

The Role of Government in K-12 E-Learning: A Report to the Minister

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Context

This report focuses on government e-learning policies for the K-12 public education system of British Columbia (BC). The Ministry of Education and 60 boards of Education co-govern the school system with cooperation from a network of partners ([Ministry of Education, n.d.](#)). Through the vehicles of governance, legislation, policy, and standards, the Ministry of Education provides leadership and funding for K-12 education ([Ministry of Education, 2013](#)). It distributes operating funds to the Boards, provides supplemental capital and special project funding, and is responsible to fund and monitor B.C.'s Distance Education Programs.

School Boards are responsible to manage and allocate their funds based on local spending priorities. They are independent in governance, program delivery, and staffing ([Ministry of Education, 2013](#)). Under BC legislation, districts may also create separate for-profit businesses, which bring in supplemental funds. Several school districts have explored this option by offering distance learning both province-wide and internationally, as well as setting up international off-shore schools ([Barbour, 2012](#)).

Current school enrollments include 534, 691 full-time public school students in 60 districts, 73,000 students in 350 independent schools, and approximately 2100 homeschooled students. The estimated operating funding is \$4.725 billion ([Ministry of Education, 2013](#)). In 2011/2012 78,650 students enrolled in at least one online distributed learning course ([Ministry of Education, 2011](#)).

A Plan For Change

Opening Remarks

To the Minister, The Honourable Don McRae

May, 2013

By virtue of reelection, we have the opportunity to promote stability in BC, through the continuation of the current educational policies. The BC Education Plan ([Ministry of Education, 2011](#)) is the ministry's driving document for change. It aims to improve the education system by focusing on five key elements (Figure 1).

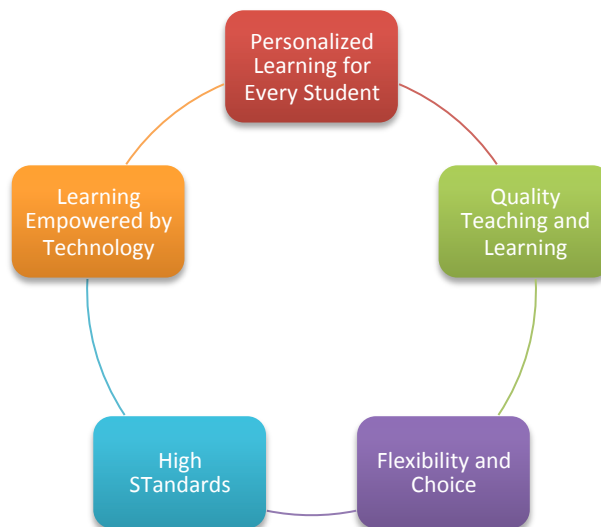


Figure 1: Five Key Elements: BC'S Education Plan

The plan is strong and progressive, promoting a flexible 21st century student-centred, educational experience. Current initiatives in support of the plan include:

- Legislation providing district calendar flexibility
- \$195 million learning improvement fund
- Digital literacy focus
- Legislation that creates accountable and transparent teacher regulation

- Revamping of the K-10 curriculum in 2013
- Establishment of the province-wide network, the Personal Learning Net (PLNet)
- Establishment of a province-wide communications network in partnership with TELUS
- Active inquiry into the replacement of BCeSIS, the current student data management system

While technology appears as the fifth of the key elements, this actually belies its importance (Kuehn, 2011). It is clear that technology (e-learning) drives the plan. Achievement of the first four key elements requires the successful integration of technology throughout the educational system. Therefore, this document will focus on the government's role in K-12 e-learning.

A Role For Government In E-Learning

The education of its citizens is a prime concern for any government, with wealth and economic growth ultimately depending on graduating students that possess the skills required for a rapidly changing world and economy. In relation to this, the BC government is facing a number of valid concerns, including an ageing population and shrinking workforce, falling behind other education systems in producing critical thinkers and skills, the need to train students for a knowledge economy, the reality of a rapidly increasingly technologically connected world, and rural equity and inclusiveness ([Ministry of Education, 2013](#)).

According to Bates & Sangra (2011), governments do have a role and a duty to provide vision, goals, and the policies to implement these goals for education. Government can also influence the speed and effective implementation of e-learning through strategies and policies. In fact, the promotion of innovative teaching and learning through technology will address many of

a government's concerns surrounding economic growth (Bates & Sangra, 2011).

