

## **DISTANCE EDUCATION FOR KINDERGARTEN TO GRADE 12: A CANADIAN PERSPECTIVE**

**Judy Dallas**

Open School, Open Learning Agency,  
British Columbia, Canada

### **INTRODUCTION**

The perspective presented in this paper is one of an administrator responsible for delivering distance education programs to learners in the province of British Columbia, Canada. The issues identified will be discussed from this limited perspective.

The province of British Columbia is a vast land mass of 947,800 square kilometers and has a population of only 3,933,273 (1997 estimate). The majority of the population lives in a small region in the southwest of the province around the cities of Vancouver and Victoria. There are other pockets of population dotted around the province, but there are also many very small communities and individual families dotted over the many thousands of square kilometers.

The School Act of British Columbia allows a person access to educational programs, free of tuition, from age 5 (Kindergarten) until the person graduates from secondary school (Grade 12). This means that, while most students are between five and eighteen years old, adults are also permitted to access educational programs. Any adult resident may access programs if they wish to pay the tuition fee.

The School Act also allows parents to choose the appropriate educational opportunity for their children. Public schooling, independent schooling, distance education, and home schooling are all options for B.C. students. The government fully funds public schooling and distance education, partially supports independent schooling which is complemented by a tuition structure at the school, and provides a stipend to facilities registering home schoolers (Parents who independently home school receive no government subsidy).

### **HISTORY OF DISTANCE EDUCATION IN BRITISH COLUMBIA AND CANADA**

In Canada, education is a provincial government responsibility. Many Canadian provinces have experience in delivering distance education that dates back to the early 1900s. In its earliest forms distance education was limited solely to correspondence education, characterized by "lessons by mail". In those early days children did not know who was marking their work, and there would be lengthy delays in communication between instructor and student. During that period (up to about 1970), each new technology that came along was tested for its usefulness to delivering and supporting distance education: the radio, the telephone and the television.

The period from 1970-1980 saw a significant change in the instructional design of the learning materials. No longer were there simply "lessons"; an attempt was made to design cohesive, multi-media programs. Program designers were careful, however, to limit the resources required for a course to those that could be delivered at a distance. For example, science courses would need a lab kit to be sent to the student, biology required a microscope to be sent to the home and returned for the next student to borrow, and the primary program required a supply kit to be sent to the home full of art supplies, flashcards, etc., to support that program.

The 1980s and early 1990s was the era of decentralization and continued application of technology as it became available. During this period the province of British Columbia decentralized its system and created nine regional distance education schools responsible for students living in a specified geographic area of the province who were learning at home or in non-traditional settings. In addition, the regional distance education schools worked with public and independent schools in their region to complement the school-based program in order to meet the needs of those students.

This was also a period where projects were initiated to assist small secondary schools in providing students with access to a wider range of courses leading to graduation. These projects used the technologies of the day. The fax machine, audio conferencing bridges, and audiographics technologies were used. Bandwidth was limited and schools often had to rely on unstable telephone lines to make connections because, of course, most small secondary schools were in remote locations.

From about 1993 British Columbia began to offer on-line learning. The advent of telecommunications software, faster line connections, conferencing software, CD-Rom technology, and the expansion of the Internet supported the initiatives. For several years a project called New Directions in Distance Learning was piloted in British Columbia. This was a project of the Ministry of Education in partnership with the Open Learning Agency and the nine regional distance education schools. It was born from the small schools project and had a focus on site-based learners. Its model formed a triad among the on-line teacher, the student and a site-based facilitator. This project taught the participants much about on-line learning, but was not scaleable to large numbers of students nor to home-based learners.

In April, 1997, the Open School was created in British Columbia. The Technology and Distance Education Branch of the Ministry of Education, and the Schools Programs Group, the Adult Basic Education Group and Schools TV of the Open Learning Agency were combined to form the new Open School division of the Open Learning Agency. The Open School has a mandate to develop distance education products for the B.C. distance education schools and the public school system. As well, its mandate is to support the use of technology in education through teacher training, teacher support, and resource materials. The Open School is perceived to be the leader in the province of British Columbia in technology, distance learning, and on-line education

In 1997/98 the distance education schools in B.C. developed a new on-line model called "Connect" which was piloted in three of the schools at the elementary level. It uses the print materials from the traditional program as its basis and teachers use First Class, a bulletin board software program, to communicate with parents, students, and each other. Teachers also create discussion groups and post alternate assignments for students to complete using the computer and the Internet. These on-line assignments replace traditional assignments and yet achieve the same learning outcomes in the provincial curriculum.

