

# Teaching Canada for the Nineties

By Robert M. Anderson

Canadian Studies and the new information technologies should be linked. Canadian studies programs should prepare students to use the potential of the "wired society" for personal improvement. To simply exist in this wired society is not enough. Students must also come to understand it so that they do not simply become its victims. The Canadian Studies programme outlined in *Teaching Canada for the '80s* must be interpreted so as to give proper emphasis to the impact on Canada of the communications revolution.

The Canada Studies Foundation has long postulated that the Canadian political community has been and continues to be formed and influenced by a number of readily identifiable characteristics or basic features that in combination make Canada a unique country. The most important of these basic features are:

1. Canada is a northern, vast, and regionally divided country.
2. Canada has a broad natural resource base composed of both renewable and non-renewable resources.
3. Canada is an industrial, technological and urbanized society.
4. Canada is a culturally diverse, multi-ethnic country with two "official" linguistic groups.
5. Canada is exposed to a multitude of external economic, political and cultural influences.

Three points must be noted about these basic features, particularly by those who debate the content and context of Canadian studies programs. First these features are not merely subjective. They do exist. One may add to the list, but these features are an integral component of Canada as it is today. Second, these features interact with each other and it is this interaction which most strongly influences the development of Canadian Society. Third, the impact of each of these features is felt to varying degrees at different times and in different places within Canada. One can argue forever about an ideal Canadian studies program, but no program should ignore these features, their origin and their continuing impact on our society.

They form the basis for the argument in *Teaching Canada for the '80s*, where

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Hodgetts and Gallagher present a set of guidelines for Canadian Studies curricula. After raising the major issues involved in teaching about Canada, they proceed to outline a proposal for an optimal program of Canadian studies. Their proposal, although widely accepted, has also generated further inquiry across Canada concerning the nature of Canadian studies and its pedagogical implications, as can be seen at any teachers' conference and in many curriculum guidelines. In turn, this discussion has generated concrete activities. Many curriculum or material developers implicitly or explicitly refer to *Teaching Canada for the '80s* at some point, although they do not always utilize all its ideas.

The book is exclusively addressed to the question "What should young Canadians understand about their own country?" This question arises from two concerns: 1) a conviction that we need more positive attitudes towards Canadian society as a whole; and 2) a recognition that our society is becoming unbelievably more complex than in the past. Today's students must exist in an increasingly complex society yet their schooling has often failed to prepare them adequately. The pedagogical imperative thus becomes clear: to design a program of Canadian Studies that will reflect and clarify this complexity while at the same time fostering more positive attitudes towards Canada as a whole.

*Teaching Canada for the '80s* has made a start. Understandings have been outlined that are considered essential to an informed knowledge of Canadian society, the structure and functioning of its economic and political systems, and the problems or issues that have been and will continue to be of continuing concern to Canadians.

These understandings emphasize the pluralism and diversity of Canada and the opportunities and difficulties that Canada's regional, economic, social, cultural and linguistic differences present. One basic premise is that conflict of opinion, controversy and stress are inevitable in all societies and especially in Canada, but that these tensions can also be a constructive force in any society. At the same time, an overemphasis on our differences in a narrowly Canadian context will obscure that fact that many Canadian regional or national issues are manifestations of world-wide concerns and that they transcend purely domestic considerations. In short, we cannot be too inward looking. Canadian Studies must be concerned with issues such as the population explosion, world-wide inflation, world food and water shortages and energy problems, to give only a few examples.

This concept of Canadian Studies largely equates them with citizenship education. Initial preparation for citizenship education must begin in the elementary school and continue through the school program. This can be done by concentrating on those aspects of the environment — or the basic features — discussed in *Teaching Canada for the '80s* that are appropriate for the early grades regardless of the particular content at each grade level. In later grades the four separate, but interrelated, components of Canadian studies described by Hodgetts and Gallagher can be emphasized: the Canadian environment, the Canadian political system, the Canadian economic system and Canadian public issues. There is no one way to do this. The challenge is to integrate these components into feasible courses — a not-so-simple challenge, particularly when it is maintained that the present, past and future form three aspects of a good program and that all three aspects must be stressed.

