challenges/barriers does your institution face with regard to online learning (hybrid or fully online)? (Please select all that apply.)*

Of the 140 institutions that returned the questionnaire, 110 (79%) answered this question. Note that institutions were provided with eleven pre-determined answers to choose from, plus 'other'. The wording of some of the pre-determined responses in the table below is slightly abbreviated from the actual wording on the questionnaire.

Table 24: Perceived barriers/challenges for online learning

	CEG.	Coll.	Univ.	Total	%
Identifying adequate resources for online learning	10	42	39	91	83%
Instructors have inadequate training/ pedagogical knowledge for online learning	9	33	34	76	69%
Resistance by instructors to online learning	11	25	35	71	65%
The perceived quality of online or hybrid courses	5	26	29	60	55%
Lack of specialist learning technology/support staff	9	27	17	53	48%
Developing a strategy for open educational resources	1	21	22	44	40%
Developing clear rationale for online learning	2	14	25	41	37%
An inappropriate existing organizational structure to support online learning	6	16	18	40	36%
Lack of support from government for hybrid or online learning	8	14	15	37	34%

Other	1	8	6	15	14%
What to do about MOOCs	0	5	5	10	9%
Question responders	14	49	47	110	100%
Total institutions responding	29	55	56	140	
All institutions	50	81	72	203	

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. This question did though identify those areas where lack of resources for online learning is a particular problem.

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.

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 complain about lack of specialist learning technology support staff than universities.

About two-thirds of the institutions identified lack of training/pedagogical knowledge, and resistance from instructors, as a main barrier or challenge. Faculty resistance was highest 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 explain to some extent faculty resistance. This was 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 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.

#### **13.4 Challenges or barriers: qualitative data**

There were no clear patterns in the 13 'other' comments to this question. One college outside Québec mentioned lack of connectivity in remote regions (a theme that occurred in open-ended comments to other questions) and another college, poor campus IT infrastructure, as barriers to online learning. Another college expressed concern about the constant change in technology, requiring continuous maintenance and investment.

Overall, the main concern was about lack of resources to ensure quality online learning, and the lack of readiness of many instructors to teach online, both in terms of willingness and training. However, there were strong differences depending on province and size of institution.

Nevertheless, it is clear that for most institutions there is both a resources issue and also issues with the training and preparation of instructors for online learning that will need to be addressed in the future.

**Section 14**  
**Online learning in Canada and the USA**

Russell?

## **SECTION 15**

# **SUMMARY AND CONCLUSIONS**

This is the first time a survey of this scale of online learning in post-secondary education in Canada has been attempted. The survey had to be built from scratch, including fund-raising and the creation of a national database of institutions.

A great deal of moral as well as financial support for the project was forthcoming from the institutions themselves, provincial government agencies and professional associations and organizations, most of whom expressed a clear need for the project.

### **SUMMARY OF RESULTS**

#### **15.1 Response rate**

The response of the institutions to the questionnaire was excellent. Questionnaires were completed by 68% of all Canadian public post-secondary education institutions, representing 78% of the post-secondary student population.

#### **15.2 Distance education**

The survey indicates that the majority (at least 76%) of the 203 public post-secondary institutions 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, for the CEGEP system.

The vast majority of the institutions offering distance education use the Internet for delivery, although just under a half also use audio- or video-conferencing (either via the web or other services) and just under a quarter are still using print as supplementary material.

#### **15.3 Online courses and programs**

Almost all responding universities (98%) and colleges outside Québec (94%) offered online courses in the fall of 2016. Of the CEGEPs, 43% offered online courses in the fall of 2016.

If we include other sources, there were 60 of the 203 institutions for which we had no information on whether they offered online courses. Even if we assume that none of the 60 did offer online courses, nevertheless more than half of the 203 institutions in Canada offer online courses (72% of all universities, 62% of all colleges outside Québec, and 24% of all CEGEPs).

Over the period 2011-2016, the number of institutions offering online courses has increased by 11%, a growth rate in the number of institutions moving into online education of around 2 per cent per annum. 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 a large number of institutions have been offering online programs for 15 years or more.

Recent growth has been mainly from the smaller institutions, with 21 institutions with fewer than 2,000 students now offering online courses. Nevertheless, with online course enrolment growth in double digits per annum in both colleges and universities (see 15.4 below), there still appears room for increases in overall online student enrolments.

