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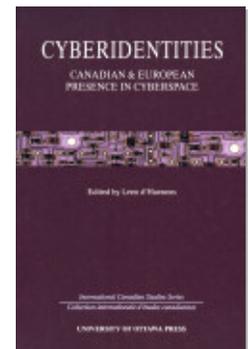
Published by University of Ottawa Press

D'Haenens, Leen.

Cyberidentities: Canadian and European Presence in Cyberspace.

Ottawa: University of Ottawa Press, 1999.

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TWO CANADIAN MODELS OF COMMUNITIES ON THE NET: SCHOOLNET AND COMMUNITY ACCESS

(www.schoolnet.ca)

by Alan L. COBB

In this paper I will outline recent experience in Canada with two national initiatives, SchoolNet and the Community Access programs. These two programs are helping Canadians, especially our youth, to live, learn and earn a living in an increasingly knowledge-based society and economy.

I RELEVANT FACTS ON CANADA

Before dealing with the specifics of the two programs and some of their underlying principles and approaches, it might be helpful to give some understanding of the Canadian reality:

- Canada is a constitutional monarchy and a federal state with a bicameral parliament, ten provinces and two territories – one of the world's most highly decentralized federations;
- Canada is a geographically immense and diverse country, a relatively small population, blessed with a vast storehouse of natural resources, a strong and developing manufacturing sector, and a highly competitive service sector. Canada is a leader in communications technology and launched the world's first commercial communications satellite in 1972;
- Canada is the eighth-largest trading nation among the industrialized market economies: some 30 percent of our total output of goods and services is exported, mainly to the United States of America. Interestingly, natural resources account for only 20 percent of exports now, compared to 40 percent in 1963. Less than 6 percent of the workforce is employed in the primary resource industries, compared with 13 percent in 1963;
- the European Union countries taken together constitute Canada's second-largest trading and investment partner. Only 17 percent of Canadian exports to the EU in 1993 were raw materials;
- Canada has one of the world's highest living standards. Canada ranks first among 175 nations on the 1997 UN Human Development Index. In terms of the first measure, 83 percent of households have at least one car, over 98 percent have a phone, with cellular services available to 90 percent of Canadians. Almost 98 percent have colour television, with 95 percent having access to cable TV, and

almost 29 percent of Canadian households had personal home computers in 1995, with some 42 percent of those computers being equipped with modems.

- much of the population is stretched along the Canada-US border, and all Canadians are within easy broadcasting distance of American television and radio stations;
- over 76 percent of Canadians live in cities and towns while 23.4 percent live in rural areas (31 percent of the 30 million total population live in the three largest cities of Toronto, Montreal and Vancouver);
- English, the mother tongue of over 16 million Canadians, and French, the language of about 7 million, are Canada's two official languages. The balance speak a mother tongue other than English or French;
- some 42 percent of Canadians claim something other than English or French as their ethnic origin. Over one million of these claim to be of native descent, including North American Indian, Metis, and Inuit;
- education falls within the jurisdiction of the provinces and territories. Of Canadians aged 15 years and older, 57 percent have attended secondary school, 32 percent have gone to a trade school or other type of post-secondary institution, and 11 percent of the population have a university degree;
- about five million children are enrolled in elementary and secondary schools, with over 550,000 students at the community and technical college level, and almost 900,000 enrolled in universities;
- there are over 300,000 teachers in Canada; significantly, some 20 percent of Canadians are enrolled in part-time adult education courses;
- Canada has 4,796 networks linked to the Internet compared to 28,470 in the US. This translates into 114 networks per one million in population in the US compared to Canada's 192. The seven most-wired countries based on networks per million of population are:¹

Canada (192)	Britain (24)
United States (114)	Germany (22)
Australia (110)	Japan (15)
France (37)	

¹ Toronto *Globe & Mail*, 23 May 1997, based on a Morgan Stanley study.

