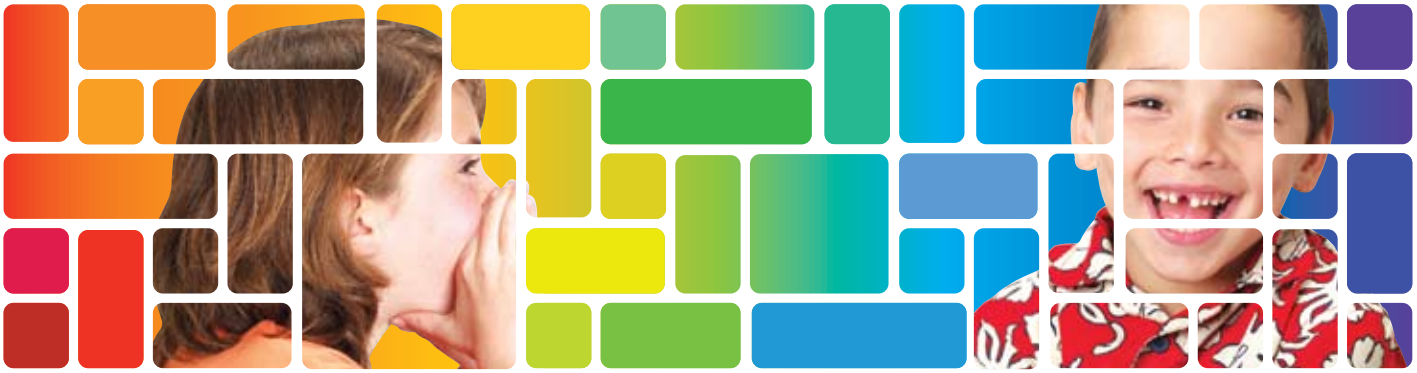
National Strategy for Early Literacy



Canada's Hidden Deficit: The Social Cost of Low Literacy Skills

Judith Maxwell and Tatyana Teplova

Réseau canadien de recherche sur le langage et l'alphabétisation
CANADIAN LANGUAGE & LITERACY RESEARCH NETWORK
Partager la science. Éveiller les esprits. *sharing the science. opening minds.*

Judith Maxwell and Tatyana Teplova

Paper prepared for the Canadian Language and Literacy Research Network (www.cllrnet.ca)

July 5, 2007

The author would like to acknowledge the contributions of the Canadian Language and Literacy Research Network in supporting and leading the National Strategy for Early Literacy (NSEL) Initiative. The author would also like to thank the Ontario Ministry of Education for its financial support in the development of this paper and the Canadian Council on Learning for financial support and research on literacy for the NSEL initiative.

Réseau canadien de recherche sur le langage et l'alphabétisation
CANADIAN LANGUAGE & LITERACY RESEARCH NETWORK
Partager la science. Éveiller les esprits. *sharing the science. opening minds.*

Table of Contents

Executive Summary

Low literacy is Canada's hidden deficit. It is the barrier to full participation in society for about 9 million people.

This is the century when living and working demand ever higher levels of literacy and self-reliance. Fully 42% of Canadians aged 16 to 65 (48% of all adults) do not have sufficient literacy skills to handle the complex tasks required to live and work in today's society[1] (Statistics Canada & Organisation for Economic Cooperation and Development [OECD], 2005).

Even worse, the literacy of the next generation is at risk: 28% of 6 year olds entering Grade 1 have cognitive or behavioural challenges which, if they continue, will impair their ability to learn and to progress in school (Willms, 2002). And 38% of young adults aged 16 to 25 have low literacy skills (Canadian Council on Learning, 2005; Human Resources and Social Development Canada [HRSDC], 2000b). To complicate the problem, Canadians lose their literacy skills over their lifetime if they do not use them on a regular basis. In short, the vision of life long learning is unattainable for the people with low literacy skills.

The social costs of low literacy are difficult to measure. But the fragments of data we have collected for this paper show that low literacy places a monumental burden on individuals and on society.

There are three distinct layers of costs imposed by low literacy. First, there are the opportunity costs – the economic, social, cultural and political benefits foregone because 9 million citizens cannot read or write well enough to cope with everyday challenges. Economic growth is lower than it would otherwise be, people are less likely to vote or volunteer, and fewer people can participate in on-going learning and skill development.

[1] Based on the prose scale

Second, there are the remedial costs paid by governments and communities to mitigate the damage of low literacy. These include the costs of economic dependency; 47% of low-income Canadians have low literacy skills, as do 65% of social assistance recipients and 70% of offenders. The costs of health care and remedial education are also higher due to low literacy.

Third are the inter-generational costs. A child's capacity to learn basic literacy skills is strongly influenced by the mother's education and by the home environment. Literacy gaps in one generation can be passed along to the next.

The paradox is that the way to avoid these costs is to improve literacy skills. Literacy itself is the basic pre-requisite for escaping from poverty and dependency. Through literacy, individuals can become self-reliant and gain the resilience they need to be able to cope with the setbacks and the opportunities that come their way. As they become self-reliant, they become effective citizens – paying their taxes, voting in elections, volunteering in their communities – and effective workers. They also gain the capacity to be able to support their children to achieve higher literacy skills.

Literacy development is a cumulative process. The foundations laid down in early childhood enable children and young people to absorb increasingly complex language, communication and problem-solving skills as they progress through school, college and early working experiences. When deficits occur in the early stages of literacy development, the risks of high school drop out and a life of economic and social insecurity will follow.

The first, and by far the most efficient and cost-effective time to learn basic literacy skills is in early childhood. The child will depend on a combination of effective parenting and supportive community services to achieve her literacy potential. The rate of return from good quality investments in early childhood development can be $8 for every dollar invested – or even higher.

If the child does not learn the basics before starting school, then active interventions in support of literacy are essential and as the years go by, the cost of acquiring literacy skill increases. We have found solid evidence of exemplary programs that are highly effective in changing the life trajectory of people with low literacy skills at three stages – primary education, adolescents entering high school, and adults. In general, however, Canada falls way short. Too many six year olds are not ready to learn; very few primary school children and adolescents are being offered the learning opportunities they need. And, according to the OECD, adult literacy training is "inadequate."

There are two groups of Canadians who are especially vulnerable to low literacy. Aboriginals and immigrants. Their needs must be met on an urgent basis because these two groups will account for much of the growth in the labour force in the next few decades. But the training will have to be tailored to meet their unique needs. Aboriginals are handicapped by their poor socio-economic

situation, the breakdown of family life and weak education systems. Immigrants are likely to have much higher education credentials than the Canadian-born, but they will need to learn to communicate in English or French. Some language training is offered when they first arrive, but, since more than half of recent immigrants have low literacy skills, that training is not preparing them for life in this country.

So where will they turn for their literacy training? Most are likely to settle in a poor neighbourhood that will not have capacity to organize the kind of literacy training that will make the adults job-ready and the children school-ready. Few will get help from their employers; their investments in training fall well short of international benchmarks and the training they do offer is aimed at better educated employees.

Canada has chosen to accept the costs of low literacy in the past for two reasons. First, because it appeared that not much could be done to improve literacy skills, and second, because unemployment rates were high and there appeared to be a surplus of labour. These two conditions are being reversed. The first because recent evidence shows that a determined government working with community leaders and employers can ensure that literacy skills improve at all ages and stages of life.

For example, Pathways to Education in Toronto is transforming the lives of highly disadvantaged high school students; and the UK Skills for Life program, has raised 1 million people from Level 1 to Level 2 literacy in the past five years. The second because labour shortages will become more prevalent in coming years and employers will be desperate for workers who can learn new skills. To remain competitive, Canada will need to significantly enhance the capacity of its population to learn by raising basic literacy and numeracy standards for all citizens.

A determined commitment to improving literacy, such as the UK program instituted in 2001, requires investments in early childhood development for all children as well as special programs for people with low literacy whether they are school age children, adolescents or adults.

To overcome its hidden literacy deficit, Canada will have to set and meet ambitious goals to improve on four fronts: young children, school-age children, adolescents and adults. Only then can Canadians begin to reverse decades of neglect for citizens who cannot yet read, write and handle basic math at the levels required to live, learn and work in a modern society.

In the 21st century, everyone's literacy will count.

Introduction

Low literacy is Canada's hidden deficit. It is the barrier to full participation in society for about 9 million people.

For the individual, strong literacy skills are an essential building block for future learning and self-reliance. Poor literacy skills lead to a lifetime of economic and social insecurity for individuals and their children.

For society, literacy skills are the foundation for productivity, wealth creation, and competitiveness. They also contribute to civic participation, lower crime rates and a healthier population.

This is the century when living and working demand ever higher levels of literacy and self-reliance. There are several reasons for this: new technologies and intense competition push Canadian employers to climb the value-added chain, which means they need workers with the ability to learn new skills (The Tomorrow Project, 2005); computer use is now a prerequisite for job search and access to information; and, as governments curb their role in regulating economic activity and strengthening the social fabric, citizens increasingly have to organize and finance their own education, training and social supports. In short, citizens today are required to negotiate complex arrangements with governments, employers and peers. Even managing one's own health demands high literacy and coping skills.

Yet, as we begin the century, we know that 9 million working age Canadians would have trouble coping with such challenges. Fully 42% of Canadians aged 16 to 65 (48% of all adults) do not have the literacy skills considered necessary to live and work in today's society (Statistics Canada & OECD, 2005). About 3 million do not read well and the other 6 million do not read well enough to be secure in today's information-rich society. See Box 1.

Canada's performance on the prose literacy scale ranks fifth among the 20 countries participating in the International Adult Literacy Survey between 1994 and 1998. Sweden, Finland, Norway and the Netherlands are the leaders, while the United States and the United Kingdom rank 10th and 13th respectively (OECD & Statistics Canada, 2000).

The deficit in adult literacy spills over to the next generation: 28% of 6 year olds entering Grade 1 have cognitive or behavioural challenges which, if they continue, will impair their ability to learn and to progress in school (Willms, 2002). And 38% of young adults aged 16 to 25 have low literacy skills (Canadian Council on Learning, 2005; HRSDC, 2000b). To complicate the problem, Canadians lose their literacy skills over their lifetime if they do not use them on a regular basis.

BOX 1: Testing for Literacy Skills

Literacy tests were designed to sample everyday tasks that would not provide any advantage or disadvantage due to language or culture, among other things:

The easiest task (Level 1) asks the reader to look at a medicine label to determine the "maximum number of days you should take this medicine."

A more difficult task (Level 2) asks the reader to read an article about the plant impatiens and asks the reader to report what the article says about the impact of cold temperatures on the plant.

An even more difficult task (Level 3) involves an article about cotton diapers and asks the reader to list three reasons the author prefers to use disposables rather than cotton.