#### **15.4 Student enrolment in online learning**

Fully online learning has been growing rapidly over the last five years, with online course enrolments increasing by approximately 10 per cent per annum in universities and 15 per cent 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 probably 12% in colleges outside Québec.

#### **15.5 Online course 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 fully online *programs* are offered in most subject areas in all types of public post-secondary institutions in Canada.

#### **15.6 Blended and hybrid courses**

In most institutions, the importance of the integration of online and face-to-face teaching was clearly recognised. Just under half of 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 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.

### **15.7 Contract training**

Online contract training leading to institutional credit was offered by just over a third (37%) of the 126 institutions that responded to the question.

### **15.8 Technologies used in online learning**

The learning management system is still the main technology used for online learning (87% of responding institutions), with other technologies being used mainly to supplement the LMS. Although the LMS remains the bedrock of online learning in most institutions, the responses indicated that use of technologies for synchronous delivery is extensive, especially in the form of interactive lectures or webinars. It is difficult to know which one of these two technologies is currently the dominant and which supportive of the other, but there does seem to be a move towards the greater use of more synchronous technologies.

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 there does seem to be a number of institutions 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.

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.

It does not appear to be because institutions or instructors are unwilling to innovate – there is plenty of evidence here 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, this reported low use may be due to the difficulty of accurately tracking at an institutional level individual faculty use of such technologies.

### **15.9 Massive Open Online Courses (MOOCs) in Canadian post-secondary education**

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. Fourteen institutions (16%) clearly stated they would support the use of MOOCs in the future, but just over a third expressed no interest in offering MOOCs. Another third were unsure about doing MOOCs in future, and just under 20% would leave it to faculty to decide. It appears that in most institutions MOOCs are being cautiously assessed, and used where it is believed that they can add value to standard programming.

### **15.10 Institutional policies for online learning**

The survey data strongly suggests that 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 fully online and hybrid teaching, for a number of reasons, most of which are complex and multi-faceted.

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.

### **15.11 Benefits and challenges of online learning for institutions**

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 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 perceived innovative teaching as one of the benefits of online learning. This was particularly true for very large institutions (more than 30,000 students), where nine out of eleven institutions selected this response. In fact, there was a range of pedagogical benefits listed by a significant number of institutions.

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).

### **15.12 Challenges or barriers**

Overall, the main concern was about the lack of resources to ensure quality online learning, and the lack of readiness of many instructors to teach online, both in terms

of willingness and training. However, there were strong differences depending on province and size of institution.

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). Nearly half the institutions identified lack of specialist learning technology support staff as a barrier, particularly in British Columbia and Saskatchewan, and this is a particular challenge for institutions with fewer than 1,500 students.

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

Just over a third of the institutions identified a lack of support from government as a challenge. The lowest response to this was from institutions in Ontario (16%) and the highest in Québec (62%). In Ontario, the government has over the past few years been investing heavily in online learning course development through its newly formed eCampus Ontario. 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 barriers:

- strategies for open educational resources,
- lack of clear rationale for online learning,
- inappropriate organizational structures.

### **15.13 Differences with the USA**

to come

### **15.14 CONCLUSIONS**

There was a strong 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 fully online and hybrid learning, although the CEGEP system in Quebec seems to be the least developed.

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) have more difficulties supporting online learning because of lack of resources, but a majority even of small institutions see online learning as important to their future development. Also, a majority of the institutions 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 fully online, or how digital technologies are affecting classroom-based teaching.

Related to this issue are the changes in teaching methods, especially for on-campus teaching, resulting from both students' and instructors' expanding use of digital technologies. In this project the focus was primarily on fully online courses and programs, but in future surveys it may be more useful to focus on digital learning in a broader context.

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.

### **15.15 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 fully online and for hybrid courses where classroom teaching is reduced, but not eliminated, to accommodate more online learning.

Appendix 2 discusses the methodological issues in collecting reliable and consistent data on online enrolments. There are several ways to do this. However, following our experience with this year's survey, we recommend:

1. Identification of the number of students (headcount – full-time and part-time) in the fall semester taking at least one fully online course for credit.
2. Compare this number with total student headcount (full-time and part-time) taking credit courses in the fall semester, to identify the percentage of students taking at least one online course.
3. Count over the whole academic year the total of enrolments in each fully online course offered for credit based on a three credit course; for six credit courses double the enrolment number.
4. 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 fully online.