The BC government recognizes that technology is uniquely poised to help meet its economic concerns. The Education Plan envisions a renewed, flexible and individualized education system, driven by technology. While the vision is strong and supported by a number of beneficial policies, much work remains in developing specific, concrete, and collaborative strategies. Governments have at their disposal, a number of strategies for the implementation of e-learning (Bates, 2001), and currently the BC government's strategies range from conservative to radical as it seeks to rejuvenate its last century's education system.

Discussion

Planning and Vision Infrastructure

One of the main roles of government in promoting e-learning is to create a vision and make it operational (Bates, 2001). The BC Liberal Party has a vision for economic growth, centering on job creation and business ([BC Liberals, 2012](#)). Technology is a vital component of that vision, and in 2010 the Premier's Technology Council, comprising members from the business and technology sector, presented its plan for a 21st century education. Subsequently, they commissioned a task force for the creation of a vision and plan for K-12 education. While the focus on technology is commendable in a knowledge-based economy, the absence of educators on this advisory board is troubling (Gutstein, 2012).

Bates & Sangra (2011) recommend a mixture of IT staff, learning technology staff, community representatives (potential employers), students, and academics to guide educational technology. Pedagogy supported by sound technological governance with clear designation of lines of relationships, responsibilities, power, mandates, and management must drive educational technology, rather than business (Bates & Sangra, 2011). The current plan, driven by business

invites mistrust from the education sector. While the government has said it seeks collaboration ([Ministry of Education, 2011](#)), there was no collaboration during the planning phase. In order to increase transparency, accountability, and ensure the good will of stakeholders the government must hold consultations with educators about the plan itself, demonstrating a willingness to change course if necessary.

Institutional Network Infrastructure

The BC Education Plan relies on technology for its success. Therefore, the minimum requirement is that all stakeholders within the organization have access to a computer, a network, the Internet, and training (Bates, 2001).

Internet Access. BC is a vast province with many rural communities. While most schools are located in urban centers with reasonable Internet availability, many rural communities have little or no access. In order to ensure equity and to capitalize on economies of scale, the government, rather than build its own telecommunications network, brokered a \$1 billion, ten-year contract with TELUS (CBC, 2011). Highlights of this deal include upgrading = fibre optic cables for 450 schools and increasing affordable broadband access to 97% of B.C.'s residents. Plans for the remaining 3% are being considered (Telus, 2013).

By using “its clout as a major corporate client” (Bates, 2001, p. 42), the government has secured the promise of more equitable and affordable access. The initial deal however, requires the ministry to follow-up and monitor the rates charged by rural independent Internet providers to ensure affordability. Should the program fail, the government will need to consider regulating price in order to meet its goals. It will also be required to monitor plans to service the remaining underserved 3% of the population. Furthermore, the upgrading of 450 schools is minimal compared to the existing 1604 ([BCTF, 2012](#)). The strategy that aims to provide equitable access

is actually perpetuating the pattern of inequity.

Training. As part of a quality teaching and learning focus, BC's Education Plan recognizes that teachers need support. It envisions a technology-driven, constructivist educational environment, and yet research shows that teachers usually teach based on their own educational experience (Hsu & Wang, 2012; Tippins, et al., 1995; Siemears et al., 2012). Unlike faculty in higher learning (Bates & Sangra, 2011), K-12 teachers are trained to teach. However, with an average age of 44.7 and over half of all teachers possessing more than 10 years experience ([Ministry of Education, 2013](#)), it is unlikely that the majority of teachers are trained in constructivist methods, or the effective integration of technology into teaching and learning.

Traditionally, professional development workshops fulfill training needs, however when it comes to the integration of both technology and constructivism, research shows that this strategy is not effective for long-term change. Coley et al., (1997) found teachers preferred one-on-one interaction rather than planned workshops when learning new technology.

Recommendations include rigorous pre-service teacher training (Etuk et al., 2011; Feyzioglu, 2012), and the establishment of technological communities of practice (Coley et al., 1997).

A 2013 Ministry Service Plan goal is to improve educational opportunities through the mentoring of prospective, new and experienced teachers. Additionally, the ministry aims to work with districts and teachers to ensure teachers have effective technology to support student success. The Ministry has set up Community of Expertise in Educational Technology ([CEET](#)) as an online community of practice, however currently there are only 1730 members, which is a fraction of the number of teachers in the public system. Some districts have hired educational technology teachers, who mentor existing teachers, but with school board spending autonomy, it cannot be required.