Adapted from: Murray, Clermont & Binkley, 2005.

This is a serious handicap for an ageing society like Canada. With the baby boomers retiring over the next 20 years, and falling birth rates (which mean fewer children and youth preparing for their careers), labour force growth will be slower. Indeed, labour shortages are already evident in selected occupations and places. In that environment, a society has to ensure that every working age person can be as productive as possible. Instead, Canada is wasting the talents of far too many people. Immigrants will expand the labour supply, but they too face significant language and literacy deficits. If Canada is to maintain its quality of life over the next 20 years, all the literacy deficits – child, youth, and adult – require early and serious attention.

The purpose of this paper is to establish a framework for thinking about the social costs of low literacy skills over the life course of a Canadian citizen. It is one of a series of papers on literacy commissioned by the Canadian Language and Literacy Research Network as part of its National Strategy for Early Literacy.

The immediate impacts of literacy and learning are knowledge, skills, competencies and attributes, but they in turn lead to four final outcomes that determine human well-being in a knowledge-based society:

- Psychological well-being: self-respect, happiness, identity, decision-making;
- Economic well-being: financial support, productivity, wealth;
- Physical well-being: health, nutrition, safety;
- Social well-being: relations, friendships, empathy, civic involvement, democratic empowerment (Desjardins, 2004; Hartley & Horne, 2004).

A person with strong literacy skills is therefore equipped for life, with all its ups and downs. He or she will have the capacity to cope with setbacks as well as to seize opportunities. This is a person with the resilience and self-reliance to handle the challenges of work, parenting and being a citizen.

While economic and physical well-being can be measured with some degree of certainty, psychological and social well-being are much more difficult to identify and measure. This means that it is not possible to present one bottom-line number to describe the social costs of low literacy skills in Canada. As a result, the paper attempts to provide a framework for thinking about the challenge, to present a wide range of data to document the order of magnitude of the costs, and to highlight promising avenues for reducing those costs.

Section 1 introduces the life course framework and the challenge of measuring costs and benefits of literacy programs. Section 2 describes the people most vulnerable to weak literacy skills as well as the costs to the individual and to society. Section 3 identifies the four stages of literacy development: early childhood, primary and secondary schools and adult education. It describes the main barriers to literacy growth and summarizes the evidence about the paybacks from investments in literacy at each stage in the life course. Section 4 provides a brief conclusion.

Measurement issues

Before beginning the analysis, however, it is important to highlight some measurement issues. The primary evidence on literacy in Canada and most other industrialized countries comes from two international surveys of literacy skill organized through the Organization for Economic Cooperation and Development. Statistics Canada was a key partner in those two surveys. The surveys define literacy as: "The ability to understand and employ printed information in daily activities at home, at work and in the community – to achieve one's goals and to develop one's knowledge and potential" (OECD & HRSDC, 1997).

To supplement the surveys, it is sometimes necessary to use survey data that provide evidence on education attainment but do not measure literacy directly. For example, "early school leavers are the most likely to score at Levels 1 or 2, when compared to those who have stayed in school" (Statistics Canada & OECD, 2005, p. 64).

There are special challenges in documenting the social costs of low literacy. Many social outcomes from literacy are impossible to quantify, as noted earlier, and there is no overall cost-benefit model that can capture all of the social consequences of low literacy.

The 2003 Adult Literacy and Life Skills survey documents the correlation between low literacy and the social costs outlined in this paper, but we still do not have the tools to assess the overall costs of low literacy to society. In contrast, the economic impacts on employment and earnings are fairly concrete and easy to quantify.

Literacy over the life course

A life-course perspective (Policy Research Initiative, 2004) is especially useful for an analysis of literacy policy because it stresses the cumulative effects of literacy skills in enabling people to meet life's challenges. It allows us to explore how key life events and transitions can determine the trajectories of people's lives over decades. It also allows us to analyze the relationships between an individual and the institutions in society which can directly influence the development of literacy skills – that is families, schools, workplaces, communities, and governments.

The first steps toward literacy development begin in the early years as the child acquires the social and cognitive skills required for reading, writing and arithmetic. These skills in turn open the door to later success at work, at home and in the community. In contrast, setbacks in the early years become a handicap which can impede success over a life time. A child who does not acquire these basic skills will struggle with school work and be at risk for dropping out of high school. These young people are more likely to engage in risky activities such as substance abuse and committing a crime (Schweinhart, 2005). They are also likely to report a lower physical and mental health status than someone on a positive trajectory.

There are a number of challenges in measuring the costs and benefits of efforts to improve literacy skills. The first challenge is to measure the incremental impact of the program. The best way to do this is to track the experience of the participants in the program against the record of a parallel group who did not participate – in effect, a randomized control group. The second challenge is to measure the life-long costs and benefits of the program; for example, earnings, taxes paid as well as the costs of social programs, health care and the justice system.

The most sophisticated cost-benefit studies available for this paper were developed to measure the impacts of programs designed to improve cognitive and social skills in the first six years of life. Interventions to overcome literacy deficits for school children, youth and adults have not been evaluated with the same techniques – partly because of the lack of appropriate methods and partly because the programs have been so fragmented. However, there is much useful information on which to base policy choices.

Evidence about adult literacy in Canada

This section presents an overview of the literacy skills of the Canadian population and then highlights two of the most vulnerable groups: immigrants and Aboriginals. It then goes on to explain the scope and scale of the costs and benefits of literacy skills.

Education plays a critical role in influencing literacy proficiency. Thus on average each additional year of schooling corresponded to an increase of ten points on the literacy scale for youth and adults. People with completed post-secondary education therefore tend to score higher than those with secondary education (OECD & Statistics Canada, 2000). However, literacy tests provide a more accurate test of human capital than educational attainment (Green & Riddell, 2001)[2].

Literacy skills are measured by asking a randomly selected sample of Canadians to complete a series of tests of their reading, writing, numeracy and problem-solving skills. Literacy scores for reading, writing and numeracy are divided into five levels:[3]

- **Level 1** indicates very poor skills, where the individual may, for example, be unable to determine the correct amount of medicine to give a child from information printed on the package.
- **Level 2** respondents can deal only with material that is simple, clearly laid out and in which the tasks involved are not too complex. It identifies people who can read, but their low level of proficiency makes it difficult for them to face novel demands, such as learning new job skills.[4]
- **Level 3** is considered a suitable minimum for coping with the demands of everyday life and work in a complex, advanced society. It denotes roughly the skill level required for successful secondary school completion and college entry.
- **Levels 4 and 5** describe respondents who demonstrate command of higher-order information processing skills

[2] Green and Riddell found that education affects earnings through both the development of specific knowledge and skills as a result of educational attainment and the stronger literacy skills that are also associated with higher levels of education. According to the authors, the literacy level had a significant positive effect, separate from the effect of education, experience and other factors. Thus while each additional year of education raised earnings by approximately 8%, and an increase in a literacy score by ten percentiles resulted in a 3% increase in earnings.

[3] The problem solving scale has only four levels.

[4] Level 2 readers may, however, develop many coping strategies to overcome their literacy disadvantage, which enables them to function above their level.

In a knowledge-based society like Canada, Level 3 is regarded as the minimum required for coping with the increasing skill demands of the emerging knowledge and information economy.

Table 1 shows the percentage of Canadians with low literacy skill. The data are based on the test of reading. It shows that:

- 38% of 16 to 25 year-olds are at Levels 1 and 2, and are not qualified to cope with the daily challenges of life and work.
- 25 to 35 year olds do somewhat better but still one-third have low literacy skills.
- After 35 years of age, however, the scores deteriorate, with each successive age group showing higher rates of low literacy skill.
- After age 55, 58% (more than half of the population) lack the necessary skills to cope with daily living.
- Senior citizens stand out as especially disadvantaged with 80% reporting low literacy skills.

There are two reasons for the decline in literacy with age. First, older Canadians grew up in an era when most workers earned their living through manual labour, so education was not the necessity it is today. And second, daily use of literacy diminishes for seniors as they leave the work force and become less engaged in civic life. Unless they use their literacy skills on a regular basis, the skills will deteriorate. This loss of literacy exposes elderly Canadians to increased health risk as they have trouble complying with doctors' instructions.

Table 1: Canadians with Low Literacy Skills, by Age, *(% of population aged 16 and over in 2003, based on the prose scale)*

Age	Level 1 (%)	Level 2 (%)	Combined Level 1 & 2 (%)
16-25	9.5	28.3	37.8
26-35	9.5	24.0	33.5
36-45	14.7	26.7	41.4
46-55	15.9	27.8	43.7
56-65	26.9	30.9	57.8
66+	51.5	30.6	80.1
TOTAL	19.9	27.8	47.7*

** 42 % for working age Canadians (16-65) Adapted from: HRSDC & Statistics Canada, 2005*

Skill loss happens for working age Canadians as well, mainly because they are not using the literacy skills they acquired in school. Nearly one in four Canadians underutilize their literacy skills in the workplace (Krahn & Lowe, 1999). "In absolute numbers, about 2.5 million Canadians were in jobs that did not appear to take full advantage of their prose literacy skills" (Krahn & Lowe, 1998, p. 28). If this is a transitional problem, then literacy skills will not be affected. If the skills are not used regularly for a sustained period – either at work or for other purposes – then literacy skills will deteriorate (Krahn, 1997).

Literacy skills tend to be higher in western Canada than in the eastern provinces. In Quebec[5], New Brunswick and Newfoundland and Labrador about 55% of the population scores at Levels 1 and 2 (HRSDC & Statistics Canada, 2005). This compares to 40% in Saskatchewan, Alberta and British Columbia, as Table 2 shows. Nunavut, which has a small population spread over a vast territory in small communities, has 73% with low literacy skills. These people speak languages other than English and French, and for centuries they have been earning their living off the land. As their life style has changed, the need for literacy skills has become urgent especially for young people.

Table 2: Low literacy skills, by province, *(% of population ages 16 and over, 2003)*

Province / Territory	Levels 1 & 2 combined (%)
Canada	48
Atlantic Prov. (est)	51
Nfld. & Lab.	55
PEI	50
NS	45
NB	56
Quebec	55
Ontario	48
West. Prov. (est)	41
Manitoba	46
Saskatchewan	40
Alberta	40
BC	40
The Yukon	33
NWT	45
Nunavut	73

Note: Estimates for 2003 Atlantic and Western Provinces based on a weighted average using total population. Adapted from: ABC Canada (2005)

[5] Quebec scores lower than the national average for prose skills, but matches the national average for numeracy and problem solving.

