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ABSTRACT
                Canadians find it necessary to both define and defend their
cultural identity partly because their historic, geographic, and political
differences from the United States are frequently overshadowed by the many
characteristics the two countries share: a continent, a very high standard of
living, a language, and a popular culture as presented through the media.
With the advent of computer technology, cultural erosion by U.S. publishing,
broadcasting, and entertainment has again become a threat to Canadians.
Canadians have been "early adopters" of communications technology; Canada is
a very large country with a sparse population and many isolated communities,
and electronic communication has allowed residents to circumvent the need to
rely on more traditional means of communication. Legislators have been
proactive in technology issues but have often treated technology as neutral
and static, failing to take into account the cultural and social biases
inherent in the English-centered software market and Internet community.
Canada is officially multi-cultural, and has both French and English as
official languages, numerous indigenous languages, plus the languages of new
citizens. The need to use the English language has a strong impact on
linguistic integrity on non-primary English-speaking peoples. It is essential
to shift the focus from the skills needed to operate the technologies to
developing the knowledge to become critical users. In the hands of such users
technology is beginning to have considerable cultural benefits, in the form
of electronic Francophone communities as well as processes which lower the
cost of producing French-language textbooks, reading material in Native
American languages, and linguistic software. Issues of information control
and research and education are also discussed. (Contains 18 references.)
(SWC/BEW)

# The Culture of Computer Technology in Education and Research: A Canadian Perspective

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## Context

Many, if not most people in the world, think of Canada--when they think of it at all--as the cold bit of North America. Unfortunately, the terms 'North America', and more generally 'America' have become synonymous with the United States; and when Canadians attempt to draw a distinction between the two countries, we are often considered to be splitting hairs. This is in spite of the fact that we have experienced very different histories, geographies, politics and cultures (Coe 1988). These differences are frequently overshadowed by the many characteristics the two countries share: a continent, a very high standard of living (for some), a language (more or less), and, perhaps most importantly, a popular culture as presented through the media. One of the reasons Canadians feel it is necessary to both define and defend our cultural identity is that there exists a very real danger of losing it altogether--of becoming, if not politically, then culturally--the fifty-first State.

This spectre has been rising over the last thirty years. For a time it appeared that we had come to terms with the need to protect our culture from being entirely eroded by the American publishing, broadcasting and entertainment industries. With the advent of computer technology, however, cultural erosion has again become a threat--one to which we are particularly vulnerable owing to our extensive reliance on computer and communication technologies.

Canadians are 'early adopters' of communication technologies. Why is this? Canada is a very large country, magnified by our very sparse population. Many of our communities are isolated, often accessible only by infrequent and irregular air service. Electronic communication has allowed residents to circumvent the need to rely on more traditional, but less dependable, means of communication. It is this heavy reliance on alternative communications that has left us so vulnerable to U.S. influences.

This situation has not gone unnoticed by the Canadian government agencies. They have established a legislative framework which addresses issues such as ownership, access and infrastructure, and to some extent content but, they have tended to treat technologies as neutral and static. As such, they have not addressed the issues as they relate to computer-mediated technologies (Communications Canada 1992).

These shortcomings are exacerbated by the division of political power and responsibility between the Federal, the ten Provincial, and the two (soon to be three) territorial governments. Provincial legislatures enjoy a level of autonomy almost unknown in Europe, and education (with few exceptions) is their responsibility. This is not to say that the Federal government has not strongly influenced policy and curriculum. Additional funding has been made available to school districts to support

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programs that the Federal government deemed to be of strategic value--typically Canadian Studies and French Language education with special emphasis on Canadian content in textbooks and learning materials.

