Handbook of Research on K-12 Online and Blended Learning

(Second Edition)

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An Overview of eLearning Organizations and Practices in Canada

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Abstract

This chapter provides an overview of the state of K-12 online, blended and distance education, or e-learning, in Canada. A summary of the history of K-12 e-learning and research is provided along with enrolment, current policy and legislation. A description of programs is provided along with an overview of practitioner-based organizations and consortia that have evolved to support e-learning programs in the country. A discussion of issues in K-12 e-learning and research are included and the chapter's conclusion calls for more research and sharing of innovative practices emerging in Canada.

Introduction

Practitioners and researchers involved in K-12 online and blended learning are likely familiar with the development of the field within the United States as most of what has been written about K-12 has focused on experiences in the United States. However, the development of similar programs in other countries tells an equally important, yet unique, story. Barbour (2014) pointed out that, while there were similarities in the development of online and blended programs internationally, policies, funding, and regulations were distinctive in other countries and there were clear differences in how programs are regulated and managed. For example, in Canada there is no federal responsibility for education as in the United States (other than for Canadian First Nations communities), as such, policy and legislation varies across the country.

Canada ranks highly among the nations of the world in educational spending per capita, but does not have a national policy for, or governing body with jurisdiction over, education across the country. Only the Indigenous and Northern Affairs Canada (2017) has responsibility for K-12 education across the country as it finances elementary and secondary education for First Nations, Métis and Inuit students and provides funding to post-secondary institutions for development of university-level courses for First Nation, Métis and Inuit students. Canada is a confederation of 10 provinces and three territories that have responsibility for education. As such, each province and territory has a Ministry of Education that assumes the responsibility for the elementary, secondary and post-secondary education and develops the policies, standards, and curriculum to support student learning within their province or territory.

Similarities in the educational structure exist between the 13 regions: funding is provided through provincial taxes, and every school in the province or territory receives the same basic per-student funding based upon enrolment – usually through a local education authority such as a school district and/or school board; the school year generally operates from September through June; most provinces have a system that runs from kindergarten to grade 12, other than the province of Québec, which has formal schooling from kindergarten to grade 11 with students optionally continuing their education through a Collège d'enseignement général et professionnel (CEGEP), which comprises an additional two years of general or three years of technical education before college or university. Several provinces also support separate public education systems for religious or language preferences. While the structural similarities exist, the individual Ministries develop their curriculum to respect the unique geography, history and culture of their regions. For more information on the structure of education system in Canada and the role the federal government plays through these national programs (see Barbour, 2005a).

Because of its vast geography and rural settings, Canada has had a rich history in the field of online and blended learning. Distance education has been used in Canada to serve students in rural and remote communities for close to one hundred years. British Columbia, one of the leading provinces in the field, began using correspondence education in 1919 (Stack, 1990), and introduced virtual schools in 1993 (Barbour & Stewart, 2009). Despite this long history, there has been little written about the development of distance, online and blended learning programs in Canada as federal funding for the development of research related to K-12 e-learning in Canada is limited or non-existent as education is a provincial jurisdiction. Moreover, Canadian higher education research has focused largely on post-secondary institutions, so K-12 online and blended learning programs have continued to develop quietly with little dissemination outside of the country, or even between individual provinces and territories. One publication has endeavoured to fill this gap, and for the purposes of this chapter e-learning research policy, legislation, and enrolment information has been drawn primarily from the annual *State of the Nation Report: K-12 e-Learning in Canada* (see Barbour & LaBonte, 2016 and http://k12sotn.ca).

K-12 E-Learning in Canada

By land mass Canada is the world's second largest country bordering three oceans and boasting the longest coastline in the world. It comprises almost half of the North America continent with ten provinces spanning its 5500-kilometre (i.e., 3400 mile) width, and three territories in the north of its 4600-kilometre (i.e., 2900 mile) north-south expanse. Like countries that cover a large geographic area but have a relatively small population, Canada has a long history of using distance education, and recently online and blended learning at the K-12 level.

In Canada, K-12 online and blended learning programs range from traditional distance education models, evolved from paper-based correspondence education, to learning exclusively online or through a blended model where some of the instruction occurs online and in a face-to-face environment. For the purposes of this chapter, the term "e-learning" was used to describe both distance education as well as online and blended learning. This definition was consistent with other Canadian organizations, including the Canadian Council on Learning (2009), which defined e-learning as:

> The implementation of computer technologies to education. E-learning can take many forms, whether it is used face-to-face in classrooms, as a share of required classroom activities or stroke work (e.g., online discussions), or to deliver a fully online course. E-learning can include distance education as well as traditional in-class instruction. (p. 4)

The definition was also consistent with the recently formed Canadian eLearning Network (CANeLearn – see http://CANeLearn.net), a partner of the annual *State of the Nation: K-12 E-Learning in Canada* report, which used the term e-learning to include all forms of education delivered remotely or at a distance to students (e.g., correspondence, audiographics/telematics, video conferencing and e-learning).[1] The definition was also consistent with other countries, for example the New Zealand Ministry of Education (2006) defined e-learning as "learning and teaching that is facilitated by or supported through the smart use of information and communication technologies" (p. 2).

At present, every Canadian province and territory has some form of online distance education, or e-learning, program. However, it is important to note that, unlike in the United States, the primary driver of K-12 e-learning in Canada is government, not independent corporations providing education services as charter schools. In Canada, corporations are largely contractors that provide content, technologies, and other services to government-run programs. There are few, if any, proponents of the application of free market principles to public education, particularly in K-12 e-learning as there is in the United States.

K-12 e-learning roots began 100 years ago when a correspondence school in Canada opened in 1919 in British Columbia with a student population of 86 students, growing to over 600 students by 1929 (Dunae, 2006). Almost six and one half decades later, the use of technology-supported online learning also got its start in British Columbia with the creation of New Directions in Distance Learning and the EBUS Academy, both in 1993 (Dallas, 1999). This was quickly followed by district-based online programs in Manitoba, Ontario, Alberta, and Newfoundland and Labrador (Barker & Wendel, 2001; Barker, Wendall & Richmond, 1999; Haughey & Fenwick, 1996; Stevens & Mulcahy, 1997).

1. See the "Defining E-Learning in Canada" section of Barbour & LaBonte [2015] for a comprehensive discussion of the term.

The first virtual school established in Canada was the Avon Maitland Distance Education Centre, organized by the Avon Maitland District School Board in Ontario in 1994-95 (Barker & Wendel, 2001) – although unlike British Columbia which later established a virtual school, Avon Maitland did not offer any courses until 1997-98. The first virtual schools to offer multiple courses were the Electronic Distance Education Network in Ontario and a school-based program operated by Garden Valley Collegiate in Manitoba during the 1995-96 school year (Barker, Wendall & Richmond, 1999). There were also several school district consortia that offered K-12 online learning programs in Alberta (Haughey & Fenwick, 1996), where from 1995 to 1999 there were 23 district-based online learning programs in operation (Muirhead, 1999). Over the next decade, Alberta continued developing public and private district and multi-district programs, while the district initiatives in Newfoundland and Labrador expanded into the current provincial virtual school (Barbour, 2005b).

