

# Chapter 17

## Digital Learning in Canadian K-12 Schools: A Review of Critical Issues, Policy, and Practice

Paul W. Bennett

**Abstract** Digital learning is on the rise in Canada and now exerting an impact upon education policy in most of the nation's ten provinces and three territories. Without a national education department, the promotion of twenty-first century skills, technology, and learning falls to provincial and territorial education authorities with varying degrees of commitment to K-12 technology education reform and classroom integration. National advocacy groups such as C21 Canada do hold sway over provincial ministers of education, but, so far, the implementation of twenty-first century learning and the explicit teaching of "digital literacies" is very uneven, particularly outside of the recognised eLearning leaders among the provinces, Ontario, British Columbia, and Alberta. In spite of the tremendous potential for expansion of online learning and virtual schooling, the free market remains regulated and private providers are largely absent. Provincial or school district authorities promote a "growth-management" strategy where online and blended learning are considered the next evolution of effective technology integration.

**Keywords** Distance education • Blended learning • Disruptive innovation • Managed growth • Digital literacies • C21 Canada • K-12 Schools • Policy and practice • Digital learning • Education policy • Twenty-first century skills • Technology and learning • Advocacy groups • eLearning leaders • Virtual education • Free market • Private providers • School district authorities • Growth management • Hybrid model • Technology integration

### Text

Technology may be transforming the everyday life of Canadians and particularly the younger generation, but the implementation and growth of digital learning remains uneven in Kindergarten to Grade 12 (K-12) schools across the Canadian nation. Over the past decade, online resources, such as e-learning courses and programs as well as virtual schools, have either spread or popped up in Canada's remarkably

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P.W. Bennett (✉)  
Saint Mary's University, Halifax, NS, Canada  
e-mail: [pbennett@ns.sympatico.ca](mailto:pbennett@ns.sympatico.ca)

diverse provinces and territories (Barbour, 2008; Barbour & LaBonte, 2014). At the elementary and secondary school level (K-12), regular “brick-and-mortar” schools have acquired computer hardware and software, connected them to the Internet, installed wireless networks, and offered in-service training in Information Communication Technologies (ICT) to both novice and experienced teachers. Across Canada, from Newfoundland and Labrador to British Columbia, the infrastructure in most schools now enables Internet access, student portals, digital libraries, and networks that support laptops, handheld and other portable devices (Plante & Beattie, 2004; CCL/Mills, 2009). Among Canadian educational authorities and teachers, there is a growing realization that “digital literacies” are becoming essential in preparing students for full participation in the emerging post-industrial “knowledge society” of the twenty-first century (Chen, Gallagher-Mackay, & Kidder, 2014).

The first generation of ICT for the classroom was, as Larry Cuban aptly noted, “oversold and underused” in North American schools (Cuban, 2003; Jensen, Taylor, & Fisher, 2010). Today’s Canadian students are far more “cyber-savvy” and hungering for more sanctioned opportunities to use technology inside the schools. Popular books like Don Tapscott’s *Growing Up Digital* (Tapscott, 1997) and others with titles like *Millennials Rising* (Howe & Strauss, 2000) went so far as to suggest that the “Net Generation” (born to Baby Boomers) and the Millennials (most of today’s students) had turned the “generation gap” into a “generation lap” when it came to the mastery of technology. Such broad generalizations about the generational differences may well be exaggerated and, as the University of Georgia’s Tom Reeves has shown, the technical fluency and knowledge of today’s students runs far broader than it does deep (Reeves, 2008). The new generation of learners may now inhabit a “digital world” but they are also hobbled by a strain of “selfie-ism” and dogged by the legacy of “parental perfectionism.” Introducing technology alone in schools has not proven enough without active teacher support and engaged, motivated students (Barbour, 2009).

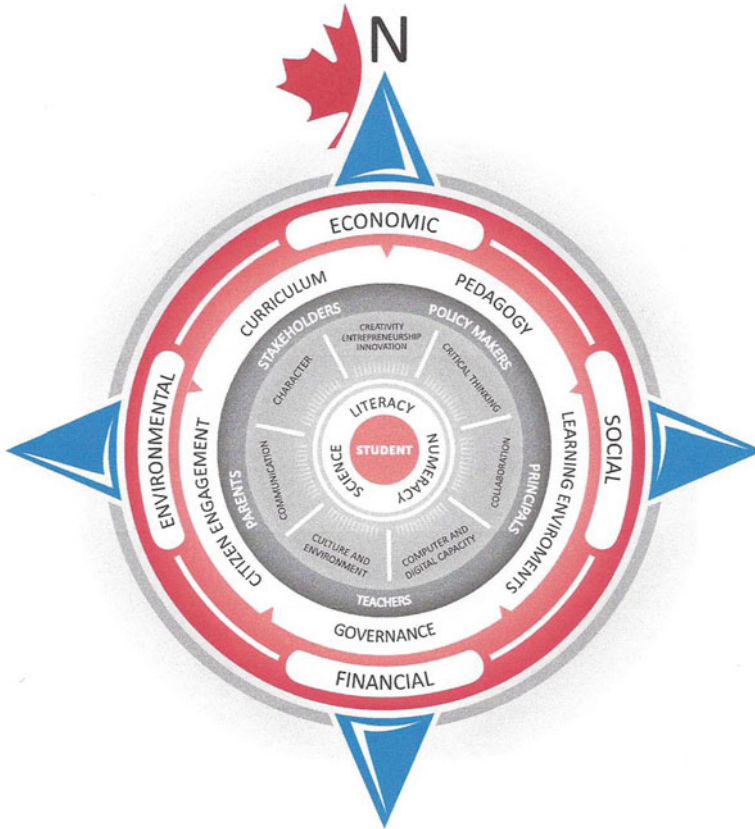
Mobile learning technology has been adopted almost en masse by the “Net Generation” and by today’s so-called “screenagers.” While the innovative use of online technologies has gradually penetrated into the publicly funded school system over the past 10 years, the availability of, and access to, these technologies has not kept pace with student demand or expectations. Some schools right across Canada still remain “locked-down” to the free use of such devices outside of designated rooms or access points (Hutchinson, Tin, & Cao, 2008). A recent Ontario study (Jensen et al., 2010) identified the “ongoing but under-reported disconnect between the massive spending devoted to digital technologies in schools, and their persistent under-use in classrooms, despite claims that the ‘next gen’ of tech-savvy educators are more inclined to integrate technology into their teaching” (p. 5). “Some of the underuse of ICT is related to a continuing gap in the systematic implementation of technology integration, both in faculty of education training and in ongoing professional development. Even if classroom teachers are sufficiently prepared, a 2014 Ontario People for Education report found that they face ‘significant barriers to integrate ICT,’ including curricular shortcomings, constraints around access, lack of technical support and limited preparation time” (Chen et al., 2014; Hixon & Buckenmeyer, 2009).