Vulnerable groups

Any person who has not completed high school or who has low literacy skills is vulnerable to living in difficult circumstances: low income, job instability and inability to participate in mainstream society. But there are two groups that stand out as especially vulnerable because of their low literacy skills: immigrants and Aboriginals. In both cases the results are complicated by language issues. The literacy tests are administered in what may be their second or third language, – English or French. The disadvantage they face on literacy is mirrored in their disproportional exposure to poverty and low-paying jobs.

Language is one of the most frequently cited barriers that newcomers face in the areas of settlement, employment, accessing health care and pursuit of further training (Statistics Canada, 2003c). In 1993, the language and education requirements for entry to Canada were increased, with the result that the average education levels for recent arrivals have risen dramatically; 45% had a university degree in 2004, compared to 17% in 1993 (Picot, Hou, & Coulombe, 2007). But, despite their advanced education, immigrants arriving since 2000 are more vulnerable to chronic low income than those who arrived in Canada in the 1990s.

Overall, immigrants have far more formal education than most Canadian-born workers. But they still face a literacy challenge because they are compelled to communicate in English or French. Table 3 shows that more than half of all immigrants have low literacy skills. In the 26-35 age group, 55% of recent immigrants and 44% of more established immigrants report low literacy (see Table 3). In contrast, only 29% of the Canadian-born population has low literacy.

Table 3: Immigrants with Low Literacy Skills, 2003 *(combined Levels 1 and 2 for recent and established immigrants, based on the prose scale)*

Age Range	Recent Immigrants* (%)	Established Immigrants** (%)
16-25	65	57.5
26-35	55.4	44.2
36-45	52.5	63.2
46-55	72.9	59.1
56-65	82	71.1

Adapted from: HRSDC & Statistics Canada, 2005.
** Recent immigrants (≤ 10 years) ** Established immigrants (> 10 years)*

The vast majority of new immigrants settle in Canada's largest cities where they are likely to find people from their country of origin and where the labour market is both large and dynamic. Immigrants who arrived between 1980 and 1994 earned 35% less than comparable native-born Canadians did (Green & Riddell, 2001). About one in five ended up in chronic low income for five successive years or more (Picot et al., 2007). The proportion of recent immigrants with low family income rose from 25% in 1980 to 36% in 2000, while the low income rate among the Canadian-born fell from 17% in 1980 to 14% in 2000 (Picot & Sweetman, 2005). Literacy appears to account for a major part of earnings differentials between immigrants and native-born Canadians (Ferrer, Green, & Riddell, 2005).

Immigrants also face barriers to improving literacy skills. The language training offered by governments when they arrive in Canada is usually not sufficient to support a successful transition. Furthermore, literacy resources are weak in most of the poor neighbourhoods where immigrants settle.

Aboriginal peoples also report lower literacy scores than the Canadian population (HRSDC & Statistics Canada, 2005). Because we do not have full details on the scores, Table 4 presents their educational attainment, showing that 39% of Aboriginal Canadians have not completed high school and are therefore likely to have low literacy skills (compared to 26% of all Canadians, Statistics Canada & HRSDC, 2001). Drop out rates remain very high both in the cities (35%) and on reserves (58%) (Mendelson, 2006). Aboriginal children's attachment to and success in the education system is often weak due to their poor socio-economic situation, which includes a high incidence of poverty and violence, poor parental support, low capacity of schools on reserves and in cities to respond to the needs of the children, as well as cultural and linguistic barriers to learning.

Table 4: Aboriginal Canadians, by Level of Education, 2001

Education	1996 (%)	2001 (%)
Less than High School	45.2	38.7
High School Diploma	21.4	22.9
Trades	14.4	15.6
College	13.2	15.1
University	6.1	7.8
All Post-Secondary	33.4	38.4

Adapted from: Statistics Canada, 2003b.

However, 75% of those who graduate from high school go on to graduate from a trade school, community college or university, about the same proportion as for other Canadian young people (Mendelson, 2006). And once they acquire college or university diplomas, Aboriginal graduates become strong contributors as workers and community members. In 2001, there were 68,000 Aboriginal Canadians earning more than $40,000 a year, about 10% of the working age population (Statistics Canada, 2003a). In addition, there is evidence that children who have opportunities for early childhood learning in programs such as Aboriginal Head Start (which involve both parent and child) are starting school with confidence in their ability to learn and with the active support of their parents (Ottawa Aboriginal Headstart Program, 1998).

Any strategy to address the problem of low literacy will have to pay special attention to the distinctive challenges of immigrants and Aboriginals in Canadian cities, especially those living in impoverished neighbourhoods.

Evidence on the costs of low literacy

The costs of low literacy can be divided into three categories. First, there are the ***opportunity costs*** (or benefits foregone) because people are unable to achieve their potential capacity to contribute to society. In policy terms, these are the costs of inaction on early child development, adult literacy and other opportunities to improve literacy skills. Second, there are the ***remedial costs*** imposed on the individuals and on society as they try to repair the damage done by low literacy. This would include the costs of social programs, but also includes costs directly caused by a lack of literacy; for example, higher rates of injury in the workplace because the worker cannot read safety instructions. Third, there are the ***intergenerational costs*** created because parents with low literacy are not well positioned to help their children achieve high rates of literacy.

Opportunity costs

Literacy clearly has major benefits for individuals as well as for society as a whole. These economic and social benefits are foregone when people are unable to achieve adequate literacy skills. The lack of literacy impairs the rate of productivity growth, undermines democracy, and reduces the scope for life-long learning.

Economic growth. A country with large numbers of people with low literacy is sacrificing economic growth, productivity growth and competitiveness (Statistics Canada, 2005).[6] Literacy affects economic growth in two ways: first, a country that is able to improve its mean literacy score by 1% relative to other countries will enhance its relative per capita GDP by 1.5% in the long run (Coulombe, Tremblay & Marchand, 2004). A 1% increase in average literacy can also increase labour productivity growth by 2% in the long run. The most important driver of productivity growth in this analysis is raising the skills of people with low literacy. The second driver is a good supply of highly qualified workers who will enhance competitiveness through product and process innovation (Bils & Klenow, 2000; Coulombe & Tremblay, 2005; Hanushek & Kimko, 2000; Statistics Canada, 2005).[7]

[6] Literacy has also been suggested to be a better measure of human capital compared to years-of-schooling indicators when explaining growth in output per capita and per worker. The IALS study concluded that human capital is critical for the long-term well-being of nations and differences in average literacy levels among OECD countries that participated in the study, explain fully 55% of the differences in economic growth between years of 1960 and 1994.

[7] Coulombe and Tremblay concluded that low literacy skills had a "negative and significant" effect on the growth of GDP per capita. Mark Bils and Peter Klenow found that the channel from schooling to growth is too weak to explain more than 30% of the observed relationship between those two variables and that there must be a number of omitted factors related to both the schooling rates and growth rates in respective periods of time. Similar conclusions were made by Hanushek and Kimko (2000), who found that while labour force quality differences, and as such schooling, are important for growth (and that labour force quality has a causal impact on growth), the precise cause or magnitude of the differences in cross-country growth is still unclear.

Civic and social participation. People with low levels of literacy are less likely to participate in voluntary community activities (OECD and Statistics Canada, 2000; HRSDC - Learning Policy Directorate, 2003). They are also less likely to vote (Kaplan & Venezky, 1994). Political observers are disturbed at the decline in voter participation in national elections over recent decades, and it seems likely that low literacy is one factor behind this trend. Democratic institutions do not function as well without an active engaged citizenry because; "Citizens need strong basic skills to understand school issues, laws and codes, zoning regulations, proposed legislation, and the platforms and qualifications of political candidates," (Comings, Reder, & Sum, 2001, p. 18). Studies show a strong effect of education on voting (in the US) and civic behavior (in the US and UK; Milligan, Moretti, & Oreopoulos, 2005). For instance, Milligan et al. (2005) found that "better educated adults are more likely to follow election campaigns in the media, discuss politics with others, associate with a political group, and work on community issues" (p. 4).

Gender equality. The higher the literacy level in the country, the greater the political participation of women (OECD & Statistics Canada, 2000).

A commitment to life long learning. People with low literacy skills do not have the basic skills to sustain further learning (Wiggenhorn, 1990). Therefore as technologies change and skill requirements increase, they become increasingly disadvantaged. Only 21% of people with low literacy participate in adult learning compared to 67% for people with high skills (levels 4 and 5; HRSDC & Statistics Canada, 2005). In general, people with post-secondary education tend to participate more in active modes of learning than Canadians with a high school diploma or less.

Remedial costs of low literacy

A modern society is compelled to take action to mitigate the costs of low literacy if it is to maintain an acceptable level of social order and social justice. It will therefore try to reduce the effects of poverty, instability and social exclusion which mark the lives of people with low literacy.

Economic dependency. Without literacy skills, people lack the resilience to be able to cope with setbacks in employment or income. They cannot qualify for well-paid jobs, so they end up working for minimum wage in unskilled jobs and are also more likely to be working in older industries, which are more prone to restructuring (Rootman & Ronson, 2005). Their lack of basic skills means they are less likely to be able to succeed in job-specific training. They therefore become dependent on the state for much of their income (HRSDC, 2000a; Smith, 1997). 47% of working-age adults at Level 1 of prose proficiency scale reside in low-income households (HRSDC, 2000a; Smith, 1997).

Social assistance and social services. Individuals with weaker literacy skills are more likely to rely on Employment Insurance or Social Assistance as sources of income. At least 65% of social assistance recipients have weak literacy skills (HRSDC, 2000a; ABC Canada, n.d.a).[9] This is especially true for women (Shalla & Schellenberg, 1998). In 2000 - 2004, total social assistance costs averaged more than $6.5 billion per year (Statistics Canada, n.d.).

Social relationships. For someone who cannot read, functioning in a world requiring high levels of literacy can be extremely stressful. Inability to read and/or count is often found to be associated with shame, anxiety and stress in everyday life. For some, this can lead to depression, family violence and conflict with the law. Low self-esteem and the inability to relate to other people in turn have implications for an individual's ability to form families and social networks, which limits the number of people who can provide advice, financial support, and introductions to new opportunities

Health and health care. People with low literacy are less likely to make healthy lifestyle choices with respect to diet, exercise and other personal choices that can lead to a longer and healthier life. Their health is also at risk because they cannot read and follow directions about medication, care for family members or safety risks in the workplace (Perrin, 1989). A study reported by the Journal of the American Medical Association found that patients with the lowest literacy levels had average annual health care costs of $12,974 (US), four times the $2,969 for the overall population studied (Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, 1999). Persons with inadequate functional literacy were more than twice as likely to have been hospitalized as those persons with adequate literacy skills (Seccombe, Lockwood & Reder, 2005). Also, these people often wait to seek medical help until a health problem has reached a crisis state (Perrin, 1998; Desjardins & Schuller, 2006).[10] In the U.S., an extra year of schooling leads to a mortality decline of at least 3.6% over a ten-year period (Lleras-Muney, 2005).

