

Open Learning and Distance Education in Canada¹

*Marquis Bureau**

I. Description of the Canadian Educational System

A. The Diversity of Canada

“Unlike many other industrialized countries, Canada does not have a federal education system.” Canada is a federation of ten provinces and three territories. The *Constitution Act* confers on the provinces exclusive authority over education at all levels of instruction. Because the territories do not have the same constitutional status as the provinces, they are subject to more direct control by the central government in several areas. That said, the federal government has delegated responsibility for education to the territories. Thus, Canadian education is made up of 13 provincial and territorial systems.

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1. This report was prepared, by Céline Faille, under the direction of Michel Umbriaco; both are members of the Institut pour la promotion de l'éducation à distance (IPÉD), which is hosted by Télé-université, Quebec, under an agreement with CADE.

This situation is hardly surprising in view of Canada's history, its geographical characteristics and its demographic diversity.

The Constitution Act of 1867 united Ontario, Quebec, New Brunswick and Nova Scotia. Canada subsequently grew through the acquisition of new territories, the joining of British colonies and the splitting up of existing territories. Newfoundland, which joined Confederation in 1949, was the last province to be created. The most recent division of territory took place on April 1, 1999, when the Northwest Territories were split into two regions, one of which became the new territory known as Nunavut.

Canada is spread out over an area of 9,970,610 km², with six time zones. In the south, near the American border, temperatures can reach 35 degrees Celsius in summer, while permanent ice caps are found north of the 70th parallel. Canada's landscape shifts from fertile agricultural plains through mountain ranges to virgin forests. Natural resources and industries vary widely from one region to the next, as does population distribution.

In 1995, the average population density was three inhabitants per km², with major variations among regions. For example, the population of Ontario was 10,642,790 that year. The province's capital city alone, Toronto, was home to 4.44 million people. On the other hand, the combined population of the Northwest Territories and Yukon was 94,775. The 1996 census put the Canadian population at 28,528,125, with close to 77 percent living in urban areas.

The 1996 census also reported on the distribution of the country's two official languages, French and English. It stated that, "close to 59% of Canadians consider English to be their first language while 23% of Canadians consider French to be their first language. Many other Canadians, 18% of the population, consider themselves to speak more than one first language or to speak a first language other than English or French." According to the survey, only three percent of the population belonged to one of the three Aboriginal groups recognized in *the Constitution Act of 1982*.

Regionally, there are significant differences in language distribution. For example, in Quebec, slightly over 80 percent of the population speaks French as a first language, while in British Columbia, only 1.9 percent of the population speaks French as a first language. There are also regional differences in level of immigration, emigration, age curves and other demographic factors.

In summary, each region presents a profile based on its distinct geography, climate, natural resources, industries, and the demographic and socio-cultural characteristics of its population.

B. Educational Systems

“Each province has its own educational system which, although closely resembling other provinces’ systems, reflects its specific regional, historical and cultural characteristics. Each provincial department of education, headed by an elected minister, sets standards, establishes programs of study and provides grants to the provinces educational institutions.” Still, even if a number of differences can be noted among these systems, they remain relatively similar.

Primary and secondary schooling total an average of 12 years (ISCED level 3, according to the definitions used by the OECD). Schooling is obligatory for children up to the age of 15 or 16 and is, in principle, universal and free at the primary and secondary levels.

Two kinds of institutions offer post-secondary education: those that confer non-university accreditation, known for the most part as colleges or technical institutes, or Cégeps in Quebec (ISCED 5, OECD), and universities (ISCED 6, OECD).

Normally, learners must have obtained a secondary school graduation diploma to attend college or university. (In Quebec, the college level is an intermediate level between high school and university; thus, primary and secondary education in that province lasts

11 years). Community colleges, general and vocational colleges (again, Cégeps in Quebec), and technical institutes provide professional and technical training. Colleges in Quebec, Alberta and British Columbia offer not only professional and technical training (ISCED 5, OECD), but also a university preparation program.

Some colleges in British Columbia now offer complete programs leading to a Bachelor's degree (ISCED 6, OECD). And colleges in some provinces (e.g., Saskatchewan and New Brunswick) also play a role in specific areas, for example, adult literacy and training programs sponsored by various groups, including the private sector, non-profit organizations and government agencies.

For the 1996-97 academic year, community college enrolments were as follows: 39,326 full-time students (53.2 percent women) and 153,736 part-time students (59.8 percent women). From 1993-94 to 1996-97, the number of part-time students fell by 14 percent, while the number of full-time students rose by seven percent, for a total increase of 1.2 percent.

"University programs generally follow the Anglo-American model which offers three degrees (Bachelor's, Master's and Ph.D.) A Bachelor's, or undergraduate degree (ISCED 6, OECD), takes three to four years of full-time study, depending on the province and the discipline. Some universities also offer various undergraduate programs which are shorter than a Bachelor's program, and which go under different names (e.g., certificate, diploma, and short program). In some cases, students can transfer credits obtained in these latter programs to a regular Bachelor's program.

The second university degree (ISCED 7, OECD) is the Master's degree, which normally takes two years of full-time study to complete. A student must usually have obtained a Bachelor's degree to enroll in a Master's program. Other programs are also available at the Master's level. There are, for example, graduate diploma programs that take less than two years to complete. A Master's degree is normally required for admission to the third uni-

versity level, the Ph.D. program.

For the 1996-97 academic year, there were 573,099 full-time university students (54.6 percent women), and 151,695 part-time students (60.8 percent women). The number of part-time students dropped by more than 16 percent between the 1993-94 academic year and the 1996-97 academic year.

“Over the past twenty years, increasing numbers of women and students from outside the traditional 18 to 24 year-old group joined the ranks of college and university students. Today, students over 24 years of age make up about 25% of the university student population, whereas their numbers stood at 22 % in 1980. Women now make up the majority of students on university and college campuses. But, even though they have formed the majority of undergraduate university students since 1987, they account for only 49% of the Master’s student population and about 40% of the Ph.D. student population.”

Because education does not come under the jurisdiction of the federal government, most direct education funding in Canada comes from the provincial and territorial governments. The rest is obtained by means of research grants, gifts, investment income and contracts with companies, industries and government departments. Also, colleges and universities normally charge tuition, although residents of Quebec do not pay tuition to attend college in that province. Students in all provinces may also have to pay fees for athletics, health services, student association membership and other services.