## Current State of K-12 Online Learning

Annual reports on K-12 Online Learning from 2008 to 2015, mostly researched and written by Canadian information technology expert Michael K. Barbour, demonstrate steady and incremental growth in the practice of distance, online and blended learning. Without a national education authority and public education governed by the provinces and territories, accurately assessing that growth in a country with 5.3 million K-12 students and 15,000 schools remains challenging for researchers. Based upon increasingly reliable annual surveys, the numbers of tracked “distance education students” have risen from some 140,000 (0.5 %) in 2008–2009 to 332,077 (6.2 %) in 2013–2014 (Barbour & LaBonte, 2014). The use of blended learning is on the rise, even if the reported data is rather patchy. With the 2012 formation of the CAN eLearning Network, a national pan-Canadian consortium focused on K-12 online and blended learning, better data may be generated, making tracking much more accurate and reliable for policy analysis and decision-making (Barbour, 2013; CAN eLearning Network, 2012).

Compared with the recent dramatic expansion of digital learning in the USA, online and blended learning in Canada’s K-12 public schools has followed a decidedly different pattern of evolution (Finn & Fairchild, 2012; Barbour, 2012). Much of the online learning in parts of Canada remains an outgrowth of correspondence school education, involving e-format programmed units, audio distance learning, and video conferencing. The primary drivers in Canadian provincial and territorial systems are government authorities, while learning corporations serve as contractors providing content, learning technologies, and support services to the government-run operations. In spite of the tremendous potential for expansion in online learning programs, the free market remains regulated and private providers are largely absent. Provincial or school district authorities promote a “growth-management” strategy where online and blended learning are considered the next evolution of effective technology integration (Barbour SITE, 2015) (Fig. 17.1).

“Twenty-first century skills, technology, and learning” is a common phrase used by Canadian education policy-makers and the popular media to signal, first and foremost, change, defined in terms of meeting the needs of the “next generation” of learners. A national organization, *C21 Canada*, emerged in 2011–2012, to promote “new models of public education” in response to “the advent of the knowledge and digital era.” In May 2012, C21 Canada released a futuristic blueprint, *Shifting Minds*, proposing “a go-forward 21st Century learning framework for Canada’s public education systems” founded upon a set of seven declaratory principles, endorsing freer access for students, more “personalized” learning, and pledging support for “educational leaders” committed to digital learning initiatives (C21 Canada, 2012). While the C21 Canada policy paper purported to be “Canadian” in origin, it mirrored the American Partnership for 21st Century Skills (P21) approach and was buttressed with mostly US technology-in-education research studies (C21 Canada, 2012, Appendix). Working with the Council of Ministers of Education Canada (CMEC) and Canadian branches of the international learning corporations,



**Fig. 17.1** The 21st Century Learning framework, proposed by C21 Canada in 2012 (Reproduced from C21 Canada, “Shifting Minds: A 21st Century Vision for Public Education for Canada,” 2012).

C21 Canada holds regional conferences and attempts to “seed” twenty-first century learning, mainly through provincial and territorial departments of education (C21 Canada, 2015). In British Columbia, the BC Learns initiative, first proposed in late 2010, and known as “Personalized Learning,” won the support of C21 Canada and, in 2015–2016, is being piloted in 16 different elementary schools (British Columbia, 2015). Ontario’s eLearning initiative from 2011 to 2014 drew, in part, on C21 Canada’s work (Ontario Education, 2011). In other provinces, such as Nova Scotia, the twenty-first century learning promoters have secured some regional school board support, but gained little traction with budget-conscious provincial education departments (Nova Scotia, 2015).

More recently, Google Apps for Education (GAFE) has begun to make inroads in Canada’s K-12 school systems. When it comes to digital learning, Google has enjoyed much more success than Microsoft and smaller players in the growing market for software in elementary and secondary schools. First introduced in 2006,

GAFE made its first big breakthroughs from 2012 onwards. Public concerns that Google was mining student e-mail accounts for ad targeting purposes represented a setback, but that problem was squarely addressed in April 2014. In the case of one Canadian province, Nova Scotia, GAFE was adopted, piloted during 2014–2015, and then approved for a rollout to all 400 public schools in the province (Julian, 2015). By the end of 2015, it was spreading quickly and teacher training summits had been held or were scheduled to be held in Ontario, Alberta, Quebec, and BC, as well as Nova Scotia. In schools across the country, it is becoming increasingly essential for students to have access to the Internet in order to be successful. Homework, projects, even information and advice from teachers was now transmitted on-line, and more readily accessible if you had the electronic tools to access the information (Frost, 2015).