The justice system. Seven in ten Canadian prisoners have not completed high school. In the US as many as 82% of inmates are reported to be high school dropouts (Eighth Annual National Conference on Family Literacy, 1999). The costs to the justice system (policing, legal and correction services) are significant. For instance, the yearly inmate cost per offender in Canada was more than $53,000 in 2004 (Statistics Canada, 2004). Lochner and Moretti (2004) found a persistent relationship between schooling and crime rate in the US: "a 1-percent increase in the high school completion rate of all men ages 20– 60 would save the United States as much as $1.4 billion per year in reduced costs from crime incurred by victims and society at large"(p. 183).

Remedial education. When students do not achieve adequate literacy skills early in life, employers, governments and communities end up spending money to remediate those skills. No estimates are available for the cost of remediation (such as repeating a year or special classes for reading) that takes place during primary and secondary school or in prisons (Breneman, 1998).[11] A number of studies report that offenders who complete literacy training while they are serving their time are more likely to make a successful adjustment to society (Steurer & Smith, 2003).

[9] Adults with low literacy were 2.5 times more likely to receive social assistance, compared with those scoring higher levels.

[10] A Swedish study shows that an additional year of schooling can reduce the likelihood of bad health by 18.5%.

[11] Remediation among U.S. colleges and universities was estimated to be $911 million per year.

Inter-generational costs of low literacy

One of the strongest predictors of a child's success in school is the level of education of his or her mother. "The mother has a dominant effect throughout the early years and after the child enters school, while income and the level of education of the father increase in their importance as children get older" (Willms, 2002, p. 340). More than one half of adults whose parents did not receive a high school diploma, scored in Level 1 or 2 of literacy proficiency (Comings et al., 2001). A U.S. study found that children who grew up in highly literate families have developed complex linguistic skills and extensive vocabularies early (Taylor, 1985). Parental educational attainment is also a strong predictor of participation in post-secondary education (Butlin, 1999; Drolet, 2005; Finnie, Lascelles, & Sweetman, 2004; Knighton & Mirza, 2002).

Incarceration of a parent also has a direct impact on the child; "For adolescents, parental incarceration has been associated with poor academic achievement, involvement in delinquency and gang-related activities, violence, and eventually adult criminal behavior. One study estimated that children with imprisoned parents are almost six times more likely than their counterparts to become criminally involved" (Center for Community Alternatives as cited in Hudson River Center for Program Development, 2001, p. 7).

Summary of the evidence on literacy costs

Canada has a literacy deficit of major proportions. Four in ten Canadians do not have the skills they need to be able to cope with the demands of living and working in society today. Without those skills, they face a lifetime of economic and social insecurity. Their lives will be shorter than average, and many of these people will be dependent on transfers and services provided by governments over extended periods of time. And unfortunately their children are at higher than average risk of living the same fate.

Low literacy skills impede wealth creation, undermine competitiveness and create a significant cost burden on federal, provincial and municipal budgets. We found no systematic estimates of the total costs of low literacy, but the fragments of information presented here demonstrate that they are a) very large and b) ongoing, year after year after year.

The paradox is that the way to avoid these costs is to improve literacy skills. Literacy itself is the basic prerequisite for escaping from poverty and dependency, as jobs require ever higher levels of literacy (Perrin, 1998). There are therefore powerful reasons for society to invest in the literacy skills people need to become self-reliant: to qualify for a decent job, to be able to provide for their families, to have the parenting skills to support their children's learning and to have the coping skills to be able to manage the challenges of daily life in a modern society.

In the next section, we will report on the transformative effects of successful programs designed to enhance literacy skills, programs that ensure that children are ready to learn at age 6, that they complete their education, and that they have both the cognitive and motivational skills to be effective in a knowledge-based society. These programs provide vivid evidence of the social and economic benefits of improving literacy skills.

Overcoming barriers to literacy

The three enabling conditions for healthy human development are effective family functioning, supportive community environments and effective public institutions (Stroick, & Jenson, 1999). This section will look at the four stages for acquiring basic literacy skills: early childhood, the primary school, adolescence, and adulthood. It will highlight the risk factors that impede learning at each stage in life, and then describe the most promising interventions to remedy the situation; to enable the child, youth or adult to become as effective as they can be. At each stage of life, there are important roles for the family, the community, schools and governments.

Young children

When it comes to learning language and building the foundations for literacy, effective parenting is the essential ingredient. But even the most effective parents will struggle without reinforcement from strong community services.

Success in learning to read in school is related to the pre-school preparation and support provided by parents, such as reading to children, telling stories, teaching letters, words, and numbers, teaching songs or music, doing arts and crafts and visiting a library (Snow, Burns, & Griffin, 1998). Learning to read and write is a social process. It requires engagement between the learner and the people around him. It is through interaction with others that human beings learn a language, develop a capacity to trust others (Rowen & Gosine, 2006), and acquire the confidence and motivation to learn how to read and write. Thus, the experts measure readiness to learn by examining both social and cognitive skills. Social skills include the motivation, attention span, cooperation and discipline required to participate effectively in learning. Cognitive skills include the ability of the brain to process information, often measured as IQ (Canadian Council on Learning, 2007).

As she bonds with her family, the child learns where to turn for help, and builds the social skills that will help her interact with other children and adults as she ventures into play groups, schools and other social activities. If the child is neglected, if parents do not read to her, if she is bullied at the playground, if parenting is ineffective, then she may not acquire early language skills or she may develop behavioural problems. These can become roadblocks to learning in later years.

There is disturbing evidence that children who do not receive the nutrition and stimulation necessary for good development in the earliest months and years of life may have great difficulty overcoming deficits (in brain development) later... Children who receive inadequate or disruptive stimulation will be more likely to develop learning, behavioural or emotional problems in later stages of life (McCain & Mustard, 1999, p. 6).

Willms (2002) and his colleagues estimate that 28.6 % of Canadian children are not ready to learn at age 6. He describes them as vulnerable children. Just under half, 13%, showed cognitive problems, while 19% showed behavioural or social problems (about 3% had both). McCain, Mustard and Shanker (2007) explain that IQ is strongly influenced by the conditions in infancy, whereas social skills can be developed through early childhood. Carneiro and Heckman (2003) argue that social skills are malleable through adolescence.

Much of the literature assumes that vulnerable children live in poor families. Willms (2002) has found that the majority of Canada's vulnerable children are in middle-income families. Poor children face more risks (37% are vulnerable) than those in higher income families (25%), but 63% of poor children do as well as or better than the average. "What matters most is that a child is cared for through the day by warm and responsive care-givers, in an environment rich with opportunities to learn" (Willms, 2002, p. 350).

But parents cannot do the job alone. Evidence from the National Longitudinal Study of Children and Youth in Canada has shown that community support matters a great deal. Neighbourhood safety, neighbourhood cohesion, and socioeconomic factors have an important effect on early child development. The Vancouver study conducted by the Human Early Learning Partnership at UBC has shown that neighborhoods with low socio-economic status tend to provide less access to high quality early learning opportunities and developmental programs (Hertzman, MacLean, Kohen, Dunn, & Evans, 2002). The result is that the most needy families have the least support from community services. Neighbourhoods with higher socio-economic status, on the other hand, are well served by their communities. The OECD has criticized the overall quality of early childhood education opportunities in Canada, and has raised concerns about the ability of families with moderate incomes to access the services they need (OECD, 2004).

Community services go beyond child care. They are designed to support the families to be more effective parents. They can range from home visits or Mother Goose programs (where parents receive coaching in nurturing their infants), to parent resource centres where young children can play in a stimulating environment and the parent can borrow toys and ask for advice, to early childhood care and development programs where the children are in the care of a trained professional for part of the day. None are substitutes for the parent, but all can be catalysts for better parenting and healthier development of the child in the early years. This creates a more favourable home environment to support learning throughout the school years.[12]

Ensuring that the child is ready to learn by age 6 reduces the child's life risks substantially, putting her on a positive trajectory to complete high school and go on to further education, a steady job and a stable family.

Costs and benefits

There are four early childhood programs which are widely cited because they have been evaluated using rigorous cost-benefit analysis. All four demonstrate high rates of return to society from investments in early childhood.

The programs tracked the outcomes for the children over a long period of time; some of the children are now in their 20s or 30s and their outcomes are still being tracked. Their results are then compared with those of a "control group" of children who had comparable characteristics but did not participate in the program. Thus the cost-benefit calculation estimates the incremental impact of the program.

All four programs took place in the United States. They provided quality child development for highly disadvantaged inner city children as well as supports for their parents through home visits and other activities. (The extra help for the parents would then have an ongoing impact on the home environment as the child progressed in school). In assessing the costs and benefits, the studies measured the impacts on the children including educational and other social outcomes. The studies are not directly comparable; they provided different services and used different methods for determining cost and assessing impacts such as the savings to taxpayers and different discount rates. Thus, they cannot be used to compare one project with another.

What is clear from these studies, however, is that the return on total investment per participant is high, ranging from to $8.70 per invested dollar for the Perry Preschool Project to $4 per dollar invested for the Abecedarian Intervention. See Box 2 on the next page. The Abecedarian program provided more intensive services for a longer period of time and thus incurred higher costs. The most recent update on Perry Preschool participants, interviewed at age 40, shows a return on investment of $17 per dollar invested (Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005).

[12] For a recent and comprehensive review of the literature on child care and community supports, see http://www.ccl-cca.ca/CCL/Reports/StateofLearning/StateofLearning2007.htm

The benefits of the programs calculated for these estimates varied slightly but included impacts on:

- Life time earnings
- Savings in costs to victims of crime
- Increased tax revenues
- Reduced remedial education and adult education costs
- Reduced criminal justice costs
- Reduced welfare payments
- Reduced health care costs (visits to emergency)

The studies necessarily focus on costs that can be measured, and therefore do not include some of the important social costs noted earlier such as the future parenting skills of the child and their civic participation.

Box 2: Cost Benefit Results for Early Childhood Programs in the United States

Program	Cost per Child	Return on Investment
Chicago Child-Parent Centers Pre-school program for low-income 3 year olds. The main interventions were a pre-school program, full-day Kindergarten, family support services and a school-aged program extending to the early elementary grades. The average length of time spent in the preschool program was 1.55 years.	$7,428 for 1.5 years	$7.10 per invested $
High/Scope Perry Preschool Pre-school program and weekly home visits for highly disadvantaged 3-4 year olds. The interventions involved a 2 ½ hour preschool program, five days a week for nine months a year, along with weekly home visits from the pre-school teachers for 1 1/2 hours each.†	$15,895 per year	$8.74 per invested $
Elmira Prenatal/Early Infancy Weekly home visits by registered nurses to first time mothers from week 30 of pregnancy to age 2 to provide parent education, social support, and referral to social services.	$7,109 for high risk Parents	$6.92 per invested $
Abecedarian Early Childhood Intensive full-time pre-school services from infancy to age 5 for children deemed at risk of poor intellectual and social development, based largely upon parental risk factors (education, IQ, and SES).	$35,864	$4.01 per invested $

†The most recent assessment of Perry Preschool participants shows a return of $17 per invested dollar (Schweinhart, L.J. et al., 2005.).

