



F u t u r E d

**Addressing the Digital Divide:
Literacy Issues and
Options for Action in Canada**

Prepared by:
Dr. Kathryn Barker
FuturEd Inc.

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Table of Contents

INTRODUCTION	2
1. CONTEXT	2
1.1. Literacy	2
1.2. Digital Divide	6
1.3. Federal Government Roles	8
1.3.1. The Content Areas of Literacy and ICT	8
1.3.2. Change Processes and Policies	8
1.3.3. Current Federal Policy Priorities	9
1.3.4. Canadian Value Paradoxes	9
1.3.5. Areas for Improvement	9
1.4. Linking Literacy, the Digital Divide, and the Government of Canada	10
1.4.1. Literacy and the Digital Divide: Similarities	10
1.4.2. Differences	10
1.4.3. Assumptions Underlying Policy Options	11
1.4.4. Future Considerations	11
2. OPTIONS FOR ACTION	13
2.1. Focus on Federal Policy	13
2.1.1. Enhancing Existing Policy	13
Learning-based analysis	13
Plain technological access to information	13
Programs for designated equity groups	13
Alternative access to information and learning	14
2.1.2. Creating New Policy	14
2.2. Focus on People: Adult Canadians with Skill Deficits	15
2.3. Focus on Formal Learning	17
2.4. Focus on Learning Systems for the Future	18
2.5. Focus on The People of The Future: Kids and their Parents	21
2.6. Focus on Lifelong Learners / Learning for the KBE	23
2.6.1. Developing a National Policy	23
2.6.2. First Steps to Implementation	23
2.6.3. Lifelong Learning, Literacy and ICT	24
2.7. Start from the Lessons Learned Study	25
2.8. Do Nothing	29
3. NEXT STEPS	29
3.1. Immediate and Short-term Actions	29
3.2. Immediate and Medium-term Actions	31

INTRODUCTION

This paper, prepared at the request of HRDC, represents the informed opinion of Dr. Kathryn Barker, FuturEd.¹ Dr. Barker has been charged with the task of presenting options for action, by the Government of Canada, to address the problems associated with adult literacy and use of Information and Communications Technologies (ICT). This discussion paper begins with the context for a discussion of literacy and the Digital Divide at the federal level in Canada, then sets out a variety of options for action, and concludes with proposed "next steps."

1. CONTEXT

Any discussion of literacy, the Digital Divide and the Government of Canada first requires establishing what is meant by, and what known about, each separately and in relationship to each other with an eye to the past, present and future.

1.1. Literacy

In the area of literacy, the policy context is rich with useful and largely-academic knowledge. In Canada, as in most other industrialized economies, we know the following.

Literacy -- the individual's ability to understand and use reading, writing and numeracy skills -- is *the* foundation for citizenship, lifelong learning and work in contemporary society. Literacy demands are growing in number and complexity, and will *continue* to

¹ These views are informed by the following relevant experience:

- 20 years experience working in the field of adult and workplace literacy
 - recent completion of the "Lessons Learned in Literacy" project for EDD/HRDC
 - Board membership on the Movement for Canadian Literacy
 - completion of various projects for the National Literacy Secretariat, e.g.,
 - a Guide to Work Skills Analysis,
 - a Guide to Return on Training Investment,
 - an exploration of the Electronic Learning Record
- considerable expertise with learning technologies and ICT
 - service on the Advisory Network of Experts to the OLT
 - undertaking of a study of virtual secondary schools in Canada (for SAE)
 - undertaking of a project to generate quality standards for on-line education products and services (for OLT)
 - creation of the Consumer's Guides to Learning for CanLearn Interactive
- considerable understanding of HRDC policies and priorities
 - preparation of the policy rationale for CanLearn Interactive
 - preparation of a framework for a national lifelong learning policy for HRDC
- extensive connections within Canada's education and training system, having:
 - worked with the Canadian Labour Force Development Board as Education Liaison
 - currently serving on the Board of the Canadian Education Association
 - worked with representatives of CMEC and Industry Canada on projects
 - an established reputation as an education futurist

be a foundation to citizenship, lifelong learning and work in the future, and at expanding levels of involvement -- local, national and global.

The nature of active citizenship, lifelong learning and work are all changing, e.g., requiring more use of ICT, more individual responsibility, more demand for and access to choice, more use of information, more stress and constant change, different resources. This means that conventional literacy is a necessary, but not sufficient, condition for active participation in the life and work of the community of the future.

Conventional or traditional definitions for literacy have incorporated reading, writing and numeracy skills; however, they may be inadequate for the globalized Knowledge-based Economy (KBE). Emerging definitions of literacy include the ability to use ICT, cultural and scientific literacy, media and social literacy,² lifestyle/health maintenance, global citizenship, "essential skills"³ and learning skills. This leads to the debate whether the term "literacy" is -- or should be -- used synonymously with "skills and knowledge," or if such an application is technically misleading or politically distracting.

Conventional literacy skills -- at least the ability to read -- are required to independently engage with ICT to any meaningful extent. However, this is exacerbated by the increased use of icons in computer usage and by convergence between such technologies as television and the Internet. It may be considerably changed with the increased use of voice-recognition software. Reading skill is, at this time, a necessary but not sufficient condition for use of ICT and the Internet.

By conventional measures, a significant number of adults do not possess adequate literacy skills to participate fully in contemporary society as active citizens, learners and workers now *or* in the future. According to the 1994 International Adult Literacy Survey (IALS), about 18% of working age Canadians have extreme difficulty with reading and another 26% have very limited skills.

Adult literacy has been a policy preoccupation of the federal government for at least the past 12 or so year, i.e., in the lead-up to and celebration of the International Literacy Year, 1991. However, the "illiteracy" statistics haven't changed in Canada. Since measurement of literacy in Canada has been undertaken, there has been no improvement in the number of adults with adequate literacy skills, despite various endeavors:

- a UN-declared Decade for Literacy, launched with great fanfare and hopes with International Literacy Year in 1991;
- the best efforts of the National Literacy Secretariat of HRDC;
- the public awareness efforts of, e.g., ABC Foundation and Frontier College;
- the charitable efforts of volunteer tutors and fund-raising organizers, e.g., the Celebrity Golf Tournaments;

² The term "social literacy" is used in the Digital Divide study to mean the ability to understand and use information in ways that are beneficial and meaningful to everyday lives. The study asserts that social literacy deficits lead to a perceived lack of need for the Internet and ICT use by a cohort of Canadians.