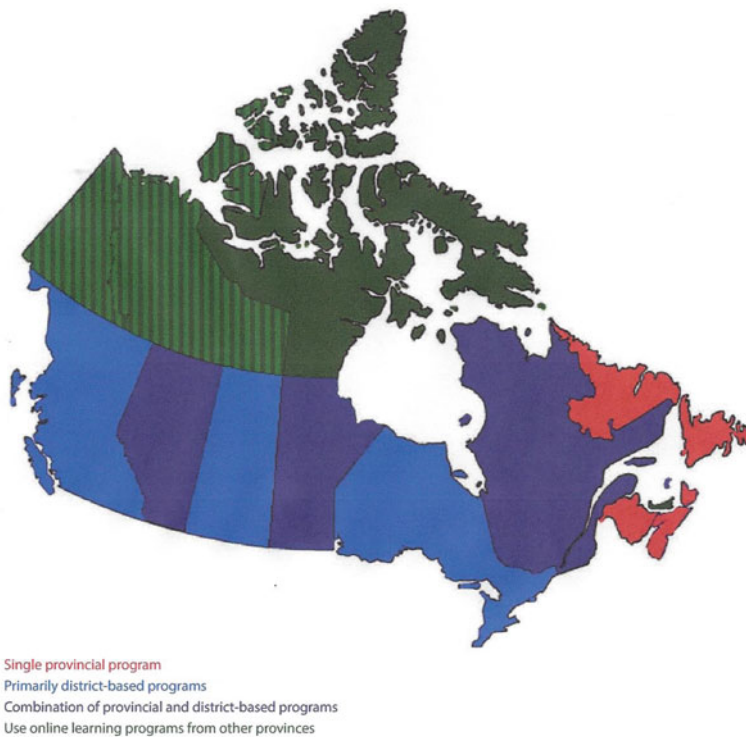
## A National Overview

Education is strictly a provincial government responsibility in Canada and the country, alone among the OECD member states, has no national Department of Education or policy standards. Some coordination is provided by the Council of Ministers of Education, Canada (CMEC), supported by comparative research conducted until 2010 by the Canadian Council on Learning, based in Ottawa (CMEC, 2015; CCL, 2011). All ten provinces and the three territories have established and maintain “distance education” programs within their K-12 publicly funded school systems. The Western provinces of British Columbia (BC) and Alberta have the most extensive online presence, in terms of percentage of student participation. Canada’s most populous province, Ontario, has experienced the most recent spurt of growth in student enrolments in distance education and blended learning. The smallest of the ten Canadian provinces, Prince Edward Island (PEI), has the least participation. Three of the provinces, Nova Scotia, Newfoundland/Labrador, and New Brunswick, have a single, provincially managed online program. Three provinces, Ontario, Saskatchewan, and BC, have primarily school district-based programs. In Quebec, Manitoba and Alberta, online programs are a combination of provincial and district-based. The three territories, Northwest Territories, Yukon and Nunavut, and Prince Edward Island (PEI) use online programs from other provinces. Provincial regulations for online learning exist in BC and Nova Scotia, but Quebec, Saskatchewan, and Alberta continue to operate without much regulation of distance learning at all. Flexibility and openness to innovation are bigger factors than regulatory restrictions in explaining the extent of K-12 distance, online and blended learning activity (Barbour & LaBonte, 2015).

The shift to online and digital learning in Canada has attracted the attention of Canadian teacher unions, evoking trepidation varying in degree from one province to another. The Canadian Teachers Federation (2000) was the first educational organization to begin tracking K-12 distance education participation levels, focusing on the implications for teachers’ class loads and working conditions.

In British Columbia, distance learning gained earlier and wider acceptance, and the BC Teachers Federation funded some of the research (Kuehn, 2006). From 2013 to 2014, the Alberta Teachers' Association (ATA) was instrumental in mobilizing a "Stop Distance Education Cuts" movement ([www.stopdecuts.org](http://www.stopdecuts.org)) aimed at sustaining funding through the public school system. "Students need choice and flexibility in their learning opportunities," the ATA stated. "By cutting funding to schools that use Distance Education, the government is effectively cutting choice and flexibility for students to complete their high school education" (ATA, 2013a) (Fig. 17.2).

Provincial regulations governing Nova Scotia online learning are a response to initial concerns raised by the Nova Scotia Teachers Union (NSTU). When presented with innovative online programs, the instinctive response was to defend existing teacher contract provisions, limiting workload and hours of instruction to those established for classroom-based teachers (Bennett, 2012; Barbour & LaBonte, 2015, p. 13). Another line of defense was and remains to resist online programs, unless and until they can be offered equally to all students. Education school research conducted by Dianne Looker and the Equity and Technology Research Alliance has served to focus resources on "the inclusion of marginal youth" using



**Fig. 17.2** Online learning programs by province and territory, 2015 (Canadian e-Learning Network)

ICT to build upon their “distinctive cultural knowledge” and serve their “economic interests” (Looker & Naylor, 2010).

Distance education serves as a supplementary curricular program in most of Canada’s provinces and territories. Up until 2014, some provinces continued to deliver distance education in the static form of e-links to web postings of print-based learning materials. Growing numbers of schools are making use of synchronous tools such as traditional video conferencing or virtual classroom software. Across Canada, however, K-12 distance education is often used interchangeably with online learning even though most such learning does not actually take place online. Surveying the various provincial and territorial programs, it is clear that distance education provides an attractive alternative when face-to-face learning is not feasible or affordable, or for students requiring alternative delivery methods for remediation or course credit recovery purposes (Barbour, 2010, pp. 14–16). Without public charter schools pushing at the boundaries of virtual schooling and blended instruction, as in the USA, online learning primarily exists to provide K-12 courses for students that are not available in the brick-and-mortar school system (Barbour SITE, 2015).

Distance or online learning is growing modestly, but it still continues to represent a tiny proportion of the total Canadian school enrolment. Out of a total student population of some five million, the reported distance education enrolment has risen from 140,000 (2.7%) in 2008–2009 to about 332,000 (6.2%) in 2013–2014 (Barbour & LaBonte, 2015, p. 13). Some 152,900 of the unique students (representing 46% of the total) were from two western provinces, BC and Alberta, and enrolled in about 99 “public distributed learning schools.” In those provinces, over 12% of all students are enrolled in some form of distance education, whereas enrolments continue to lag in the four Atlantic provinces, New Brunswick (2.6%), Nova Scotia (2.2%), Newfoundland/Labrador (1.3%), and P.E.I. (0.5%). In the case of Ontario, the development, since 2006, of a provincial consortium, *e-Learning Ontario*, has fostered growth in distance education enrolment and province has been moving, since 2006, to centralise its formerly school-district-based system under the auspices of a provincial consortium, *e-Learning Ontario*, and in 2013–2014 reported 250,000 blended learning enrolments. Up in the Far North, I. student enrolments range from 33 (0.1%) in Nunavut to 228 (2.8%) in the Northwest Territories, in spite of the demonstrable advantages of online learning for rural and remote communities (Barbour & LaBonte, 2015; Barbour PTDEA, 2015).

## The Regional and Provincial Situation

Canada’s public education system can only be understood through the lens of its discrete regions, composed of provinces and territories. Following the example of the International Association for Online Learning (iNACOL) and CAN eLearning Network reports, this comparative analysis will highlight the regional and provincial

**Table 17.1** Registered distance education students, by province and territory, 2013–2014

Province/territory	# of K-12 students	# enrolled in distance education	Percent involvement
NL	67,463	884	1.3
NS	122,643	~2720	2.2
PE	20,131	108	0.5
NB	101,079	2615	2.6
QC	1,307,026	~705,000	5.4
ON	2,015,411	78,095	3.9
MB	200,807	~12,000	6.0
SK	172,205	~10,000	5.8
AB	616,375	~75,000	12.2
BC	635,057	77,912	12.3
YT	5122	182	3.5
NT	8204	228	2.8
NU	9728	33	<0.1
Federal	106,500	~1800	0.1
Total	5,387,724	332,077	6.2