Adapted from State Early Childhood Policy Technical Assistance Network, n.d. The results are based on the most recent reports from these four programs which continue to evaluate the impacts as the children mature.

These programs were carefully designed experiments and typically attracted highly qualified professional staff with a strong commitment to early learning and care. The children therefore benefited from a high quality learning environment. However, attempts to scale up such programs to serve a wider population have not been so successful. For example, the Head Start program in the U.S., which served 20 million children, had more mixed results even though it was motivated by the success of Perry Preschool (California Head Start Association, 2006; U.S. Department of Health and Human Services, 2005). At least part of the explanation was difference in the quality of the program as measured by the instructor qualification and training and the ratio of staff to students. The controversy about the quality of early childhood development programs still rages today here in Canada. Quality scores for child care in Quebec in 2003 showed a wide variation among the publicly run early childhood centres, family day care and regulated private day care centres, with the publicly run centres showing far better results (Institut de la statistique du Québec, 2004).

School-children

What happens to the children when they enter the school system? A lot depends on the classroom and school environment. "When children are segregated among schools or classrooms along socioeconomic lines, children from low-SES backgrounds tend to do considerably worse (than those who attend mixed-ability schools)" (Willms, 2002, p. 367). In contrast, Heckman (2006) cites a number of U.S. studies which argue that "families and not schools are the major sources of inequality in student performance" (p. 1901). He therefore concludes that schools can "have little effect in reducing or widening the gaps that appear before students enter school" (Heckman, 2006, p. 1901). Based on the work by Willms (2002), this would only be true in Canada if the children are streamed into poor learning environments[13], or if the vulnerable children attend a school which lacks the resources to meet their needs.

We reported earlier that 28.6% of children are not ready to learn at age 6. Coincidentally, the most recent literacy study reports that 38% of young people aged 16-25 have only achieved Level 1 or Level 2 literacy – insufficient to qualify for a good job (HRSDC & Statistics Canada, 2005). This suggests that many of the children who start out with learning deficits are not catching up with their peers during their 12 years of schooling.

To overcome early deficits in learning skills, schools should be monitoring readiness to learn on a consistent basis and then be prepared to take appropriate remedial action to overcome the problems as soon as they emerge. The typical reaction of the school when confronted with a child who is not learning at the speed of his classmates is to hold the child back and repeat the year. Another strategy is to move the child into a special program for children with learning or

[13] This is a particular problem for Aboriginal children.

behavioural challenges. The research evidence is that grade retention may do more harm than good (Morgan & McKerrow, 2006; Pagani, Tremblay, Vitaro, Boulerice, & Mcduff, 2001).

The most effective remedial strategies are designed to address specific blockages in learning. For example, Richard Tremblay implemented a pilot program for boys in poor neighbourhoods in Montreal who exhibited behavioural problems at age 6. The program involved counselling sessions for the children while at school and for their parents in the home. Those who received the treatment were compared with a control group who exhibited the same problems but did not receive the counselling. Both groups were tracked to age 17. High school drop-out rates for the boys who received the help were half the rates for those who did not. Incidence of delinquent behaviour was also significantly lower (Vitaro, Brendgen, & Tremblay, 1999; Lacourse, Cote, Nagin, Vitaro, Brendgen, & Tremblay, 2002). The cost of the counselling was $2000 per child (personal communication with Richard Tremblay).

Another remedial strategy for which there is at least anecdotal evidence is personal tutoring for children who have fallen behind the reading standard for their grade level. Consistent and sustained help in reading by a skilled tutor can enable the child to break through as a reader. The breakthrough is accompanied by a surge in self-confidence, which spills over into other learning activities.[14]

In some cases, however, the child may be dyslexic or have some other cognitive disorder that hinders learning. In these cases, the parents and the teacher need a formal diagnosis of the challenges to learning in order to determine the appropriate supports for the child. In the case of dyslexia, for example, there are now schools with special methodologies to enable the child to master reading and writing.

The secret to success in school remediation is careful monitoring backed up by early and effective diagnosis of learning barriers, whether they are behavioural or cognitive.

Costs and benefits

Unfortunately, there are no cost-benefit studies to report for these interventions. Extrapolating from the results of the Montreal study, however, it appears that appropriate counselling can make a significant difference for a specific group of children: those at risk of failing because they lack effective social skills. The counselling must be offered to both the parents and the child, and must be available in primary school years. The cost per child is modest, while the paybacks for the child and for society are significant.

[14] Anne Taylor, a volunteer reading coach in Ottawa schools.

Adolescents

When literacy deficits are not addressed during the early years of schooling, the risk of high school drop out rises significantly. In the early 1990s, 16% of high school students did not complete their study program by age 24. Dropping out was especially high in rural high schools. This led the federal government to introduce a social marketing initiative known as Stay in School (Hackett & Baran, 1995). It was designed to build awareness of the problem and to mobilize Canadians to develop solutions. The most successful responses were those that depended on community ownership leading to alliances within the community supported by administrative and government services. The evaluation completed in 1995 states that "no other program in education has achieved such levels of inter-organizational collaboration" (Hackett & Baran, 1995, p. 5). It also noted that many jurisdictions took steps to develop student tracking mechanisms and establish standards for student graduation and retention rates.

By 2004, high school non-completion rates had fallen to 10% by the age of 25 (Canadian Council on Learning, 2005; HRSDC, 2000b). The most significant declines occurred in Atlantic Canada, where the call to stay in school was strongly reinforced by the change in the employment structure – job opportunities were declining rapidly in the resource-based industries and in construction. While the national averages are now remarkably lower than they were, high school drop out rates remain far too high for Aboriginal young people and in some inner city schools. In these situations, drop out rates for young men can exceed 50%.

Young people from disadvantaged communities face multiple risks that go beyond low income (Hospital for Sick Children, 2005). First, parents are often unable or unwilling to build connections to the schools. This is especially true for lone parents or recent immigrants to Canada with a limited capacity to speak English or French. Second, the schools themselves are poorly adapted to supporting students with social and economic disadvantages. Third, the community is likely to present safety and lifestyle risks, such as addiction and violence. Finally, the students themselves may have had setbacks during their early school years, which make them distrustful of the school environment.

The complexity of these risks calls for action from schools, communities, families and governments. For example, schools can do more to foster a healthy learning environment for disadvantaged students. A Hospital for Sick Children study advised Toronto schools to strengthen engagement and to be: a) more understanding, b) more flexible, and c) more proactive in responding to the needs of these students in order to foster a stronger sense of belonging (Hospital for Sick Children, 2005).

Pathways to Education is an example of community action to address the risks faced by adolescents and their families. Pathways was launched by the Regent Park Community Health

Centre, a small community service agency serving the two poorest neighbourhoods in Toronto. The goal was to reduce the 56% drop out rate among the young people living in Regent Park (who were attending 37 different high schools in the Toronto area).

All the young people entering Grade 9 in September, 2001 (and every year since) were offered a contract. If the student promised to attend high school and participate in the program (with the parents committing as well), he was eligible for four nights a week of tutoring, transit tickets to travel to school, group mentoring, a support worker to bridge between the family and the school and a $4,000 bursary to be used toward post-secondary tuition. The total cost per student over four years is $16,000, excluding the value of volunteer tutors and mentors (The Pathways to Education Program).

The results to date have been spectacular: 97% of the Grade 9 students and their parents have signed on, and, by the fall of 2006, there were 825 students enrolled in the program.

The outcomes have been remarkable: 75% of the first cohort graduated within five years. Of these, 82% went directly to college or university, and almost all of them were the first person in their family to attend post-secondary education. The effective drop out rate for the Pathways students dropped from 56% in the years prior to the program to 12% or less in some years. The Pathways graduates also achieved more credits than their peers at the high schools they attended. The rate of violent crime in the police division dropped by 32% and teenage pregnancies fell from 30 per thousand to 7.5. Clearly, the life trajectories of most of these young people have improved. Most are on a track to earn a good living and live a full life

The Pathways program is a success because it offers an intensive intervention that directly addresses the social barriers to learning. It was deliberately designed to foster strong personal relationships between youth and program staff and volunteers. The goal is to provide these young people with the social networks they will need to succeed and to instil the confidence and ambition to succeed in school (Rowen & Gosine, 2006).[15] It provides a unique mix of community development, social networking and educational support. In coming years, the program will be offered in other poor neighbourhoods in Toronto, Ottawa, Montreal and Kitchener-Waterloo.

Costs and benefits

The Boston Consulting Group has taken a comprehensive look at the costs and benefits of the Pathways program. It estimates that the cumulative benefit for each of the Pathways students will be $400,000 versus the cash cost of $16,000. This includes higher earnings, increased payments of income and sales taxes and lower transfer payments (e.g. for social assistance and employment insurance), as well as a partial estimate of the savings from lower crime and less health care utilization. The long-term payback from the Pathways investment at the Regent Park site will be $12.50 per charitable dollar invested (Boston Consulting Group, 2007).

[15] Similar programs exist in the United States, but they place more emphasis on financial incentives that on breaking down social barriers. See, for example, I Have A Dream Foundation, founded by Gene Lang. www.ihad.org

Working Age Adults

In 2006, the OECD described adult literacy training in Canada as inadequate (OECD, 2003). Members of the Canadian literacy education community have also raised the alarm. "The current system is an uneven, under-resourced patchwork that reaches only 1 or 2% of the approximately 9 million less-literate working age Canadians" (Movement for Canadian Literacy, 2005).

In the United Kingdom, the burden of low adult literacy skills is described by the Minister of Education as "a crime." In 2001, the government pledged to reduce and eventually ***eliminate*** that burden, and launched a revolution in adult literacy training. In the past five years, it has built a national learning infrastructure for Skills for Life, created standards for the training and professional qualifications for the teachers, invested heavily in awareness programs and offered free training to the 7 million working age adults who could not read or write at the level expected of an 11 year-old (Blunket, 2001).

In November, 2006, the Minister announced that the U.K. had met the five-year target to reduce the number of adults in the workforce without Level 2 qualification by 1 million. This is a remarkable accomplishment. He also announced that 1.7 million people had achieved their first Skills for Life qualification. The budget allocation was significant: 1.5 billion pounds sterling (or about $5 billion (Canadian) for the first three years. Further commitments have been made since then.