K-12 E-Learning Research

Research literature on K-12 e-learning has been sparse with most focused on two provinces – Alberta, and Newfoundland and Labrador (Barbour & Stewart, 2008). While the Canadian Teachers Federation (2000) appeared to have provided the first published estimates K-12 e-learning participation levels in Canada, since 2008-09 the annual *State of the Nation: K-12 E-Learning in Canada* reports have provided estimates of the level of K-12 distance education, online and – now – blended learning in Canada (Barbour & LaBonte, 2016). Much of the data in this section was drawn from that report.

Canada continues to have one of the highest per capita student enrolment in e-learning courses and programs of any jurisdiction in the world, and was one of the first countries to use the Internet to deliver distance learning courses to students (Barbour & LaBonte, 2015). With approximately 5.1 million students enrolled in education programs in Canada in the 2015-16 school year, it was estimated that the number of students engaged in K-12 e-learning that year was 293,401, or 5.7% of the overall K-12 student population (Barbour & LaBonte, 2016). The highest level of activity in e-learning by raw numbers was in Ontario, but by proportion of students involved British Columbia continued to lead the country. Some jurisdictions that actively collect such data report over 12% of K-12 students learning online, and in British Columbia some estimates now put the level of involvement at over 20% of the student population.

Further, there were an additional 405,319 or 7.9% of students known to be engaged in blended learning, where at least part of instruction occurs in a classroom, part online at a distance to the teacher, both combined with some element of choice in learning for students (Horn & Staker, 2011). Means, Murphy, Bakia, and Jones (2010) conducted a meta-analysis of available research in blended learning and assert that blended learning environments demonstrated a higher level of effectiveness than fully online or fully face-to-face environments. In addition, they found that when online courses are either teacher-directed, or contain a great deal of peer-to-peer support, the effectiveness of the approach is greater than courses that use a purely independent study approach. Blended learning that combines the best elements of online and face-face instruction are likely to emerge as the predominant teaching model of the future in Canada.

Finally, there are gaps in how data is collected and reported across the country, so it is not inconceivable to estimate the level of active learning in online and blended environments across the country to be as high as one in four students engaged in some form of e-learning. A shift to blended learning can also be a catalyst for change as it encourages the use of Web technologies and enhances student collaboration (Watson, 2008). Blended learning holds a great deal of promise as part of the change and innovation agenda underway for K-12 education in Canada.

Cross Canada Provincial E-Learning Overviews

Delivery of e-learning varies from jurisdiction to jurisdiction in Canada. Across the country, correspondence education is asynchronous and limited to province-wide programs focused on learners that have dropped out of the traditional K-12 environment or K-12 students who are enrolled in elementary level distance programs (although there is a growing number of elementary-focused programs that are transitioning to an asynchronous, online environment). The small, often pilot, programs in the northern territories generally utilize some form of video conferencing within their e-learning delivery model. Most remaining e-learning programs across Canada are using either an asynchronous, online delivery medium (i.e., primarily used with distance education students) or a blended learning format (i.e., solely used with local students enrolled in brick-and-mortar settings).

Most e-learning programs in Atlantic Canada are delivered through an online learning medium. While Nova Scotia and New Brunswick utilize an asynchronous model of online delivery, Newfoundland and Labrador relies upon a primarily synchronous model of online instruction. In fact, according to Barbour (2013), beyond individual remediation and small group tutoring, and other than the "real-time blended" courses offered to Anglophone students in Québec as a part of Leading English Education and Resource Network (LEARN), the Centre for Distance Learning and Innovation (CDLI) in Newfoundland and Labrador was the only online learning program in North America that utilized a primarily synchronous model through a software-based virtual classroom environment, as well as individual site-based Polycom video units. Further, in both Newfoundland and Labrador and New Brunswick the asynchronous course content and learning management system from the Ministry-managed online learning program can also be used by classroom teachers for blended learning purposes; similar situations exist in Ontario and Manitoba.

An overview of each province is provided here as background to the discussion section that follows. The information has been drawn from the Barbour and LaBonte (2016) *State of the Nation: K-12 E-Learning in Canada* report.

Newfoundland Labrador

The CDLI is the sole provider of K-12 distance education, or e-learning, in the province. During the 2015-16 school year, there were 1105 students registered and 1715 course registrations in 38 different courses representing 103 different schools. E-learning at the K-12 level is delivered using a combination of synchronous and asynchronous tools, with synchronous instruction being the primary method.

Nova Scotia

There are two distance education, or e-learning, programs in the province. First, the Nova Scotia Virtual School (NSVS) provided online courses to approximately 1300 students from the seven English-speaking school boards and the Conseil scolaire acadien provincial during the 2015-16 school year. Second, the correspondence studies program provided courses to approximately 1200 students enrolled in courses through the correspondence study program. Close to half of these 1200 students attend a public school, while the other half are adult students, home-schooled students, or students living outside of Nova Scotia. Currently, work is ongoing to transition these correspondence courses to an online delivery format.

New Brunswick (also providing services to Prince Edward Island)

Both the Anglophone and Francophone sectors of the Department of Education and Early Childhood Development manage K-12 distance, or e-learning programs. These programs service secondary students in New Brunswick in either of the province's two official languages. During the 2015-16 school year, there were approximately 1800 students enrolled in the Anglophone program and 727 students enrolled in the Francophone program.

Québec

During the 2015-16 school year, there were four e-learning programs in the province of Québec. The largest program was the Société de formation à distance des commissions scolaires du Québec (SOFAD) that primarily develops and produces correspondence learning materials that school boards utilize in their own district-based programs. SOFAD also provides an e-learning platform (i.e., EduSOFAD) that offers many of the courses online for the students who prefer that option. SOFAD served 30,072 adult students (16 years or older) during the 2015-16 school year, including 3231 course enrolments in EduSOFAD). The Centre d'apprentissage en ligne de la CSBE is the e-learning program offered by the Beauce-Etchemin School Board and had 1041 students enrolled in 21 remedial and 10 full-time online courses. Finally, LEARN provided a variety of e-learning opportunities to approximately 9,400 English-language students from all nine English-speaking school boards in the province.

Ontario

Each of the 60 English-speaking and 12 French-speaking school boards offered some form of e-learning using the Ministry-sponsored learning management system combined with the online curricular materials provided by the Ministry or of their own development. Additionally, the Independent Learning Centre (ILC) continues to provide correspondence

opportunities to adolescent and adult students throughout the province. Finally, there are as many as eight different private or independent K-12 e-learning programs. The last year the Ministry of Education provided data to researchers was for the 2013-14, when they reported that there were approximately 52,095 students taking e-learning courses (including summer school). Data from more than 20 school board programs over the past two years estimated approximately 60,000 students were taking e-learning courses and that those programs have experienced a 30% to 35% growth in enrolment over the past two years. Based on this information, it was estimated that there were approximately 67,000 students taking e-learning courses during the 2015-16 school year. It is also estimated the ILC had approximately 20,000 students enrolled in their correspondence courses. The most recent data available indicated there were approximately 7,500 students enrolled in private online schools. One of the more successful, Virtual High School, offered the full Ontario Secondary School Diploma to students within the province, nationally, and internationally and in the 2009-10 school year had over two thirds of the province's independent school enrolments (Bennett, 2016).