³ The term "essential" skills is used, largely by HRDC, to include basic literacy and employability skills. The employability skills are those set out by Conference Board of Canada, i.e., teamwork, problem solving and communication skills.

- countless local and national workshops and conferences, pilot projects, and development activities.

The teaching of literacy falls within the context of "education" which, in Canada, is a provincial jurisdiction. As the Canadian education system⁴ currently operates, it does little or nothing to improve the adult literacy statistics; and in fact, continues to contribute to the problem.

- The current Canadian education system does not provide long-term, stable, accountable literacy programs for adults. Nobody does.
- It should be no surprise that a large number of adults do not read well, as the current system has been used to sort and screen Canadians, by ability, into types of work and career probabilities, i.e., it does not have the flexibility to "stop" and work with an (each and every) individual until s/he has acquired the competencies to move on. Individuals get left behind, perhaps deliberately.
- There is a total disconnect between adult literacy and early literacy education; and there are considerable opportunities to connect the two conceptually through, e.g., content area reading, portfolio assessment, and the development of learning records beginning in the elementary years.
- The current system was designed for an industrial-age economy, and is totally inappropriate for a knowledge-based society, i.e., it does not and cannot produce knowledge workers. It does not and cannot accommodate adults in lifelong learning. We have a perfectly fine Industrial Age Education System: we just don't need it any more.
- The current system is changing in incremental ways, but strong forces work to maintain the status quo; i.e., it has not accepted responsibility for adult illiteracy and it unlikely to do so in the future. Similarly, teachers' unions continue to challenge the use and utility of ICT in the education system, fearing that they will be replaced by computers. In the meantime, a significant number of young people pass through the system, or withdraw without completing, and do not acquire adequate skills -- literacy, uses of ICT, citizenship, lifelong learning or workability -- to participate in contemporary society by contemporary standards. However, many young people thrive as entrepreneurs in the knowledge-based economy despite that.

The approach to solving adult literacy-related problems that has been taken has yielded limited results. While we have developed an understanding of what a quality literacy program should look like, with the full awareness that there is no "one way" to teach adult literacy skills, we have not provided the resources or systematically applied accountability practices to ensure that programs meet quality standards. The bottom

⁴ A word about "Canada's education and training system....It is difficult to use the term "Canada's education and training system" without being chastised, but the reality is that the design and delivery of publicly-funded education and training for children, youth and young adults is more similar between and among provinces, than it is different. There is a Canadian system but it is difficult to work with because there is no coordinated national/pan-Canadian leadership that views the system holistically.

line is that most Canadians are not interested in, or in agreement with, the adult literacy statistics.

We don't need more research before taking action. Established bodies of literature and research have demonstrated how to teach reading, writing and numeracy; how to teach adults; how people learn; problems and barriers to learning; special needs for special populations; how to train literacy workers. As well, we know exactly who is most likely to need literacy skills development, and the characteristics of those individuals. Most adults with literacy problems have personal and/or learning difficulties, low self-esteem and associated social problems. Adults with literacy problems are reported to have two thirds the income of other Canadians. They are twice as likely to be unemployed, and they are much more likely to receive some form of social assistance. And they typically belong to easily identified groups.

Although these statements are sweeping generalizations, they can be substantiated through the many research documents available from Human Resources Development Canada (HRDC), the United Nations Education, Scientific, and Cultural Organization (UNESCO), the Organization for Economic Development Cooperation (OECD), and others. There will always be exceptions to each assertion, but that fact should not impede forward motion. Too often in the past, the nay-sayers have taken the floor, and time has been devoted to debate rather than action. We know all we need to know to make sweeping changes; but the political will appears to be missing. One could cynically ask: "who has a vested interest in maintaining this element of the status quo in Canada?"

1.2. The "Digital Divide"

From studies conducted by the federal government and others, the "Digital Divide" has been characterized as:

- the situation in which one group of people use ICT and the Information Highway (IH), having the necessary skills, interest/motivation, and resources (hardware, access) to varying degrees, and another doesn't;
- the circumstance in which levels of awareness and use of new technologies and services, among Canadians, are highly polarized along social class and generational lines;
- a problem because the distance between the two groups is growing, "distance" being the privileges or benefits conferred by using ICT.

This characterization of the Digital Divide is limited in that the use of the IH or Internet has been measured as a proxy for general use of ICT. That being said, using this as a framework, we know the following.

A large number of Canadians do not engage with ICT -- banking machines, the Internet, government kiosks. According to the study *Information Highway and the Canadian Communications Household*, youth and better educated Canadians tend to have the highest levels of access and use.

According to a study conducted for HRDC and Industry Canada,⁵ the use of ICT is directly related to income. Higher income households are three times more likely than lower income households to have home access to the Internet. Two thirds of upper income households have home access compared to about one quarter of low income households. Cost or affordability is the most significant barrier to connectivity.

The barriers to use of ICT have been identified, through research, to be lack of financial resources for hardware and access, lack of literacy and ICT skills, and a lack of perceived need. A question to be answered is: "can the four factors of availability of service, cost, literacy, and capacity to use be treated separately? Can they or should they be treated as one policy problem?" According to the Digital Divide study, these barriers are aggravated by factors such as employment status and income, gender, education, technological literacy, and regional disadvantages.

The Digital Divide is widening. So is the income gap between middle and upper class Canadians. The Digital Divide is further evidence of the bifurcation of Canadians into "have's" and "have not's," or as Frank Ogden (Dr. Tomorrow) says: "know's" and "know not's." According to Statistics Canada,⁶ those who most need the benefits of new technologies -- those with low income, unemployed status and lower education -- risk becoming further marginalized as other Canadians benefit from the development of computer literacy skills.