Canada, with 9 million working age adults with low literacy skills (HRSDC & Statistics Canada, 2005), faces a similar challenge. But Canada's effort to address literacy cannot compare to what is happening in the U.K. Here, participation in literacy training in the five provinces for which data exists is shockingly low, averaging 8 % of the 3 million Canadians aged 20 to 54 without a high school diploma (Myers & de Broucker, 2006; Goldenberg, 2006).[16] [17] Clearly, Canada has been falling short on adult literacy training. But the time has come to step up to the challenge.

For decades there has been little action on adult literacy. At the time, unemployment rates were high, suggesting an excess supply of labour; employers were not concerned by low literacy in the workplace; and evaluation research of adult literacy training programs showed little payback. All of these reasons for inaction have now reversed.

[16] The provincial participation rates vary from 4.2% in Alberta to 11.6% in BC.

[17] Canada falls short of its competitors in its commitment to employer-sponsored training. Basic skills training is at the bottom of training priorities with only 2.2% of the total.

First, and most important, the economy has changed. The incentive to improve literacy was lacking as long as Canada had large surpluses of both skilled and unskilled labour. But skill requirements have been rising rapidly in recent decades, and some employers are becoming concerned. Motorola discovered that literacy was at the root of its skill development challenge when it began to introduce new production techniques and set higher standards for quality control.

The Motorola work force had performed well for decades, and the majority were long-term employees – the company hired them for life. In 1985, the company found that "about half of our 25,000 manufacturing and support people in the United States failed to meet the seventh grade yardstick in English and math" (Wiggenhorn, 1990). They did not have the basic literacy required to absorb the job-specific training that Motorola was trying to provide. The company had to invest $35 million to correct a hidden literacy problem in order to get value from an annual $50 million skill development program (Wiggenhorn, 1990). The second reason to give priority to adult literacy is Canada's ageing work force. Selected shortages of labour have begun to appear and will intensify as the baby boomers begin to retire. Employers and governments can no longer go out and hire the skills ready made, while one in three in the 16 to 35 age group is handicapped by low literacy skills. These people still have anywhere from 20 to 40 years of working life ahead of them. Hence, it is imperative to raise their literacy skills. There will be immediate and ongoing paybacks from improving their literacy and enhancing their ability to contribute to economic growth.

Third, the new research evidence is more encouraging. Myers and de Broucker (2006) cite a number of studies that have measured the returns to learning for less-educated learners and found that the learners earn more and remain employed for sustained periods (Myers & Myles, 2005; Zhang & Palameta, 2006).[18] As Motorola discovered, workers need basic literacy and numeracy to be able to learn the job-specific skills. Once the literacy blockage is removed, they experience significant gains in earnings and their employers are able to meet their productivity targets.

Finally, there is growing awareness of the overall cost to growth, competitiveness and productivity growth. Coulombe's study for Statistics Canada demonstrates that the most important investment a country can make to boost economic growth and productivity is to raise the literacy skills of the people with the lowest literacy (Coulombe et al., 2004).

For all these reasons, then, it is imperative to give far higher priority to strengthening adult education. To do that, Canada faces a number of challenges.

[18] In recent Canadian studies, for example, the impact on earnings was greater than for people with more education.

The first challenge is the vulnerability of adult learners. Adult learners are marginalized people. They face multiple risk factors. As adults, they have to support a family by holding down a job and providing caregiving. Can they combine the job and the learning? As low earners, they are unable to save and reluctant to borrow to pay for the learning and associated living costs. They also need support services such as child care or transportation as well as financial support to replace lost earnings. However, the existing student loan system in most provinces is not designed to meet the needs of adults (Myers & de Broucker, 2006).

The next challenge is program design. The adults who need literacy training have such diverse needs – immigrants, Aboriginals, high school drop outs all bring different learning needs. Some may be reading at the Grade 3 level but have extensive practical or traditional knowledge. Some may be reading at Grade 10 level but need upgrading in math. Others will have learning disabilities. Some may have had such bad experiences in the classroom as a child that they are terrified to return. Each group will need a different kind of training. However, administrators of adult literacy programs lack the assessment tools to be able to match the learner to the right program.

The natural consequence is that learners end up in the wrong kind of program and then drop out (ABC Canada, n.d.b; British Columbia Ministry of Advanced Education, 2005).[19] ABC Foundation estimates that about 30% of adult learners drop out before completing the program.

The third challenge for a person with low literacy skills is to navigate the highly fragmented and complex learning options. Myers and de Broucker (2006) identify five different routes to upgrade the credentials of people without a high school diploma. Each option has advantages and disadvantages, so the learner has to figure out which one suits his particular situation. However, the program information is available mainly in densely written texts which would be hard for a person with low literacy to understand. What low literacy people need, therefore, is guidance from a knowledgeable gatekeeper. And the gatekeeper, in turn, needs an effective assessment tool to give the student the right guidance.

Employers are an alternative source of literacy training. The Conference Board of Canada has demonstrated the pay backs from investments in literacy and basic skill training – higher profits, reduced error rates, a better health and safety record, reduced waste in production and increased customer and employee retention. All these gains improve the bottom line (Campbell, 2005). However, employer investment in training falls well short of what is needed. U.S. firms spend 50% more on training as a percentage of their overall payroll than Canadian firms (Goldenberg, 2006).

[19] In BCs follow up study on students in the Adult Basic Education programs, 70% or students with less than Grade 8 education dropped out as did 50% of those trying to complete Grades 9 through 12.

Some large Canadian employers, like Syncrude, for example, have developed their own literacy programs in partnership with community colleges (Myers & de Broucker, 2006). But small and medium-sized companies account for the bulk of employment in Canada and they face extra challenges in providing workplace literacy training because of their size. This makes it essential for them to partner with others to design and deliver the training.

While there are no systematic cost-benefit studies of adult literacy training, it is clear from the Conference Board research that employers who train will improve their bottom line. Workplace programs lead to more confident and articulate workers, with better work habits, who are more willing to initiate positive interactions with co-workers and customers. At the same time, individuals who get a second chance to acquire the basic literacy skills are likely to experience significant changes in the quality of their lives with respect to work, family and community. The changes include higher self-esteem and self confidence, better parenting, better problem-solving, and more involvement in community affairs (HRSDC, 2002).

In summary, the emerging evidence on the payoffs from adult literacy training is impressive. At the same time, the UK success in reaching ambitious adult literacy targets and in forming an active partnership with employers demonstrates what political will can achieve. How then should governments move forward?

One proposed strategy comes from a group of citizens involved in literacy across Alberta (Max Bell Foundation, 2006; Movement for Canadian Literacy, 2005).[20] They have put forward a literacy policy for the province that picks up many of the themes in the U.K. Skills for Life strategy and adapts them for a Canadian setting. The strategy sets five goals:

1. **Coherence.** Incorporate literacy outcomes and programs into the provincial Business Plan, coordinate the contributions from across government and foster collaboration across business, labour, education and community groups.

2. **Awareness.** Build public awareness through social marketing and spotlight learning opportunities across the province.

3. **Accessibility.** Make literacy programs accessible for all types of potential learners and ensure financial assistance for program design as well as assessment tools to match learners to programs.

[20] The action plan by seven National Literacy Organizations endorses many of the same ideas, though it places more emphasis on financing and governance than it does on building a high quality infrastructure with standards and accreditation.

4. **Sustainability.** Build the literacy infrastructure by developing professional standards and accreditation, designing common descriptors and benchmarks, and creating assessment tools. Make the infrastructure sustainable through multi-year commitments to programs, supports and services.

5. **Knowledge**. Ensure that literacy policy, programs and services are based on current research.

This last point is important. Recent research has done much to support better policy choices in future. It has documented the gains to be made from well designed and targeted literacy training. It has highlighted the weaknesses in the current literacy training systems, and provided guidance on the new learning infrastructure required. It has also demonstrated that current funding is inadequate in three ways. There is not enough money, the money is not committed for the longer term, and drop out rates are too high because learners are being placed in programs that do not meet their needs. This underlines the importance of standards and assessment tools to ensure that the public is getting value for money.

In Canada, with its federal structure, there is little hope of a national resolution to the adult literacy challenge because education is a provincial responsibility. But this does not block the federal government from being more helpful nor does it prevent progress at the provincial level.[21] The large provinces are well-placed to adopt a strategy along the lines of the ones proposed in Alberta and in place in the U.K. Nova Scotia has an integrated approach to adult learning through the umbrella of the Nova Scotia School for Adult Learning (Myers & de Broucker, 2006). Other small provinces may not be able to develop a program on their own but could join forces with each other or with larger provinces.

Employers, education institutions, and community organizations have much to contribute to strengthening adult literacy skills. But they cannot be effective in the policy vacuum that exists today. The problems are deeply rooted and solutions will require a combination of political will, a long-term strategy, and substantial investment. Gaining ground on adult literacy is "a marathon, not a sprint." (Department for Education and Skills, 2003).[22]

[21] HRSDC is currently piloting an on-line assessment tool which could help the provinces to strengthen their capacity to match adult learners to the most appropriate program.

[22] The quote is by the former UK Minister of Education

Conclusions

The social costs of low literacy are difficult to measure in a comprehensive way. But the evidence collected for this paper shows that low literacy places a monumental burden on individuals and on society.

There are three distinct layers of costs imposed by low literacy.

- First, there are the opportunity costs – the economic, social, cultural and political benefits foregone because 9 million working age citizens cannot read or write well enough to cope with everyday challenges.
- Second, there are the remedial costs as governments and communities try to mitigate the damage of low literacy. These include the costs of economic dependency – 65% of social assistance recipients and 70% of offenders have low literacy skills. The costs of health care and remedial education are also higher due to low literacy.
- Third are the inter-generational costs. A child's capacity to learn basic literacy skills is strongly influenced by the mother's education and by the home environment. Literacy gaps in one generation can be passed along to the next.

The paradox is that the way to avoid these costs is to improve literacy skills. Literacy itself is the basic pre-requisite for escaping from poverty and dependency. Through literacy, individuals can become self-reliant and gain the resilience they need to be able to cope with the setbacks and the opportunities that come their way. As they become self-reliant, they also become effective citizens – paying their taxes, voting in elections, volunteering in their communities, performing their work with confidence, interacting positively with co-workers. They also gain the capacity to be able to support their children to achieve higher literacy skills.

By far the most efficient and cost-effective time to learn basic literacy skills is in early childhood, through effective parenting and supportive community services. The rate of return from investments to support families with young children is high: up to $8 for every dollar invested (and in one study $17). Canada is clearly not investing enough at this level if 28% of six year olds are not ready to take on the challenge of Grade 1. Lacking the necessary foundations for literacy, these children are at risk of failure and/or drop out.