Manitoba

Manitoba Education and Training continued to support three distance learning options in 2015-16: Independent Study Option (ISO), Teacher Mediated Option (TMO) and Web-Based Course (WBC) Option. The ISO (i.e., print) continued to offer 52 courses in English and 11 courses in French for grades 9-12 students. The TMO, which is managed by rural school divisions through the TMO Consortium in partnership with Manitoba Education and Training, offered 19 English courses for grades 9-12 students. The WBC Option provided access to 43 courses in English and 4 courses in French. Each school division in the province has participated in one or more of the above distance education program options; however, participation varies from year to year depending on the changing needs of students and schools. The numbers outlined for the 2015–16 school year indicated 1596 students accounted for 2668 enrolments in the ISO, approximately 100 students from 23 different schools accounted for 421 enrolments in the TMO and 6500 student enrolments in the WBC Option. Overall, there were approximately 9589 e-learning enrolments in programs directly supported by Manitoba Education and Training, and students could be enrolled in more than one program.

Saskatchewan

During the 2015-16 school year, there were 13 school divisions and three other providers of distance education, or e-learning, based on the Saskatchewan Distance Learning Course Repository (i.e., a centralized online course directory that is coordinated by the Ministry of Education). The Ministry indicated that it only gathered data for students taking online distance education courses that count towards completion of a secondary diploma at the 10, 20, 30 levels (i.e., grades 10 to 12). During the 2015-16 school year, there were 9784 secondary course enrolments involving 5235 unique students and 6418 credits were earned. The Ministry also indicated there were students in kindergarten through grade 9 taking courses online through a variety of providers, but the Ministry did not collect data about their involvement. Based on the most recent responses to an annual individual program survey, 13 of the 16 e-learning programs reported approximately 11,000 students engaged in some form of e-learning.

Alberta

It is believed that approximately 20 school divisions in the province offer an assortment of e-learning, catering mostly to students in their own geographic jurisdiction. Some of these district-based programs manage students in other regions of the province, but at present there is only one single province-wide program (i.e., the Alberta Distance Learning Centre [ADLC]) that offers courses to over 44,000 students in the province. The Ministry reported that the provincial student information database indicated that there were 9,985 students enrolled in e-learning programs during the 2015-16 school year, but many school authorities currently do not code their students as e-learning students. Accordingly, the actual number of students engaged in some form of e-learning across all education authorities is unknown. Based on the most recent responses of an annual individual program survey from 11 of the e-learning programs, there were approximately 50,000 students engaged in some form of e-learning.

British Columbia

In 2015-16 there were 59 district-level public distributed learning schools (i.e., e-learning providers) and 16 independent (i.e., private) distributed learning schools that enrolled approximately 69,735 unique students in one or more courses. The Ministry of Education, through its Open School BC division, manages a central, province-wide listing of all courses provided by distributed learning schools, as well as provides content and online hosting services on a cost-recovery model to school districts lacking the capacity or desire to manage their own.

Yukon Territory

While continuing to sign memorandums of understanding with the existing partner school districts in British Columbia and Alberta, Yukon Education is increasing the scope of e-learning program delivery through the Aurora Virtual School (AVS). In 2015-16, AVS managed courses for 57 grade 8-12 students taking at least one of the 35 e-learning courses. Additionally, there were 55 full-time and 37 supplemental students enrolled in distributed learning programs from British Columbia.

Northwest Territories

At present, the Beaufort Delta Education Council eLearning Program, which the Department of Education, Culture and Employment had undertaken a pilot project with over the past few years, was the primary provider of e-learning in the Northwest Territories. During the 2015-16 school year, 51 students were enrolled in one or more of the eight courses it offered. The territorial government had made the development of and support for this pilot project a priority over the next four years. Additionally, there were still 31 students enrolled in distance learning courses offered through the ADLC.

Nunavut Territory

Nunavut does not have its own K-12 e-learning program, but the territory government has agreements with several programs from other provinces. For example, during the 2015-16 school year the ADLC indicated that there were 313 Nunavut students enrolled in courses they offered. This figure included students in both K-12 schools and other post-secondary settings. Additionally, students attending four schools in three communities could access an online version of the CISCO program delivered through Contact North, an Ontario-based program that offers academic and trade-based curriculum to students in K-12, adult basic education, and post-secondary settings. It is expected that the territory's participation in Contact North will expand to include six schools in five communities next year.

First Nations, Métis and Inuit

At present, there are a total of three K-12 e-learning programs designated as First Nations, Métis and/or Inuit programs. One of these is in Ontario (i.e., Keewaytinook Internet High School), one in Manitoba (i.e., Wapaskwa Virtual Collegiate), and one in Alberta (i.e., SCcyber E-learning Community). There are other First Nations, Métis and Inuit organizations that have been exploring the adoption of K-12 e-learning, however, for a variety of reasons – lack of bandwidth or connectivity, lack of community buy-in, lack of expertise for implementation and others – they have not yet established programs. It is also important to note that there have been several other First Nations, Métis and Inuit e-learning programs that have ceased operation in recent years (for many of the same reasons, as well as changes in federal regulations on the funding of First Nations, Métis and Inuit education).

E-Learning Policy, Funding and Regulation

The nature of regulation for e-learning programs varies across the country with some provinces having significant regulatory requirements in legislation and collective agreements (Barbour & LaBonte, 2016). The two most common ways that e-learning programs are regulated include no regulation at all (i.e., Newfoundland and Labrador, Québec, Saskatchewan, Alberta, and federally) or the use of policy handbooks (i.e., New Brunswick, Ontario, Manitoba, and Northwest Territories). Two provinces that are unique in their regulatory context are Nova Scotia, which is governed by provisions in the Nova Scotia Teachers Union collective agreement, and British Columbia, which has significant provisions for the operation of e-learning programs in the *School Act* and *Independent School Act* as well as in provincial

policy. The nature of provincial, territorial, and federal (in the case of First Nations, Métis, and Inuit programs) regulation provides a framework for how programs operate.

How individual programs are funded is an example of one of the issues that would fall under the provincial regulatory frameworks. For example, the e-learning programs in the Atlantic Canadian provinces operate as an entity within their Ministries of Education and, as such, are funded as a part of the Ministry overall operations. Québec is unique within the Canadian context in that e-learning programs are funded through a variety of individual project sources. For example, the LEARN program (see http://www.learnquebec.ca/) is largely funded through the Canada-Québec Ententé on minority language education and second-language instruction, which is under the responsibility of the Ministère de l'Éducation, du Loisir et du Sport. British Columbia is also unique as e-learning programs are funded based on their direct enrolment (i.e., full-time equivalent student) in the same way that brick-and-mortar schools are funded. In the remaining provinces, e-learning programs are primarily managed by individual school districts and are funded internally within the district. In some provinces, the Ministry of Education provides support for some related e-learning activities (e.g., Ontario and Manitoba), in Alberta the Ministry funds a provincial e-learning program, while in other provinces the Ministry does not resource district-based programs at all (e.g., Saskatchewan and Alberta).