⁵ *The Dual Digital Divide: The Information Highway in Canada* (Reddick, Boucher and Gorseilliers, Public Interest Advocacy Centre, 2000)

⁶ *Computer Literacy - A Growing Requirement* (Statistics Canada, 1996).

The form and use of ICT is constantly changing, becoming more ubiquitous, less expensive, more imbedded in all aspects of contemporary society. ICT, and especially the Internet, is a tool, a means to an end and not an end in itself.

Those without the skills, motivation or resources to use ICT are in danger of getting "left behind," at least temporarily. It is unlikely that ICT will diminish in importance to all aspects of contemporary society, but the next iteration of ICT may be less obtrusive, easier, more imbedded in other tools.

The use of the Internet by individuals loosely falls into three categories, in descending order of magnitude and importance: commerce, information sourcing, and communications / community building. These are the three functions that are "denied" to a portion of Canadians; however, those Canadians do use other sources and those sources must be maintained.

The use of ICT is pivotal to the knowledge-based economy because of the nature of the networked economy, characterized by Kelly⁷ as including distributed cores, adaptive technology, flex manufacturing, mass customization, industrial ecology, global accounting, co-evolved customers, a knowledge base, free bandwidth, increasing returns, digital money and underwire economies.

Prosperity for the individual, the community, and society at large is linked to "work" -- the generation of products and services which are increasingly knowledge-based. Unless there is a productive role in the KBE for a group of Canadians, they will have to be "looked after." This would be a viable policy option -- albeit questionable, at best -- were it not for the fact that children born into these groups will be raised with similar values and limited opportunities.

Governments have been involved in increasing access to and use of ICT for several reasons: provision of government services, economic development, and access to learning opportunities.

Some non-users have no intention or desire to use ICT. Others have deliberately withdrawn from use, choosing "voluntary simplicity" and disconnectedness from technology. Communities will continue to thrive without extensive use of ICT, and they will/may have the same needs for quality of life, information and government services as all other citizens.

⁷ *Out of Control: The New Biology of Machines, Social Systems and the Economic World* (Kelly, 1994) pp. 200-201.

1.3. Federal Government Roles

As the purpose of this discussion document is to set out ideas for future action, it is important to establish what the current situation is and what practices could be applied to either literacy or ICT skill development and utilization.

1.3.1. The Content Areas of Literacy and ICT

Relative to the content areas inherent in this discussion -- literacy and ICT -- the federal government has concerned itself, because of jurisdictional limitations, to:

- adult literacy, rather than the teaching of reading via education
- access to ICT through, e.g., Schoolnet, the Community Learning Network and Community Access Program
- innovative uses of ICT in learning environments, through OLT and SchoolNet
- promotion of learning opportunities (training for adults) through, e.g., sectoral councils
- learning opportunities for workers through, e.g., support to labour unions
- plain language policy, across federal departments
- promotion of the recognition of non-formal and informal learning (PLAR)
- provision of huge amounts of information and tools on the Internet
- a focus on learning as a lifelong requirement
- the welfare of children, poverty alleviation, and readiness for learning
- sustainable economic development in remote and rural communities

This list is illustrative rather than inclusive. While progress is being made in some areas, there is little evidence that overall progress has been made, e.g., as the number of children living in poverty in Canada is unacceptably high and growing larger each year.

1.3.2. Change Processes and Policies

Relative to making change in other public policy areas, the federal government has used such policy levers as:

- designated equity-seeking policies and programs
- a new focus on the "the consumer" of government products and services
- gender-based analysis policy
- innovative, leading edge uses of the Internet and ICT, given the huge resources available to the government
- interactive connection to citizens, via the Internet, for information and consultation purposes
- partnership building with other levels of government, and with the private sector
- the Social Union agreement
- the Internal Trade Agreement
- national standards, e.g., in healthcare (the Canada Health Act)

Again, this list is illustrative rather than inclusive. The point is that, in making change in the areas of literacy and ICT, it may be that the processes should model other successful change initiatives.

1.3.3. Current Federal Policy Priorities

Both literacy and ICT, individually or separately, can be successfully linked to several current federal government priorities. The general priority is re-election; so that means finances will be made available for "motherhood and apple pie" programs. No one could say that a government shouldn't investing much more in children, literacy and skills for the future.

In a more specific manner, priorities of the federal government that relate to literacy and/or ICT include:

- a concern for poverty, children and families through the Children's Agenda
- transition to the Knowledge Economy through access to ICT
- promotion of wellness as an aspect of healthcare reform
- reducing crime, particularly juvenile, organized and Internet crime
- maintenance of Canada's cultural integrity
- leadership for peace and human security
- helping socially, economically and educationally disadvantaged youth
- increased e-commerce and Canadian competitiveness in the global e-economy

Each of these areas can/should be linked to future policies aimed at improving Canada's literacy and ICT-use rates.

1.3.4. Canadian Value Paradoxes

Finding ground for new policy initiatives is made difficult by the following value paradoxes, e.g.,:

- granting of widespread and irrefutable individual rights and freedoms with few, if any, concomitant responsibilities
- subsidiarity for some (i.e., decision-making at the lowest, most relevant level) with centralization of power for others
- talk about helping the least advantaged with precious little action
- using "triage" to limit public expenditures, with no agreement on who or what is the least critical (e.g., literacy for seniors)

Tragically, these and other paradoxes have been used to prevent positive, proactive action for the future.

1.3.5. Areas for Improvement

What the federal government could do much better, and to it's advantage is:

- focus on individual Canadians as consumers/ citizens, i.e., skip over jurisdictional differences
- involve ordinary Canadians, i.e., ask the consumers
- get beyond the provincial wrangling about education, i.e., serve the consumers of learning products and services in a effective, efficient and equitable manner
- ensure accountability for programs, policies and practices relative to adult literacy, training and/or use of ICT
- effectively disseminate it's good work, research and best practices

The effect of each and all these actions would be to build political will for change, at the best, and instigate heated debate at the worst.