Estimates compiled by Canadian e-Learning Network, reproduced from Barbour, State of the Nation Study: K-12 Online Learning in Canada (Yellowknife, NWT: Provincial and Territorial Distance Education Association

variations in the current provision of online and digital education. Nine of the ten Canadian provinces have their own K-12 distance education programs; the exception being Prince Edward Island. Two provinces, Newfoundland/Labrador and New Brunswick maintain single, centralised, province-wide systems. Nova Scotia has its own system, but was built in collaboration with a small number of regional school boards. Ontario and Saskatchewan are remarkably decentralised, delegating much of online learning to consortia or remote school districts. Online learning in P.E.I. and the territories might be described as limited in its reach (Barbour & LaBonte, 2015) Only British Columbia, Ontario, and Alberta have, so far, proven to be fertile ground for private school ventures in the form of virtual or online schools (Barbour, 2010, p. 41; Kuehn, 2013). The rise of virtual schooling delivered by “cyber charter schools” has surfaced as a public policy issue in Alberta, where a University of Alberta research unit, Parkland Institute, released an October 2013 report warning of the dangers of “pedagogical innovation” in the form of privatization presented as a way of easing “budgetary constraints” (Clements & Gibson, 2013) (Table 17.1).

## Atlantic Canada

Canada’s four eastern most provinces, Nova Scotia, New Brunswick, P.E.I., and Newfoundland/Labrador, compose the Atlantic region and do cooperate on joint curriculum projects, given their relative close proximity to one another.



Province-wide distance learning programs exist, managed by the Departments of Education, but only Nova Scotia has developed a regulatory regime to govern the provision of online education. All online programs are sponsored by the provinces, some in collaboration with district boards serving rural areas.

Distance education in **Newfoundland and Labrador** originated in 1988–1989 with the advent of a single advanced Mathematics course, involving 13 schools and utilizing a telematics or audio graphics delivery system. A Centre for Distance Learning and Innovation (CDLI) was established in 2001–2002 with ten different courses field-tested enrolling 200 students in 76 different rural schools (Barbour, 2005). In its first decade, DLIC expanded to offer 38 courses with some 1600 course registrations each year. In 2013–2014, 884 students were enrolled in 39 different courses totalling 1576 registrations (Barbour & LaBonte, 2015). The Newfoundland high school program offers synchronous instruction matching regular school times and using *Elluminate* software and asynchronous instruction supported by the *Desire2Learn* course management system. Some online instructional support is also offered in the lower grades. That province is also home to the Killick Centre at Memorial University, a leading online education research center. The Ministry of Education tracks online education delivery and maintains a *K-12 School Profile System*, but, as of October 2015, there were no policies or regulations for distance education beyond those utilised by CDLI. While e-Learning was recognised as one of eight NL Education “lines of business,” provincial regulations were reportedly only under discussion (Barbour & LaBonte, 2015; Barbour & Mulcahy, 2009; Crocker, 2007).

**Nova Scotia** has developed its own province-wide online learning program—the *Nova Scotia Virtual School* (NSVS). It provides a central course management platform and delegates to the eight school boards the responsibility for providing course content written by practicing classroom teachers (Bennett, 2012). The province’s French school board, *Conseil scolaire acadien provincial* (CSAP), has a longer history of offering online courses, shared jointly with New Brunswick. Since Nova Scotia has tended to lag behind in providing province-wide high speed Internet access, concerns about the urban–rural “digital divide” exert considerable influence on educational policy-making (Looker & Naylor, 2010, pp. 117–136). In 2013–2014, the province’s correspondence studies program was being transitioned to an online delivery format. Although Nova Scotia has no K-12 distance education legislation, 11 provisions in the Teachers’ Contract with the Nova Scotia Teachers Union (NSTU) set out the parameters for current and future activity. Combined student enrolment in NSVS and correspondence courses totalled 2720 in 2013–2014, composed of 970 in VHS and 1750 taking correspondence courses (Barbour & LaBonte, 2015, p. 13).

The Nova Scotia regulatory regime respects negotiated teacher rights. The 11 specific clauses in the Agreement set out the rules of engagement and, in effect, limit the provincial government’s freedom of action in providing online learning. All online instructors must be certified teachers, employed by one of the eight boards, and are protected by provisions limiting their number of instructional days and working hours and guaranteeing teachers personal days as well as dedicated

preparation and marking time. Distance education is treated like a regular in-school program with supervisors, dedicated facilities space, and class groups limited to 20–25 students. A provincial Distance Education Committee, with teacher union representation (four of eight positions) exists to address “issues surrounding distance education” (NS Education, 2011).

The Nova Scotia Department of Education and Early Childhood Development (DoEECD) is starting to embrace digital learning in close partnership with Google and tethered to Google Apps for Education (GAFE). After piloting the program in a number of schools in 2014–2015, the DoEECD decided to make GAFE available to every single child and teacher in the 400 schools across the province. Twenty thousand out of Nova Scotia’s 118,000 students are now using free computer software from Google as part of their classroom activities. Provincial education officials expect Google Apps for Education to be nearly universal by the end of 2016–2017. The cloud-based suite of programs can be accessed on any electronic device with an internet connection and a web browser. It includes email, word processing and assignment management software. Some school boards have chosen to issue students \$200 devices called Chromebooks to let them access Google products at school and at home (Julian, 2015).

**Prince Edward Island** is geographically small and makes minimal provision for distance or online education. Two Ministerial Directives, issued in 2001 and in August 2008, set out the provincial guidelines and authorise, for P.E.I. credit purposes, distance education courses offered by New Brunswick and other provincial jurisdictions. A provincial video conferencing system exists, but it is little utilised by the Education Department or students in local schools. In 2013–2014, only 108 students out of a 20,131 total student enrolment were enrolled in online courses (Barbour, 2011; Barbour & LaBonte, 2015, p. 14).

Two online learning programs are offered in **New Brunswick**, one in the English language, the other in French, and serving the dual linguistic school system. While the program reflects the province’s bilingual reality, it is delivered by the same Ministry learning management system (LMS). Student enrolment consists mostly of students supplementing their regular in-school studies and it was relatively static or slightly declining from 2007 to 2012, in both the Anglophone and Francophone sectors. While New Brunswick was an early champion of “21st Century Learning,” provincial budget restraints from 2010 to 2014 limited the proliferation of ICT across the province (NB Education, 2010; Barbour & LaBonte, 2015). From 2008 until 2014, the NB Ministry of education averaged 2200–2650 enrolled in their distance education courses. Steadily increasing numbers of students were enrolled in face-to-face courses registered in the NB learning management system where their teachers were using online material to teach the course. In 2013–2014, some 943 English students and 1511 French students were registered in these “blended” learning activities. Recent growth in student enrolment in online courses, according to the NB Education Department, is attributable to expanded First Nations language course offerings and meeting Special Education course demands to serve severely learning-challenged students (Barbour & LaBonte, 2015, p. 15).