Statistics Canada reported that expenses for the post-secondary budget in 1998 totaled \$15,577,000,000 (Canadian). Of that amount, 62.2% of the direct funding came from provincial governments, 11.5 percent from the federal government, and 26.3 percent from other sources, including tuition fees. The federal government is involved only in direct funding (e.g., student loans and scholarships). It provides indirect aid to the provinces and territories

through federal transfer payments, as well as through grants for university research. The federal government also funds education for First Nation peoples, members of the Armed Forces and prisoners in federal penitentiaries. In total, the federal government pays more than one-fifth of Canada's annual education expenses.

Statistics Canada has also indicated that since the start of the 1990s, public funding for post-secondary institutions has dropped sharply, with the result that tuition fees have gone up. According to Statistics Canada, university tuition fees have increased at an average rate of 11 percent a year. Various reports have described these recent increases:

"In 1998-99, average tuition fees for disciplines such as law, medicine and dentistry rose significantly. For example, dentistry students paid an average increase of 27%, which meant an average cost of \$5,930. In the same year, undergraduate students paid tuition increases similar to those paid by graduate students, for whom the average increase was 9.3% leading to average tuition fees of \$3,287.

British Columbia reported the lowest average increase in tuition fees (0.7% for undergraduate programs in arts). Average tuition fees in that province were \$2,736 in 1998-99. Tuition fees in Alberta rose by 7.9% for an average tuition cost of \$3,447. Increases to undergraduate tuition fees in 1998-99 were highest in Nova Scotia, where average tuition fees were \$3,903. Nova Scotia was also home to the greatest increase in graduate tuition fees (average fees of \$5,049), followed by Ontario (average fees of \$4,224).

Some graduate programs in a number of Canadian institutions have set tuition fees at levels that are coming more and more to reflect actual program costs. The Master's programs in business administration (regular and professional) at the University of Ottawa, the University of Toronto, Queen's University and Simon Fraser University are some of the programs following this trend.

Foreign students traditionally pay higher tuition fees than

Canadian students do. Tuition for foreign students rose on average by 3.9% throughout Canada in 1998-99; the average annual tuition fees for a foreign student in an undergraduate program were \$8,458. Foreign graduate students paid an average of \$7,386 in 1998-99, an increase of only 0.4% over 1997-98.”

“Data collected in the annual survey of tuition and living costs of students in Canadian universities indicated that the average cost of tuition fees for undergraduate arts students in Ontario rose to \$3,564 in 1998-99, an increase of 9.2% over the previous year. For Canada overall, the revised data showed undergraduate tuition fees of \$3,197 in 1998-99, or an increase of 6.9%.”

According to the 1996 census, approximately 23 percent of Canadians aged 15 and older had completed their secondary studies (high school graduation diploma or trade school diploma), close to nine percent had obtained a Bachelor’s degree, and about six percent had obtained a graduate degree. The number of persons in each of these categories and their years of schooling were as follows: 8,776,005 persons had attended school for 11 to 13 years, 5,982,120 for 14 to 17 years, and 1,668,985 for 18 years or more.

II. History of Distance Education in Canada

A. Background

“University education in Canada traces its origins back to 1663 when the Grand Séminaire de Québec (today Université Laval) was founded by the Catholic Church as an institution of classical learning. The advanced learning institutions created in New Brunswick and Nova Scotia at the end of the eighteenth century were also denominational; their mission was to train students for the clergy and to educate members of the privileged classes. The first non-denominational university in Canada was McGill

University, which was constituted in 1821.”

In 1867, the year of Confederation, there were three universities in New Brunswick, five in Nova Scotia, seven in Ontario and three in Quebec (which also had a number of colleges in the classical tradition). Government involvement in all of these institutions was quite limited from Confederation until the turn of the century. During this period, the four western provinces granted charters to universities. Today there are 89 universities in Canada. As for colleges, most were created by governments starting in the 1960s to offer professional programs similar to university programs. These programs were, however, oriented more towards the acquisition of technical skills. Colleges in some provinces (Ontario, Manitoba, the Atlantic Provinces) set out to offer programs wholly distinct from those offered by universities. Despite these recent developments, it should be noted that some community colleges date back to the 1920s. Today, there are more than 900 college campuses in Canada, employing more than 30,000 teachers.

The emergence of distance education is generally considered to coincide with the rise of mail service. In Canada, Queen's University in Kingston, Ontario, offered its first correspondence courses in 1889. In areas without mail service, the North West Mounted Police (now the Royal Canadian Mounted Police) delivered material for these courses. “In 1907, the University of Saskatchewan presented off-campus courses with such titles as “Better Farming,” “Homemaker Short Courses” and “Canadian Youth Vocational Training Workshops.” In 1935, the extension department at Francis-Xavier University offered a program called “Farm Radio Forum.” From 1950 to 1973, the extension department at the University of British Columbia offered a correspondence program developed and managed by the Faculty of Arts. The University of Alberta, founded in 1908, began offering distance education in 1920.

Although several institutions were already offering distance education in addition to on-campus courses in the first part of the

century, the movement appeared to gather strength in the 1960s. Institutions opted to get involved in distance education at this point to serve populations living away from major centres, thereby developing new markets. These included Memorial University of Newfoundland (1967), University of Waterloo (1968), Ryerson Polytechnic University (1970), British Columbia Institute of Technology (1974), North Island College (1975), Simon Fraser University (1975), University of Victoria (1978), Carleton University (1978) and Assiniboine College (1979). The trend continued during the 1980s with the development of distance education programs at the British Columbia Institute of Technology (1985), McGill University (1987), and the Sault College of Applied Arts and Technology (1988), among others.

The creation of the Open University in the United Kingdom, which offered its first courses in 1971, led to the establishment of similar institutions around the world. In Canada, Athabasca University, Tele-universite, and the Open Learning Institute (currently the Open Learning Agency) founded in the 1970s, were devoted exclusively to offering distance learning through traditional distance education means (delayed-time teaching).

Some Canadian institutions offer only distance education, that is, they are unimodal; others offer both distance education and classroom teaching, and are thus bimodal. Unimodal institutions are few in numbers. Among 26 institutions studied by Sauve in 1992, 22 were bimodal and three were unimodal. In 1999, out of the hundred or so institutions offering distance education in French, four percent were unimodal (representing all teaching levels). CADE members were sent questionnaires on that subject as part of researching this report; 11 of the 13 respondents were bimodal.