1.4. Linking Literacy, the Digital Divide, and the Government of Canada

Separate discussions of literacy and the Digital Divide lead to observations about the relationship between the two as public policy concerns.

1.4.1. Literacy and the Digital Divide: Similarities

It is clear that the same group of Canadians that are not engaging with ICT probably are those who have deficits in conventional literacy skills. If it became necessary to determine that that was irrefutably the case, questions could/should be added to the IALS to gauge computer and other ICT skills. However, it is not much of a leap of faith to connect the two groups if positive action to solve the associated problems is the goal.

From a different perspective, the successful and picturesque characterization of ICT users and non-users sliding down either side of a metaphorical mountain "divide" leads one to ask if there isn't also a Literacy Divide. It would appear, from the Dual Digital Divide report, that the same "ridge", made up of costs, skills and attitude, divides Canadians into literacy users and non-users.

On a negative note, the Public Interest Advocacy Centre blames "technological determinism" -- the over reliance on computers and ICT in education -- for an increase in illiteracy in the traditional basic areas of reading and writing.⁸

1.4.2. Differences

As public policy concerns, literacy and ICT have been given different treatments, either by accident or by design.

- Unlike the literacy "problem" in Canada, there is little difficulty getting the public to accept that the inability to use of ICT, for any Canadian, would be a major problem. Computer skills and applications of ICT are publicly funded through education and training programs, culture and heritage programs, industrial and economic development programs, etc.etc. There appears to be a de facto policy to imbed ICT in most public policy areas, without a commonly-accepted rationale. It may be that, while a majority of Canadians think a person is entitled to one publicly-funded opportunity to learn to read, in elementary school, a person is entitled to multiple and ongoing publicly-funded opportunities to acquire ICT skills. Is it possible that literacy skills are "old," stable, taken for granted, while ICT skills are "new," ever-changing, more interesting?
- Even within the context of education policy and programs, literacy is limited to a certain age group while ICT skills are offered to all age groups.
- For the most part, literacy is seen as a personal and social issue, while ICT is seen as an economic development issue.

⁸ *The Dual Digital Divide* (PIAC, 2000).

- Literacy is seen as a public policy problem; ICT is seen as an opportunity or solution.

1.4.3. Assumptions Underlying Policy Plans

This paper is prepared on the assumption that action is required, that action is determined by policy goals. In this case, there are at least three underlying assumptions to agree upon.

The first assumption is that the policy goal is to improve literacy levels and reduce the digital divide. It is conceivable, however, that there is no need to do either, from various perspectives. One could ask "who would be best served" by such a goal, i.e., who benefits from the allocation of resources to pursue the goal of improved literacy and reduced digital divide? If, as one theory goes, the beneficiaries are Canada's industries and multi-national businesses, then they should finance the solutions. If the beneficiaries are "all Canadians," then they need to be convinced, far more than at present, that public action is necessary.

The second assumption, then, is that the primary beneficiary should be those individuals disadvantaged by inadequate literacy and technology skills and resources. It is conceivable, however, that the beneficiaries are those who provide the products and services through, e.g., research grants, development funds, and infrastructure financing. The logical question to ask is: "what type of resources should be allocated?" How can the people of Canada get the "best bang for their buck?"

The third assumption is that a new approach is required, one that builds on the successes of the ICT dissemination / access programs and on the successes of the current adult literacy policy, but that is a hybrid of both. The current endeavors to improve literacy levels have not been successful. The endeavors to promote the use of ICT have been quite successful, given the short period of time that has elapsed. Clearly, by looking at the "lessons learned" in ICT dissemination policies and programs, there should be useful advice for new literacy initiatives.

1.4.4. Future Considerations

Fundamental to improving literacy levels and reducing the Digital Divide are attention to the interrelated concepts of learning, demographics (gender and age), and the "future" of work and citizenship. A few key points:

- People cannot be forced to learn literacy skills or technology skills. There must be motivation and/or incentives for learning. Credentials have been used as incentives in the past, but they are becoming increasingly irrelevant, particularly in Human Resources Accounting for the Knowledge-base Economy.⁹ Learning must be managed in different ways in the future.

⁹ A paper on the Electronic Learning Record, PLAR and HRA, by Barker (1999) is available from the National Literacy Secretariat (Brigid Hayes) or electronically from FuturEd.

- The problems of low literacy levels and non-use of ICT are not generally distributed across the Canadian population. Blanket approaches haven't worked.
- Work and citizenship in the future are related to the "new economy," variously called the Knowledge-based Economy (KBE), Post-capitalist Society, the globalized or Information-Age business environment. Using the language of futurists (e.g., Tofflers, Drucker), human systems of production and consumption have passed from the Agricultural Age, through the Industrial Age, to the Age of Information. What is important to consider is that one "age" does not supplant the previous one, it is simply added to the other two, albeit in a predominant manner. There are still societies largely living Agricultural Age lifestyles (and others returning to that mode by choice); the majority of the world's citizens, living in urban centres, still live in the Industrial Age; the Age of Information requires substantial changes to all forms of production and consumption before it will be fully realized, even by Canadians. Therefore, it is important for governments to remember that not one, but three types of production and consumption must co-exist, respecting the processes and needs of those who are unable or unwilling to merge with the emerging paradigm.

2. OPTIONS FOR ACTION

The following eight different options for action are set out for consideration. They are not mutually exclusive; they simply start from a particular perspective.

2.1. Focus on Federal Policy

Neither literacy nor ICT -- skills, resources, uses, problems -- are discrete policy areas. The skills and resources required by individuals, the uses of both literacy and ICT, associated public policy problems can be and should be linked to all economic and social policy. Therefore, one option for the federal government is to focus on cross-policy fertilization -- imbedding literacy and ICT concerns into all policies -- public health, crime and security, environment, heritage, economic development. One approach is to enhance existing policies, and a second is to create new policies.

2.1.1. Enhancing Existing Policy

Although they don't provide immediate results, several policy types have been used to bring about change, and the principles should be applied, in this context of literacy and the Digital Divide, to enhance existing federal government policies. Both the "Plain Language" policy and "Gender-based Analysis" are applied to most policy areas as a lense or filter in the decision-making process. The following are four new "lenses" to develop and apply.