## Central Canada

Canada's two most populous provinces, Ontario and Quebec, are home to some 20 million people or 60% of the nation's total population and the lion's share of its K-12 students. Distance education programs in Ontario and Quebec are province-wide, but mostly offered at the district or school board level. Ontario has a strongly rooted tradition of locally managed district programs, while Quebec has only recently begun to devolve management from the Ministry of Education to the district level. The provision of such programs in Ontario has undergone a distinct shift in management and control since 2006 with the emergence of two distinct e-learning consortia, Anglophone and francophone, and the expansion of rural distance learning projects.

**Quebec** is a distinct, unique French-speaking province with a majority Francophone K-11 school system and a separate one for the Anglophone minority population. Secondary school extends from Grade 7–11 and thereafter students attend a 2-year *College d'enseignement general et professionnel* (CEGEP) to secure a university-preparatory diploma. The earliest distance education courses originated as part of the vocational studies movement back in 1946. In April 1996, Quebec school boards took the big step on establishing a provincial nonprofit organization to produce online resources known as *Société de formation a distance des commissions scolaires du Quebec* (SOFAD). That organization produces distance learning materials in French for students 16 and over, offered through district-based programs in some 57 regional centers and, by 2013–2014, serving 56,608 students (Barbour, 2010; Barbour & LaBonte, 2015).

Quebec's English sector developed its own Distance Education and Community Network, founded in 1999–2000. Over the next 6 years, it grew to encompass all nine English-speaking school boards and morphed into Leading English Education and Resource Network (LEARN), known as *LEARN Quebec*. The Quebec English distance education agency provides a variety of distance learning offerings, enrolling over 8500 English-language students from across the province. In addition, close to 36,500 students are served by LEARN managed blended learning asynchronous services (Barbour & LaBonte, 2015, p. 17).

Even though Quebec's Education Act makes no reference to distance education, the province is emerging as a leader in promoting online learning in small rural schools. The Ministry of Education has funded *Écoles éloignées en réseau* (EER) since 2002 and the Rural Networked Schools (RNS) initiative has broken new ground in distance education. Instead of simply compensating for the absence or closing of a school, the program serves existing schools by “networking” certain learning activities in an effort to enhance the quality of education by broadening access to resources (Barbour, 2010, pp. 12–13). By 2009–2010, the RNS initiative had expanded to some 20 Francophone school boards encompassing 70 schools and involving about 90 teachers (Barbour, 2011, pp. 41–42). During 2013–2014, EER engaged 392 teachers in 214 different schools and connected more than 4600 students through use of Knowledge Forum and various synchronous tools. One rural

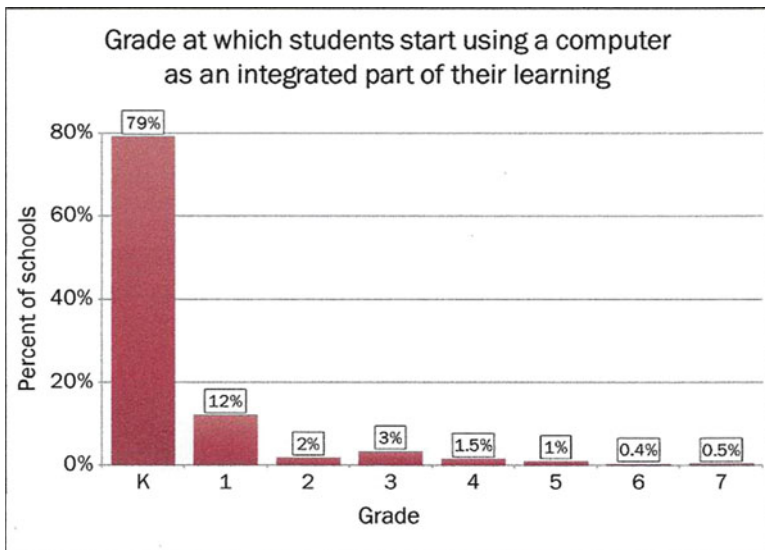
Quebec school district, Beauce-Etchemin, also offered 16 remedial online courses as well as nine full-time online courses, enrolling some 700 students in eastern Quebec (Barbour & LaBonte, 2015).

Canada's most populous province, **Ontario**, spent \$23 billion on education in 2013–2014, operating 4897 schools and serving some two million students. While Ontario is a massive province geographically, distance education lagged for many years and, for the most part, suffered from a confused sense of direction. Since 1994–1995, many of the province's school boards have established their own district programs and then in 2006 20 of the boards formed the Ontario e-Learning Consortium (OeLC). That joint venture has helped increase course offerings and the sharing of resources with positive results. From 2008–2009 to 2009–2010, online student enrolments in OeLC boards jumped from 6276 to 9695. The consortia model has also been replicated by Ontario's French language boards and by the province's constitutionally guaranteed separate Catholic school boards. In 2010, a Northern e-Learning Consortium (NeLC) was established to allow remote northern Ontario school districts to address shared challenges (Ontario Education, 2011).

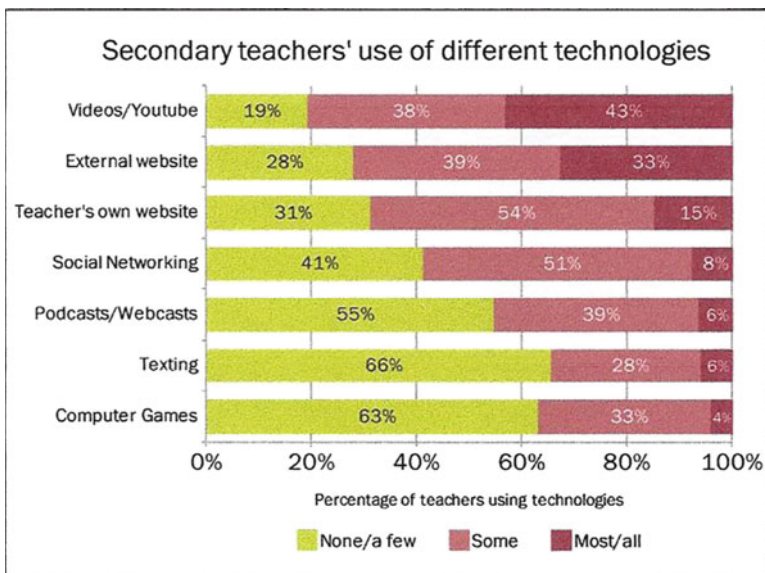
Growing demand in Ontario for online student learning has manifested itself in the recent emergence of private venture virtual schools. Three different private K-12 online learning programs are flourishing outside the state regulated school system: Virtual High School (VHS Ontario), Ottawa Carleton e-School (Ottawa), and Keewaytinook Internet High School (Nishnawbe Aski Nation). By 2009–2010, some 3140 of the 4700 students in private online schools (or two-thirds of the total) were enrolled at the phenomenally successful VHS (O), founded in 1995 by Steve Baker and a team of Huron County public educators and based in the small town of Bayfield, Ontario (Bennett, 2012). Each of these private operations has found a niche by serving needs being unmet in K-12 Ontario public education.