Of necessity, distance education depends on a communication process, relying on various media to provide course content and learner support. Over the years, the distance learning environment has encompassed newer media, as they have become available to

the public. In 1889, mail was the only communication tool available; the range of media has greatly expanded since that time with the development of the telephone, radio, television, audiocassettes, videocassettes and educational software. Also, the development of learning access networks in some areas has made it possible to offer courses in real time via audioconferencing, audiographic conferencing and, more recently, videoconferencing. Telemedicine in Newfoundland, Contact North / Contact Nord in Ontario and TeleEducation in New Brunswick are three such learning access networks.

Nine of 26 universities surveyed in 1992 reported using audioconferencing or videoconferencing as their primary distance education media, while three reported using those media to supplement other methods. Seven universities used television as the primary medium, two used television to supplement other methods, and five used television occasionally. Fourteen universities used audiocassettes and videocassettes, especially as supplementary media. Only five universities reported using the computer to deliver courses: it was the primary medium at one, a supplementary medium at two and an occasional medium at two. Most respondents indicated that they provided learner support through mail and telephone. Some offered face-to-face meetings or audioconferencing for that purpose, while only two used e-mail.

Today, close to 25 percent of francophone post-secondary institutions involved in distance education offer both delayed-time and real-time teaching. The rest are divided more or less evenly between these two teaching methods.

Audioconferencing, audiographic conferencing or videoconferencing are used by at least 50 percent of distance education institutions. And, while print is still commonly used, audiocassettes, videocassettes, radio and television have lost ground to the increasingly popular Internet (a distinction is not made here between educational and support media).

CADE members were also asked to report on the media they used to present course content. Nine institutions replied (six universities, two colleges and one group offering workshops to its members). Despite the low number of responses, responses highlight the diversity of media used, and the shift to the computer and the Internet. All nine reported using print, while eight had Web sites. Audioconferencing was used by five institutions, audiographic conferencing by three, videoconferencing by four, audiocassettes by four, videocassettes by six, television by four, and computer software or CD-ROMs by six. None of these institutions reported using radio.

We should keep in mind here what May Maskow has written concerning radio: "Digital broadcasting is already starting, and this breakthrough may completely change radio as we know it today." All participants in the CADE survey reported using telephone, e-mail, regular mail and fax (one exception) to transmit assignments, give feedback, and provide communication between learners and their teachers or tutors. One CADE member added that students were able to meet teachers face-to-face, in their teachers' offices, and that teleconferencing was organized as the need arose. To provide other forms of information (e.g., administrative, exam schedule, etc.), all of these institutions used the telephone, five used fax and five used e-mail. Four posted such information on their Web sites, and one institution mentioned that it used a Bulletin Board. Only three made use of regular mail.

These statistics confirm distance education's historical tendency to move "towards a systematic use of all available media" and, as Bates noted as early as 1982, the strong trend towards less use of radio and television as more and more media become available.

The computer's use as an educational medium should also be noted here. Since the 1980s, several Canadian institutions have carried out research on the uses of computers in distance education. The University of Guelph has been particularly active in this area.

In the 1980s, it began developing telematic conferencing as a means for holding symposiums. Its Cosy conferencing system, which enables students to take part in telematic conferences, has been translated into several languages and is used by institutions around the world. The LICEF research centre, created by Télé-université specifically to study cognitive informatics in educational settings, is similarly involved. Several books published at the end of the 1980s, including *Mindweave: Communication, Computers and Distance Education*, and those published by Harasim, remain classics in this field today.

On a related issue, authors in the 1980s were already speaking of the convergence of technologies. Today, as Bates has pointed out, "as well as the convergence of different media within a common computer platform, we are also seeing the convergence of the previously separate technologies and industries of computing, telecommunications and television." The computer is now being used not just to send textual messages; it has become the single platform for the use of other media, including telephony, audiographic conferencing and videoconferencing. We also saw earlier that the computer and the Internet are being used more and more to deliver course content, as well as to send other information and provide administrative support. However, this knowledge does not allow us to presume the use of multimedia in such activities, nor does it allow us to distinguish real-time exchanges from delayed-time exchanges. We do not know, for example, if Web pages, e-mail and CD-ROMs contain sound, video and images in addition to text.

The next point of inquiry is to determine the number of post-secondary institutions offering distance learning in Canada today, and the number of learners or registrations.

Doing so is not an easy task. There is no official "registry" of distance teaching institutions; what is more, membership in the various distance education associations, a potential source of information, is voluntary. The Canadian Studies Directorate estimated

in 1994 that more than 25 universities offered at least a few distance courses, and that around 60 percent of Canadian colleges offered at least one. By reviewing the list of institutions in the 1994 REFAD report and the list of CADE members (see "Resources"), and by consulting the various directories (see "Resources"), we can conclude that close to 90 Canadian colleges and universities offer distance education today.

Problems also arise when we attempt to determine the number of learners or registrations. In some institutions, according to Wallace, statistics on distance education are included with those on other forms of teaching, that is, they cannot be provided separately. Also, the categories and methods of data collection vary greatly among those institutions that do provide statistics on distance education. The only recent evaluation seems to be the one carried out by REFAD. It reported at least 58,916 post-secondary francophone registrations in distance learning for the 1997-98 academic year, a number considered to be largely underestimated. According to the Canadian Studies Directorate, the number of college-level registrations was close to 50,000 in 1994. An estimate of 200,000 annual registrations would be conservative.

Although it is difficult to estimate the actual number of distance education learners, we can still make observations on the trends from previous years. Wallace noted that the average age of distance learners had dropped over the past several years, that learners tended more and more to live in urban rather than remote areas, that registrations and course loads had increased,² and that the majority of clients were women. These trends have all been

2. In its 1997-98 Annual Report, Athabasca University reports that the number of its undergraduate students went from 10,874 in 1994-95 to 12,853 in 1997-98, while enrollment went from 20,641 to 25,312 during the same period [Athabasca University, Annual Report 97-98, <http://www.athabascau.ca/report98/>]. Wallace [26] has indicated that enrollment at the University of Manitoba had quadrupled in ten years. Another of our members informed us that its enrollment was three and one-half times greater today than it was ten years ago.

confirmed by other researchers.