2.1.1.1. Learning-based analysis

One feasible plan is to develop a "Learning Analysis" policy and process that asks of each policy area: "What skills and knowledge, inherent in this policy area, do Canadians need to acquire and how will they be enabled to do so?"

2.1.1.2. Plain technological access to information

A second, related feasible plan is to require that "Plain Technology" be associated with each policy area, i.e., appropriately simplified access, through icons and tutorial assistance, to ICT relevant to each policy area.

2.1.1.3. Special programs for the designated equity groups

A third plan is to imbed within the existing policies and programs for the disadvantaged -- women, First Nations, persons with disabilities, and visible minorities -- specific literacy and ICT programs and practices. Since three of the four groups are among those least inclined or able to use ICT and/or advanced literacy, this simply makes sense. In fact, apart from visible minorities, the designated equity groups each have serious and unique challenges in both literacy and ICT use; however, the same challenges can be turned around to become opportunities. As well, new developments in ICT are likely to improve literacy and many other problems for designated equity groups. What is most important here is that there be dedicated, long-term funding; grassroots implementation

(subsidiarity); and formal accountability through quality standards and evaluation. Passion helps too.

2.1.1.4. Alternative access to information and learning

It is critical that access to commerce, information, and communications not become restricted to ICT; therefore, a fourth plan is to maintain non-ICT access to the same benefits as those related to enhanced access to ICT.

2.1.2. Creating New Policy

Several policies have been implemented to bring about social and economic change, and again, the principles could be applied to develop new policies aimed at reducing adult literacy problems and the Digital Divide. For example, the Designated Equity Group policies have been aimed at improving circumstances for women, First Nations, persons with disabilities, and visible minorities. On the premise that there are deficits and disadvantages inherent in their positions -- gender, race, physical abilities and challenges, it is obvious that new, equally-important criteria should be applied to develop additional Equity-seeking Groups for the KBS (Knowledge-based Society):

- the poor (mostly children and single parents, youth living on the streets),
- the learning challenged or skill disadvantaged -- those without basic lifelong learning skills and resources, i.e., conventional and emerging literacies and the necessary tools,
- workers with limited skills for the KBE and an over-developed sense of entitlement (e.g., middle-aged men in resource-extraction and manufacturing industries and teachers).

It may be as simple as the "search and replace" function in word processing -- replace "persons with disabilities" with "persons without lifelong learning skills" and you have a new policy. Replace "women" with "the poor." Replace "visible minorities" with "children" or "unemployable industrial-age workers." It's the ability to use "carrots and sticks" -- both incentives and regulations inherent in formal policy and legislation to change behaviours and advantages -- that need to be tried in this context.

2.2. Focus on People: Adult Canadians with Skill Deficits

In the knowledge that resources are finite, in the short-term, it is right and proper to target those most in need. Research has established that certain groups in society are more likely to have literacy deficits and less likely to use technology: the poor, some youth, women, First Nations peoples, those who are incarcerated. They should be the focus of immediate, meaningful attention. And others who are getting attention -- governmental subsidies and programs -- should be side-lined via triage: e.g., seniors and businesses who should be able to invest in their own viability.

Using the IALS measurements, between 18% and 44% of adult Canadians have limited or inadequate literacy skills. It is estimated that a similar number of adult Canadians do not have adequate technology skills. However, not all those individuals think they need to engage in either learning or using advanced skills. It is estimated that less than 6% of adults need literacy upgrading are engaged in programs, despite the fact that learning opportunities exist in some/most communities. First, there are considerable barriers making it difficult for adults to enroll in and attend a learning program. Then, there are additional barriers to completing a program, and for all programs, there is a significant drop-out rate. In addition, the quality of programs is highly variable and there is little accountability for program outcomes. Finally, there are few tangible incentives for adults to improve their literacy skills; although adults can and do acquire improved skills, it takes quite some time to achieve even minimal improvements, and "life" doesn't improve very much for most adult learners: they don't suddenly get great jobs, get accepted into college or university, get leadership opportunities.

In a related manner, there are clearly identified groups who are not using ICT, and two sub-groups of non-users that are "far removed" from online activities -- the Type 2 and Type 3 non-users. With that knowledge, it makes sense to focus on the Type 1 non-users who recognize some value in using the Internet and need technical and social literacy skill development.

If skill development programs are going to be offered, two things are necessary. The first is "the carrot".

- There must be real -- measurable, not imaginary -- incentives to elicit genuine personal motivation and commitment. The promise of "a better life" isn't enough.
- The well-understood barriers to engaging in and staying with learning opportunities must be removed or circumvented for adult learners. If the person needs glasses, get them glasses. Daycare? Eldercare? Work to meet the needs of the learning consumer!
- The quality of programs must be excellent, and providers must be accountable for learning. If learners don't make progress in a program, don't fund it. Give vouchers to adult learners and ensure that there is choice in learning options.
- The focus must be on the individuals acquisition of skills and knowledge, with a record of success kept to provide a link to the KBE through Human Resources Accounting (HRA) principles.

The second is "the stick."

- It must be recognized that literacy (conventional and/or emerging) is not only a right, but a responsibility of citizenship.
- If the "carrots" are in place, there must be sanctions for "non-compliance."
Maybe you don't get your social assistance cheque or IE if you're not working to improve your literacy/ICT skills.

2.3. Focus on Formal Learning

Working with the ministries related to education, youth, women, and others, it is conceivable that the federal government could work to provide more formal learning opportunity and to modify public education system to accommodate adult learning needs. Each and all of the following concepts could be explored and implemented on a time-limited trial basis.