**Language Issues**
Any discussion of Canadian identity must always be concerned with issues of language. In a Canadian context, we must consider not only the 'Language' of communication (English, French, Cree, etc.), but also the 'language' used and the cultural and social biases it reflects. English has become the *lingua franca* of global communication and nowhere is this more evident than on the Internet. The Internet has gained particular acceptance in Canadian educational and business settings because, unlike other countries, Canadian and U.S. residents are not required to pay transmission fees (at least for the time being). Even when people exchange messages in other languages, there is a tendency to use Latin characters because diacritical marks, for example, can cause transmission problems (Bradsher 1996, Thomas and McDonell 1995).(1) In a country that enjoys as much linguistic diversity as does Canada, such impediments to transmission obviously lead to difficulties.

The two Official Languages of Canada are English and French. In addition, in areas such as the NorthWest Territories, indigenous languages are also official languages of the governing legislative assemblies. Canada's native populations have been educationally disadvantaged for years (historically, this was also true for our large Francophone population). After suffering from a lack of relevant, culturally appropriate textbooks and audio-visual materials, they now face a lack of relevant, culturally appropriate software. Software producers do provide French language versions of their main commercial releases although there is a delay of many months. There is a greater problem with educational software, the release of which is dependent on the amount of interest generated in the European market. At best, this can take close to a year (Tu Thanh Ha 1996).

In spite of these problems, computer technology has also led to some unexpected benefits. For example, it has played a role in building Francophone communities, especially learning communities. Francophones outside the province of Québec often live in remote areas, and in addition, they are often widely separated from each other. Collaboration, however, is central to their cultural norms, and, even when separated by great distances, they tend to easily form groups with others sharing their cultural affiliation (Paquette-Frenette and Larocque, 1995). Computer technologies, such as computer conferencing, that support a collective approach to learning have proven very valuable. In addition to linking isolated learners with others who share their language and cultural values, interactive technologies have enabled education providers to overcome many of the problems associated with small populations.

Another area that has benefitted from the application of computer technology is that of post-secondary science education, which suffers from a serious shortage of high quality affordable French-language textbooks. Slides or transparencies that can be used as teaching tools are even more scarce. In an attempt to alleviate this situation, the

BIODIDAC project was initiated by the University of Ottawa.(2) The objective of the project was to encourage exchange of teaching aids suitable for use in French (and English) biology classes. A digital media bank comprising such teaching tools as text material, drawings, photos, and video has been established, as has an Internet ftp site, a web site and an electronic discussion group where educators can share ideas. (BIODIDAC 1996).(3) This type of cooperative effort has been made possible through the use of computer technology.

As is the case with Francophone education, the application of computer technology to address the learning needs of Canada's First Nations people has had mixed results. Because of their very different cultural norms, computer conferencing has not proved to be successful. Computer conferencing, essentially a conversation in text format between two or more people separated by time and space, meets the norms of both Anglo- and Francophones. Indigenous cultures have very different communicative--and learning--ethics.

At the risk of generalizing across a number of very diverse First Nations, their cultures are essentially oral ones. The process of changing from orality to literacy requires that people change their cognitive processes; essentially, they must learn to think and express themselves using different discourse patterns. A related problem is that the decontextualized nature of learning is alien to traditional ways of learning. The nature of 'talk' in native communities contrasts quite sharply with the value placed upon it in our culture. 'Co-presence' is far more important than talk, and silence is valued very highly for a variety of reasons (Spronk 1995). Neither of these norms is supported by computer technology.

The need to use the English language has a strong impact on linguistic integrity. Where indigenous language retention is an issue of concern, the almost exclusive use of English can be a profoundly negative force. Surprisingly, in this realm, computer technologies have been a valuable tool in native language preservation and renewal. Unlike English or French, the written form of indigenous languages such as Inuit and Cree is based on syllabic characters. With the development of digitized syllabic fonts for wordprocessing, there has been a sharp increase in the availability of native-language reading materials in the Canadian North. This has been facilitated through the increasing use of binary (graphic) files as opposed to text files. The time and cost required to type, edit, and produce syllabic reading materials has been reduced by about 50 per cent while at the same time accuracy and control in the translation process has increased. The development of an Inuktitut spell-checking software has further enhanced the process. Computer technology has helped Inuktitut gain status as a working language, linking native organizations, business, and governments in northern Canada. (Stiles 1984).