Courses have been developed based upon these five basic features as explained in *Teaching Canada for the '80s*. Materials have also been developed, particularly by the Canada Studies Foundation, and the work is continuing. Of greater import, there is some evidence to indicate that the goals outlined in *Teaching Canada for the '80s* are being achieved. The major conclusion of Kirkwood and Nediger (1982) after surveying almost 11,000 students in ten provinces and two territories was as follows: "Students included in this survey do indeed possess a basic level of knowledge about Canada and do possess positive attitudes." (p. 36). This conclusion does not mean that reform in Canadian studies education should cease. Far from it, for this is only one study, albeit a large one. The conclusion does allow for at least limited optimism however. The conclusion is far different from one of the major conclusions of Hodgetts' (1968) landmark study which was as follows:

... the legitimate national interests of this country are not being served by our present Canadian Studies programs and that the need for radical reforms is urgent... Not only are the schools failing to serve the interests of the wider society, but the reasonable expectations of the individual student while he is in school — as distinct from the role he may play as a citizen after graduation — are not being fulfilled either (pp. 15-16).

Little reference is made in *Teaching Canada for the '80s*, however, to the information technologies that are affecting our lives in so many ways — both visible and invisible, an omission which il-

lustrates the speed with which these technologies have advanced upon us. Obviously, Canadian Studies must still continue to emphasize the structure and functioning of Canada's economic and political systems and the issues that are of continuing concern to Canada. However, the issue of technology, particularly the new information technologies, must be integrated into the Canadian Studies program more explicitly than it has been. It is obviously too important to be ignored. "What has been called the "quiet evolution" is going forward, inexorably, day by day. Whether we like it or not, whether we lift a finger to control and direct them, we will use and be affected by the new technologies." (Smith, 1982).

This last phrase, "the new technologies," is worth noting. It highlights what is perhaps the most important characteristic of the new information technology, a characteristic that many people choose to ignore: there is no single new technology; there are several. This is the important point. As Elmes (1981) has so aptly described it, it is the chronological juxtaposition of a number of developments in technology that have produced a situation where each of us will witness a rate of change heretofore described only in science fiction. These developments obviously will have profound impacts on society and on education. In turn, the impacts of each will impact one another.

Although the information is reasonably familiar, it is useful to summarize it here, if only to establish just how immense the technological advances are and how revolutionary their implications.

The electronic tube that cost two dollars in 1950 became a transistor that cost ten cents in 1960. Today, one hundred thousand transistors have been reduced to one silicon chip which, if it sells for ten dollars, reduces the price of a single transistor to one hundredth of a cent. If the rate of progress of chip technology continues as predicted, an additional 10,000-fold increase in performance will occur over the next ten years at no additional cost.

Combined with the reduction of cost, there has been an incredible miniaturization of information technology. Robert Noyce, president of INTEL, a leading manufacturer of microprocessors, said in 1978 that his company had the technical capability of putting an IBM 370 on a single microprocessor chip, but he didn't know if there was a market for such a thing. That chip, actually an improvement on the IBM 370, has been produced.

Video discs are with us and indeed are being used in education, private industry, business and the home. With a self-indexing video disc playback unit capable of playing one-half metre discs, an instructor can index and display on a TV set any one of 16 million pages within two to three seconds. A recent pilot project of

the Public Archives of Canada demonstrated that images of all its holdings could be stored on video discs. This involved the storage of a wide range of holdings: prints, paintings, drawings (both artistic and architectural), photographs (black and white and colour, positive and negative), paper documents, medals, posters, maps and motion pictures. This project took place at a time when the technology of video disc recording and playback was still at the prototype stage. Yet all the goals of the project were achieved and almost 40,000 images of holdings were recorded and played back.

A single wafer-thin disc, half a meter in diameter, can include images of 32,500 books or the equivalent of 16 million pages. Approximately 19,000 discs could store the complete holdings of the Public Archives of Canada and occupy the space of one standard filing cabinet.

Self-indexing video disc playback units have been available since 1980 for \$12,000 to \$15,000. This price includes minicomputer, video disc player and TV set. The cost will drop drastically as the micro-chip industry becomes even more proficient and these units go into large scale production. It will then be economically viable to consider them as permanent installations in classrooms, learning booths, resource centres and obviously homes.

Laser beam self-indexing playback units are now widely used. They have been proven to be extremely durable through extended use in the U.S. Air Force. The life expectancy of these discs, because no gramophone-type needle touches them, is estimated at a minimum of 50 years with regular use.

To date, the most phenomenal rate of growth in the new information technologies has been in the microcomputer field.

It is obvious that, given the decreasing cost of microcomputers, their use in the home is increasing, both for recreational and learning purposes. Eventually, these microcomputers will be linked to central data banks and to other homes via optic fibres and Telidon.

This home use will impact drastically on arts and culture and on the education system. Already, some elementary and secondary schools in California rely heavily on microcomputers for instruction. Some Canadian colleges and universities have been heavily involved in Computer Assisted Learning (CAL).