In the past, Canada has made little effort to remedy literacy deficits. The conventional wisdom was that later literacy training was a waste of time and money. We now know that this is wrong. There is now incontrovertible evidence that well-designed literacy training – involving a mix of teaching, tutoring and social supports – can make a remarkable difference in the lives of these people, including the immigrants and Aboriginals who are now most vulnerable to low literacy.

Here are two examples: Pathways to Education, a non-profit community support project, has overcome the barriers to high school completion for highly disadvantaged adolescents in Regent Park, a poor Toronto neighbourhood with a high concentration of recent immigrants. Drop-out rates for Pathways participants have fallen from 56% to 12%. The U.K. Skills for Life program where government works with community leaders and employers has raised 1 million people from Level 1 to Level 2 literacy in the past five years.

The paybacks from investments like these will be especially high because Canada is an ageing society. To keep the economy growing and competitive while responding to the needs of growing numbers of elderly, the full talents of every able-bodied person will be needed. The way to expand that talent base is to ensure that every citizen has achieved their full literacy capacity so that they can be the best they can be as workers, parents, volunteers and voters.

Canada will have to set, and meet, ambitious goals to overcome the hidden literacy deficit. It must mobilize action to invest in literacy skills on four fronts: young children, school-age children, adolescents and adults. In the 21st century, everyone's literacy will count.

References

ABC Canada. (n.d.a). ***Through the literacy lens*** [Pamphlet]. Retrieved November 1, 2006, from http://www.abc-canada.org/media/our_publications/literacy_lens_pamphlet-en.pdf

ABC Canada. (n.d.b). ***Who wants to learn?*** Retrieved November 1, 2006, from www.abc-canada.org/research/wwtl_summary.asp

ABC Canada. (2005). ***Report Summary: International Adult Literacy and Skills Survey (IALSS)***. Retrieved November 1, 2006, from http://www.abc-canada.org/media_room/media/ialss_summary_nov_05.pdf

Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs. (1999). Health Literacy: Report of the Council on Scientific Affairs, J***ournal of the American Medical Association, 281(6),*** 552-7.

Bils, M. & Klenow, P. (2000). Does schooling cause growth? ***The American Economic Review, 90,*** 5.

Blunket, D. (2001) ***Skills for Life: The National Strategy for Improving Adult Literacy and Numeracy Skills.*** Retrieved November 1, 2006, from www.dfes.gov.uk/readwriteplus/bank/ABS_Strategy_Doc_Final.pdf

Boston Consulting Group. (February 20, 2007). ***Report to the pathways to education panel of advisors meeting*** [Power Point Presentation].

Breneman, D.W. (1998). Remediation in higher education: Its extent and costs. In D. Ravitch (Ed.), ***Brookings papers on education policy*** (pp. 359-382). Washington, DC: The Brookings Institution.

British Columbia Ministry of Advanced Education. (2005). 2005 ABE Survey: ***Report of findings from the BC College and Institute Adult Basic Education (ABE) Outcomes Survey.*** Retrieved November 1, 2006 from http://www.aved.gov.bc.ca/abe/ABE_Report_of_Findings.pdf

Butlin, G. (1999). Determinants of postsecondary participation. ***Education Quarterly Review, 5(3),*** 9.

California Head Start Association. (2006). ***Head start/early head start in California fact sheet.*** Retrieved November 1, 2006 from http://caheadstart.org/facts.html

Campbell, A. (2005). ***Profiting from literacy – creating a sustainable workplace literacy program.*** Retrieved November 1, 2006, from the Conference Board of Canada Web site: http://www.conferenceboard.ca/

Canadian Council on Learning. (2005, December 16). Good news: Canada's high school dropout rate is falling, ***Lessons in Learning***. Ottawa, ON.

Canadian Council on Learning. (2007). ***2007 annual report on the state of learning in Canada.*** Retrieved November 1, 2006, from http://www.cclcca.ca/CCL/Reports/StateofLearning/StateofLearning2007.htm

Carneiro, P. & Heckman, J. J. (2003). Human Capital Policy. In J.J. Heckman, A.B. Krueger & B.M. Friedman (Eds.) ***Inequality in America: What Role for Human Capital Policies?*** Cambridge, MA: MIT Press.

Comings, J., Reder, S. & Sum, A. (2001). ***Building a level playing field: The need to expand and improve the national and state adult education and literacy systems,*** NCSALL Occasional Paper (Eric Document Reproduction Service No. ED459315)

Coulombe, S & Tremblay, J.-F. (2005). ***Public investment in skills: Are Canadian governments doing enough?*** Retrieved from the CD Howe Institute Web site: www.cdhowe.org

Coulombe, S., Tremblay, J.-F. & Marchand, S. (2004). ***Literacy scores, human capital and growth across fourteen OECD countries,*** (Cat. No. 89552MIE, no. 11). Ottawa, ON: Statistics Canada.

Department for Education and Skills (2003). ***Skills for life: The national strategy for improving adult literacy and numeracy skills – focus on delivery to 2007.*** Retrieved November 1, 2006, from http://www.dfes.gov.uk/readwriteplus/bank/SfL%20Document.pdf

Desjardins, R. (2004). Learning for well-being: Studies using the International Adult Literacy Survey. ***Studies in Comparative and International Education,*** 65. Stockholm, Sweden: Stockholm University, Institute of International Education.

Desjardins, R. & Schuller, T. (2006). ***Measuring the effects of education on health and civic engagement: Proceedings of the Copenhagen Symposium.*** Retrieved November 1, 2006, from Organisation for Economic Cooperation and Development Web site: http://www.oecd.org/dataoecd/15/2/37425660.pdf

Drolet, M. (2005). ***Participation in post-secondary education in Canada: Has the role of parental income and education changed over the 1990s?*** (Cat. No. 11F0019MIE no. 243). Analytical Studies Branch research paper series. Ottawa, ON: Statistics Canada.

Eighth Annual National Conference on Family Literacy (1999, April 12). Closing General Session. Louisville, KY.

Ferrer, A., Green, D. A., & Riddell, W. C. (2005). ***International Adult Literacy Survey: The effect of literacy on immigrant earnings*** (Cat. No. 89552MIE, no. 12). Ottawa, ON: Statistics Canada and Human Resources Development Canada.

Finnie, R., Lascelles, E., & Sweetman, A. (2004). ***Who goes? The direct and indirect effects of family background on access to post-secondary education*** (Cat. No. 11F0019MIE no. 237). Analytical Studies Branch research paper series. Ottawa, ON: Statistics Canada.

Goldenberg, M. (September 2006). ***Employer investment in workplace learning in Canada***. A discussion paper prepared by Canadian Policy Research Networks on behalf of the Canadian Council on Learning. Retrieved November 1, 2006 from http://www.cprn.com/documents/45354_en.pdf

Green, D. A. & Riddell, W. C. (2001). ***International Adult Literacy Survey: Literacy, numeracy and labour market outcomes in Canada*** (Cat. No. 89552MIE, no. 8). Ottawa, ON: Statistics Canada.

Hackett, H. & Baran, D. (1995). ***Canadian action on early school leaving: A description of the national stay-in-school initiative.*** Retrieved November 1, 2006, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/14/b3/24.pdf (ERIC Document Reproductions Service No. ED399481)

Hanusheck, E. A. & Kimko. D. D. (2000). Schooling, labour force quality and the growth of nations. ***The American Economic Review, 90(5),*** 1184-1208.

Hartley, R. & Horne, J. (2004). ***Social and economic benefits of improved adult literacy: Towards a better understanding: Support document.*** Retrieved, November 1, 2006, from the National Centre for Vocational Education Research (NCVER) Web site: http:www.ncver.edu.au/research/proj/nr4L06s.doc

Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. ***Science, 312,*** 1900- 1902.

Hertzman, C., MacLean, S., Kohen, D., Dunn, J.R. & Evans, T. (2002). ***Early development in Vancouver: Report of the Community Asset Mapping Project (CAMP).*** Retrieved November 1, 2006 from the Human Early Learning Partnership Web site: http://www.earlylearning.ubc.ca/documents/vancouverreport.pdf

Hospital for Sick Children. (2005). ***Early school leavers: Understanding the lived reality of student disengagement from secondary schools.*** Ontario Ministry of Education and Training. Toronto, ON: Author.

Hudson River Center for Program Development. (2001). ***Bringing family literacy to incarcerated settings: An instructional guide.*** Glenmont, NY: Author.

Human Resources and Social Development Canada. (2000a). ***Adult literacy: Policies, programs and practices. Lessons learned.*** Retrieved November 1, 2006, from http://www.hrsdc.gc.ca/en/cs/sp/hrsdc/edd/reports/2000-000404/alppp.pdf

Human Resources and Social Development Canada. (2000b). ***Dropping out of high school: Definitions and costs.*** Retrieved November 1, 2006, from http://www11.hrsdc.gc.ca/en/cs/sp/hrsdc/arb/publications/research/2000 000063/page00.shtml

Human Resources and Social Development Canada. (2002). ***Synthesis of Lessons Learned Adult Literacy Lessons-Learned Project – Technical Report.*** Retrieved November 1, 2006, from http://www11.hrdc-drhc.gc.ca/pls/edd/ALP_104008/htm

Human Resources and Social Development Canada and Statistics Canada. (2005). ***Building on our competencies: Canadian results of the International Adult Literacy and Skills Survey*** (Cat. No. 89617XIE). Retrieved November 1, 2006, from http://www.nald.ca/fulltext/booc/booc.pdf

Human Resources and Social Development Canada - Learning Policy Directorate. (2006). ***Literacy in Nova Scotia: Implications of findings from IALSS 2003.*** Retrieved November 1, 2006, from http://www.nald.ca/library/research/ialss-ns/ialssns-en.ppt

Institut de la statistique du Québec. (2004). ***Enquete québécoise sur la qualité des services de garde éducatifs.*** Retrieved November 1, 2006, from www.grandirenqualite.gouv.qc.ca/publications_an.htm

Kaplan, D., & Venezky, R. (1994). Learning and voting behavior: A bivariate probit model with sample selection. ***Social Science Research, 23,*** 350-367.

Knighton, T. & Mirza, S. (2002). Post-secondary participation: The effects of parents' education and household income, ***Education Quarterly Review, 8(3),*** 25-32.

Krahn, H. (1997). On the permanence of human capital: Use it or lose it. ***Policy Options, 17,*** 16-21.