Another observation is that more and more students are registering in distance programs to complement their studies in a regular program, a development that goes hand in hand with increased enrolments and the lower age of students in many institutions.

B. Informal Distance Education

The statistics above refer only to credit programs in distance education, offered by recognized institutions. Distance education is offered in many other settings, which are increasing in number. For example, colleges and universities often provide non-credit personal development courses to the general public and made-to-measure courses, also non-credit, to companies. Nine of the 13 CADE members surveyed stated that they offered both credit and non-credit courses.

It is also possible for learners to register in courses (e.g., independent studies, courses outside the regular curriculum) at a college or university without having been officially admitted to a program. These registrations are not included in the data gathered by Statistics Canada. In addition, many large companies provide in-house training to their employees, and some professional associations offer members continuing education programs. Distance education often plays a role in delivering all of these learning activities.

If it is difficult to determine the number of persons registered in distance education for credit, it becomes close to impossible to do so for organizations offering informal training. Nevertheless, there is evidence that this informal sector is reasonably large. For example, the Association of Canadian Community Colleges estimates that 1.5 million students are registered in non-credit courses in Canadian colleges, whereas the number of part-time registrations in credit programs is 153,736, as mentioned earlier.

In 1989, Slade and Sweet noted that little information was available on distance education opportunities offered by private companies (including private schools). A 1998 study by Statistics Canada did indicate that 80 businesses, 17 volunteer organizations and social service agencies, 11 consulting firms, 10 unions, six professional associations and 18 other private-sector organizations provided distance education. Some examples are very well known.

The Institute of Canadian Bankers is an example of a private association that develops and delivers distance courses in professional development and specialized training. The Institute was founded in 1967; under the terms of its original mission, it offered a general business administration program that was prepared and taught by universities across the country. Today, the Institute prepares and delivers programs on its own. In 1997, it delivered 110 courses and seminars in 14 different programs leading to certificates, diplomas and licenses. That year, 23,000 students from 36 countries accounted for a total of 42,289 registrations (40 percent more than in 1996).

The International Correspondence School (ICS) is one private organization which offers distance personal development courses. Founded in 1890, one year after Queen's University began offering distance courses, ICS's first course was entitled "Mine Safety Engineering." During its first year of operation, ICS registered 500 students. In 1998, 40,000 Canadians were registered in ICS courses, ranging from computer programming to flower arrangement.

Wherever there is a network of sites, businesses and associations are able to offer training workshops. The Atlantic Building Supply Dealers' Association, operating in the four Maritime provinces, offers professional development courses to its members. It offered its first distance seminar in the fall of 1994, in electricity and plumbing; since then, ABSDA has offered other distance seminars to its members. CADE and REFAD (11 workshops, 300 registrants in 1998-99) regularly offer professional development work-

shops to their members living in almost every part of the country.

Other organizations have chosen to acquire their own telecommunications equipment. In the spring of 1992, Transport Canada set up a videoconference link between its head office in Ottawa, Ontario, and the Coast Guard College in Sydney, Nova Scotia. It has since added 14 more videoconference sites across Canada.

In addition, community and regional groups, consumers' associations and numerous organizations involved in community education have started to offer distance courses to their members, as well as to the general public. However, owing to the particular nature of these groups, it is not possible to draw a reliable or exhaustive portrait of this phenomenon, although it appears to be growing significantly.

C. Other Players in Post-secondary Distance Education

"The increasing use of distance learning technologies is giving rise to a fourth organizational model, that of suppliers. The supplier model groups together organizations that do not produce training programs for themselves, but offer their services to learners, usually by means of technical installations, access centres and broadcast networks." The list of broadcasters includes TV Ontario, SCN (Saskatchewan), ACCESS (Alberta), Knowledge Network (British Columbia), CANAL (Quebec), and organizations such as Contact North / Contact Nord (Ontario) and TeleEducation (New Brunswick), all of which make their media available through local access sites. This category also includes a number of agencies, such as the Open Learning Agency (OLA) in British Columbia, created to develop educational material, and use a range of technologies.

Canada also has numerous associations that promote distance education at the regional, provincial, national or international level. Examples of such national associations or networks are CADE and

REFAD, both founded in the 1980s. At the provincial level, examples include the Alberta Distance Education and Training Association (ADETA), the *Conseil québécois de formation à distance* (CQFD), and NODE/RÉDO. Inter Universities North is a consortium that brings three Manitoba universities together; their mission is to meet the educational needs of Manitobans living above the 53rd parallel. The Certificate in Adult and Continuing Education (CACE), the Prairie Horticulture Certificate Program (PHC) and the Certificate in Teaching English as a Second Language (CERTESL) are programs delivered by three consortia created in 1991, 1994 and 1996 respectively; they bring together institutions from several provinces. CACE has four members: the University of Saskatchewan, the University of Alberta, the University of Manitoba and the University of Victoria.

PHC also has four members: the University of Saskatchewan, the University of Manitoba, Olds College and Assiniboine Community College. Finally, CERTESL is made up of three member institutions: the University of Saskatchewan, Vancouver Community College and Seneca College. The Commonwealth of Learning (COL) should be mentioned, as well. It was created following the 1987 Commonwealth Summit. It has been instrumental in assisting students in Commonwealth countries to access distance education programs. For instance, three institutions, Athabasca University, Memorial University of Newfoundland and Mount Saint Vincent University, plan to offer courses on information technologies, education and tourism management in several Caribbean countries. [36] More recently, CAERENAD, another consortium, has linked Télé-université with universities in South America and Africa for purposes of program exchanges and collaboration.

As Paquette-Frenette indicated in 1993, it is difficult to track an issue like this because cooperation agreements are a moveable feast. The REFAD report alone mentions 52 partnerships and exchanges of all kinds involving francophone or bilingual distance

learning institutions.

It should be noted here that professional associations are collaborating more and more with universities and colleges in the planning of specialized training and professional development activities, providing their members with the opportunity to work with teachers to develop programs and courses. Following are a few examples.

The Appraisal Institute of Canada offers a distance program leading to a diploma in real estate appraisal, in cooperation with St. Francis Xavier University of Antigonish, Nova Scotia.