Ideally this process could be repeated for non-credit courses and programs as well, but as a separate count.

5. 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 suggests that not only should this survey be conducted on a regular basis, but that it 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.

# APPENDIX 1

## BUILDING A DATABASE OF INSTITUTIONS

### Scope: defining the target group

As 2017 was the first year for the survey, the focus was exclusively on provincially funded and accredited post-secondary educational institutions, which still represent by far the majority of post-secondary institutions and students in Canada.

Several factors determined the scope of the 2017 survey:

- Funding: all funds had to be raised from scratch and throughout the process, finding adequate funding has been a struggle.
- Simplicity: it was necessary to keep the questionnaire as short as possible to ensure a high completion rate. The questionnaire is voluntary for institutions to complete and requires time and effort: the simpler the better in terms of response rates. The more variety in terms of institutions, the more complicated the questionnaire design and data analysis become. Also the greater the number of institutions included in the project, the more time and work required to follow up and communicate during the administration of the questionnaire.
- Sponsors: the main funders for this initial project were more likely to be provincial government agencies such as the eCampuses. Their focus is on provincially funded and accredited institutions.

For these reasons we decided to focus primarily on public, provincially funded and supported post-secondary institutions. However we wanted to cover every province and territory.

### Sources

One challenge the project faced was the lack of a commonly used, publicly accessible database of all Canadian public post-secondary educational institutions. We worked our way through the membership listings of Universities Canada, Colleges and Institutes Canada (CICAN), Maclean's EduHub, and provincial government web sites. From Statistics Canada we could find only aggregate data on student enrolments broken down by province and by part-time or full time students, but not data for individual institutions.

### Selected institutions

We ended up with a list of 203 institutions, once we had eliminated duplications, incorporated affiliated colleges and universities with the main institution awarding the qualification, and removed institutions not funded by provincial governments.

You can find a link to the list of the 203 institutions that formed the population base for the survey here (HYPERLINK TO 'POPULATION BASE OF CANADIAN PUBLIC POST-SECONDARY INSTITUTIONS – to come).

This was not an easy task and required some judgements on our part. Some of the universities for instance have colleges that over time have been merged with or affiliated to the main university. Some universities were bi-lingual, and some Anglophone universities had a francophone college. Other institutions have devolved from an older university into a semi-autonomous institute, although the degree transcript still comes from the main university. Should we count each of these as separate universities or at least send them separate questionnaires? This was particularly difficult for Québec universities.

In the end, we decided that it would be sensible to send one questionnaire to the main university, and ask them to complete it as best as possible to include all their affiliated colleges and institutes. We then had to identify the appropriate contact person in each institution (usually Provosts or VPs Education).

### **Key variables**

We also identified institutions by language (anglophone or francophone) and their total student headcount (full-time and part-time), almost entirely from information publicly available through provincial government web sites, although not all provinces provide this information. Where this was the case, we were usually able to find an institutional annual report or government audit that provided 'official' enrolment figures for the institution.

### **Result**

This process resulted in

- 72 universities (35%),
- 81 colleges outside Québec (40%), and
- 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.

List of institutions in the population base: note: not all of these institutions participated in the survey –see Response rate [hyperlink]

### **Complications**

One thing that became clear even at this stage is that there is no consistency between provinces, or between provinces and Statistics Canada, on how information about students is collected or reported. Several different measures are used: student

headcount (full time, OR full time and part-time); student course enrolments; student FTEs (full-time equivalents); and student program enrolments, with variations within each of these broad categories. Also some data include non-credit, continuing education students as well as students taking courses for credit.

All this variation in student statistics makes inter-provincial comparisons very difficult. In the end, for the database of all institutions, we used primarily official provincial student headcounts for individual institutions for students taking credit courses or programs, the measure most common across all provinces.

Nevertheless, there were differences between provinces in the latest year for which data were collected, whether the data included part-time as well as full-time students or out-of-province students, and in some cases we believe non-credit students were also included, but it was often impossible to tell.