Krahn, H. & Lowe, G. S. (1998). ***Literacy utilization in Canadian workplaces*** (Cat. No. 89552MIE, no. 4). Ottawa, ON: Statistics Canada. Retrieved November 1, 2006, from http://www.grahamlowe.ca/documents/64/literacy%20utilization%20in%20workplaces.pdf

Krahn, H. & Lowe, G. (1999). ***Literacy in the workplace. Perspectives on Labour and Income, 11(2):*** 38-44. Retrieved November 1, 2006, from http://www.nald.ca/fulltext/pat/LitW/page1.htm

Lacourse, E., Cote, S., Nagin, D. S., Vitaro, F., Brendgen, M., & Tremblay, R. E. (2002). A longitudinal-experimental approach to testing theories of antisocial behavior development, ***Development and Psychopathology, 14(4),*** 909-924.

Lleras-Muney, A. (2005). ***The relationship between education and adult mortality in the United States. Review of Economic Studies, 72(1),*** 189-221.

Lochner, L. & Moretti, E. (2004). The effect of education on crime: Evidence from prison inmates, arrests, and self-reports. ***The American Economic Review, 94(1),*** 155-189.

Max Bell Foundation. (2006). ***Literacy – For a life of learning! A collaborative process toward a proposed literacy policy for all Albertans.*** Calgary, AB: Author.

McCain, M. N. & Mustard, J.F. (1999). ***Reversing the real brain drain: Early Years Study,*** Final Report. Toronto, ON: Canadian Institute for Advanced Research.

McCain, M.N., Mustard, J. F., & Shanker, S. (2007). ***Early Years Study 2: Putting science into action.*** Retrieved from the Council for Early Child Development Web site: www.councilecd.ca

Mendelson, M. (2006). ***Improving primary and secondary education on reserves in Canada,*** Caledon Institute for Social Policy, Ottawa, ON.

Milligan, K., Moretti, E. & Oreopoulos, P. (2005). ***Does education improve citizenship? Evidence from the U.S. and the U.K.*** Cambridge, MA: National Bureau of Economic Research, Working paper.

Morgan, S. & McKerrow, M. (June 2006). ***Human capital development and the frontiers of research in the sociology of education.*** Retrieved November 1, 2006, from http://www.cprn.com/documents/44364_en.pdf

Movement for Canadian Literacy (2005). ***A 10-Year, results-based national literacy action plan - 2006-2016.*** Retrieved November 1, 2006, from http://www.literacy.ca/govrel/10year/tenyear.pdf

Murray, T. S., Clermont, Y., & Binkley, M. (2005). ***Measuring adult literacy and life skills: new frameworks for assessment.*** (Cat. No. 89552MIE, no. 13). Ottawa, ON: Statistics Canada.

Myers, K. & de Broucker, P. (2006). ***Too many left behind: Canada's adult training and education system.*** Retrieved November 1, 2006, from www.cprn.org

Myers, K. & Myles, J. (2005). ***Self-assessed returns to adult education: life-long learning and the educationally disadvantaged.*** Retrieved November 1, 2006, from the Canadian Policy Research Network Web site: http://www.cprn.org/documents/43971_en.pdf

Organisation for Economic Cooperation and Development. (2003). OECD ***thematic review of adult learning: Canada country note.*** Retrieved November 1, 2006 from http://www.oecd.org.

Organisation for Economic Cooperation and Development. (2004). ***Early childhood education and care policy: Canada country note.*** Retrieved November 1, 2006, from http://www.oecd.org/dataoecd/42/34/33850725.pdf

Organisation for Economic Cooperation and Development & Human Resources and Social Development Canada. (1997). ***Literacy skills for the knowledge society: Further results from the International Adult Literacy Survey.*** Ottawa, ON.

Organisation for Economic Cooperation and Development & Statistics Canada. (2000). ***Literacy in the information age: Final report of the International Adult Literacy Survey.*** Paris, FR.

Ottawa Aboriginal Headstart Program. (1998). ***Evaluation report 1997-1998.*** Retrieved November 1, 2006, from http://www.aboriginalcanada.com/headstart/docs/report2c.pdf

Pagani, L., Tremblay, R., Vitaro, F., Boulerice, B. & Mcduff, P. (2001). Effects of grade retention on academic performance and behavioral development. ***Development and Psychopathology, 13,*** 297–315.

Perrin, B. (1989). ***Literacy and health project: Making the world healthier and safer for people who can't read.*** Ontario Public Health Association. Retrieved November, 1, 2006, from http://www.opha.on.ca/resources/literacy1research.pdf

Perrin, B. (1998). ***How does literacy affect the health of Canadians?*** Retrieved November 1, 2006, from Health Canada Web site: http://www.phac-aspc.gc.ca/ph-sp/phdd/literacy/literacy.html

Picot, G., Hou, F., & Coulombe, S. (2007). ***Chronic low income and low-income dynamics among recent immigrants*** (Cat. No. 11F0019MIE, no.294). Statistics Canada, Analytical Studies Branch Research Paper Series.

Picot, G. & Sweetman, A. (2005). The deteriorating economic welfare of immigrants and possible causes: Update 2005 (Cat. No. 11F0019MIE, no. 262). Ottawa, ON: Statistics Canada, Analytical Studies Branch Research Paper Series.

Policy Research Initiative. (2004). ***A life-course approach to social policy analysis: A proposed framework.*** Retrieved November 1, 2006, from https://policyresearch.gc.ca/doclib/PRI%20Lifecourse%20Final%20with%20cover%20e.pdf

Rootman, I. & Ronson, B. (2005). Literacy and health research in Canada: Where have we been and where should we go? ***Canadian Journal of Public Health, 96,*** 62-77.

Rowen, N. & Gosine, K. (2006). Support that matters. In D.E. Armstrong & B. J. McMahon (Eds.), ***Inclusion in urban educational environments: Addressing issues of diversity, equity, and social justice*** (pp. 277-299). Charlotte, NC: Information Age Publishing

Schweinhart, L. J. (2005). ***Lifetime effects: The High/Scope Perry Preschool Study through age 40: Summary conclusions, and frequently asked questions.*** High/Scope Educational Research Foundation, Retrieved November 1, 2006, from http://www.highscope.org/file/Research/PerryProject/3_specialsummary%20col%2006%2007.pdf

Schweinhart, L. J., Montie, J., Xiang, Z., Barnett, W. S., Belfield, C. R., & Nores, M. (2005). ***Lifetime effects: The High/Scope Perry Preschool study through age 40. (Monographs of the High/Scope Educational Research Foundation, 14).*** Ypsilanti, MI: High/Scope Press.

Seccombe, K., Lockwood, R. S. & Reder, S. (2005). Literacy: Influence on access and use of the health care system. ***Research in the Sociology of Health Care, 23,*** 277-295.

Shalla, V. & Schellenberg, G. (1998). ***The value of words: Literacy and economic security in Canada.*** Ottawa, ON: Statistics Canada.

Smith, J. (1997). ***Literacy, welfare and work – preliminary.*** Ottawa, ON: National Literacy Secretariat and The Coalition for Brandon Literacy Services

Snow, C., Burns, S., & Griffin, P. (1998). ***Preventing reading difficulties in young children,*** Washington, DC: National Research Council.

State Early Childhood Policy Technical Assistance Network (n.d.). Retrieved November 1, 2006, from http://finebynine.org/pdf/BenefitCostStudies.pdf

Statistics Canada. (n.d.). CANSIM Table Number: 3840009, Series Title: Canada; Social Assistance, Income Maintenance. Retrieved from November 1, 2006, from http://cansim2.statcan.ca/cgiwin/cnsmcgi.exe?Lang=E&RootDir=CII/&ResultTemplate=CII/CII_pick&Array_Pick=1&ArrayId=3840009

Statistics Canada (2003a). ***2001 Census of Canada*** (Cat. No. 97FOO19XCB no. 48). Ottawa, ON.

Statistics Canada (2003b). ***2001 Census: analysis series – Education in Canada: Raising the standard*** (Cat No. 96F0030XIE no. 12). Ottawa, ON.

Statistics Canada (2003c), ***Longitudinal Survey of Immigrants to Canada,*** The Daily. Retrieved November 1, 2006, from http://www.statcan.ca/Daily/English/030904/d030904a.htm

Statistics Canada. (2004). ***Adult correctional services, average counts of offenders in provincial, territorial and federal programs.*** Retrieved November 1, 2006, from http://www40.statcan.ca/l01/cst01/legal31a.htm

Statistics Canada. (2005). ***The contribution of literacy to economic growth and individuals' earnings.*** Retrieved November 1, 2006 from http://www.statcan.ca/english/freepub/81-004-XIE/2004006/litearn.htm#b

Statistics Canada & Human Resources and Social Development Canada. (2001). ***A report on adult education and training in Canada: learning a living,*** Retrieved November 1, 2006, from http://www.statcan.ca/english/freepub/81-586-XIE/81-586-XIE1998001.pdf

Statistics Canada & Organisation for Economic Cooperation and Development. (2005). ***Learning a living: First results of the Adult Literacy and Life Skills Survey*** (89603XWE part 1). Ottawa, ON.

Steurer, S. J. & Smith, L. G. (2003). ***Education reduces crime: Three-state recidivism study. Executive summary.*** Retrieved November 1, 2006, from the Correctional Education Association Web site: http://www.ceanational.org/PDFs/EdReducesCrime.pdf

Stroick, S. M. & Jenson, J. (1999). ***What is the best policy mix for Canada's young children?*** Retrieved November, 1, 2006, from the Canadian Policy Research Networks Web site: http://www.cprn.com/documents/15602_en.pdf

Taylor, D. (1985). ***Family literacy: Children learning to read and write.*** Exeter, NY: Heinemann.

The Pathways to Education Program. (n.d). Retrieved November 1, 2006 from www.pathwaystoeducation.ca

The Tomorrow Project. (2005). ***Glimpses of tomorrow.*** Retrieved November 1, 2006, from http://www.tomorrowproject.net/pub/2_Website/The_Tomorrow_Project/-162.html

U.S. Department of Health and Human Services - Administration for Children and Families (May 2005). ***Head Start Impact Study: First Year Findings.*** Washington, DC: Author.

Vitaro, F., Brendgen, M., & Tremblay, R. E. (1999). Prevention of school dropout through the reduction of disruptive behaviors and school failure in elementary school, ***Journal of School Psychology, 37(2),*** 205–226.

Wiggenhorn, W. (1990). Motorola U: When training becomes an education. ***Harvard Business Review, 68(4),*** 1-71.

Willms, J. D. (2002). ***Vulnerable children: Findings from the National Longitudinal Survey of Children and Youth.*** Edmonton, AB: University of Alberta Press and Human Resources Development Canada, Applied Research Branch.

Zhang, X. & Palameta, B. (2006). ***Participation in adult schooling and its earnings impact in Canada*** (Cat. No. 11F0019MIE no. 276). Statistics Canada, Analytical Studies Branch Research Paper Series.