The overall regulatory framework, as well as the nature of funding, allows or limits the resources that e-learning programs can access. For example, in Ontario the Ministry of Education – through e-Learning Ontario (see http://www.edu.gov.on.ca/elearning/) – provides digital course content for complete courses, as well as a learning management system to deliver that content to students on, for district-based e-learning programs for both Anglophone and Francophone students. The responsibility for maintaining and updating these e-learning courses falls upon the Ministry and its team of subject matter experts. Newfoundland and Labrador, as another example, directly contracts with individual course designers to develop their asynchronous course content (see Barbour [2005c; 2007] for an overview of this process). In Manitoba, school divisions and schools develop their own e-learning programs and determine how to infuse technology into their classrooms to best suit the needs of their learners. As in Ontario, the Ministry provides teachers with access to the provincial learning management system and asynchronous course content. However, in Saskatchewan, Alberta and British Columbia, individual e-learning programs must allocate internal resources for the development of their own course content and pay license and/or service fees for a learning management system to support distribution of the courses (although in British Columbia, these programs do generate funding based on their level of enrolment).

The level and specific source of funding also permits e-learning programs varying abilities to provide educational services and programming. For example, through the Canada-Québec Ententé the LEARN program in Québec provides a virtual school for students attending any of the English school boards at no cost to the individual school board. In addition to the Ententé funding, LEARN also receives individual contracts from the Ministère de l'Éducation, du Loisir et du Sport that allows them to provide a provincial database of curated educational resources available to the English school boards to use in their own blended learning activities. In Alberta, the ADLC under its current two-year direct service contract with Alberta Education, continues its mandate to "fill the gaps" and provide educational services to Alberta students not serviced by the local education authorities. In short, most e-learning programs across Canada are either funded by the Ministry through local education authorities or school districts or the Ministry operates the e-learning program themselves. As such, the nature of services and programming is either focused on specific district or provincial needs, or limited due to allocation of funding for other district or provincial programs and mandates.

Similarly, the level and sources of funding also affect the nature of staffing. For example, in Newfoundland and Labrador teachers are directly seconded to the CDLI by the Ministry to teach online full-time. However, most of these teachers remain physically located in the schools they were seconded from to provide the CDLI a presence throughout the province. In Ontario, teachers in the district-based e-learning programs are also generally located in the schools where they are employed, but their e-learning teaching assignment is only a portion of their overall assignment (i.e., the teacher teaches some courses in the traditional classroom for their school, and one or more courses online for their district's e-learning program). On the other hand, many of the district-based e-learning programs in British Columbia had full-time e-learning teachers centrally located, however some e-learning programs have started to diffuse their e-learning teachers throughout schools in their district.

Interestingly, British Columbia is only one jurisdiction that includes any form of quality standards as a part of its regulatory regime (Winkelmans, 2010). Beyond this there are no Canadian-specific e-learning quality standards. Outside of the Canadian context, early K-12 e-learning initiatives, such as the Virtual High School Global Consortium (Yamashiro & Zucker, 1999) and Electronic Classroom of Tomorrow in the United States, developed their own standards to measure the quality of their online course content. Since these early e-learning programs, numerous organizations like the National Education Association (Fulton, 2002; National Education Association, n.d.) and the Southern Regional Education Board (Thomas, 1999; 2000; 2003) have also released "national standards" to measure the quality of online course content and/or online teaching. More recently, International Association for K-12 Online Learning (iNACOL) released their own "national standards" focused on online course design, online teaching, and online programs. It should be noted that none of the iNACOL standards had ever been validated from a research perspective (Adelstein & Barbour, 2016). In fact, to date one of the only research-based initiatives examining the quality of online course content has been the proprietary Quality Matters program (Shattuck, 2015; Shattuck, Zimmerman, & Adair, 2014).

Supporting E-Learning in Canada

Successful e-learning programs require initial investments in digital resources, instructional design for effective deployment of these resources, technological infrastructure for delivery, and finally a teacher skilled in the use of technology and online pedagogies to guide student engagement with digital learning technologies, resources and courses, peers, and teachers. On their own, most education authorities have struggled to adequately resource e-learning programs given their complexity and upfront resourcing costs for content and technology. As such, many provinces have seen the development of various consortia to address this issue.

Consortia form based on common interests and benefits that include, but are not limited to: advocacy; information sharing; joint purchasing; content development; and professional development (Muirhead, 1999). Adekanmbi (2010) described several models of consortia including an association model, the voluntary coming together of various organizations to form an association based on mutual needs, and a shared resource model where institutions with common problems and practices share resources including expertise, learning resources, and technology. For the most part, the provincial consortia that have formed would be closer to a shared resource model, whereas the newly created CANeLearn, which does not have resources of its own to broker, is an association model. In both instances, Adekanmbi went on to caution that collaborative models, such as a shared resource or association model, can quickly fall apart should there be any doubt or lack of clarity about its purpose or funding. Leadership plays an important role in maintaining any consortium, but in the case of an association model, reliance on donor funding has likely led to the dissolution of many education consortia. However, Baus and Ramsbottom (1999) suggested that while the survival and effectiveness of an academic consortium is a complex endeavour, it is one that if done effectively can reap significant benefits for the organizations involved.

One of the first documented consortium to form was in Alberta where duplication of efforts in the initial development of online learning in the province occurred (Muirhead, 1999). Muirhead noted that, "despite differences in how partnerships, consortia, and alliances are defined, all involve some common action by members which is intended to result in shared mutual benefits" (p. 3). Alberta went on to create a provincial consortium, the Alberta Online Consortium, which later dissolved – likely the result of one or more of Muirhead's 'essential ingredients' of trust, respect, and integrity missing.

Despite several provincial and territorial Ministries now investing in e-learning, either directly with their own programs or through centralized resource and technology strategies to support e-learning in their jurisdictions, there continues to be a need at the local education authority level for sharing new network technologies, resources, and training to support teachers in the development and deployment of e-learning strategies. As a result, several consortia have emerged across Canada to address specific needs for e-learning within provincial jurisdictions.

In British Columbia, one of the first e-learning consortia to form was the Consortium of Online Learning, or COOL School as they were better known as (LaBonte, 2005). COOL School started as a group of four school districts began by sharing a learning management system through their region's community college and co-created content for use with their growing number of students taking courses online. COOL School morphed into a province-wide organization

known as BCEd Online that received a grant from the provincial Ministry of Education. Later, when the Ministry created its own independent organization to implement e-learning programs at the provincial level, the practitioners who had built the original COOL School consortium came together again to form the BC Learning Network (see http://bclearningnetwork.com/). The consortium has expanded to include 51 British Columbia school districts, the Yukon Territory's e-learning program and now one Alberta program as well. As such, they have renamed themselves the Western Canada Learning Network and are committed to supporting e-learning programs for both fully online and classroom-based blended learning.