While training is important to the ministry, there is no specific plan in place to achieve this goal. A concrete plan considering best-practice and cost factors must be drafted in consultation with school boards, teachers, educational technology experts, administrators, university teacher training programs, and the [Teacher Regulation Branch](#). Training targets should be set for existing teachers (Bates, 2011).

Physical Infrastructure

The physical infrastructure includes hardware, software, and telecommunications needed for e-learning (Bates, 2001). BC leads the nation in interconnectivity with 85% of the population using the Internet regularly ([Ministry of Education, 2011](#), p. 7). However more than 25% of schools still have less capacity than the average household ([Ministry of Education, 2013, p. 29](#)). The plan is to increase Internet connectivity, as well as to provide technology for the teachers to connect with students and parents ([Ministry of Education, 2011](#)). To this end, the government is investigating the feasibility of 14 institutional-wide cost-saving measures ([Ministry of Education, 2013](#)).

Student Data System. The government had called for proposals (RFP) to replace the student data system (BCeSIS), which has received widespread criticism since its inception in 2005 (Kuehn, 2013). The replacement (anticipated for the fall of 2013) is integral to the Education Plan, and as an institutional-wide offering, it is expected to leverage costs ([Ministry of Education, 2011](#)). Other reasons cited include ease of movement among students, and accountability. Reaching these goals however, will require all districts to subscribe. With boards maintaining autonomy over spending and priorities, there is no guarantee of full participation. There is also strong support for a decentralized database system. Reasons include doubts about the new system meeting the assessment requirements of the improved education system,

inadequate funding, security, bandwidth (Kuehn, 2013), government spying and a neo-liberal agenda of centralization (Kuehn, 2011).

The government needs to carefully consider its own motives, its funding capabilities (both capital and ongoing) and the support of end users. Without the collective backing of end users, any cost saving will be lost. Since the stakes are so high and the outcome uncertain, consideration should be given to standardizing record-keeping procedures rather than creating a massive system. This will offer autonomy and choice; yet meet the needs of standard, transferable records between districts.

Rapid Changes in Technology. With the growth of mobile devices, technology, and digital content in the schools, the government expects an increased network demand of 30% per year ([Ministry of Education, 2013](#)). The PLNet provides schools with a secure network enabling access to digital content, governed by eight acceptable use standards ([Ministry of Education, 2009](#)). The TELUS Agreement is also part of this ongoing, multi-year initiative to provide an adequate infrastructure, along with the identification of cost reducing shared service opportunities ([Ministry of Education, 2013](#)).

The ministry acknowledges that these upgrades are necessary, multi-year, investments, however while there are timeframes for each implementation, there is no funding information. If concrete plans for sources of funding remain unidentified, it is certain that the move toward 21st century learning with technology will stall. Technology infrastructure requires a significant initial capital investment as well as ongoing maintenance and upgrading.

Bring Your Own Device (BYOD). One funding strategy is to initiate a BYOD program, providing substantial savings on capital purchases and ongoing replacement costs. There are

however significant issues with this policy, which actually ultimately rests with school boards, not the ministry. Acceptable devices, security, cheating, cyber bullying, and health are just a few of the issues. Furthermore, while providing robust connection and using a BYOD programs may provide access, it will also create inequity for poorer students (Bates, 2012). The government, together with the school boards, needs to develop usage policies, and plans for equitable access (Smith, 2011). Additionally, they should consider how to handle districts that will not allow personal devices.

Human Infrastructure

Bates (2001) identifies the human infrastructure for the support of technology as the most important and costly. He delineates four levels of human support needed in the successful integration of technology for learning: technical support, media production and services staff, educational services support staff, and subject matter experts.

Adequate Staffing

In the K-12 sector, it is unlikely that there would be media and design experts at the district level. Consortia like [Open School BC](#), working on a cost-recovery basis, provide significant savings and support to districts and schools in design and publication. Districts usually share technical support staff and possibly a technology coordinator. Often the librarian acts as the on-site school technology expert helping both students and staff. The lack of onsite and timely technological support often leaves teachers frustrated (Coley et al., 1997). While “lone ranger” (Bates, 2011, p. 138) types thrive, it is likely others will eschew technology in favor of more comfortable methods of teaching. One way the government can help ensure adequate staffing is through financial incentives and district holdbacks. Adequate technological support staff and educational technology mentors are vital for the technologically driven

education plan is to succeed.