In 1998/99 all nine distance education schools are offering the elementary program and four schools are piloting the secondary program. The model for staffing the secondary program is different from the elementary so modifications are being tested. The technologies being used are the same.

Concurrently, eight school districts within the province of British Columbia have initiated their own on-line programs. As well there are numerous on-line or virtual programs in other provinces. There are a variety of formats and client needs being met. All programs share similar concerns that will be discussed below.

## **CURRENT ISSUES**

### Instructional Design

No longer are the course materials to be available in print only; they are now required to be available in a variety of formats. The Open School has developed a design strategy based on SGML and XML coding languages which will allow materials to be developed with tags describing the type of content (learning objective, activity, resource, etc.). The materials are then available in a variety of platforms such as print, CD-Rom, and web based. As this work is leading edge it is taking some time to reformat and redesign existing courses.

The Open School has also created CD-Rom-based courses in mathematics as part of a consortium of western Canadian provinces; an on-line, web-based course in Information Technology 11; a web-supported teacher training program in partnership with Simon Fraser University, called TLITE; and an interactive TV broadcast, web-supported, teacher in-service program called Career Studio. All of

these initiatives further the thinking and implementation of sustainable educational models in the province of British Columbia and beyond.

On-line teachers are often rushing to develop on-line course materials or activities with supporting documentation. A major concern arises regarding quality of materials and the consistency of the support for provincial outcomes.

As well, the actual design of the materials is still in its infancy. There are many impressive locally designed on-line courses or projects but little is known about the effectiveness of these initiatives. There is current research concerning a mathematics CD-Rom program to support grades 7, 8 9 and 10 learners in the four western provinces and two northern territories of Canada. When the CD-Rom is used in a classroom setting with support and supplementary instruction from a trained teacher there is significant improvement in student achievement. Those findings are not supported when the CD-Rom is used by students learning independently.

Another significant issue to be addressed is the need to keep course materials current. Teachers in classrooms update their programs on an on-going basis. With distance education programs, be they print or computer delivered, the need to keep the courses current is equally critical. Storing content electronically so that it can be updated easily is only part of the solution. Re-investing in the course content must be addressed.

### Technological Infrastructure

British Columbia is in the process of establishing high-speed connectivity (56K lines or better) to all schools and school districts in the province. The Provincial Learning Network will greatly enhance the learning opportunities for site-based learners. There will still be home-based learners without access to connectivity to support sophisticated on-line delivery but their numbers will be greatly diminished if partnerships can be forged with the closest school. Long distance telephone charges will continue to be a barrier to full participation for some students.

The Province of British Columbia has also been funding the purchase of hardware, software, technical support, and teacher training and in-service related to technology for the past several years. The distance education schools have also received funding to support the use of computers with home-based learners. The expectation for all provincially funded on-line programs is that the students will be given access to appropriate technology, connectivity, software, and training in order to fully participate in the programs. Some programs are now accumulating a significant investment in hardware and software that is rapidly becoming obsolete. The cost of handling the distribution and maintenance of hardware and the need to upgrade the workstations in order to take advantage of the latest programs is a never-ending and expensive cycle.

### Student Achievement And Quality of Learning

There is a need to report completion rates and achievement results in meaningful ways to governments, parents, and society. Both parent and learner satisfaction must be reported and the quality of assessment practices must be consistent with the "traditional" settings. For most parents distance or virtual schooling is still a high-risk situation approached because of extreme need or personal conviction. It has not been accepted as part of mainstream education. The more that can be done to demonstrate quality of learning, the more credible the programs will be perceived.

The B.C. distance education program must meet provincially mandated learning outcomes and students receive the same number and kind of formal and informal reports to the home. Currently the home-based distance learners are also required to complete the provincial examinations prior to graduation as are all site-based students. Attempts have been made to capture the home-based learner in provincial assessments but this has proved very difficult. In addition, a site-based learner taking a course through on-line delivery is not identified differently in the way data is reported so statistical analysis is not possible.