II THE POLITICAL AND POLICY CONTEXT

To appreciate the Canadian experience, it is important to also understand some aspects of the political and policy environment at the federal level. There are five political and policy factors that may be viewed as giving stimulus to the acceleration of Canada's advances on the Information Highway:

1. The current federal government, since it came to power in 1993, has a micro-economic policy with a central objective to respond to increasing globalization and its impact on trading patterns and practices, investment flows and competitiveness pressures, including the challenge of adjustment from mass-production to knowledge-based growth; Agenda: Jobs and Growth and Building a More Innovative Economy;
2. The innovative economy component has four policy pillars – market place climate, trade, infrastructure, and technology with priority assigned to three areas for strategic government intervention: jobs and growth, science and technology, trade and youth;
3. As part of deficit reduction, largely through cuts in government spending, the government launched a major downsizing of the federal public service (about 50,000 jobs were to be eliminated out of some 220,000, excluding the armed forces, which were subject to proportionately greater reductions);
4. An unprecedented Program Review is redefining the role of government and the nature of the programs and services it offers to its citizens. One of the major results of Program Review is a drive to develop innovative ways to deliver services, including the greater use of information and communication technologies;
5. There has been an increased focus on education as a key to better prepare young Canadians for future success in a knowledge-based economy. Clearly, the federal government has given voice and facilitating support in education, but the constitutional responsibility rests with the provinces and territories who are making good progress in reforming their education systems.

In summary, geographic, political, social, economic and trade, culture, and linguistic circumstances created an environment in Canada in the 1990s that is demanding and supporting innovation and change. The proximity and influence of American culture and values make us concerned about ensuring that we have an adequate amount of Canadian content on the Net, especially for use in our schools. Our constitutional difficulties, especially, have made Canadians more aware of the need to share, improve understanding, and expand dialogue at all levels of society. This national need for cohesion-building mechanisms, combined with Canada's long-standing international orientation, gives further impetus to the types of models of community-building and networking represented by the SchoolNet and Community Access initiatives.

III CANADIAN NETWORK FOR THE ADVANCEMENT OF RESEARCH, INDUSTRY AND EDUCATION (CANARIE)

At this point one important player on the Canadian scene should be introduced: CANARIE. This is an industry-led and managed not-for-profit consortium of 140 fee-paying members. It was created as an innovative way for the federal government, the research community, and the private sector to collaboratively stimulate the development of the Information Highway in Canada. CANARIE's mission is to facilitate the development of Canada's communications infrastructure, foster the development of next generation products, applications and services, and communicate the benefits of an information-based society.

Examples of CANARIE activities are:

- between 1993 and 1997 the capacity of Canada's research and education Internet backbone, the CA*net, was increased 13-fold;
- a National Test Network was established in 1994 to explore new technologies, test hardware and software, and develop new service capabilities. It is one of the world's largest high-speed, broadband networks, spanning 6,000 kilometers and linking the nation's regional research, industry, and education networks while providing high-speed connectivity to Europe as well as Asynchronous Transfer Mode (ATM) satellite connectivity;
- a new advanced networking initiative called CA*net 11 has been launched, involving deployment of a *Next Generation Internet Network*.

It is also significant that in 1994 the federal government adopted a Canadian Information Highway Strategy, created an Advisory Council, and established three overall objectives:

- to create jobs through innovation and investment;
- to reinforce Canadian sovereignty and cultural identity;
- to ensure universal access at a reasonable cost.

To achieve these objectives the government is:

- overhauling Canada's telecommunications policies;
- moving towards having four competitive lanes serving Canadians on the Information Highway: telephone, cable, wireless, and satellite.

CANARIE, SchoolNet and Community Access are part of a clear strategy, led by the Industry department, to use the information highway as one of the primary tools for developing Canada and its international competitiveness over the next decades. The three programs are intended to bring large volumes of additional users on to the Net much sooner than might otherwise occur and, in the process, stimulate the creation of a domestic market for various electronic services and systems which can then be exported.