Until recently, most educational computer uses have been on time-sharing systems with per terminal capital costs of \$10,000 to \$20,000. Personal microcomputers of equal capability are available today for \$1,000 to \$2,000 and the cost is continuously decreasing.

The decreasing cost brings this enormously powerful technology within the reach of every student. The ability to pro-

gram and use microcomputers is becoming as important as being able to read, write, type, drive or use the telephone.

A single glass fibre with the diameter of a human hair can carry 800 voice conversations, tens of thousands of data messages, or 50 million bits per second — in short, it has enough capacity to carry the contents of four books from Ottawa to Vancouver in one hour. Linked to satellite transmission, the carrying speed is increased again.

Eventually, optical technology will utilize the visible light laser which will permit a carrying capacity of 100 million times today's fibre optics.

Videotex is one of several terms used to describe the display of textual information in graphic or written form on a video screen (TV).

Telidon, as is well known, represents Canada's entry into this field. Developed by the Communications Research Centre of the Federal Department of Communications, Telidon is the most technologically sophisticated second-generation videotex system in the world due to its enhanced graphics reproduction ability. This high resolution is accomplished by Picture Description Instructions which describe graphic images as basic shapes, thus permitting their combination on the same frame with textual material.

Input is accomplished via a special terminal which utilizes an alphanumeric keyboard for text and a "Joy-stick" for free-form graphic creation. The system utilizes an eight-colour palette plus a grey scale in addition to a number of special effects such as polka dots. No special knowledge of computer language is required to input graphics.

Large scale trials are now underway in Alberta, Manitoba, Ontario, Quebec, New Brunswick, Switzerland, Venezuela, Oregon and Washington, D.C.

Once one accepts the premise that a videotex communication revolution is inevitable, then the rationale for the federal government's push behind Telidon becomes obvious. If Canada is not to continue to be relegated to branch plant status as we move into the Information Society, then Telidon must succeed.

Questions of Canada's cultural, political and economic sovereignty are closely linked to our ability to control the hardware market and in turn, the compatible software and data banks.

At present, Telidon is very much a technology in search of a content. This explains why the telephone carriers and high level technology industries are so interested in developing educational programming alongside their commercial interest in news services, catalogue shopping, distance banking and the cashless society.

This also highlights the need, once the premise of inevitability is accepted, for Canadian educators to become intimately

involved in the decisions surrounding the introduction of Telidon. The need for this involvement to be independent of the telephone carriers and industrial interests is self-evident.

As indicated earlier, it is the chronological juxtaposition of these technological developments which are creating an extremely accelerated rate of change. Elmes (1981) is representative of most writers in the field of "high technology" when he describes the resulting effects.

This (change), in turn, will impact on education not only in terms of methods of delivery but also in terms of the subjects taught, percentage of time spent in a physical plant; the degree of interpersonal reaction; thought processes; problem-solving processes; and so on. One of the most important skills to be acquired will be the ability to relate disparate pieces of information to one another, to draw linkages. Power will increasingly rest with individuals who know how to access information and to synthesize it. (p. 3).

If Elmes is correct, and I believe that he is, the participant at a recent Computer Aided Learning Workshop who stated "As far as I know, people never had so many debates on chalk education, but it worked for a long time" (Science Council of Canada, 1981, p. 32) has surely underestimated the potential impact of the new technologies. The new technologies represent alternative aids to teaching. However, these alternative aids are so unbelievably more complex than chalk that many debates are not only necessary, they are vital to the survival of the education system. It follows, therefore, that they were also crucial to the future of Canadian Studies.

Teaching Canada for the '80s argued that we must teach students the knowledge, skills and values that will enable them to compete in an ever increasing complex society. The pressure is infinitely greater as a result of the technological advances described above. All indications point to the fact that, by the 1990's, technological advances that we consider science fiction today will be commonplace. Canadian Studies educators must prepare students to cope with these technological advances. Hopefully, a Canadian Studies program that acknowledges the reality of the "quiet evolution" can utilize that knowledge to improve the program and its delivery. Students must be taught the skills necessary to use the potential of what has been referred to as a "wired society" for personal improvement. Obviously, many important subjects within Canadian Studies can be taught in this way.