### Quality of Instruction and Changing Roles

The interaction between teacher and learner is critical in all learning environments. In on-line environments the frequency of, and methodology used for, such interaction varies greatly.

The on-line environment also changes the responsibilities of students, teachers and parents. Students must take far greater responsibility for their education. Teachers must move to be knowledge creators, mentors, and guides to on-line learners. Parents are now partners in their child's education. "Connect" program parents are given e-mail accounts and have their own conferences in addition to having access to their child's learning environment.

All participants are working in the world of on-demand education: on demand instruction, mentoring, counselling, and peer tutoring. This environment alters relationships and expectations. In addition, the world outside the classroom has a direct impact on learning as students access experts and advisors from the "real world" through the internet. Teachers no longer control the flow of information to the students. Students can now determine the amount of information about, and level of sophistication with which, they approach any aspect of their learning.

### Sustainability

The issues in sustainability are critical at this point in time. Start up and maintenance costs referred to above all speak to the sustainability of on-line education. The changed role for teachers has an impact on workloads, "class" size, and working conditions. Many provincial teacher contracts contain language based solely in the traditional classroom within the traditional school day and school calendar. On-line education is breaking down all of these structures.

As the interest in on-line education accelerates, the movement of students from traditional to non-traditional learning environments, and the diversion of funds from traditional programs will create conflict within the education system. The need to form strategic alliances and partnerships will be even more important.

### Staffing

There is a staffing crisis currently in distance education and virtual schooling. Finding personnel with the appropriate combination of teaching experience, technological skills, and a shared vision is very challenging and yet the future of virtual schooling rests on it. Union agreements are often based on a philosophy that "a teacher is a teacher". Seniority-based selection criteria also hamper the recruitment of appropriate personnel. Further, as programs expand rapidly, it is difficult to recruit and train staff in order to provide a high quality educational service – and customer service is the necessary orientation in an on-demand education service.

There is also a staff-related challenge at the administrative level. In B.C., principals are recruited from the teaching ranks and their strength is in educational leadership and excellence in the classroom. The traditional school structure is an association of professionals supported by a small clerical staff under the leadership of an experienced and respected educator. Most of the "business" of education is handled through a school district office. In British Columbia it would not be unusual for a school population of fifteen hundred students to have three administrators, four or five clerical support staff and a few custodial staff in addition to the eighty teachers. In most situations all the staff and students for whom the principal has responsibility are in the school building daily.

On the other hand, a typical distance education school will serve five or six thousand students (none of whom are in the school building regularly) and have an on-site staff of about ten professional staff and about ten or twelve clerical staff. There will also be up to twenty-five paraprofessionals working from their homes. The distance education principal is also responsible for the full budgeting and operation of the school. The business-like environment of a distance education school means that the administrator needs a strong background in business systems and budget control, in addition to the traditional skill set identified with educational leadership.

## Administration

To maintain motivation and impetus to keep abreast of a rapidly changing environment is the challenge of the distance education administrator. Allocating funds to support professional development of all staff is critical. Structuring programs and the management of them is a challenge as is amalgamating student credentials and records in an environment where students may be enrolled in a variety of educational programs simultaneously.

Administrators of distance education or virtual schools also face new roles and responsibilities. They must forge collegial alliances with other administrators in the “traditional” schools. They must market their product or service in a way that is new for most educators. They must urge their colleagues to embrace change. And they must live in an environment of competition and cooperation simultaneously.

## **CONCLUSION**

The evolution from correspondence education to distance education and on to virtual schooling is inevitable. Technology is creating the ability to deliver education to people “anywhere - any time”. The role of schooling will be transformed as educational opportunity is available outside of the building structure.

The issues raised are not specific to any one program or any one jurisdiction. While the world of distance education and on-line or virtual schooling is exciting, challenging and exhausting, the rewards are many. Below are some of the most exciting and rewarding aspects of distance education:

- Parents taking an active role in their children’s education.
- Children responding to educational programs in new and fresh ways.
- Teachers rejuvenated by the potential for supporting students in new ways and the enthusiasm of their students.
- Choices for students returning to education when schooling has failed them.
- Improved access to programs .