In addition to the English, French and First Nations languages, the issue is further complicated by the fact that Canada has been officially multi-cultural since 1987. Our multi-cultural policies both encourage and support linguistic diversity. With the rise in the number of new Canadians from Asia, the development of software translation

programs in Chinese and Japanese, as well as multi-lingual Internet readers, has received more attention.

## Cultural and Social Biases

English has been referred to as the primary link language of computer technology--with both the technology and the language providing a transparent, neutral vehicle for communication (Bowers 1988, DeStefano 1989). Although English is now spoken by more people as a second language than as a first language, does this mean that it is free of cultural values? Is computer technology neutral, or does the language used to speak about technology and to use technology, transmit a culture of technology? Even in a multi-lingual, multicultural country such as Canada, English is an essential asset. Recently, Télé-Université contracted with Athabasca University(4) to provide an English certification program primarily for people working with computer technology. It is interesting to note that this program includes a cultural and social values component. Why, if English is 'culturally neutral' should such a component be deemed necessary?

Wittgenstein (Postman 1992) expresses the view that language is not only a vehicle of thought but also the driver of thought: values are reflected in the way language is used. Or, in the oft-repeated words of one of Canada's most well-known communications experts, Marshall McLuhan 'The medium is the message' (Postman 1992). The influence of 'techno-values' is especially evident where computer technology has been applied using a 'product approach' i.e., where the technology itself rather than its impact on learners, is the focal point. Conversely, where the technology has been used to facilitate learning activities that solve a specific problem or meet a specific need--a 'process approach'--it has proven to be much more culturally neutral (Burge, Wilson and Mehler 1984). Some examples of the biases reflected in the culture of technology are the value placed on speed, autonomy and 'context-free' information (Bowers 1988, Postman 1992).

## Issues of Information Control

The strong interrelationship between language and culture has been illustrated by Logan (1995) in his discussion of the five stages of human communication and how each development led to unexpected changes in society, that in turn, demanded altered educational methods. Ultimately, this transformation will lead to the end of specialization (typified by logical, linear, phonetic language and thought) and an increase in multidisciplinary study (non-linear, web-like processing). One of the concepts that he and others (Burton 1992, Haywood 1995, Poston 1992) address is the blurring of the distinction between the value placed on knowledge and that placed on control of information.

There is some evidence that this blurring is indeed taking place. There has recently been an escalation in the debate between those who think of information as a cultural artifact and others who consider it to be a trade good. Increasingly, information is seen as an economic product--one that falls under the jurisdiction of international trade laws. The issue of control of information technologies, as typified by Trans Border Data

Flow (TBDF), and the resulting attempts to control electronic data transmission from the United States, have gained increasing urgency in countries that fear a cultural hegemony (Bowers 1988, Burton 1992).

Canadian control of content has been recognized as worthy of attention by the Federal government, the broadcasting industry and by educators insofar as the Canadian content of textbooks is concerned. The scope of this attention is gradually being expanded to include electronic and computer technologies (Sirois and Forget 1995). Still, in the rush to gain access to the 'information highway', educators are among the primary advocates of the new technologies and their U.S. biases. This is hardly surprising. Because there are so many similarities, apparent or real, many miss the more subtle elements embodied in Canada's radically different political and social culture (Coe 1988). Questions regarding the suitability of computer technology for teaching and learning have tended to focus on the influx of objectionable material via electronic media rather than its potential to undermine values and traditions (Sirois and Forget 1995).

**Research and Education Issues**
Communications technology was once important only to single mode distance education providers, but now traditional institutions are moving into a dual mode of providing both face-to-face and distance education. There is a growing emphasis on the 'global classroom' (Bradsher 1996). Learning institutions play a key role in the transformation to information society, and as educators we must be concerned about the extent to which technology may come to dominate learning rather than support it. Most of the current research into the impact of computer technologies has a technical rather than a cultural focus. These new technologies, however,

> should not be reduced to the status of a mere piece of equipment: they are complex packages bringing into play a host of social, cultural and economic factors. Hence, technology transfers form part of a specific process of cultural appropriation, which dictates whether they will be successful or not. (Jouët and Coudray 1990, 39).