- Second Chance Schools -- based on the European model, working with CMEC to modify the existing basic skills system
- On-line tutoring -- based on the BC distance education model, creating employment opportunities in rural and remote communities
- Paid / Volunteer Youth Literacy / ICT Corps -- on the Peace Corps model, enhancing the work of Frontier College
- Reverse CUSO -- have university students from elsewhere come to Canada to teach adults how to read and how to use ICT
- Workplace Schools -- on the model of Labour Education, hold labour unions accountable to provide skills development for the KBE

In light of the fact that (1) federal finances are distributed to the provinces for adult learning (primarily post-secondary education) with no accountability measures, and (2) adult learning needs are not being met, it would be timely to create a **Canada Learning Act**. The purpose of the Act would be to achieve the same five goals as the Canada Health Act, i.e., equitable access for all Canadians to programs that are effective and efficient.

2.4. Focus on Learning Systems for The Future

The impasse between the provinces and the federal government regarding education can and should be overcome by shifting the focus to learners or consumers from the focus on providers. In fact, provision is the responsibility of the provinces, so let them carry on. There are more than enough consumer-oriented issues at the national level that the federal government could focus on:

- standards for adult, workplace and family learning programs (literacy/ICT)
- interprovincial mobility of students through common curriculum standards so that young people are not "foreign students" in a different province
- interprovincial mobility of education workers through occupational standards for knowledge workers in the E/T industry
- international mobility of students and E/T workers to become global citizens
- sharing of best practices in teaching and learning
- addressing the learning deficits of the identified groups of disadvantaged Canadians
- promoting the assessment and recognition of informal and non-formal learning
- determining how to manage learning in the KBE
- new models of employment relations to remove the confrontational approach to change and decision-making in learning systems

The list could go on.

The easiest method, however, is to form a formal Learning Partnership with the CMEC and together take national leadership to change learning systems. One means of doing that could be **Socrates Canada**.

Socrates Canada would be based on Socrates program of the European Union (EU). The EU, as a confederation of independent countries, is similar to Canadian confederation of independent provinces with guarded jurisdictions for education and training. Recognizing the pivotal role of education in adapting to change and creating a positive future, the need to find common ground and work to move forward together, the EU established Socrates as an opportunity program -- an opportunity to acquire funding and expertise in the development of education innovation, equity and quality. Canada has the same needs.

Socrates includes eight programs aimed at the common goals of:

- strengthening the European dimension in education at all levels and facilitating wide transnational access to educational resources in Europe while promoting equal opportunities throughout all fields of education;
- promoting a quantitative and qualitative improvement in the knowledge of languages in the EU, in particular those languages which are less widely used and taught;
- promoting co-operation and mobility in the field of education, in particular by encouraging exchanges, promoting open and distance learning, encouraging improvements in the recognition of diplomas and study periods, developing the exchange of information, and removing the obstacles in this regard;

- encouraging innovation in the development of educational practices and materials, and exploring matters of common interest in the field of education.

As a beginning, one could substitute "Canadian" for European; and "learning" for "education" into the above goals. In Canada, elements of a future Socrates already exist.

- The Office of Learning Technologies (HRDC) is an excellent model of how the process could work. It is alike, in most respects, to one Socrates program -- Minerva.
- The Pan-Canadian Indicators project of CMEC and Statistics Canada is another good start. To become part of Socrates, it would have to evolve from being descriptive to being prescriptive about necessary changes and modifications.
- Other programs that could be modified, expanded and integrated as Socrates Canada include SchoolNet, the National Literacy Secretariat, parts of SSHRC and Statistics Canada.

Socrates Canada would not be age-based as the EU Socrates is, but a uniquely-Canadian set of programs aimed at achieving a learning system for the future which is:

1. a holistic and integrated system of inputs and resources, processes and practices, outputs and outcomes, with feedback loops and accountability mechanisms – rather than the fragmented elements that currently exist;
2. an open system, responding to the feedback loop and integrated with the external environment – rather than the existing closed “system;”
3. individualized, using current knowledge of how people learn and enabling technologies – rather than bureaucratic;
4. responsive to emerging and changing learning demands – rather than prescriptive about what needs to be learned;
5. cyclical, with continuous and open entrance and exit – rather than linear, age-based and time-based;
6. learner-enabling, i.e., ensuring that all learners are successful to the degree that they can be – rather than learner-screening;
7. globally-focused, taking into account the elements of global citizenship and international work opportunities – in addition to being a local concern;
8. promoting change – rather than maintaining the status quo;
9. an effective, efficient, innovative and accountable industry – rather than a costly, labour-intensive social agency;
10. consumer-oriented – rather than provider-based decision-making;

11. learning-focused – rather than credential or completion-focused.

In learning systems for the KBE, the role of teachers is as assessors and coaches, and they are paid as knowledge workers, i.e., for what they produce; learning -- formal, non-formal and informal -- is managed through an ELR and HRA; learning opportunities are not removed from society, but embedded within other social and economic agencies.

2.5. Focus on The People of The Future: Kids and their Parents

Give a computer to each new mother and her baby while in the hospital (one per family), and all other single parents of pre-schoolers within two years. Call it ***Motherhood and Apples***.... (if the vendor is right).

The **logistics** are simple.

- Load the computer with literacy programs (children/adult-friendly) and great reading material.
- Give the mother an Internet account -- they're free at hotmail.com. Show her how to connect to the Internet (with icons rather than text) and bookmark some health-related sites for child-rearing information. Ensure that the mother has a telephone.
- Assign an on-line professional "tutor" to be available to help the mom and perhaps participate in research.

The **rationale** is obvious and the benefits are many.

- It has been determined, through projects identified in the EDD study of adult literacy lessons learned, that computers have a useful role to play in literacy instruction. General literacy and basic skills instructional programs are available, and targeted programs can be developed through, e.g., CANARIE or SchoolNet.
- Women are a target group for both literacy and ICT skill development; therefore, mothers learn new skills useful for family welfare (both lit and ICT) and future workability.
- The need to focus on improving early literacy has been accepted by most stakeholders, e.g., the members of the Prime Minister's Advisory Council on Science and Technology.¹⁰ Through this program, children grow up with the use of and positive exposure to ICT and learning. They may arrive at school better prepared to succeed at conventional schooling. They will have lifelong learning skills from the outset.
- Experience with "family literacy" shows the multiplier effect of helping moms and other single parents.
- Even for mothers with advanced literacy skills and/or with computers in the home, increased connectivity and Internet utilization will probably result. With on-line help, and the increasing need to make informed choices between, e.g., nutrition and medical options, who could resist "asking the Internet" if it was on the kitchen table?