### **Expanding the scope**

In future years we would like to include:

- Federally funded post-secondary institutions, such as the Royal Military College, which we know offers distance education course, and the Canadian Coast Guard College. There may be other federally funded post-secondary institutions that we have not identified.
- Post-secondary institutions owned and managed by First Nations. We are aware that there are a number of such institutions but this needs a particular focus and direct collaboration and consultation with First Nations.

We are also aware that there are many commercial or religious-based colleges and universities that were not included in this survey. Expanding the survey to all these groups though would require negotiating separate funding to include such institutions, and in some cases would probably require a dedicated, separate project.

## **APPENDIX 2**

### **METHODOLOGY REGARDING ONLINE STUDENT ENROLMENTS**

#### **A key project goal**

One of the main goals of this project was to establish what overall proportion of teaching in Canadian post-secondary education is fully online. The following is a method by which this can be accomplished if institutions are able to provide the data

#### **Online student course enrolments**

We aimed to identify the overall proportion of teaching in Canadian post-secondary education that is fully online by asking institutions to provide the total number of student course enrolments in fully online courses for credit, compared with their total student course enrolments for all types of credit courses. Thus if an institution with 10,000 students (headcount) has 100,000 student course enrolments (i.e. each student was taking 10 courses) in a particular year, and there were 20,000 online course enrolments, then 20% of all the teaching would be online.

#### **Students taking at least one online course**

On the other hand, in the USA Babson and IPEDS surveys, institutions were asked how many students were taking at least one online course. If 2,500 students were taking at least one online course, then 25% of students in an institution with 10,000 students would be taking an online course. This is the primary figure Babson used to track the growth of online learning over time. One student taking four courses online would count as four course enrolments, but just one in a headcount of students taking online courses.

#### **Average online student course load**

Furthermore, if you know both the number of students taking at least one online course, and the number of online student course enrolments, then you can calculate the average online course load per student. For instance, in our example of an institution with 10,000 students, if there were 20,000 online course enrolments, and 5,000 students taking at least one online course, then the average student online course load would be four.

## APPENDIX 3

### A brief analysis of other related surveys of online and distance learning in Canada

There have been a small number of studies previously that have collected data on online students and online course enrolments.

#### Global Affairs Canada, 2015

Martel, C. (2015) *Online and distance education capacity of Canadian universities* Montreal QC: EduConsillium

Global Affairs Canada commissioned a study in 2015 on Canada's use of and capacity in digital and online education (Martel, 2015). This report provides the most extensive data-based analysis to date of online and distance learning in Canadian universities. There was a good response rate (78%).

The report identified a total of 12,728 online courses, of which 68% were undergraduate. The survey also identified a total of 809 online programs (72% of which are undergraduate). The report identified 360,000 students (29% of all Canadian university students) registered in online courses. However it did not indicate how many online courses students were taking between them.

The report recognizes that online learning is moving from a fringe to a mainstream activity and that there is potential for growth in the international market. It notes that Canada's rate of expansion of online learning (roughly 8.75% per annum) is about the average for all countries worldwide.

However, the report suffered from a number of methodological issues. In particular only the main report is publicly available. It is not possible to check on how the results were arrived at, and the results for individual provinces suffered from some key institutions not participating in the survey. When compared to the few other studies conducted within provinces, the results did not seem consistent.

#### Council of Higher Education, Québec, 2015

Conseil supérieur de l'éducation (2015) La formation à distance dans les universités québécoises [La formation à distance dans les universités québécoises: un potentiel à optimiser](#) Québec: Gouvernement du Québec

The report covers the following aspects of distance education in Québec universities:

1. The growth of new modes of education
2. What's happening in Québec
3. A quick look at what's happening outside Québec
4. The Council's guiding principles and recommendations

## 5. Conclusions

Chapter 2 (What's happening in Québec) provides extensive and relatively reliable data about student enrolments in distance education courses and programs in Québec universities.

The report itself reports on the difficulty of finding reliable data, partly because distance education comes in many forms and partly because the whole field is very dynamic and fast-changing. The report then focuses on trends over time.

The data used in the report refer only to enrolments in asynchronous courses. In most of the tables or graphs provided in the report, the unit of measurement is a student taking at least one asynchronous distance education course. Such students may then be enrolled in just one distance course or several, but they are only counted once. These tables are derived by data collected by the Ministry.