In June 1997, the Institute of Canadian Bankers signed an agreement with Nipissing University, which is establishing a Bachelor's program in business with a specialization in financial services. This program will credit some of the courses taught by the Institute. Nipissing University will develop other courses for the program, which should be available entirely through distance education.

The Institute has also entered into a partnership with Université du Québec à Montréal (UQAM) to create the first Master's business administration program with a specialization in financial services to be offered in French. Part of this program will be available through distance education. The Institute has joined forces with Dalhousie University to establish an English-language MBA program adapted to the needs of business leaders in financial services. Both the Institute and Dalhousie University will offer courses in this program.

Another well-known example is that of the Certified General Accountants Association of Canada (CGA-Canada), which got involved in distance education in the mid-1950s. The courses required for obtaining the title of CGA are developed under the authority of the Association; it gets help in designing courses from university and college specialists, as well as from practising accountants. The CGA program is available throughout most of

Canada; it is also offered in Bermuda, China and Hong Kong China. On a related note, a Bachelor of Accounting Science program (BaccS), using some courses from the CGA program, has been created by the University of Calgary; this program is available through distance education everywhere in Canada.

More recently, CGA-Quebec got involved in the development of graduate-level university courses to help its practising members obtain a specialization in financial accounting. In addition, a graduate diploma program in business finance was developed jointly by the Ecole des Hautes Études commerciales and Télé-université. This program is offered jointly by the two universities.

While suppliers and consortia are often referred to in the literature as different kinds of organizational models, they are not mutually exclusive. For example, the Canal Savoir ("learning channel") in Quebec (formerly CANAL, founded in 1984), is a broadcast consortium made up of five colleges, nine universities and three private companies. The *Réseau franco-ontarien d'éducation à distance* (RFOED) brings together colleges and universities in Ontario which share their telecommunications installations and other resources. Today, partnerships, networks and other forms of associations between suppliers and teaching institutions are increasing in number.

One such collaborative venture is the Western Universities Telecourse Consortium (WUTC), created in the provinces of British Columbia, Alberta, Saskatchewan and Manitoba. WUCT is made up of seven universities and three provincial broadcasters; its mandate is to develop and offer first and second year university distance courses. Ontario's Collège Boréal joined forces with AT&T and InfoCast to develop on-line courses. Quebec's Techno-media is a partnership between Bell Canada and two colleges created to design and deliver distance courses via Internet. Organizations that are considered service suppliers are also getting involved in distance education research and in training activities for distance

education teachers. Contact North / Contact Nord in Ontario has just created two laboratories for teaching and learning technologies. The aim is to offer “teachers and teacher trainers throughout Northern Ontario a unique and permanent opportunity to stay abreast of, explore and learn how to apply newly-emerging technologies that are radically transforming education and teacher training.”

III. A Working Definition of Distance Learning in the Canadian Context

A. Open Learning

According to Holmberg, it is difficult to establish the dividing line between open learning and distance education. However, the definitions offered by Dewal, Lewis and Spencer, Thorpe and Grueon, Delling, Foks, and Cunningham (all cited by Holmberg) and close to a dozen other authors, clearly suggest that the first condition of open learning is independent study, as understood by Wedemeyer: “Education should be accessible anywhere there are potential students even if there is just one and even if there is not a teacher in the same place as that student.” (Wedemeyer, cited by) Because every distance program involves independent study, it may be said to involve open learning to some extent.

It is possible to establish other characteristics of open learning, even though authors do not agree on how to define it. These conditions have to do with removing barriers other than geographic ones, and with giving learners control over their learning; this is the case even though authors agree that a “fully” open learning system is impossible. That said, it is possible to speak of degrees of openness. On the basis of the similarities in the definitions proposed by the above-mentioned authors, we prepared a list of condi-

tions to be met by distance learning institutions if they are to achieve what might be considered total openness. CADE members were then asked to describe their policy in terms of those conditions; eight members replied. Each condition is listed below, followed by the responses and the number (in brackets) of institutions per response category.

- Admission requirements: Any student may be admitted to the program

Learners must hold a diploma from the preceding level before being admitted (2); anyone may be admitted (1); in certain cases, learners may be admitted without having obtained the prerequisite diploma (5). These conditions generally have to do with age “students must be at least 21 years old, must have worked for at least one year, must pass a language skills test, etc. These responses can, therefore, be considered similar to a “yes.”

- Program requirements:

Learners can choose the order in which they complete the various courses within a program [no (2); yes (3); yes, excluding courses with prerequisites (2); only in certain programs (1)].

Learners can choose their own courses in the program [no (3); yes (2); only in part and/or only in certain programs (3)]. Learners can choose at what speed (number of courses, total duration) they will advance in the program [no (3); yes, with one mention that there is less flexibility at the graduate level (2); students must complete eight to ten courses in five to six years (3)]. Programs offer different learning methods, i.e., lectures, seminars, projects, etc. [no (2); yes (6)].

- Course requirements:

Learners can advance at their own speed (e.g., deadlines for

assignments and for course completion, extensions given for course work and completion dates) [no (7); yes (1)]. Learners can choose between several assignments, or propose their own assignments [no (4); in some cases (3); sometimes, for example, students can replace an exam with a proposed assignment (1)]. Learners can participate in the decision-making process related to criteria and evaluation methods [no (7); in some courses (1)].

- Institutional decision-making:

Learners may participate in some decision-making committees. [no (2); yes (6)].

In summary, most of these institutions have “open” admission conditions. The majority also offers some flexibility in their programs and allows learners to participate in some decision-making committees. However, learners do not have much choice regarding course requirements.

B.Distance Education

Much like the concept of open learning, distance education is difficult to define. “Distance education involves a remarkable paradox: it has affirmed its existence but it cannot define itself.” (Shale) Rumble also emphasizes that, “the major part of this debate on the distinctive characteristics of distance education originates from a failure to define the concept of how it is distinguished from that which does not represent distance education. It is obvious that a specific descriptive definition will not allow someone to include a plan that he has his heart set on.” [Loose translation]

To establish a functional definition of distance education, one must take into account the question of geographic or spatial distance. It is a given that there is some spatial distance between teachers and students, and/or between students themselves; that one must employ one of the (tele)communications processes as a

result; and that distance education developed in Canada because of the education needs of populations living far from urban centres.