Ontario's regulatory regime, outlined in the 2006 *E-Learning Strategy* and codified in school regulations initially imposed limits on the delivery of online learning. "In some instances," North American online learning expert Michael K. Barbour reports, "the Ministry requirements were once quite restrictive." Originally, the Ontario provincial LMS could not be used for either blended learning or the professional development of teachers. That led school districts to run parallel systems, the provincial LMS as well as their own separate LMS for those other purposes (Barbour, 2010). Beginning in September 2011, Ontario loosened its regulations and embraced blended learning as part of its system. By 2013–2014, the best estimates were that about 52,095 students were taking e-learning courses, including summer school, from school boards through the Ontario Ministry's virtual learning environment and the records showed 237, 930 unique blended learning logins. In addition, 20,000 Ontario students were enrolled in correspondence courses and about 6000 in private online schools (Barbour & LaBonte, 2015, p. 18) (Figs. 17.3 and 17.4).

The route to expanded eLearning in Ontario was through the bargaining table. The leading Ontario teachers' union, the Ontario Secondary School Teachers Federation, weighed in on this matter at their 2010 annual meeting. The big issue, for the OSSTF, is not quality programming but rather closing the so-called "digital



**Fig. 17.3** Digital technology use by elementary school students, Ontario, 2013–2014 (Reproduced from Bodong Chen, Kelly Gallagher-Mackay, and Annie Kidder, *Digital Learning in Ontario Schools: the 'new normal,'* Toronto: People for Education, 2014)



**Fig. 17.4** Integration of technology by secondary school teachers, Ontario, 2013–2014 (Reproduced from Chen, Gallagher-Mackay and Kidder, 2014)

divide” separating students fully equipped with the latest e-tools and those without such access (Bennett, 2012). While there is an “ICT competency divide” between urban and rural Ontario, opinions differ on whether it should limit the pace and scale of the online learning movement (Newman, 2010). Now that the door is open to blended learning the province is moving more quickly to provide student and teacher access to online tools and courses. The leading Ontario parent lobby group, Toronto-based People for Education, has emerged as a champion of “digital literacies” (information, media, and ICT) and the promotion of ICT to enhance student learning (Chen et al., 2014).

## Western Canada

Western Canada is home to Canada’s growth-oriented resource producing provinces, Alberta, British Columbia, and, more recently, Saskatchewan. Vast stretches of the region’s northern frontier would seem to be prime territory for the introduction of remote online learning. Two of the four provinces, BC and Manitoba, have centralised K-12 distance education programs. The leaders in providing distance education are British Columbia and Alberta, while Saskatchewan has lagged behind in terms of student enrolment. Without the financial resources of its neighboring provinces, Manitoba has still managed to demonstrate some ITC innovation and to enroll between 8000 and 12,000 students per year. British Columbia is the only western province with formal “distributed learning” regulations. Since renewing its online learning strategy, Alberta has closed the gap and is now more competitive with BC in the field of digital learning (Barbour, 2010; Barbour & LaBonte, 2015).

**Manitoba** has developed its own online learning strategy and mix of support programs. The Department of Education, known as Manitoba Education, operates three distance education programs: Independent Study Option (ISO), with print-based delivery for Grade 9–12 level students; the Teacher Mediated Option (TMO), which uses audio conferencing; and the Web Based Course (WBC) option, operated by Manitoba Education in collaboration with local school districts. With WBC, the Department develops the approved courses, supervises teacher training and support, and finances the learning management system. Schools are left to implement the WBS’s, including the hiring or assigning of teachers, and the costs are covered by regular per-student block funding from the province. A separated Francophone Division of Manitoba Education offers ISO and WBC courses for students registered in French first language or French immersion programs (Barbour, 2010, pp. 44–45). Manitoba Ministry statistics for 2013–2014 show 2960 enrolments in the ISO, 379 in TMO, and 8600 in the WBC option. With the creation of a Manitoba “virtual collegiate,” online and blended learning opportunities are forecasted to expand and a Wapaskawa Virtual Collegiate, initiated under a Memorandum of Understanding (MOU) with the Manitoba First Nations Education Resource Centre (MFNERC),

**Saskatchewan's** K-12 distance education program was once centralised and much like that of Manitoba. Under the aegis of the Ministry of Education, the province developed courses delivered online, televised via satellite, or using print-based materials. In 2009–2010, the province delegated most of the responsibility to its 28 school divisions and responded to public concerns about the “digital divide” by continuing to invest in providing print-delivery to students unable, for whatever reason, to access the Internet (Barbour, 2010, p. 47). Sixteen of the 28 school districts in 2013–2014 operated or participated in some type of distance education program. School districts without distance learning courses collaborated with other districts to provide students with online course options. It is estimated that about 10,000 (5.8%) of Saskatchewan's 172,205 students during 2013–2014 were engaged in some form of online learning, registered with the Saskatchewan Distance Learning Course Repository or with one of 21 different K-12 programs. Distance education is guided by the Saskatchewan Technology in Education Framework (TEF) which promises to further extend “equitable access to high quality instruction” through “flexible approaches” aimed at meeting “the diverse needs of students and teachers” in each school division. Under Saskatchewan's 2013 Bullying and Cyberbullying Action Plan, Digital citizenship courses will be offered to all K-12 students (Barbour & LaBonte, 2015, pp. 21–22).

**Alberta** stands out as Canada's leading oil producing province and the one most committed to school choice for students and families. “Choice,” Alberta Education proclaimed in 2011 on its website, “is one of the important principles Alberta's education system is built on.” When it comes to selecting schools, parents and students can choose from a wide range of options and among the publicly funded choices are regular public schools, separate Catholic schools, Francophone schools, and charter schools. Parents can also secure grant support to home school their own children. That overall philosophy of choice is also reflected in the province's online learning programs (Alberta Education, 2011).