Other consortia have emerged in Canada as e-learning programs continue to emerge and expand. In Alberta, despite the dissolution of the Alberta Online Consortium, two new groups have emerged in the e-learning space: the blendED Alberta group and the Alberta Moodle Hub. blendED Alberta started as a volunteer group of Alberta teachers and administrators that organize an annual symposium (see http://www.blendedalberta.ca/) to foster blended and online learning through structured dialogue and sharing. The group recently applied for, and received, Alberta provincial non-profit status (i.e., Alberta's Blended Learning Society) and received a grant from the Alberta Education Ministry (T. Reid, personal communication, March 24, 2017). The Moodle Hub is a group of educators, primarily from Alberta, who share courses built on the Moodle open source learning management system (LMS) platform (https://moodle.org/) and meet regularly to share strategies related to the deployment of courses on the LMS.

In Manitoba, there are three provincially funded e-learning options (ISO, TMO and WBC). The TMO is managed by rural school divisions through the TMO Consortium in partnership with Manitoba Education and Training. While each school division in the province has participated in one or more of the three e-learning program options, only the TMO fits the criteria as a consortium. In Saskatchewan, the provincial Ministry of Education no longer offers centralized e-learning programs, just a Distance Learning Course Repository. Based on the data published in the annual *State of the Nation* report (Barbour & LaBonte, 2016), there are 16 programs engaged in some form of e-learning. While there is informal sharing, and an annual "Distance Learning Conference" where educators leading and teaching in e-learning programs meet to share ideas, there is no formal consortium model in place in the province.

In Ontario three consortia emerged to support e-learning delivered through the publicly funded Ontario School Boards: the Ontario eLearning Consortium (OeLC), Ontario Catholic eLearning Consoritum (OCeLC), and the Consortium d'apprentissage virtuel de langue française de l'Ontario (CAVLFO). In Ontario, the Ministry of Education through its e-learning division eLearning Ontario (see http://www.edu.gov.on.ca/elearning/), provides supports and resources, teacher training, awareness building and resource development for Ontario School Boards providing e-learning options for students. eLearning Ontario supports include free access to provincially licensed courses on the *Desire2Learn/Brightspace* LMS (see https://www.d2l.com/) along with teacher support through its online community (see https://community.elearningontario.ca/), but stops short of e-learning implementation which is the responsibility of the Ontario School Boards. The three consortia were formed to support the equitable access to e-learning courses and services across their member school boards while avoiding the duplication of efforts. While eLearning Ontario provides the 'tools' for e-learning to occur, each consortium coordinates efforts to deliver e-learning among member boards in an equitable and cost-effective manner.

The OeLC (see http://www.oelc.ca/) is a grassroots partnership of 22 Ontario school boards that began in 2001 to collectively support the delivery of online secondary Ontario courses, to develop and share e-learning resources, tools and procedures, to perform quality assurance for e-learning, while supporting educators delivering e-learning, and to increase learning opportunities for students. The OeLC member Ontario School Boards have entered mutual agreements to open their e-learning courses to all students within the consortium member boards without a course fee. The OeLC tracks course enrolments for each member board, and strives to balance the number of courses students of one board are provided with the number provided by that board to students within other consortium member boards. Similarly, the OCeLC (see http://www.ocelc.org/) consists of 29 Catholic school boards across Ontario who have joined together to provide equity of access for Catholic secondary students to take secondary credits developed and taught by Catholic teachers. OCeLC members collaborate with the Ontario Ministry, as do OeLC members, to support implementation of e-learning and enhance learning opportunities through e-learning for Ontario students.

Finally, the Consortium d'apprentissage virtuel de langue française de l'Ontario (CAVLFO, see http://www.apprentissageenligne.org/) is a consortium of all 12 of the Francophone Ontario School Boards. CAVLFO serves as the central program for the boards responsible for the provision of online courses and guidance related to e-learning for the students within the twelve school boards. CAVLFO also works in partnership with the Ontario Ministry of Education through the Apprentissage assisté par la technologie Ontario, the French language counterpart of eLearning Ontario, to provide e-learning opportunities for Francophone students in the province. In addition, CAVLFO works directly with Francophone post-secondary institutions in Ontario and Canada as well as with other Francophone e-learning programs in other provinces in the support of their e-learning program. CAVLFO also offers services and support to adult Francophone learners seeking to obtain an adult high school graduation degree through e-learning (for a discussion of how e-learning services and programs support minority language students across Canada, see LaBonte and Barbour [in press]).

In Québec there are two provincially funded programs for e-learning, one for Francophone students, SOFAD that provides an e-learning platform that offers many of their correspondence courses online for students who are 16 years or older and prefer to work online, and LEARN that provides a variety of distance learning opportunities to approximately 9,400 English-language students from all nine English-speaking school boards in the province. There is also an e-learning program offered by the Centre d'apprentissage en ligne of the Beauce-Etchemin School Board. As all programs are provincially funded, while there is collaboration amongst the programs and local boards in Québec, there is no formal agreement among them or a consortia model like in other provinces.

Finally, the Ministries of Education in the Atlantic provinces and northern Canada territories all offer provincially funded and based e-learning programs. Accordingly, there are no formal consortium models in those provinces and territories, however there is sharing between and among some of the provinces. The Yukon Territory Ministry operates one e-learning program and is a member of British Columbia's BC Learning Network consortium, and the Northwest Territories partner with the ADLC in support of offering e-learning services to its students. In most provinces, there are also annual gatherings (i.e. conferences and symposiums) where educators come together to share and learn more about e-learning programs, services, and strategies. For the most part the provincial Ministries support these events through annual grants.

Canadian eLearning Network

With education a provincial responsibility, no national organization has acted to support the expanding online and blended learning practices and e-learning programs in Canada. National associations in Canada's education community are typically focused on representing or advocating for a specific group of educators (i.e., administrators, counsellors, teachers, etc.), curriculum (i.e., computer science, math, etc.), or educational issue (i.e., language, disabilities, dropouts, etc.). Over the past decade, leaders of e-learning programs across Canada began meeting at conferences and events, particularly the iNACOL's annual symposium (see https://www.inacol.org/symposium/) and began networking and sharing. It was decided to expand the networking and host events in Canada, rather than meeting in the United States. Existing organizations were researched using the Canadian Education Association's Canadian Education Directory for a list of Canadian organizations (which is no longer available online) to determine if any of them would be a fit for supporting e-learning leaders and programs. The search determined there was no national organization focused specifically on supporting emerging pedagogy in online and blended learning, and none were determined to be a suitable fit for the needs of the founding members so a new organization was created.

The new national consortium was launched in July 2013, CANeLearn, with a mission to "provide leadership that champions student success by supporting organizations and educators involved in online and blended learning through networking, collaboration, and research opportunities" (Canadian eLearning Network, 2016, p. 3). CANeLearn, registered under Corporations Canada as a Canadian not-for-profit corporation, is a network of online and blended programs from across Canada, with the purpose of supporting networking, collaboration, and sharing between and among e-learning programs by fostering professional learning events, communication, research on e-learning, policy and professional standards, and to promote online and blended learning in Canada. Figure 1 provides a visual representation of the network's activities and achievements from its launch to today.