Stakeholder Buy-In. The Ministry has provided a strong mandate for change in the BC Education Plan. The plan envisions a complete revamping of the current traditional, last century curriculum, and promotes constructivist learning through the innovative use of technology. This is a radical change, which will essentially transform teaching practices.

While visioning and planning are well within the purview of government, research shows that top down mandates in regards to curriculum change, and particularly constructivism, rarely effect lasting change (Appleton & Asoka, 1996; Etuk et al., 2011; Watters & Ginns, 2000). The ministry's relationship with its teachers is rocky (Bates, 2012) and labor relations are the most significant challenge to date ([Ministry of Education, 2013](#)). The ten-year agreement framework ([Ministry of Education, 2013](#)) remains unsettled and must be a priority. Simply put, without teacher buy-in, the Education Plan will not succeed (Bates, 2012).

Funding Infrastructure

Technology both in infrastructure and as a learning tool, such as distance learning, is expensive (Bates, 2001). Because K-12 education is free to the students, cost recovery from the users is not an option, leaving the government to provide the funds through various strategies. Both the willingness to fund and the amount of funding made available will ultimately determine how serious the ministry is about the transformation of the school system (Bates, 2001). The Education Plan itself makes no mention of where these funds are to come from (Kuehn, 2011).

Implementing learning echnology requires both capital, as well as ongoing operational funding (Bates, 2001). The funding increase estimate required for a large university is approximately 12-15 percent (Bates, 2001). While school districts fall well below a university enterprise, they do have multiple buildings, some spread over large geographical areas.

Education Plan Grants. Using a strategy of target funding, the government has allocated ([Ministry of Education, 2012](#)) \$20 per FTE school-age student to implement Education Plan initiatives, with a minimum contribution of \$10,000 per school. A small district such as Stikine receives \$10,000 while the largest district Surrey, receives \$1,351,217 ([Ministry of Education, 2012](#)). The per student grant adds totals less than one percent of the schools' operating budgets, and is well below recommended funding estimates. Additionally, this system of allocation, creates further inequity because rural areas require more funding than their urban counterparts to increase technology. It is vital for rural schools to have quality, physical infrastructures as they rely on distributed learning to provide access to courses. Most concerning though, is the caveat that, "This supplement is not confirmed for future years" ([Ministry of Education, 2012, p.15](#)). The current funding model is inadequate to ensure the success of an Education Plan driven by technology. If the government is not able to provide a realistic percentage of funding, then it must consider alternate strategies such as reallocating funds from other departments (Bates, 2001) to ensure that initiatives are not abandoned due to lack of funding.

Distance (Distributed) Learning . One funding strategy available to governments, is the encouragement of entities to take on the business of distance and distributed learning. Distance education in BC has provided opportunities for students in rural areas to obtain an education since 1929 (Barbour, 2012). Today it continues as a significant strategy in BC's Education Plan, focusing on flexibility and personal choice. BC has the highest enrollment in distributed learning in Canada, as well as the most "structured regulatory regime" (Barbour, 2012, p. 7).

New legislation in 2002 encouraged school districts to apply for for-profit business licenses, permitting engagement in educational activities outside the purview of government-funded programs. This led to an increase in e-learning programs run by districts, private

enterprises, and consortiums, some of which cater to the BC offshore school market such as District 73 (Kamloops). [LearnNow BC](#), also run by SD73, is a portal that offers access to all BC distance education courses in one place, providing what Bates (2001) refers to as a government priority of providing “a more informed set of consumers about choices and programs available from state, international and private institutions” (p.30). The government could consider funding incentives either in the form of a loan or a one-time set-up grant to encourage all districts to consider additional funding strategies.

The added policy to allow students to choose where they will study, is also creating competition among BC’s e-learning providers, in accordance with the government’s economic priorities. This is an effective strategy in a province such as BC with substantial government regulation including contracts, funding, quality, and standards (Barbour, 2012) and a good infrastructure (Bates, 2001). The government must remain vigilant with its review process particularly as e-learning companies turn to cost-saving off-the-shelf foreign products, such as those created by Pearson (Gutstein, 2012) and Florida Virtual School (Barbour, 2012) in order to allay fears regarding the commercializing and privatization of education (Gutstein, 2012; Miller, n.d).