More than this, however, it is imperative to teach students about the com-

munications revolution, so that they understand it. To demonstrate this point at one ridiculous level, PAC MAN disease is now documented in medical journals and described in the public press. Computer technology has become a part of everyday life in Canada. Furthermore, the computer is common in the classroom; in few classrooms can pocket calculators or multi-function digital watches not be found. When one also considers interactive teaching machines in the home, video games, Speak and Spell toys, electronic arcades and Star Wars robots, it is clear that the electronic revolution is commonplace to today's children. More complex than even these developments is "telematics." Telematics, as described by Ryan (1981), is another illustration of the growing complexity of our society. Telematics — the transmission of information over a distance — is the logical result of the juxtaposition of all the technologies. According to Ryan, telematics signifies the merger of information, information technology and communications. It is a combination of subject matter, as expressed in language; of computers and computer technology; and of communication systems such as telephones, radios, television and telecommunications linkages. Telematics is here. It is its impact that is an issue. There are very obvious risks and benefits to Canada's national sovereignty, to privacy and access to information.

These issues have been resolved at the present time. That they should be, and quickly, can be illustrated by again presenting the most important of Canada's basic features as described by Hodgetts and Gallagher and then asking a series of questions that relate the basic features to the implementation of the new information technologies.

1. Canada is a northern, vast, and regionally divided country.
2. Canada has a broad natural resource base composed of both renewable and non-renewable resources.
3. Canada is an industrial, technological and urbanized society.
4. Canada is a culturally diverse, multi-ethnic country with two historically predominant linguistic and cultural groups.
5. Canada is exposed to a multitude of external economic, political and cultural influences.

Some questions that are now relevant are: How "northern, vast and regional divided" need we be given the potential of instant interaction between our home and anywhere in Canada?

Will our resources be better controlled given the increasingly more sophisticated power to predict as a result of our current computer technology?

Will our "industrial, technological and urbanized" society enable Canada to become a leader in the field of high technology?

Will our "culturally diverse, multi-ethnic country with two historically predominant linguistic and cultural groups" become more or less diverse as a result of the widespread use of telematic techniques?

Will the "multitude of external economic, political and cultural influences" that Canada is exposed to overwhelm us as a result of the impact of the new technologies, especially those based outside Canada's territorial borders?

These questions, linking Canada's basic features and the new technologies, illustrate the potential impact of telematics, both positive and negative, on Canadian society. They also illustrate how technology and its present and future impact can become an integral component of a Canadian studies course. It is possible to continue and design an entire curriculum around these questions, an exercise that likely would be worthwhile.

If "PAC MAN disease" and certain recent decisions concerning Canadian content on Pay TV are any indication, there is reason for pessimism concerning the "benefits" Canadian citizens will derive from current technological advances. Without considering the issue of the use of technology for Canadian Studies endeavours (although it is difficult to imagine teaching this topic without the use of examples), a strong case can be made to include the "new information technologies", "telematics", "the wired city", "the electronic highway", or any other phrase one wishes to utilize in any Canadian studies curriculum. Increased knowledge is vital. A long-standing assumption of the Canada Studies Foundation is that increased knowledge about Canada will bring about an increased understanding of our society and assist a person to positively and actively participate in it.

This positive and active participation implies more than simply coping in a complex technological society (although as has been stressed repeatedly that might be difficult enough), it implies the education of a person who is able to make reasoned and intelligent decisions vital to the very survival of our country as we know it. Canadian Studies should prepare for these tasks. As one of the authors of *Teaching Canada For the '80s* recently remarked: "It is not teaching Canada for the eighties that should be concerned with, but teaching Canada for the nineties."

#### REFERENCES

- Elmes, R. An overview of the new information technologies. *Canadian Studies Bulletin*, March, 1981, 1-4.

- Hodgetts, A.B. *What culture? What heritage?* Toronto: OISE Press, 1968.
- Hodgetts, A.B. & Gallagher, P. *A survey of elementary and secondary pupils: Their knowledge and attitudes regarding Canada.* Ottawa: Department of the Secretary of State, 1982.

#### Media News

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that our awards are gaining recognition as a sign of quality in Canadian educational media productions. In Winnipeg, the CBC-TV outlet presents a weekly series entitled "Manitoba Filmmakers". Films are chosen on several criteria, one of which is the AMTEC Media Festival Award. And in Toronto, the University of Toronto 1983-4 video film collection catalog makes specific mention of the AMTEC awards.

#### NFB Reorganizes Distribution Offices

The National Film Board announced today that it will close eight of its thirty distribution offices as part of an overall plan to reduce administrative costs. During the next two years the offices in Chicoutimi, Saskatoon, Trois-Rivières, Thunder Bay, Kingston, Corner Brook, Hamilton, and Sydney (Nova Scotia) will be closed, as well as NFB offices in Chicago and Sydney, Australia.