¹⁰ *Stepping Up: Skills and Opportunities in the Knowledge Economy* (Expert Panel on Skills, 2000) pp. 7-8.

Accountability is easy.

- At the outset, establish research studies to determine program outcomes and accountability. Perhaps start on a limited basis -- one province or one region.
- Case studies should objectively follow some families. Some families should be approached and coached regularly. Some families should be left to their own devices.

The **cost** is miniscule compared to other government expenditures, e.g., \$75 million for research in the aquaculture industry.

- It is an investment rather than an expense.
- Negotiate a bulk purchase of laptops -- annually to accommodate changes/improvements.
- Color them green (pink for baby girls, blue for boys) to discourage a black market.

The **potential** for political "mileage" is huge.

- Apart from haranguing of the technology luddites, there is no drawback to this program.
- The greatest opposition will come from teacher's unions which demonize computers; they should be asked to "wait and see" the first cohort of babies to enter school.

2.6. Focus on Lifelong Learners / Learning for the KBE

There is considerable talk about lifelong learning, but very little action from any level of government. Taking the approach that all Canadians, regardless of age, are consumers of lifelong learning products and services, available from the public and private sector, the role of the federal government is to promote access to quality lifelong learning products and services for the future.

2.6.1. Developing a National Policy¹¹

The first necessary step is to develop a national lifelong learning policy for a Knowledge-based Society. Such a policy should be aimed at alleviating the human resources problems presented by the transformation to a knowledge-based society. Among the goals and objectives of a lifelong learning policy would be to assist all Canadians by ensuring a range of quality lifelong learning opportunities --formal, informal and non-formal, and ensuring the necessary supports for individuals, including but not limited to:

- equitable access to learning opportunities;
- assurance of quality learning opportunities;
- preparation for learning (readiness to learn and acquisition of learning skills);
- accurate, current and accessible information about learning opportunities;
- accurate, current and accessible information about learning requirements;
- tools for assessing learning and making learning plans;
- means of assessing and recognizing all forms of learning;
- motivation for the acquisition of new skills and knowledge; and
- incentives for continuous learning.

2.6.2. First Steps to Implementation

Among the immediate next steps should be:

- adopting a formal HRDC definition for lifelong learning as continuous formal, non-formal and informal acquisition of learning;
- creating inventories of lifelong learning opportunities, lifelong learning supports, then doing gap analysis between what exists and what is needed;
- launching a new research and development program to (1) generate a means to recognize and/or manage non-formal and informal learning, i.e., Human Resources Accounting based on PLAR and utilizing an Electronic Learning Record (ELR), (2) develop a system of incentives for lifelong learning distinct from the benefits of credentials; (3) define and operationalizing "quality" and "universal access" in lifelong learning opportunities and supports from the point of view of the lifelong learners or policy beneficiaries; (4) set out the characteristics of the emerging Knowledge-Based Society and, particularly, the lifelong learning needs of a KBS; and (5) target resources to those most in need;

¹¹ *Lifelong Learning Policy Framework for HRDC* (FuturEd, 1998) available from HRDC (Donna Kirby) or electronically from FuturEd.

- framing, within the lifelong learning policy, measures of adequacy, indicators of success, and the characteristics of a lifelong learning system for the KBE.

2.6.3. Lifelong Learning, Literacy and ICT

As has been stated earlier, both literacy and ICT are necessary, foundational tools for lifelong learning. In this context, it makes sense to:

- set firm, numerical goals, timeframes, and measure progress towards achieving them, e.g., improving literacy rates, according to IALS measurements, by 10% or 100% by the year 2010;
- launch a year and decade of lifelong learning as a framework for new literacy and ICT learning initiatives;¹²
- stop using the deficit model of skills acquisition -- what people *can't* do -- and institute an asset-building model -- identifying and building on what individuals know and can do.

¹² *Launching the Year and Decade of Lifelong Learners* (FuturEd, 2000) is available from HRDC (Donna Kirby) or electronically from FuturEd.

2.7. Start from the Lessons Learned Study

As stated at the outset, a great deal is already known about the state of adult literacy programs, policies and practices in Canada. On the assumption that literacy is a precondition for use of ICT, one option for action is to start by addressing adult literacy concerns.

Based solely on the formal evaluation reports available, which was a contract stipulation, FuturEd examined adult literacy policies, programs and practices in Canada and other industrialized economies over the past 10 years, and concluded that the following seven lessons were to be learned.

1. *Adult literacy programs benefit both individuals and society, but these benefits have not been fully realized due to insufficient levels of public interest and political support.*
2. *Experiences suggest how to design and deliver quality adult literacy programs, but conditions don't always exist to allow that to happen consistently or systematically.*
3. *While evidence suggests considerable advantages in using learning technologies in adult literacy programming, some question their effectiveness and appropriateness.*
4. *Adult literacy programs aimed at specific target groups appear to have better results, but such programs are not delivered consistently in an effective, efficient or equitable manner.*
5. *Barriers facing adults in need of literacy upgrading limit their capacity to enter and remain in literacy programs.*
6. *It is important that adult literacy learners have a say in policies and programs addressing their needs*
7. *More systematic evaluation of adult literacy policies, programs and practices is needed to increase accountability and to improve the knowledge base in the field.*

The report, produced by Evaluation and Data Development of HRDC, went on to make three recommendations for future consideration. In addition to (1) creating one comprehensive, consensus-based description of best practice in literacy programs, by pulling together all that is known, to serve as a set of guidelines for planning and evaluation purposes; and (2) imbedding literacy policy in all social policy, the report recommended (3) that all seven lessons be addressed as challenges. Therefore, one of the most research-based plans of action that the federal government, with its partners in the private and public sectors, could undertake would be to:

1. increase levels of public interest and political support for adult literacy to ensure that the benefits are realized by, e.g.,
 - linking it directly to the Digital Divide and the need for ICT skills;
 - well-publicized opinion polling for receipt and action by the Prime Minister and the First Ministers;
 - changing the underlying philosophy from a charitable cause to a productivity issue;
 - plunging into something innovative and indisputable like the ***Motherhood and Apples*** plan;
 - encouraging and enabling potential learners to speak for themselves;
 - holding adults accountable for their own skills deficits and providing incentives to take up learning opportunities.