Distance learning in Alberta has evolved in form to the point where, in 2013–2014, the province operated over 23 K-12 distributed learning programs. Flexibility is the overriding philosophy and Alberta Education professes a commitment to support “learning environments” which allow teachers and students to utilise a wide range of teaching and learning resources in “a regular classroom setting or in different, non-centralised locations” while “separated by time and/or place for some or all of their learning activities.” A provincial Alberta Distance Learning Centre (ADLC), based in the Pembina Hills school district, offers courses in the full range of formats from print correspondence courses to online formats blended with in-school programs to Vista Virtual School, a full day school. The ADLC also partners with *Centre francophone d'éducation à distance* that provides distance education services to Alberta's francophone students. School districts are also free to offer their own online learning programs and many exist in the state-funded Catholic school system as well as the standard public system. District-based programs come in many varieties, including an online school for Indigenous students, SunChild E-Learning Community (Barbour, 2010, pp. 49–50; Barbour, 2013, p. 57).

Alberta's school choice philosophy encourages innovation and, since 2007, the province has exploring and developing a succession of policy initiatives, ranging from "distributed learning" to "open access" and attempted in June 2010 to reframe educational innovation, providing teachers with the freedom to design and deliver instruction "face-to-face, online, and in other non-traditional environments" (Alberta Education, 2010, p. 21). With the Alberta government exploring all policy options, including "cyber charter schools," the ATA stiffened its position, condemning such ventures as a "clear threat to public education" (ATA, 2013b). Since the province does not collect province-wide distance education enrolment data, the CAN eLearning Network figure of 75,000 (12.2%) of the 616, 375 students amounts to a rough estimate for 2013–2014. A provincial policy review, initiated in April 2012, may help to provide more integration of the various types of online, blended, and virtual learning (Barbour & LaBonte, 2015).

**British Columbia** continues to lead in the provision of K-12 online learning for students. With a total student population of 635,057 in 2013–2014, BC ranked first in online registration with 77,912 unique students enrolled in one or more online courses. The primary distance learning programs, unlike many other provinces, are district-level based and offered in some 60 public "distributed learning schools" as well as some 16 independent or private "distributed learning schools." The province also has a single, one-stop portal, *LearnNowBC*, for students, parents, and teachers to use when accessing information about all publicly funded distributed (online) learning in BC. That portal provides a complete catalogue of courses, a searchable database, and access to free services, including tutoring, advising, and homework advice for elementary as well as secondary level students. Another online resource, *Open School*, originally developed by BC Education, is also available, on a cost-recovery basis, providing provincial curriculum content and hosting services to district boards in need of such support (Barbour, 2010, pp. 51–52; Barbour & LaBonte, 2015, p. 24).

British Columbia's school law has recognised and enabled "distributed learning" since 2006. Under the School Act, BC lets the school districts decide on how to deliver online learning. Students in public schools are permitted, with prior approval of the Ministry, to enroll in educational programs falling under multiple jurisdictions or boards of education. Schools authorised as "distributed schools" offering online programs are subject to regulations, including the stipulation that boards only employ "BC certified teachers." While the BC Teachers' Federation is more open to "distributed learning," the union remains cautious in its support (Barbour, 2013, p. 15). Since 2006, the provincial funding model has been implemented, based upon student course load, and pro-rated based upon who is delivering the courses. Neighborhood schools receive a "DL Support Block" grant to compensate them for accommodating online courses and each online course is designated as worth 1/8 FTE in the funding formula. Given the size of the BC online learning program, regular quality assurance audits now include a review of alternative online programs (Winkelmans, 2010). While the BC Teachers' Federation is more open to "distributed learning" than other provincial teacher associations, the BCTF remains cautious in its support (Barbour, 2013, p. 15).



In British Columbia, independent private schools are provincially funded and this has greatly assisted in the spread of what are termed “distributed learning independent schools.” In 2013–2014, there were 16 such schools, taking advantage of a 50 % BC provincial grant to operate, in most cases, without charging tuition fees. In a province where independent schools compose 12 % of the total K-12 student population, some 21 % of all distributed learning enrolment (by 2009–2010) was to be found in independent schools. The province’s largest distributed learning school, Christian Heritage Online School in Kelowna, BC, enrolls over 2000 full-time students and has an additional 3000 students taking one or two courses. Much of Heritage Christian School’s appeal, according to IT Director Greg Bitgood, was attributable to innovative technology which provides ongoing tracking of student progress and individualised programs of study for each student (Bitgood, 2011). A BCTF research report (Kuehn, 2013) claimed that provincial funding enhancements had fueled dramatic increases in private distributed school enrolment, threatening the publicly funded school system.

## Northern Canada

Canada’s northern territories face many social challenges that impact upon the delivery of not only online courses, but most regular education programs. All three of the territories, the Yukon, North West Territories, and Nunavut, are on the Canadian educational frontier and far removed from the main southern population centers. Student attendance and teacher turnover are critical factors affecting the delivery of public education (Barbour, 2011, p. 54). The territories have tended to utilise the K-12 curriculum from one of the southern provinces, until recently. The same is true for distance learning. The Yukon has utilised the BC curriculum, while North West Territories and Nunavut use the Alberta Education program. Local initiatives have emerged in the Yukon and Northwest Territories, in a region where tackling the underlying social challenges takes precedence over online learning initiatives.

**The Yukon**, the smallest of the Northern territories in size and population, currently has 28 K-12 schools serving a growing student population that reached 5122 in 2013–2014. Distance education began in 1998–1999, with the introduction of a Yukon Grade 11 pilot course in Information Technology with a dozen students. Since 2004, the territory has operated a territory-wide video conferencing program, linking Whitehorse schools with outlying remote communities. Yukon students are also able to take advantage of BC’s *Open School* program. In 2008–2009, Yukon had agreements with eight distance education schools, including the Northern British Columbia Distance Education School (NBCDES) and the Alberta Distance Learning Centre. During 2010–2011, some 80 students were enrolled in one or more of 29 different courses offered in Yukon under interprovincial agreements (Barbour, 2011, p. 52).