IV SCHOOLNET

Launched in 1993, SchoolNet is surpassing all expectations and is considered to have been an outstanding success. "It's very exciting to see what's going on here in Canada in a number of areas; SchoolNet is the leading program in the world in terms of letting kids get out and use computers." (Bill Gates, 1995)

SchoolNet connected 300 schools by 1994. Over 9,500 (60 percent) are now connected. All 16,000 schools will be connected by 1998. In addition, 400 of the 450 First Nations schools and 2,100 of the 3,400 libraries will be connected by the end of 1997. By the end of 1998 it is anticipated that all libraries and First Nations schools will be connected. Each month SchoolNet receives 2.5 million "hits." Every day, on average, someone signs on to SchoolNet over 83,000 times.

But beyond getting kids to use computers, what is SchoolNet?

- a set of over 1,000 Internet-based educational services and resources that stimulate learning and put creativity directly into the hands of the users, especially teachers and students in the elementary and high schools;
- a recognizably Canadian and quality place for learning, with content created, in large measure, by the students and teachers;
- a national facility for collaboration and networking by the partner and stakeholder communities of interest;
- a Network of networks, encompassing such special groups as native Canadians, special needs interests, and the education networks of the provincial ministries of education;
- a place where the many communities can begin to address some of the important national policy issues in education, e.g., telecom access rates and other regulatory issues;
- a partnership of federal, provincial, and territorial governments with the education and industry communities;
- a springboard for the further development of the education services, communications, and information technology industries.

In addition to the core SchoolNet site-specific facilities, there are several associated programs that play an important role in creating a fully integrated and robust national service: Computers for Schools, Grassroots, and the Digital Collections.

Computers for Schools

Started in late 1993, this program brings educational institutions, communities, business, and provincial and territorial governments together with the federal government to channel surplus computer equipment to Canadian elementary and secondary schools and to libraries. All usable donated equipment is tested, refurbished and then delivered to recipients free of cost. Some 38,000 computers have been delivered to date, well on the way to meeting the target of 100,000 by year 2000.

Grassroots

This is a support program to help Canada's teachers create and run small, curriculum-specific, Internet-based classroom projects. It is creating the world's largest and most comprehensive, pedagogically sound, on-going collections of Internet resources researched, designed, and implemented by teachers and their students (all for the low program cost of Cdn\$300 per project). To date some 50,000 students have participated in developing Grassroots projects.

Digital Collections

This is a unique website displaying over 100 heritage collections from the holdings of Canadian archives, libraries, museums, businesses, labour unions and other organizations. Young people, with financial support from SchoolNet, are producing this multimedia portrait of Canada. In the process other important goals are being pursued:

- to develop knowledge-based-economy skills for unemployed or under-employed youth;
- to develop an economical Canadian digitization cottage industry, especially in remote, rural, or economically-disadvantaged communities.

V COMMUNITY ACCESS

Launched in 1995 as an offshoot of SchoolNet, the Community Access Program is an equally outstanding success to date. Beyond the use of computers, the purpose of Community Access is to provide Canada's rural communities with affordable public access to the Information Highway and to familiarize rural Canadians with how the Information Highway can be used for economic and community development, particularly the creation of jobs and growth. Community Access has four primary objectives:

1. to raise awareness within Canada's rural communities (defined as having a population of less than 50,000) of the benefits and opportunities of using information technologies and services;
2. to accelerate access to, and use of, Information Highway learning tools and services that help sustain jobs and growth in rural communities, and to foster the electronic exchange of ideas and information;
3. to promote opportunities for local entrepreneurs, employees, educators, students, and others to improve their computer, information management, and networking skills;
4. to foster the conversion of existing government and other services to electronic delivery with a view to providing better and more economical services to all Canadians regardless of where they live.

The Program provides assistance of up to Cdn\$30,000 to help cover the start-up costs of establishing a community site, including equipment, Internet connections, staff, training, and technical support. A site is usually situated in a community center,

library, school or other public facility. Average program costs to date (i.e., the 50 percent share) is some Cdn\$20,000.

Starting with 20 sites in 1994, there are now over 1,200. While the current target is to establish sites in 5,000 remote communities by year 2000, there is a proposal to increase the target to 10,000 communities in the same timeframe. An example of the training and job component of Community Access is the 1,000 local young people hired this past summer to help sites and organizers. Funding for this initiative came from an existing student summer employment program of the federal government.