It is essential that we shift our focus from the skills needed to operate the technologies to a more balanced position, where the need to develop the knowledge to become critical users plays a more important role. Users, whether teachers, learners or researchers, must have the ability to make informed choices about the computer technologies. While it is not possible to predict the impact that these technologies will have on cultural integrity, we have an obligation to temper our enthusiasm until we have carefully considered all of the implications. While the examples provided here may be Canadian, these concerns are not exclusive to the Canadian environment (Sirois and Forget 1995). Rather, they reflect those of many countries, and cultures, that find themselves in dependent positions.

## Notes

(1) The International Standards Organization's (ISO) Latin #1 does support accented characters but less than half of available communications software providers and even fewer transmission services support them (Thomas and McDonell 1995).

(2) The University of Ottawa is one of several bilingual universities across the country. At the University of Alberta, the Faculté Saint-Jean offers undergraduate degree programs in science, arts, and education as well as a graduate degree in education.

(3) BIODIDAC
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|---|---|
| ftp site: | ftp://biodidac.bio.uottawa.ca |
| web site: | http://biodidac.bio.uottawa.ca |
| email: | biodidac@acadvm1.uottawa.ca |

(4) Two of the dedicated, single mode post-secondary distance education universities, Télé-Université is located in Québec and Athabasca University in Alberta. The third is the Open Learning Institute in British Columbia.

## References

BIODIDAC (1996) Electronic document, public domain, (http://biodidac.bio.uottawa.ca)

Bowers, C (1988) *The cultural dimensions of educational computing: understanding the non-neutrality of technology*, New York, Teachers College Press.

Bradsher, M (1996) 'Making friends in the global village' *Learning and leading with technology*, 23(6) 48-51.

Burge, E, Wilson, J, and Mehler, A (1984) *Communications and information technologies and distance education in Canada*, New Technologies in Canadian Education Series, Paper 5, (Eric Document 323 974).

Burton P (1992) *Information technology and society: implications for the information professions*, London, Library Association Publishing.

Coe, R (1988) 'Anglo-Canadian rhetoric and identity', *College English*, 50(8) 849-860.

Communications Canada (1992) *New media...new choices*, Minister of Supply and Services, Cat. No. Co22-123/1992.

DeStefano, J (1989) *The growth of English as the language of global satellite telecommunications*, (Eric Document 319 368)

Haywood T (1995) *Info-rich info-poor*, London, Bowker-Saur.

Jouët, J and Coudray, S (1990) New communication technologies: Research trends, *Reports and papers on mass communication No. 105*, UNESCO, Paris (France), (Eric Document 346 838).

Logan, R (1995) *The fifth language: learning a living in the computer age*, Toronto, Stoddart.

Paquette-Frenette, D and Larocque, D (1995) 'A Collective approach to distance education' in J Roberts and E Keough (eds) *Why the information highway?* Toronto, Trifolium Books Inc.

Postman, N (1992) *Technopoly: The surrender of culture to technology*, New York, Alfred A Knopf.

Sirois, C and Forget, C (1995) *The medium and the muse: culture, telecommunications and the information highway*, Montreal, Canada, Institute for Research on Public Policy.

Spronk B (1995) 'Appropriating learning technologies: Aboriginal learners, needs and practices' in J Roberts and E Keough (eds) *Why the information highway?* Toronto, Trifolium Books Inc.

Stiles, J (1984) *Communications and information technologies and the education of Canada's Native peoples*, New technologies in Canadian Education, Paper 6.

Thomas N and McDonell D (1995) 'The role(s) of technology in minority group distance learning' in J Roberts and E Keough (eds) *Why the information highway?* Toronto, Trifolium Books Inc.

Tu Thanh Ha (1996, April 5) Québec seeks to retain French as language in computers, *The Globe and Mail*, A1, A3.

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