But Wallace points out students do not necessarily enroll in a distance course because of the geographic distance between the learner and the educational institution; the reason may have to do with other needs. Jacquinot suggests that we consider not only the temporal and spatial distances, but also the technological, psychosocial and socio-economic distances. The existence and development of Canadian post-secondary distance education can just as easily be ascribed to the geographic separation of linguistic minority groups, continuing education needs, and the flexibility inherent in distance education (the availability of courses needed to complete a program, flexibility in location and scheduling, etc.).

C. A Functional Definition

Of the various definitions of distance education that we examined, we retained one despite its rather academic flavour.

This definition reflects several characteristics of Canadian distance education, as described in the preceding sections; it is similar to the concept of open learning; and, contrary to other definitions, it takes into account the learning process of the learner. Here it is:

“We define distance education as an educational practice promoting a learning process that brings knowledge closer to the learner. Learning is considered here as an interaction between a learner and an object, which leads to a mental representation that constitutes a tool for understanding the world (reality), adapting to it or modifying it through action. The process used by distance education to achieve learning is characterized by: 1) accessibility, 2) contextualization, 3) flexibility, 4) diversification of interactions, and 5) knowledge transfer.” (Deschenes *et al*)

IV. Educational Characteristics of Post-secondary Canadian Distance Education

A. Programs, Courses and Disciplines

Among the 26 universities Sauvé looked at in 1992, we note that distance courses are offered in almost all disciplines; programs in human and social sciences, administration, and the education and health fields are the most common. Those French-speaking institutions that responded to the REFAD survey offered a higher number of programs in health and education, administration, and natural sciences and engineering for the year 1998-99. A quick review of the distance courses mentioned in the "Resources" section reflects essentially the same results.

At the college level, the REFAD survey pointed to the existence of courses in education (e.g., early childhood education) and computer science, but only six colleges provided this information. We have a bit more information about programs: there is a preponderance of programs in administration, to which can be added early childhood education, horticulture and agricultural management, and a Webmaster diploma. The ICDL database (see "Resources") shows that there are about 30 Canadian colleges offering credit programs in distance education. Colleges have student populations (in both credit and non-credit programs) varying from several dozen to over 27,000.³

"Total" distance programs (that is, where all courses are offered at a distance), as well as partial distance programs, exist at the college and university levels. In the latter category, programs are designed such that part of the program is offered through distance learning, while some courses require attendance at the institu-

3. We note, however, that data on programs, courses, and numbers of students are not available for many colleges, and that some information dates back to 1997.

tion. Examples include the MBA from the Institute of Canadian Bankers mentioned earlier, and the diploma program offered by the Ecole de technologie de l'information (ÉTI). As well, in many cases institutions have established programs in which first-year distance courses are available. Examples include the FYDE project of Inter Universities North and the WUTC consortium. These programs allow learners to take at least a part of their university program without having to move from their home region. For programs and courses available in French, there presently exists at least:

- at the college level: 13 programs available entirely through distance learning
32 programs available partially through distance learning
- at the university level: 63 programs available entirely through distance learning
12 programs available partially through distance learning

Based on the data collected from eight of our members, 74 university programs are offered entirely through distance learning, while 48 are offered partially through distance learning. Among the colleges, 14 programs are offered in their entirety through distance learning. All told, these programs comprise 750 university courses and 70 college courses.

For a variety of reasons, it is difficult to evaluate the total number of programs and/or courses available at a distance, despite the existence of program directories (see "Resources"). Institutions contribute information for these directories sporadically, and they are only updated periodically. While they make it possible to evaluate the diversity of disciplines covered, or to approximate the number of institutions offering distance education, it cannot be

used to construct representative statistics.

While it is beneficial to look at available data on programs or courses that are “officially” available at a distance, one must also take into account the fact that many bimodal institutions offer courses both at a distance and on campus. Distance courses, which are offered on demand, are part of the institutions’ overall organizational structure.

B. Educational Methods

Canada has a long history of distance teaching, which has fostered the development of recognized expertise in both real-time and delayed-time teaching.

The Canadian Studies Directorate notes that Memorial University of Newfoundland was one of the first post-secondary institutions to offer real-time teaching, and that community colleges are leaders in the use of real-time media. Experience in the use of audioconferencing, audiography and videoconferencing has identified the limits and possibilities of these media in an educational situation, and has helped us develop appropriate teaching methods. Guides have been developed to help teachers in preparing and conducting their courses; they include: “Teacher’s Guide to Audiconferencing” (Forma-Distance), “Videocommunication for Learning and Communication” (Laurentian University), and “Interactive Technologies in Distance Education” (Ontario Institute for Studies in Education or OISE). More recently, this expertise was combined in a collection of guides under the direction of J. Roberts. In general, the experience of Canadian institutions shows that the traditional lecture method does not lend itself well to real-time teaching. In general, it should be used in small segments, interspersed with other teaching methods.

On the other hand, these newer media lend themselves well to teaching methods using case studies and brainstorming; with these

methods, learners call on their experience in small or large groups' discussions. It is also recognized that distance courses offered in this way require more preparation and planning than a face-to-face course, not only in terms of course material, but also in terms of communication (e.g., establishing a teleconference plan).

While some authors maintain that interactive media used in real-time teaching often reproduce material used in a traditional classroom lecture, without allowing for real interaction between participants and/or with the teacher, numerous examples - taken for the most part from Canadian institutions and described in the above-mentioned guides - suggest that, in reality, a variety of teaching methods are used.

In the case of delayed-time distance courses, learners generally have on hand some instructional materials (texts, videocassettes, audiocassettes, etc.); increasingly, these are being made available in digitized form, as mentioned earlier. These documents, in hard copy or in digitized format, contain both course content and learning activities; their intrinsic characteristics vary according to the educational models adopted by their designers. Larocque, for example, describes eight current learning theories that may prevail in the design of instructional material (the content's structure, its presentation, its wording, etc.).

Finally, we note that in delayed-time distance education, the design of course material is normally carried out by multidisciplinary teams. Real-time distance education is making increasing use of computer technologies and images (audiography, videoconferencing); consequently, teachers are collaborating more and more with technicians in various fields. With the gradual integration of courses on the Web or on CD-ROM, they are also contributing more to the work of design teams. Engineering models vary according to each institution's needs.