2. create the conditions in which quality adult literacy programs are designed and delivered, e.g., by
 - ensuring on-going, stable, base-budget funding for adult and lifelong learning programs;
 - creating better working conditions for those who work in the literacy and lifelong learning fields;
 - providing quality standards for planning and evaluation purposes;
 - creating the ***Canada Learning Act***;

3. explore and implement the expanded use of learning technologies, with attention to ensuring accountability to the learner, through e.g.,
 - directly linking literacy, learning and ICT in policy and program initiatives;
 - developing high quality, interactive, independent, computer-based learning programs based on quality standards for on-line learning;¹³
 - developing a system of paid on-line tutoring;

4. design and deliver programs to designated target groups -- women, offenders, First Nations, the poor, and persons with disabilities -- in an effective, efficient and equitable manner, through, e.g.,
 - existing designated equity-seeking policies and practices;
 - giving funding, responsibility and accountability to grassroots organizations related to each target group (e.g., CCLOW), and holding them to the same quality standards;

¹³ *Quality Guidelines for Technology-Assisted Distance Education* (FuturEd, 1998), available from OLT (Lucie Nobert) or on the FuturEd website, is the basis for recommended national quality standards being developed by FuturEd, with OLT funding, for CACE and a consortium of education providers and consumers.

5. remove or circumvent the barriers which limit the capacity of adults in need of literacy upgrading to enter and remain in literacy programs, i.e., where necessary and desirable, provide:
 - paid leave or a reasonable living allowance for a very considerable period of time
 - the loan of a laptop computer, an Internet account, and telephone access
 - daycare or eldercare
 - parking or transportation
 - a safe and adult-friendly learning environment
 - glasses and hearing aids
 - career and personal counseling
 - links to other education and training options
 - highly qualified instructors and tutors
 - an electronic record of abilities and achievements
6. include adult literacy learners when making decisions about policies and programs addressing their needs, e.g., by
 - substantially increasing support for the Learners Action Committee of the Movement for Canadian Literacy (MCL);
 - assigning advocates to adults with literacy deficits;
 - electronic polling of opinion and wisdom for change.
7. require more systematic evaluation of adult literacy policies, programs and practices, to increase accountability and to improve the knowledge base in the field, e.g., by
 - establishing quality standards and use them for planning and evaluation purposes;
 - conducting a study of provincial/territorial literacy policies, programs and practices;
 - standardizing programs and practices across Canada to ensure equitable access to quality programs for all Canadians.

2.8. Do Nothing

Adopting a "wait and see" approach, it is conceivable that new technologies will render reading and writing obsolete. If the underprivileged in Canadian society have not risen up to demand change, by now, they are unlikely to do so in the future. As well, according to the ICAP, the likelihood that the Divide can be breached or remedied is very remote.

3. NEXT STEPS

For the short and medium-term, the next steps can be undertaken under the auspices of existing federal government programs and policies.

3.1. Immediate and Short-term Actions

Under the auspices of existing federal departments and programs, immediate actions for short-term plans should be to:

1. prioritize target groups, make direct connections to them at the grass roots level and provide specialized programs (and disregard some groups, i.e., business, seniors)
2. remove and/or circumvent barriers for those groups: provide what each needs whether childcare or eldercare, transportation, eyeglasses or hearing aides, proper nutrition, personal and/or career counseling, motivation / incentives
3. establish quality standards for programs and hold providers accountable, standards that are based on existing knowledge of best practices but that allow flexibility
4. get serious about making change
 - remove the charity status of literacy programs and endeavors
 - establish formal learning opportunities that are effective, efficient and equitably accessible to all Canadians
 - train instructors at universities and colleges, i.e., provide certification and appropriate compensation for literacy workers
 - change the approach to instruction from the deficit model to the enhancement model
 - set a target for improvement, and take stock regularly; give credit to the learners if the target is achieved, not to the politicians
 - directly link literacy and ICT as policy and instructional issues, and find a new label to encompass them both
5. determine the reading skill levels needed to function on the Internet, as part of the next IALS
6. look at "lessons learned" in ICT dissemination strategies, e.g., using recent PSE graduates to help small business, for innovative means of making change

7. imbed the teaching of literacy and ICT skills in content areas that are meaningful to individuals (and, incidentally, federal government responsibilities): health and wellness, family, citizenship, business development, community advocacy
8. develop measurement criteria for ICT skills and use them for:
 - designing programs
 - pre-instruction and post-instruction achievement criteria
 - additional IALS criteria
 - prior learning assessment for individuals
 - an element of an Electronic Learning Record
9. use technology to deliver programs thereby simultaneously developing literacy and ICT skills
 - engage those individuals that don't need literacy instruction (just ICT skills) to tutor individuals needing literacy skill development
 - provide on-line tutoring to all learners
10. change the language / terminology used from literacy to lifelong learning and skills improvement for the KBE
11. reward learners with computers and their own Electronic Learning Record (ELR)
 - lend computers to all learners
 - using IALS measurements (traditional and emerging criteria) as a pre-test and post-test, give those computers to those who are able to make a skill improvement by one level, regardless of how long it takes
 - help each individual to create an inventory of skills and knowledge, and teach them how to maintain the ELR
12. as an employment strategy, assign a "reader" to all seniors and an online tutor to all ICT learners.

3.2 Immediate and Medium-term Actions

For the obvious positive optics, something new and daring is required. The following immediate actions should be initiated with long-term activities and implications:

- create a ***Consumer Protection Bureau For Learners***: advocate for each and all individual Canadians at all learning levels, but focus on those who are least advantaged
- create and implement a national lifelong learning policy and the ***Canada Learning Act***
- implement ***Motherhood and Apples***
- establish ***Socrates Canada***