The funds saved will be channeled into the development of new communication systems such as video cassette and cable-tv distribution, and into ensuring the continued relevance and quality of NFB films.

According to William Litwack, Director of Distribution, the reorganization will affect 20 employees "but we have been planning the consolidation of our services for the past year, and will be able to offer most of our staff comparable positions in other NFB offices. We will work closely with employees who are unable to relocate to ensure that they leave the Film Board under the fairest conditions possible."

NFB clients affected by the closings will be encouraged to receive films by mail from the nearest NFB office.

"These were difficult decisions," Litwack said "and we regret that a certain amount of personal contact with our film borrowers will be diminished, but we will do everything we can to maintain close contact with the public and to provide efficient service."

In connection with the foreign offices Litwack said, "the Chicago operations will be transferred to our offices in New York and Los Angeles and film distribution in Australia and the Far East will be handled by our head office in Montreal. This reorganization leaves us with 22

Ryan, M.C. Telematics, teleconferencing and education. *Telecommunications Policy*. December, 1981, 315-322.

Science Council of Canada. *Policy issues in computer-aided learning: Proceedings of a workshop sponsored by the Science Council of Canada*

distribution offices in Canada and 4 international offices, which will continue to serve our clients," Litwack said.

#### Office Date Closing Clients will be served from

Chicoutimi	August 1983	Quebec
Saskatoon	September 1983	Regina
Trois-Rivières	October 1983	Montreal
Thunder Bay	October 1983	Winnipeg
Kingston	March 1984	Ottawa
Corner Brook	August 1984	St. John's
Hamilton	November 1984	Toronto
Sydney, N.S.	January 1985	Halifax
Chicago	April 1984	New York and Los Angeles
Sydney, Australia	September 1983	Montreal

#### NFB Update

One of the priority items at the meeting of the National Film Board's Board of Trustees in Halifax, June 17 and 18, was to review the recent decision to close eight of the Film Board's Canadian distribution offices. The offices which were destined to close during the next two years are Chicoutimi, Corner Brook, Hamilton, Kingston, Saskatoon, Sydney, Thunder Bay and Trois-Rivières.

"Due to strong public reaction and the deep concern of the communities affected, we felt a review of the situation was called for," said Government Film Commissioner and Chairman of the Board James Domville. "During the past two months we have received hundreds of letters and thousands of signatures from users of our films and have met with various groups that sprung up to protest this decision after the closings were announced. This overwhelming support by our users clearly shows that the NFB is playing a crucial role in the cultural life of Canada's regions," he said.

In the light of the public response, the Board of Trustees directed the management of the NFB to modify implementation of the decision to close the eight offices. Mr. Domville is pleased to say that the Board directed that the offices remain open until such time as the NFB has been able to establish adequate alternative arrangements to serve the communities or until the new policy directions for the Film Board have been accepted by government and announced. In either case, the NFB will ensure that the specialized audiences in the community are adequately served by our films.

Committee on Computers and Communication. December, 1981. Proceedings P8116.

Smith, S.L. *Microelectronics today: The quiet revolution. Statement of the Chairman, Annual Review, 1982.* Ottawa: Science Council of Canada, 1982.

#### Conference on Instructional Technology

"Computer Technologies for Productive Learning" is the theme for the Fourth Canadian Symposium on Instructional Technology which will be held on October 19-21, 1983 at the Westin Hotel, Winnipeg, Manitoba.

This series of symposia is sponsored by the Associate Committee on Instructional Technology of the National Research Council of Canada for the purpose of informing the academic and business communities of recent advances in computer-aided learning technology and their applications.

This Fourth Symposium is designed for education and training professionals and others interested in computer-aided learning for the entire population — from the young child to the retired adult.

Topics of the current Symposium include:

- Computer-assisted training and retraining for business, industry and government.
- Within the educational context: learning with, from and about computers.
- Computer awareness and literacy in schools and society.
- Telecommunications: learning opportunities for the public.
- Productivity improvement methods.
- Productivity analysis.
- Systems technology.
- Equipment and language standards.

A circular containing a list of papers to be presented and registration information will be published in July 1983. Those interested in receiving this publication are requested to contact:

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Ottawa, Ontario, Canada K1A 0R6  
Telephone: (613) 993-9909 or 993-9628 Telex: 053-3145

#### Bell and Howell Draw

At the recent AMTEC conference in Montreal, Dr. Gary Boyd drew the lucky winner of the Bell and Howell draw.

The winner of the Bell and Howell 850 Ringmaster II was:  
Steven Counter  
Lakeshore School Board  
Pointe Claire, P.Q.