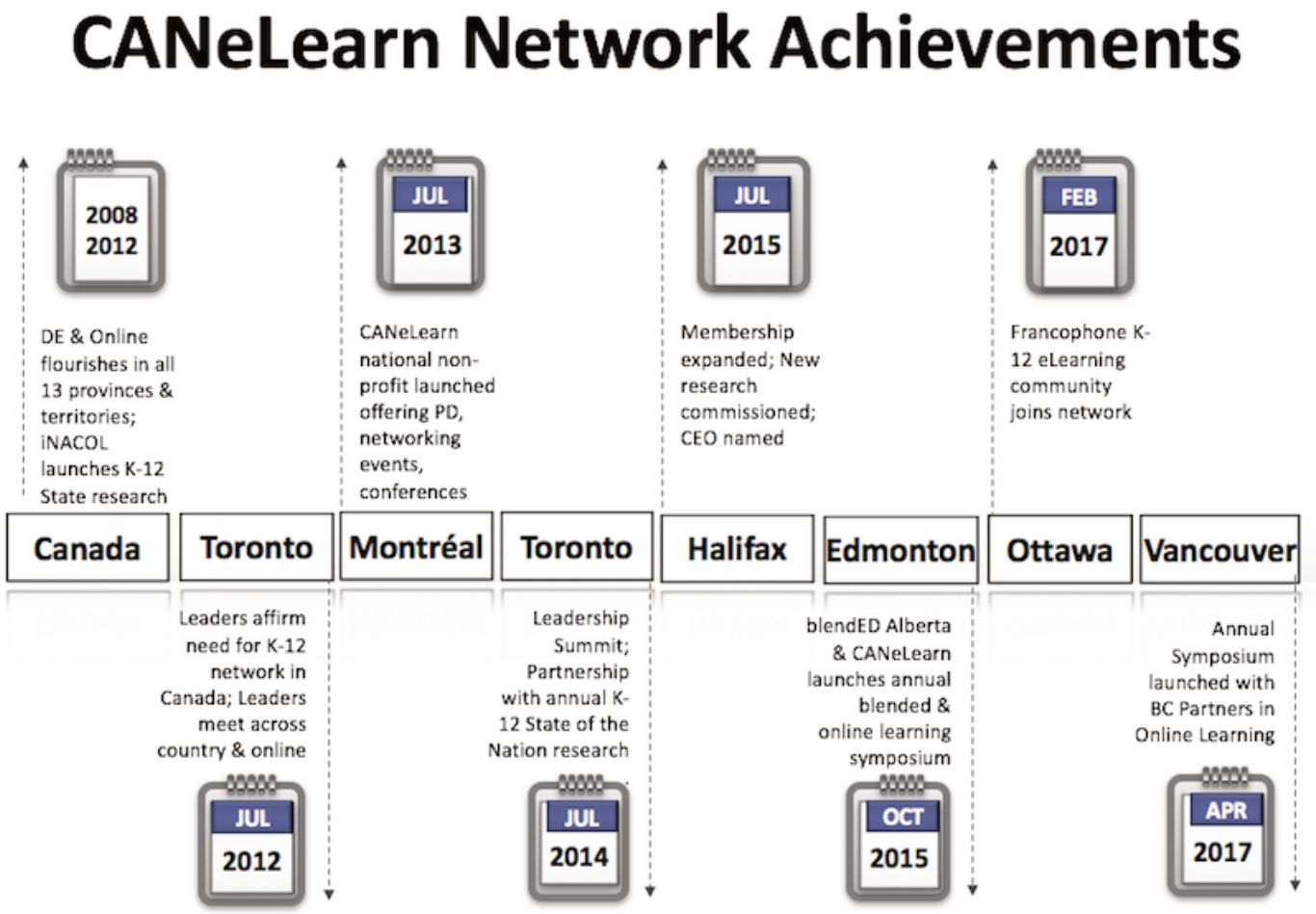

Figure 1. CANeLearn activities and achievements from 2008 to the present.

CANeLearn began growing as a network throughout 2014, expanding across the country as members met regionally at provincial events, as well as nationally every year in the summer. Meetings took place in Halifax, Toronto, Edmonton, Ottawa, and Vancouver. In 2015 the network expanded its research mandate beyond the annual *State of the Nation: K-12 e-Learning in Canada* to include commissioned research on digital assessment and minority language e-learning programs in Canada. That year CANeLearn worked with leaders in Alberta to help launch the annual blendED Alberta symposium. In 2017, the Francophone e-learning community expanded its membership and took a leadership role in the organization. Also in 2017 an agreement to host an annual symposium was formalized with the BC Partners in Online Learning.

Implications for Policy and Practice

With regulation for e-learning programs across the country varying from no regulation at all to regulation through policy handbooks, provisions in teacher collective agreements, or significant legislation and policy governing the operation of e-learning programs, the frameworks for how programs operate are significantly different across the country. Yet the programs operate in similar ways despite this. Most offer both synchronous (live, real-time) and asynchronous (individual, varied time) communications and interactions but with varying degrees of both. Most use some type of technology-based LMS, and all create digital learning resources that are often aggregated in their LMS. The need for educators skilled in the use of technology, the creation of digital learning content, and the application of online teaching pedagogies remain

a constant for all jurisdictions and programs. However, as the overall regulatory framework affects the nature of funding, the resources that e-learning programs access varies and creates discrepancies among them regarding technologies, digital content, and teacher competency.

Some interesting lessons are emerging from the British Columbia experience. For example, the importance of policies that encourage online delivery is shown clearly in the sharp increase in enrolments that followed the policy changes to encourage student and parent choice by offering flexibility through distributed learning (i.e., e-learning) in the province. The enrolment changes in British Columbia also illuminate the importance of funding systems that encourage the operation of e-learning programs. Once the growth opportunities were clear to school boards and administrators, there was a rapid increase in the 'supply' of courses and services available to students. There are obvious implications for the support needed to develop, categorize, evaluate, and organize appropriate pedagogical content for delivery to students and teachers with British Columbia seeing many examples of duplication and overlap in local efforts to undertake these tasks.

In Newfoundland and Labrador, which in the past 25 years has faced a 50 percent decline in student enrolment – from 130,109 students in 1990 to 66,800 in 2016 (Mulcahy, 2017) – the CDLI was created and began offering e-learning courses in 2001-02. Prior to creation of the CDLI, the province faced persistent school closures – 281 in the same 25-year period of the rapid decline in student enrolment. The remaining small schools were in locations that made bussing students nearly impossible, so rather adopting a recommended policy of creating residential boarding schools for these students, the government created the CDLI to bring education to the students living in these remote communities through e-learning. Today the CDLI's staff comprised 46 including 29 e-teachers serving 1,105 students in 110 schools taking 42 high school courses. The CDLI's success has relied partly on policy decisions to employ teachers that have subject matter expertise and to offer synchronous, live exchanges between the e-teacher and online student.