“Los modelos de creación pedagógica son múltiples y dependen de las características intrínsecas de la institución. El modelo

desarrollado por la Télé-Université en la provincia de Québec, difiere del desarrollado por Athabasca University en Alberta, pues lo más importante es que el modelo o los modelos que cada institución adopta reflejen la idiosincracia de la institución”. (Loose translation: There are many models of educational design, and they depend on the intrinsic characteristics of the institution. The course development model of Télé-université in Quebec differs from that of Athabasca University in Alberta, but what is most important is that each institution’s models adopt or reflect the specific nature of the institution). (Mauricio Rivera-Quijano)

A final word about the problems engendered by the design of interactive multimedia materials or hypermedia: not specific to Canada, these are found everywhere. Jacquinet pointed out in 1996 that “recent assessments show that most hypertexts or hypermedia reproduce an encyclopedic teaching model, even though they claim to be “cognitive tools;” we need to beware of surreptitious slips from interactivity (a technical concept from computer science) to interaction (a non-technical concept from psychology).” Bullen has examined this problem; he emphasizes that some designers transfer the approach they take in class to the computerized environment. According to Poole, information technologies must provide solutions to educational problems and avoid using technology for its own sake.

C. Learner Support in Distance Education

Probably one of the major differences between classroom education and distance education has to do with the need to formally plan the supervision of learners. “In the context of distance education teaching is separated from supervision. All distance education systems implement a more or less elaborate system of resources for supervision.”

Learner support involves a variety of activities designed to

support students throughout the learning process. But as Abrioux has indicated, “it is not enough to determine educational objectives, content, methodologies, or evaluation methods; it is also necessary to help students discipline and educate themselves.” Consider learner support as an exercise on four levels:

- cognitive level: conceptual aspects (course knowledge area), methodological aspects (acquisition, practice, and improvement of skills), administrative aspects (enrollment date, availability of resource people, available services);
- socio-emotional level: preferences, dislikes, the social dimension;
- motivational level: learners’ perception of their competence, importance of the task (some authors treat motivational support as an emotional factor);
- metacognitive level: conscious control by learners of their cognitive functioning, planning, initiation of strategies, monitoring of learning.

There are many ways to put this support into action. It normally occurs either through learning activities, activities with peers, or tutoring. In fact, it is possible “to offer support on the cognitive, socio-emotional, motivational, and metacognitive levels through learning activities and group meetings as well as through tutoring, the choice of method being a function of the determined objectives and needs of the learners.”

“A learning activity is a task or an exercise that we ask the learner to carry out;” it allows the learner to try out behaviors, and to apply new knowledge or acquired skills. On the cognitive level, this can range from simple tasks such as gathering information, to more complex tasks such as synthesis or semantic charts. Learning activities can also be developed to address the emotional, motivational, and metacognitive levels. In general, however, “they play a more important role at the cognitive and methodological levels.”

Activities with peers can also provide moral support, and promote collaborative or cooperative learning. In real-time teaching, learners meet one another regularly. In delayed-time teaching, there are various ways to put learners in contact with one another. Some institutions (for example, the University of Guelph) have created telephone lists that allow learners to communicate with each other. In some institutions, learners are encouraged to form study pairs or groups; others begin distance courses with face-to-face meetings or teleconferences, and organize other meetings throughout the duration of the course, based on the needs of the learners.

As we've seen, use of the Internet as a means of telecommunication is becoming more and more frequent. Communication between learners can also take place via e-mail, group distribution lists, or telematic conferencing. The latter can be specifically geared to students enrolled in the same course; the other two are more likely to be open to all students (for example, Télé-université). Although electronic communication between learners has been studied for a good 15 years, its effectiveness in providing socio-emotional support (see for example Burge or Spencer), and its impact on knowledge-building (see also Anderson & Kanuka), have received mixed reviews.

Tutorial activities, often used in delayed-time distance education, usually involve a "tutor". In real-time teaching, it is often suggested that the tutor's role "counselling students" is assumed by the professor giving the course. In either case, tutoring can provide cognitive, emotional, motivational, and/or metacognitive support, depending on the methods used.

In practice, Canadian institutions use various services to provide learner support. Some offer counseling; they may make a psychologist available; or they may arrange for tutoring. Increasingly, we're seeing "local facilitators" at access sites, whose role it is to "welcome learners, help them to get established in their learning

environment, help fix defective technology, and even act as negotiators, publicists, confidants, and guidance counsellors” In reality, learners have access to various support services, which vary from one institution to another.

V. Transfer of Credits and Recognition of Experience

A. Recognition of Experience

We have already seen that many institutions which offer distance education courses and programs are prepared to admit adult students⁴ who may not have a diploma from the preceding level of study. Their philosophy: to recognize the knowledge and skills adults have acquired at work, and their life experience. “Prior Learning Assessment is a process that allows adults to determine the acquired knowledge they have gained from their various life and work experiences in order to obtain credits. The evaluation is carried out according to a set of predetermined criteria, and candidates are judged according to the knowledge they have acquired from a specific experience”.

The Office of Learning Technologies (OLT) organized an online forum on this topic in March 1998; they attracted 111 participants. Some institutions are prepared to evaluate student files for purposes of granting equivalent credits for work experience. However, because experiences differ widely, it is not always easy to establish a formal process of credit recognition. Many of the participants reported that their students prepared a portfolio of previous experiences. One result of the forum was the creation of a list of

4. The notion of “adult” student does not refer to the age of the person. In education, the term “adult” refers instead to people who have left the educational system for at least a year or more to enter the workforce, and who have decided to resume their studies.

available resources, coming in part from Canadian institutions, to help those who want to implement such an assessment system, and for those who are interested in exploring the subject.

B. Transfer and Recognition of Credits Among Institutions

In general, institutions are prepared to recognize courses from other institutions (more often two or three) towards a given diploma, but learners must take a minimum number of courses at the institution conferring that diploma. The Council of Ministers of Education (Canada) recently asked universities to commit themselves to recognizing credits obtained by learners at other institutions.

That said, this type of process can take time. For the most part, Canadian colleges and universities have a fair amount of latitude in setting course and program content. And while a given program may cover the same subject matter at most institutions, how that subject matter is apportioned among the various courses may well differ from one institution to another. Moreover, concentration on certain subjects may be affected by regional characteristics, such as those mentioned earlier.