However, there is at least one graph that is derived from data provided by CLIFAD, a liaison committee of some of the major distance education institutions in the province, that refers to all distance education course enrolments, from three specific institutions. In this case it is the course enrolments that are counted, not the students.

Most of the data refers to enrolments in the fall term of 2012. However, data are provided in some of the tables for a period of over 12 years, and in the case of the CLIFAD data, over a period of 18 years, allowing clear trends to be identified.

Despite the issues around measurement, the report presents some clear facts about distance education in Québec:

- steady growth in distance education students and enrolments at a higher rate than enrolments in general over the 12 year period up to 2012; for instance the overall number of students in universities grew by 27%, whereas the number of distance students grew by 38%
- the proportion of students enrolled in (asynchronous) distance education courses grew from 6% in 2001 to nearly 12% by 2012
- Laval has the highest number of students enrolled in distance courses (13,000), or 30% of all its students; TELUQ (a fully distance university) and Concordia (25% of all students) both have just under 10,000 distance education students; Sherbrooke, Université du Québec à Trois-Rivières (UQTR), Université du Québec à Rimouski, and University du Québec en Abitibi-Témiscamingue (UQAT) have around 1,000 distance students but in the case of UQAT this is more than a third of its students;
- MOOCs (CLOM or FLOT in French) are fairly popular in Québec, being offered by HEC Montréal, McGill, TELUQ, Laval and UQTR

The report indicates how difficult it is to use existing data collected by government to measure the state of distance education or online learning in Canada. Where data has been collected it is often for another purpose, such as deciding how much to fund physical facilities, or is inaccessible to those wishing to do research. Definitions of distance, online and blended learning also vary. In particular the growth of synchronous online learning seems to have been largely ignored or at least under-measured in this report.

### **Ontario Provincial Government, 2011**

Ontario (2011) Fact Sheet Summary of Ontario eLearning Surveys of Publicly Assisted PSE Institutions [Fact Sheet Summary of Ontario eLearning Surveys of Publicly Assisted PSE Institutions](#) Toronto: Ministry of Training, Colleges and Universities

This report was published online in 2011 by the then Ministry of Training, Colleges and Universities, but is no longer available from the government web site.

This was a very comprehensive and statistically reliable survey. All 24 colleges and all 23 universities and affiliates responded (a 100% response rate). 'Online' courses refer to fully online, and hybrid refer to 50%+ delivered online but with a face-to-face component.

Online course registrations constituted 11% of all post-secondary course registrations in colleges and universities in 2010, a total of 485,619 registrations in online courses. The proportion of registrations in undergraduate online courses in universities was higher (13%) than those for college or graduate courses (7%).

Online courses constituted 15% of all courses, a total of 20,338 courses in all. This figure may overstate the total of unique online courses, as 110 courses are shared between 22 colleges through the Open Learn project.

At an undergraduate university level, online courses constituted 7% (4,743 courses) of all courses.

There were 762 online programs in Ontario post-secondary institutions in 2010, constituting 14% of all programs. 41% of these programs were offered through the Open Learn college consortium.

Universities provide substantially more hybrid offerings – 50% of elearning courses and 64% of elearning registrations – than online at 43% of courses and 30% of registrations.

High completion rates were recorded for online courses. The median in the college sector for the 20 colleges that responded to the question was 76.1% with most institutions reporting results between 70% and 79%. The median in the university

sector for the 15 universities that responded was 89% with most universities reporting results from 85% to 95%.

### **Canadian Virtual University (CVU)**

CVU is a consortium of eleven universities from seven provinces across Canada that are active in distance education. They do joint marketing of courses and facilitate inter-institutional course enrolment.

CVU has collected distance education course enrolments for the fifteen years between 2000-2001 and 2014-2015. These are the total enrolments for the full year and six credit courses are counted as double enrolments.

For the period 2011 to 2014, CVU's enrolments increased by 18% or an average of 4.5% per annum. Between 2000 and 2014, enrolments doubled, at an annual rate of 7%.

### **Conclusions**

These earlier reports all indicate the difficulty of collecting reliable and comprehensive data on online and distance learning. The two provincial surveys were the most comprehensive and reliable, but it is difficult to compare across provinces, partly because of the differences in time of data collection and partly because different methodologies are used to count students and enrolments.