There are also a growing number of education authorities that are adopting e-learning in an effort to break down classroom-based models of organization and governance, creating blended learning opportunities that offer both online and onsite learning access with student choice as an important component to the learning (Horn & Staker, 2011). As well, e-learning is also breaking down organizational barriers between K-12 and post-secondary education with several provinces already offering mixed-age classes with some students in grade 6 taking and passing grade 10 and 11 courses. The logical extension of this practice will be for students who are funded and managed as conventional secondary students to take a mix of secondary and post-secondary classes and many provinces are creating such programs or courses.

The e-learning environment enables quality control and improvement with educational audits and standards important foundations for improving quality. Courses are continuously improved and, because large groups of students can be aggregated from different areas of the province, teachers no longer need to teach multiple courses to obtain a full teaching load. In many rural communities, schools can remain open and students are not bussed kilometers away to meet with teachers and attend classes. Instead, the Internet is used as the network to connect students and teachers instantly, rather than students enduring lengthy physical travel over a rural road network.

As Canada does not coordinate e-learning or distance education policies and services nationally (Canadian Council of Learning, 2009) it is only through dialogue, initiative, partnership, and networking that sharing of ideas and resources between provinces and territories can occur. Organizations such as the Council for Ministers of Education in Canada (CMEC), and the Provincial Territorial Distance Education Association (PTDEA) – a committee originally reporting to the Council – provides one opportunity. However, the CANeLearn with its practitioner focus and base has an equally important role to play and is seen as an important vehicle for sharing among e-learning programs across the country.

Conclusion

Current research in electronic, online or distance learning in the K-12 sector is limited (Barbour & Kennedy, 2014; Barbour & Reeves, 2009; Cavanaugh, Barbour, & Clark, 2009, Patrick & Powell, 2009). According to Cavanaugh et al. (2009), the current research in K-12 had focused on defining distance learning and its current strengths and weaknesses. However, many K-12 classrooms, both online and onsite (i.e., traditional school-based classrooms), are incorporating technology-supported open learning options and resources and are not part of this research.

While blended learning is used extensively in many educational contexts (Picciano, Seaman, Shea, & Swan, 2012; Staker et al., 2011), research in blended learning environments is lagging far behind its practical applications (Drysdale, Graham, Halverson, & Spring, 2013; Means, Toyama, Murphy, Bakia, & Jones, 2010). In short, there is a clear need for further research in K-12 online and blended learning in general. Specific to Canada, fostering research of Canadian practice is key for growing its network of practitioners as this research will inform practice within the country as well as internationally. Both the CMEC in Canada, and its PTDEA committee and the newly-formed CANeLearn, with its practitioner focus and base, have important roles to play in the sharing and understanding of e-learning practice in Canada. Given Canada's rich experience in online and distance learning, an investment in Canadian-based research would be wise. CMEC can be an important part of informing provincial policy and legislation, while a national organization such as CANeLearn could foster, support, communicate and share such research in a manner that reaches local practitioners, not just academic journals.

References

Adekanmbi, G. (2010). *Implementing continuing education programmes: some collaborative considerations*. Gaborone, Botswana: Centre for Continuing Education, University of Botswana. Retrieved from http://www.face.stir.ac.uk/documents/Paper7-ADEKANMBIR.pdf.

Adelstein, D., & Barbour, M. K. (2016). Building better courses: Examining the construct validity of the iNACOL national standards for quality online courses. *Journal of Online Learning Research, 2*(1), 41-73.

Barbour, M. K. (2005a). Educational Technologies in Canada. In M. Orey, T. Amiel, J. McClendon, & M. K. Barbour (Eds.), *The world almanac of educational technologies*. Athens, GA: University of Georgia.

Barbour, M. K. (2005b). From telematics to web-based: The progression of distance education in Newfoundland and Labrador. *British Journal of Educational Technology, 36*(6), 1055-1058.

Barbour, M. K. (2005c). The design of web-based courses for secondary students. *Journal of Distance Learning, 9*(1). 27-36.

Barbour, M. K. (2007). Principles of effective web-based content for secondary school students: Teacher and developer perceptions. *Journal of Distance Education, 21*(3), 93-114. Retrieved from http://www.jofde.ca/index.php/jde/article/view/30

Barbour, M. K. (2013). The landscape of K-12 online learning: Examining what is known. In M. G. Moore (Eds.), *Handbook of distance education* (3rd ed.) (pp. 574-593). New York: Routledge.

Barbour, M. K. (2014). History of K-12 online and blended instruction worldwide. p.25-50. In Ferdig, R.E. & Kennedy, K. (eds.). *Handbook of research on K-12 online and blended learning*. Pittsburgh, PA: Entertainment Technology Center Press, Carnegie Mellon University. Retrieved from http://press.etc.cmu.edu/content/handbook-research-k-12-online-and-blended-learning-0.

Barbour, M. K. & Kennedy, K. (2014). K-12 online learning: A worldwide perspective. In A. Hirumi (Ed.), *Grounded designs for online and hybrid learning: Trends and technologies* (pp. 53-74). Washington, DC: International Society for Technology in Education.

Barbour, M. K., & LaBonte, R. (2015). *State of the nation study: K-12 e-learning in Canada*. Cobble Hill, BC: Canadian E-Learning Network. Retrieved from http://k12sotn.ca/wp-content/uploads/2016/09/StateOfTheNation2015.pdf

Barbour, M. K., & LaBonte, R. (2016). *State of the nation study: K-12 e-learning in Canada*. Cobble Hill, BC: Canadian E-Learning Network. Retrieved from http://k12sotn.ca/wp-content/uploads/2016/12/StateNation16.pdf

Barbour, M. K., & Reeves, T. C. (2009). The reality of virtual schools: A review of the literature. *Computers and Education, 52*(2), 402–416.

Barbour, M. K., & Stewart, R. (2008). *A snapshot state of the nation study: K-12 online learning in Canada*. Vienna, VA: North American Council for Online Learning. Retrieved from http://canelearn.net/wp-content/uploads/2015/07/state_of_nation-2008.pdf

Barbour, M. K., & Stewart, R. (2009, January). *A snapshot state of the nation: K–12 online learning in Canada*. Invited presentation by the Canadian Institute of Distance Education Research. Retrieved from http://cider.athabascau.ca/CIDERSessions/mkbarbour/ AudioConvert_1231363643702.mp3

Barker, K., & Wendel, T. (2001). *e-Learning: Studying Canada's virtual secondary schools*. Kelowna, BC: Society for the Advancement of Excellence in Education. Retrieved from http:// web.archive.org/web/20040720185017/http://www.saee.ca/pdfs/006.pdf

Barker, K., Wendel, T., & Richmond, M. (1999). *Linking the literature: School effectiveness and virtual schools*. Vancouver, BC: FuturEd. Retrieved from http://web.archive.org/ web/20061112102653/http://www.futured.com/pdf/Virtual.pdf

Baus, F., & Ramsbottom, C. A. (1999), Starting and sustaining a consortium. *New Directions for Higher Education*, 3–18.