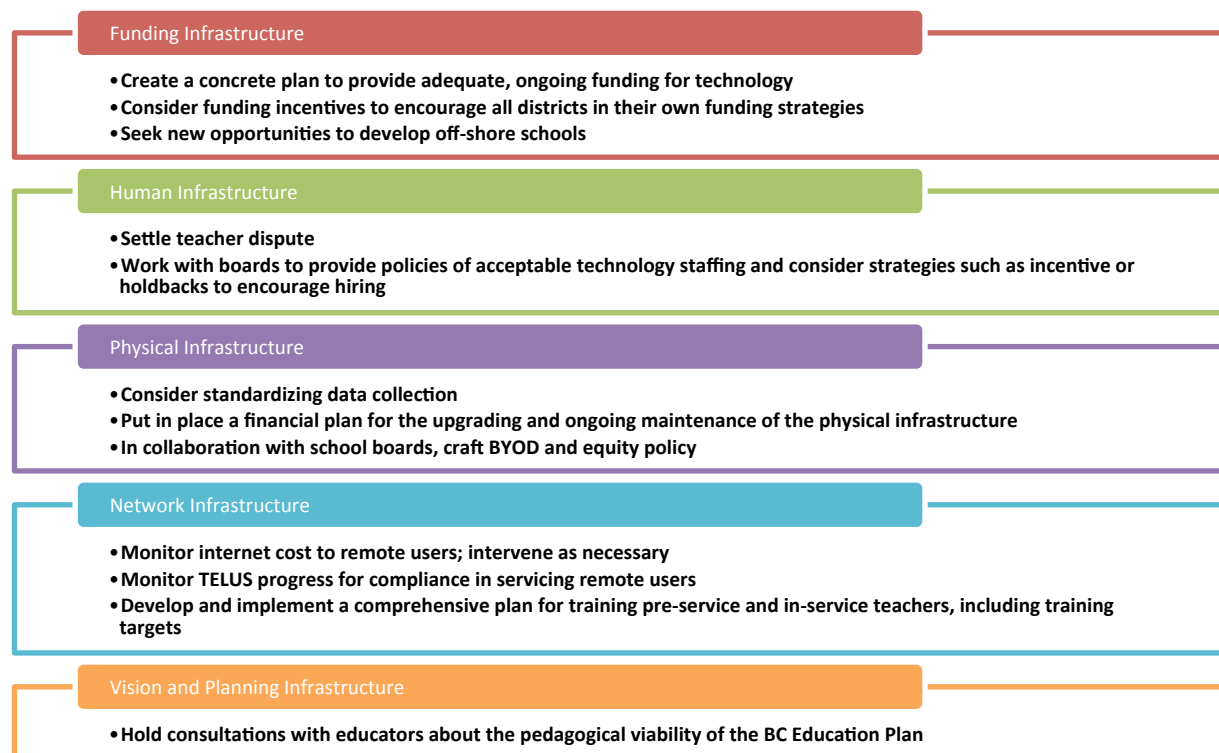
New Markets. According to Bates (2001), the marketing of technology-for-teaching can provide additional revenue to an institution. While the offshore school program is not a technology-for-teaching venture, it does possess the ability to generate significant funds for BC and has significance for e-learning. The government states that this program is a “cost-recovery” model, however, this needs to be clarified. Schools pay a one time non-refundable \$5000 fee plus a yearly fee of \$15, 000 for use of the BC curriculum. The schools pay all costs for inspections and accreditation visits. Previously there was a one-time \$350 fee per student, however this is

now an annual fee. With 10,000 students in 34 schools, the government receives more than \$3,500,000 in revenues, with 18 more schools waiting for approval.

Schools are required to have a twinning relationship with a BC school and 25% of the students must spend at least one semester in BC before graduation, providing income to districts through international student fees, which are higher than the governments per student payment. Many of these students also study in the e-learning programs currently offered through BC districts. The ultimate goal is to feed new students into the post-secondary system and ultimately the work place, stimulating the economy. As long as good regulation is in place, the government should be encouraged to seek out further markets for these schools as a way of funding initiatives at home.

Conclusion

The BC Education Plan with its focus on technology is “on target” (Bates, 2012). Of equal importance, however, is its implementation. This requires the government to provide concrete, realistic vision and strategies backed by adequate funding. These strategies will require equal attention to the institutional networks infrastructures, the human infrastructures, and the physical infrastructures, bounded by vision and funding (See Figure 2).

Figure 2: A Summary of Recommendations

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