VI CRITICAL SUCCESS FACTORS

Experience with SchoolNet and Community Access over the past four years suggests the following as critical success factors:

- think big, start small, leverage your assets;
- provide strong facilitating leadership, and build strong and broadly based partnerships, including with industry;
- bring public information providers on board early;
- use accessible technologies, but showcase more advanced technology;
- seek public input and support by conducting needs assessments and developing responsive action plans;
- include learning about community cooperation and development, and about the technology of networking and the Internet, as part of everyone's experience;
- use the project to build the community's capacity to manage its economic growth and development locally;
- provide a way for members of the community to internalize technology. Build into your training plan a way for people to see how they can transfer computer and information technology into fields where they had not thought of using it before;
- plan carefully for financial self-sustainability, since only 50 percent of start-up costs are provided by the government;
- personal enthusiasm and commitment are essential; recognize and reward champions;
- a visionary approach to finding new sources of employment and economic growth;
- create publicity, generate lots of excitement, and do some good PR work;
- use students to help with the site set-up, technical support, training, and home page development, and use volunteers as well;
- enable and support education content by teachers, students, local groups and businesses;
- maintain clear focus, but create ancillary products and services, especially to generate self-sustaining revenues;
- go international.

VII THE VOLUNTARY SECTOR – A NEW CHALLENGE

The success of SchoolNet and Community Access led the recently re-elected federal government to commit itself to establishing a program to enhance the capacity of voluntary organizations by providing access to computer equipment, the Internet, new information technologies, and training. This challenge is great, as is the need. The almost 180,000 voluntary organizations in Canada employ 1.3 million people (9 percent of the labour force). In addition, over six million volunteers contribute one billion hours in labour each year.

7.1 Common vision

Beyond infrastructure, networking, and industrial development, and beyond accessing education resources, the common vision underlying SchoolNet, Community Access, and the new Voluntary Sector network initiative is more fundamental and far-reaching. It is to:

- create communities of learners;
- build smart communities;
- stimulate social and economic development;
- facilitate the emergence of sets of values as the “glue” to hold everything together.

More specifically, SchoolNet and Community Access (along with the new Voluntary Sector network) strive to be **the** national facilities helping every Canadian to acquire the skills, learning tools, information and affordable/equitable access to the best Canadian and world-wide resources, and to succeed in a global economy that is increasingly knowledge-based. At the level of the education system, these goals imply that:

1. knowledge for some could be transformed into knowledge-building for all;
2. the hierarchy of education will become increasingly open, distributed, and less structured;
3. the role of the school in the community could be enhanced;
4. education will be further moved from teacher-based to learner-based.

In social terms, SchoolNet and Community Access can be key nation-building instruments because Canadians, especially our youth, from the remotest corners of the country will collaborate, communicate, and better understand each other.

VIII CONCLUSION

In Canada, most policy makers understand that expanding public access to the Internet and its effective use makes for good economics, good social policy, as well as good politics. It is an example of that prevalent belief held by government mandarins of days past that: *good public policy also makes good politics.*

However, there is a great need for research into this whole area, not only to assess end results but to help policy makers, educators, industry, and the general public make better informed decisions. Certainly such guidance, particularly from the academic and research communities, needs to be timely, accessible, and understandable to the public at large. The issues and debates should not be restricted to the halls of academe or government or the boardrooms of industry and commerce.

In Canada, at least, the doors into cyberspace are swinging wide open for Canadians no matter where they live and no matter what their socio-economic status. The many initiatives in Canada, represented by the SchoolNet and Community Access models, are dedicated to accelerating the pace of pervasive public access and effective usage of the Internet.

We feel that the benefits of being “first” are great, as is the need in our country to:

- communicate, collaborate, and share;
- become more efficient, productive, and competitive in all sectors, including industry, our public institutions, and the voluntary sector;
- develop learning skills for a knowledge-based economy and society;
- expand business activities and create jobs;
- improve our export performance.

SchoolNet, Community Access, and the other programs are integral parts of Canada’s overall strategy to succeed into the next millennium as a modernized nation providing the best quality of life on the planet for its citizens.

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