Bennett, P. W. (2016). Digital learning in Canadian K-12 schools: A review of critical issues, policy, and practice. In A. Marcus-Quinn & T. Hourigan (Eds.). *Handbook on digital learning for K-12 schools* (pp. 295–316). Cham, Switzerland: Springer International Publishing.

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

Canadian eLearning Network. (2016). *Canadian eLearning Network (CANeLearn) strategic plan*. Cobble Hill, BC: Author. Retrieved from http://canelearn.net/wp-content/uploads/2012/07/CANeLearn-Strategic-Plan-August-2016.pdf

Canadian Teachers Federation. (2000). *Facts sheets on contractual issues in distance/online education*. Ottawa, ON: Author.

Cavanaugh, C., Barbour, M., & Clark, T. (2009). Research and practice in K-12 Online Learning: A Review of Open Access Literature. *The International Review of Research in Open and Distance Learning, 10*(1). Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/607/1182

Dallas, J. (1999). Distance education for kindergarten to grade 12: A Canadian perspective. *A presentation at the Pan-Commonwealth forum*, Brunei. Retrieved from http:// www.col.org/forum/PCfpapers/PostWork/dallas.pdf

Drysdale, J. S., Graham, C. R., Spring, K. J., & Halverson, L. R. (2013). An analysis of research trends in dissertations and theses studying blended learning. *The Internet and Higher Education, 17*, 90–100.

Dunae, P. A. (2006). *The homeroom: Correspondence education*. Nanaimo, BC: Malaspina University. Retrieved from http://www.mala.bc.ca/homeroom/content/topics/ programs/corresp.htm

Fulton, K. (2002). *Guide to online high school courses*. Washington, DC: National Education Association. Retrieved from http://www.nea.org/assets/docs/onlinecourses.pdf

Haughey, M., & Fenwick, T. (1996). Issues in forming school district consortia to provide distance education: Lessons from Alberta. Journal of Distance Education, 11(1). Retrieved from http://www.jofde.ca/index.php/jde/article/view/242/454

Horn, M. B., & Staker, H. (2011). *The rise of K-12 blended learning*. Palo Alto, CA: Innosight Institute. Retrieved from http://www.leadcommission.org/sites/default/files/The Rise of K-12 Blended Learning_0.pdf

Indigenous & Northern Affairs Canada. (2017). *Education*. Ottawa, ON: Author. Retrieved from https://www.aadnc-aandc.gc.ca/eng/1100100033601/1100100033605

LaBonte, R. (2005). *Leadership and educational technologies: Leading the charge for e-learning in British Columbia schools*. Vancouver, BC: University of British Columbia. Retrieved from https://open.library.ubc.ca/cIRcle/collections/ubctheses/831/items/1.0055629

LaBonte, R. & Barbour, M. K. (in press). *Minority language e-learning services in Canada*. Cobble Hill, BC: Canadian eLearning Network.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. Washington, DC: Department of Education. Retrieved from https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf

Muirhead, B. (1999). The benefits of an online education consortium for Alberta. *International Electronic Journal of Leadership and Learning, 3*(4). Retrieved from http://iejll.journalhosting.ucalgary.ca/iejll/index.php/ijll/article/view/472/134

Mulcahy, D. (2017). Distance education that works: Enhancing educational opportunities in Newfoundland and Labrador's rural and remote high schools through eLearning. *Canadian Education Association 57*(2), 12–14. Retrieved from https://www.edcan.ca/articles/distance-education-works/

National Education Association. (n.d.). *Guide to teaching online courses*. Washington, DC: Author. Retrieved from http://www.nea.org/assets/docs/onlineteachguide.pdf

New Zealand Ministry of Education. (2006). *ICT strategic framework for education 2006–2007*. Wellington, New Zealand: Author. Retrieved from http://www.minedu.govt.nz/~/media/MinEdu/Files/EducationSectors/PrimarySecondary/Initiatives/ICTStrategy/ICTStrategicFrame-workEducation.pdf

Patrick, S., & Powell, A. (2009). A summary of research on the effectiveness of K–12 online learning. iNACOL. Retrieved from http://www.k12.com/sites/default/files/pdf/school-docs/NACOL_ResearchEffectiveness-hr.pdf

Picciano, A. G., Seaman, J., Shea, P., & Swan, K. (2012). Examining the extent and nature of online learning in American K–12 education: The research initiatives of the Alfred P. Sloan Foundation. *The Internet and Higher Education, 15*(2), 127–135.

Shattuck, K. (2015). Focusing research on Quality Matters. *American Journal of Distance Education, 29*(3), 155–158.

Shattuck, K., Zimmerman, W. A., & Adair, D. (2014). Continuous improvement of the QM rubric and review processes: Scholarship of integration and application. *Internet Learning, 3*(1), 25–34.

Stack, A. (1990). Administrative problems associated with regionalization. *Distance Education, 11*(1), 92–115. Retrieved from http://dx.doi.org/10.1080/0158791900110107

Staker, H., Chan, E., Clayton, M., Hernandez, A., Horn, M. B., & Mackey, K. (2011). *The rise of K–12 blended learning: Profiles of emerging models*. Palo Alto, CA: Innosight Institute. Retrieved from http://files.eric.ed.gov/fulltext/ED535181.pdf

Stevens, K., & Mulcahy, D. (1997). *The telelearning and rural education centre: Macro and micro dimensions of small school research*. ERIC Clearinghouse on Rural Education and Small Schools. Retrieved from http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED413150

Thomas, W. R. (1999). *Essential elements for web-based courses for high school students*. Atlanta, GA: Southern Regional Education Board. Retrieved from http://publications.sreb.org/1999/99T03_EssentialElements.pdf

Thomas, W. R. (2000). *Essential principles of quality: Guidelines for web-based courses for middle and high schools*. Atlanta, GA: Southern Regional Education Board. Retrieved from http://files.eric.ed.gov/fulltext/ED475676.pdf

Thomas, W. R. (2003). *Essential principles of high-quality online teaching: Guidelines for evaluating K-12 online teachers*. Atlanta, GA: Southern Regional Education Board. Retrieved from http://info.sreb.org/programs/edtech/pubs/PDF/Essential_Principles.pdf

Watson, J. (2008). *Promising practices in online learning. Blending learning: The convergence of online and face-to-face education*. Vienna, VA: North American Council for Online Learning. Retrieved from http://files.eric.ed.gov/fulltext/ED509636.pdf.

Winkelmans, T. (2010), British Columbia's quality framework for distributed learning. In M. K. Barbour (Ed.), *State of the nation: K-12 online learning in Canada* (pp. 20-24). Vienna, VA: International Association for K-12 Online Learning. Retrieved from http://canelearn.net/wp-content/uploads/2015/07/state_of_nation-2010.pdf

Yamashiro, K., & Zucker, A. (1999). *An expert panel review of the quality of Virtual High School courses: Final report*. Arlington, VA: SRI International. Retrieved from http://www.thevhscollaborative.org/sites/default/files/public/vhsexprt.pdf