A few cases of transfer and recognition of formal credits exist among distance education institutions. For example, in the FYDE project (First Year by Distance Education) of the InterUniversities North consortium, each of the three universities has agreed to recognize courses learners have taken at any of the other member institutions. More recently (in 1999), Athabasca University and Télé-université signed an agreement whereby each recognizes courses taken by students at the other university.

C. Other Approaches

One of the justifications for transferring credits between insti-

tutions is certainly the flexibility that it offers learners. Over the years, Canadian post-secondary distance education institutions have been active in developing other collaborative models, for example, course exchanges and joint programs or courses.

Here are some examples: the Atlantic Universities: First-Year Courses on the Web is offered throughout the Maritimes by Memorial University, Mount St. Vincent University, St. Mary's University, University College of Cape Breton, University of New Brunswick, and University of Prince Edward Island; Laurentian University and the University of Ottawa offer a joint program in speech therapy; Laurentian University has also instituted an exchange program with Laval University, as has Moncton University with the University of Montreal. Alfred College in Ontario offers certificate courses in horticulture in conjunction with the Centre collégial de formation à distance; Great Lakes Collège and Collège Boréal offer selected courses and workshops jointly. The CACE, the PHC and the CERTESL offer three certificate programs involving institutions from British Columbia, Saskatchewan, Manitoba and Alberta (see "Other players in distance education"). The Open Learning Agency has created a "credit bank" to facilitate transfer credit and the recognition of learning from various sources. With this kind of collaboration, learners have a greater choice of courses close to home (that are recognized by many institutions); as well, there is less duplication of programs.

VI. Past Successes and Building Towards the Future

Canada has managed to create a distance education and open education network thanks to "or, as some would have it, in spite of" decentralized teaching systems, jurisdictions, institutions, and organizations. This network is highly accessible, eminently useful, and strongly relevant both socially and economically. It is a source

of justifiable pride to the Canadian educational community. But past successes do not guarantee future success; that is why we must be ready to adapt to new challenges and contexts as they arise.

Indeed, there is a general consensus that the knowledge economy, which is based on the creation and sharing of information and knowledge, is key to Canada's social and economic development, as it is to all countries. In order to retain control over our natural resources and environment, at the same time preserving necessary manufacturing infrastructures, we will have to rely not just on a more highly-skilled workforce, but also on high-calibre experts in their respective fields. In fact, our economy will likely weaken if we do not meet this basic condition: a significant number of Canadians must embrace an internationally recognized knowledge society.

Information and communication technologies - the Internet is a good example - have accelerated the introduction of this new knowledge economy. Nations are finding themselves in a race against time to take advantage of the opportunities resulting from communication infrastructures which allow affordable information sharing in all major fields. Technologies are evolving so rapidly that yesterday's technical barriers are crumbling, opening up a wealth of information and knowledge sharing possibilities not only in Canada, but on a global scale.

In recent years, with the cost of developing and establishing communication infrastructures no longer prohibitive, the Canadian government has been very much involved in supporting various applications, especially in cultural and human resources development and training.

At the outset, it was necessary to subsidize access to this information highway (materials, equipment, and software). Otherwise, the knowledge economy would likely have emphasized the disparities between rich and the poor rather than provide an opportunity to bring people and groups together to foster peace, democracy and liberty. We are well on our way to realizing this objective. We

have come to rely on these early investments, particularly in human resources development and training, in order to realize dreams that we share not only with other Canadians, but also with our international partners.

It is a source of justifiable pride that we can now rely on the unique and beneficial leadership of Canadian institutions in education (or techno-didactics). They have exhibited creativity, adaptability and a keen desire to undertake development work, especially on the international scene. Without a doubt, distance education is the most beneficial and economical tool⁵ we have right now for developing skilled human resources. We are referring here not only to distance education “its technologies, techniques, and current applications” but also what we will learn to master as a result of the many technological and psychoeducational developments that will take place in the next few years.

Taking into account the complexity of societies, and the changes they are undergoing, Ljoså proposes that distance education should fulfill almost exclusively the social functions that complement contemporary national education systems. These functions include removing disparities between age groups; offering adults a second chance; organizing information and educational campaigns geared to large groups; accelerating the professional development of target groups; serving neglected target groups; significantly enhancing the capacities of the national education system; abolishing spatial barriers; allowing people to divide their time between education, work, and family life efficiently; developing multi-skilling; and, offering transnational programs.

In terms of culture, we can look at the work to be done from many viewpoints: that of the opposition between international and regional culture, European *versus* North American culture, or

5. The concept of economy refers here more to a rearticulation of distance education with campus teaching than to a comparison of the costs of one method in relation to another.

Canadian culture confronted by American culture, etc. As is the case with the economy and in politics, world culture enriches and promotes the development of local, linguistic, or regional cultures. Having moved beyond standard reactions of withdrawal and conservation, we are now witnessing an increasing desire on the part of the majority of cultural groups, Canadian and international, to affirm themselves; their goal is to add their distinctive voices to a world community in constant flux.

With respect to education, institutions and training groups will have to balance the need to respond to collective social and economic needs, at the same time providing accessible services that may not be immediately remunerative. The second challenge will be to redefine, on a heuristic if not on a scientific basis, the function and place of each participant, especially professors and students, and their new relationship to knowledge and its evolution. In this context, in order to ensure broader accessibility to education and professional development, several things must occur: research; teacher training; collaboration, even formal partnerships, between institutions and community groups. In view of this constant change, the third challenge, and not the least, will be to redefine the role of the various government in education to ensure that their politics and actions are as fair and as relevant as possible.

The Canadian community faces an important task, one that will surely be taken up with the vigour, confidence, expertise, and enthusiasm with which we have faced so many challenges in the past.

VII. Summary

Many Canadian institutions have figured prominently as pioneers of distance education and open learning. Despite severe geographic and socio-cultural constraints, Canada has developed

unique communications expertise which has contributed much to the strength of the country's various educational systems. This variety of systems exists because education in Canada is decentralized; each province and territory administers its own educational and training programs. Notwithstanding such diversity, Canadian institutions share one central value: the desire to make education and professional development accessible to all, in a spirit of democratic development. Today, governments and educational institutions across Canada are focusing increasingly on the development of a more effective workforce that will meet the challenges of unrestrained competition brought about by the globalization of the economy.

Canada's successes in these areas carry with them the obligation to take up a number of challenges having as much to do with economics and politics as with education, society and culture.

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