Digital learning is gaining traction in the Yukon Territory as student enrolments continue to rise. Yukon Education supports a Distributed Learning Program managed by the Aurora Virtual School (AVS) that in 2013–2014 served 42 home-educated students and 140 in-school students taking at least one course online. Blended learning programs are emerging in Yukon schools and the territorial education department has embraced the “flex model” (Staker & Horn, 2012) and is tracking its implementation. A 2014 CAN eLearning Network report estimated that 182 students or 3.5 % of all students were officially enrolled in distance education, but blended learning activity using the “rotation” model was becoming more common (Barbour & LaBonte, 2015, p. 25).

**The Northwest Territories** lags behind the Yukon in exploring new approaches to distance education. In 2013–2014, its population totalled 43,642 living in the Yellowknife and widely scattered native communities. Although the Territories had 49 schools, the growing student population only numbered 8204 (Barbour & LaBonte, 2015, p. 27). Completion rates in online courses, according to a 2005 report, were very low, with only 1 out of every 3 recording a passing grade (Barbour, 2010, p. 57) The most northerly school board, the Beaufort-Delta Education Council (BDEC), introduced its first online (Internet-based) courses in 2009–2010, delivered on the Internet with teachers using *ElluminateLive* software and whiteboard technology (Barbour, 2011, p. 55). Some 228 students were enrolled in distance education during 2013–2014, most taking courses offered through the Alberta Distance Learning Centre (Barbour & LaBonte, 2015, p. 27).

Canada’s youngest northern territory, **Nunavut**, was granted sovereignty and partitioned from the Northwest Territories in 1999. Ten years later, in 2009, a *Together at a Distance* program, headed by Neil Burgess, former Nunavut IT Manager, established an online learning portal using *Moodle* software and attempted to provide “made-in-Nunavut” learning resources (Burgess, 2011). With its small but growing population of 35,591 this territory had 42 schools in 2013–2014 enrolling 9, 728 with student numbers growing by some 9% a year (Barbour, 2011; Barbour & LaBonte, 2015, p. 28). Nunavut schools follow the Alberta K-12 school curriculum. In the most recent Can eLearning Network study, no active K-12 distance education courses were reported for the whole territory. A territorial policy on access to and delivery of distance education, initiated in 2012, is still underway (Barbour & LaBonte, 2015, p. 28).

## Federal Schools

Canada’s federal government is responsible for the provision of First Nations education on the country’s native “reserves” through Aboriginal Affairs and Northern Development Canada (AANDC), recently renamed Indigenous and Northern Affairs Canada (INAC). Some 60 % of First Nations students attend students on

reserve, funded by AANDC/INAC and managed in collaboration with Band Councils and a number of First Nations education authorities (Bennett & Anuik, 2014). For students who live on reserve but attend provincial schools off-reserve, the federal department pays the tuition that the province charges non-Aboriginal students, normally through provincial or school board authorities. Four distance education programs existed in 2012–2013, designated as First Nations, Métis and/or Inuit (FNMI) programs and enrolling an estimated 1800 of the 106,500 identified students. In 2013, AANDC devolved the responsibility for entering into e-learning program service agreements to First Nations education authorities, phased in and taking effect in 2015–2016. Some First Nations education authorities and regional councils are actively exploring enhanced distance and online learning, but face significant barriers, including scarcity of resources, lack of bandwidth or connectivity, or shortage of expertise (Barbour & LaBonte, 2015, p. 29).

## **Overall Assessment: The Present State and Future of Digital Learning**

Digital learning is on a growth curve in Canadian school systems, but without the radical variations, free market experimentation, and “disruptive” innovation found in the USA (Christensen, Horn, & Staker, 2013; Chubb, 2012; Moe & Chubb, 2009; Peterson, 2009). Significant gaps still exist in service levels and barriers stand in the way of expansion into un-serviced frontiers, particularly in the Far North and First Nations communities. In all of Canada’s provinces and territories, including Alberta, school choice is rationed or limited, learning conditions are carefully state regulated, and the delivery of education is circumscribed by “brick-and-mortar” schooling. Virtually all Canadian educational systems remain designed around seat time, defined as providing in-school classes of regulated size with a minimum number of instructional hours (Jensen et al., 2010; Powell et al., 2015). Some private sector virtual schools have recently arrived and thrive outside the mainstream system. No full-time online public charter schools exist, even in Alberta, the only province in Canada with Charter School legislation (Bennett, 2012). Distance education and online learning student enrolments continue to grow incrementally in the nation’s provincial/territorial systems and in “have not” jurisdictions where expansion is limited by budgetary spending limitations (Barbour and LaBonte BIT, 2015).

The growth of online learning in Canada may be more significant than reported by provincial and territorial authorities. While Quebec and New Brunswick both reported modest distance education enrolments in 2013–2014, estimates for teachers using the curriculum in blended format are much higher. From 2011 to 2014, to cite another example, the Ontario Ministry of Education coordinated an initiative to expand access to blended learning for all K-13 students, which generated almost

240,000 blended learning enrolments in the provincial learning management system during the 2013–2014 school year. If and when provincial authorities begin tracking the extent of blended learning, the actual rate of growth will be shown to be much higher than the official statistics (Barbour & LaBonte, 2015).

Digital learning has entered the education policy discourse in most of Canada's ten provinces and three territories. Without a national education department, the promotion of twenty-first century skills, technology, and learning falls to provincial and territorial education authorities with varying degrees of commitment to technology education reform. The national advocacy group 21C Canada holds some sway over provincial ministers of education (C21 Canada, 2015), but, so far, the implementation of twenty-first century learning and the explicit teaching of “digital literacies” is very uneven, particularly outside of the recognised leaders among the provinces, Ontario, British Columbia, and Alberta (Chen et al., 2014). Blended learning is on the rise, as an outgrowth of the natural evolution of online and face-to-face education from 2008 until 2015. Newer blended learning models, promoted by the Christensen Institute (Powell et al., 2015), are beginning to emerge in the so-called “hybrid zone” in what might be termed “lighthouse” schools. While provinces such as BC, Alberta, and Ontario actively promote eLearning, innovation is limited by the current structural boundaries and education authorities are only beginning to track blended learning enrolment. In 2012–2013, British Columbia enacted legislation enabling “flexible learning choices” and, with the support of the BC Distributed Learning Administrators' Association (BCDLAA), blended learning and “flipped classroom” practices are becoming more mainstream (Barbour, 2013, pp. 61–62). Google Apps for Education has now surfaced as an affordable software option for cost conscious school jurisdictions. National online education survey reports, produced by the CAN eLearning Network (Barbour and LaBonte BIT, 2015), testify to the steady growth of distance education and online programs, but identify the need for “better data” and more evidence of the transition to “competency-based learning” in Canada.

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