

## Canada's Literacy Challenge: A Market Segmentation Analysis

*The International Survey of Reading Skills (ISRS)*, 2008 and the market segmentation of its learner groups.

### 1. Background: The link between literacy levels and economic outcomes

The literacy levels of adult Canadians exert a range of influences on our country's economic and social success.

Differences in average adult literacy levels explain as much as 55% of long-term differences in the long-term growth rate of GDP per capita as well as productivity growth at the national and international level.<sup>1,2,3</sup> The same research also suggests that the distribution of adult literacy skill has influenced the long-term economic success of Canada and other countries. Specifically, the higher the proportion of adults with very low literacy skill, the lower overall rates of long-term GDP growth.

Research has established a strong relationship between literacy and a range of outcomes at the individual level. Differences in literacy skill are associated with large differences in employability, wage rates, income and reliance on social transfers such as social assistance. Adults with higher literacy skills work more, experience less unemployment, earn more, spend less time unemployed, and rely less on government transfers.<sup>4,5,6,7</sup>

Literacy has also been linked to individual health outcomes including the probability of experiencing illness, the length of recovery, the cost of treatment and the age at death. Individuals with low literacy skill get ill more often, experience more workplace illnesses and accidents, take longer to recover, experience more mis-medications and die younger.<sup>8</sup>

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<sup>1</sup> Coulombe, S., Tremblay, JF and S. Marchand. (2004). *Literacy Scores, Human Capital and Growth across Fourteen OECD Countries*. Ottawa: Statistics Canada. Cat. No. 89-552-MIE, no. 11.

<sup>2</sup> Coulombe, S. and Tremblay, JF (2006) *Human Capital and Canadian Provincial Standards of Living*.

<sup>3</sup> Coulombe, S. and Tremblay, JF (2006) *Migration, Human Capital, and Skills Redistribution across the Canadian Provinces*, Working Paper 2006 D-07.

<sup>4</sup> Osberg, L. (2000). *Schooling, Literacy and Individual Earnings*. Ottawa and Hull: Statistics Canada and Human Resource Development Canada.

<sup>5</sup> Green, D.A. and Riddell, C. (2007) *Literacy and the Labour Market: The Generation of Literacy and its Impact on Earnings*, Statistics Canada and HRSDC, Ottawa.

<sup>6</sup> Raudenbush, S. W., & Kasim, R. M. (2002). *Adult Literacy, Social Inequality, and the Information Economy: Findings from the National Adult Literacy Survey*. Ottawa and Hull: Statistics Canada and Human Resource Development Canada.

<sup>7</sup> Statistics Canada and OECD (2005), *Learning a Living: First results of the Adult Literacy and Life Skills Survey*, Ottawa and Paris

<sup>8</sup> Rudd, R., Kirsch, I. and Yamamoto, K. (2004) *Health Literacy in America*, Educational Testing Service, Princeton

This evidence leaves little doubt that literacy is socially and economically important, yet 48% of Canadian adults, age 16-plus, do not have the literacy skills considered necessary to cope in a modern society and economy.<sup>9</sup>

## 2. A new picture of Canada’s adults with low literacy

Statistic Canada and OECD’s 2005 findings indicated the extent of low literacy in our country – underscoring the point that some 9 million adult Canadians have not attained the level of literacy proficiency deemed necessary for full participation in our society and the modern economy. A subsequent Statistics Canada study, *The International Survey of Reading Skills* (ISRS), 2008, surveyed a representative sample of those adult Canadians with low literacy – drawing their sample, in fact, from the same people tested for the earlier Statistics Canada-OECD survey of literacy levels. Clinical reading tests, in English and French, were administered to understand in more detail each person’s stage of reading comprehension development. That development ranged from a basic decoding of words, where people were truly ‘learning to read,’ to higher levels of comprehension where people had sufficient literacy skills in order to ascertain meaning when faced with unfamiliar words or contexts (‘reading to learn’).

The resultant report paints a fuller picture of the reading abilities of those Canadians with low literacy. While there are certain limitations<sup>10</sup> to the survey, ISRS provides a further indication of the nature of the reading abilities of Canadians.

Based on the results of the clinical reading tests, ISRS grouped people with low literacy into four “latent classes” or learner groups:

Latent classes	Print skills	Comprehension skills
A	Very limited	Limited
B	Limited	Limited
C	Limited	Adequate
D	Adequate	Adequate

### New market segmentation of adults with low literacy

Recent research<sup>11</sup> applied market segmentation to the ISRS data, thereby further defining and characterizing adult Canadians with low literacy in terms of immigrant status, mother tongue, educational attainment, oral language proficiency, age, presence

<sup>9</sup> Statistics Canada and OECD (2005), *Adult Literacy and Life Skills* (ALL) Survey

<sup>10</sup> Large as they are compared to other research studies in the field, the sample sizes fielded in the ISRS are still relatively small. The three territories were excluded from the sample and the ISRS data were weighted in such a way that the adjustments did not involve benchmarking to the skills distributions in the earlier ALL and IALSS surveys.

<sup>11</sup> T.Scott Murray, Stan Jones, Doug Willms, Richard Shillington, Mike Macracken, Victor Glickman, *Addressing Canada’s Literacy Challenge: A Market Segmentation Analysis*, 2008

of children in the home, self-perception of literacy skills and attitudes towards information and communications technologies (ICTs).

This analysis revealed two additional latent classes for a total of six classes for both English and French test-takers: A1, A2, B1, B2, C and D. Details regarding these characteristics are attached as an appendix.

### **3. Some key findings from the market segmentation:**

- Low literacy skills affect a large proportion of employed Canadian adults.
- There is a large and wide-ranging low literacy and comprehension challenge among Canadian adults; there is great potential to realize more fully the power of an educated, skilled and experienced workforce.
- The largest English learner group (Class D with 3,161,000, or roughly half, of English adults with low literacy) have reached a level where they are 'reading to learn' – in fact, the majority in this class report they “read books once a week or more” – yet they still require a further increase in proficiency to achieve the literacy level deemed necessary for full participation in our society and modern economy.
- 84% of English latent class B2 are employed, yet have limited print and comprehension skills
- Incidents of reports of incomes in the lowest quartile are quite common among those adults with low literacy
- In the second-largest English latent class (Class C, with 914,000 adults with low literacy, or about 31% of all English test-takers), almost half (47%) report incomes in the bottom quartile
- Reports of expressing a negative attitude towards computers are quite common among adults with low literacy
- Low literacy is the reality for a number of people who have graduated high school. For example, 73% of English latent class C are high-school graduates.
- Immigrants with a mother tongue other than English predominate in two of the latent classes with the most limited literacy skills (A2, B2)

### **4. The investment in adult literacy**

The findings underscore that there are many adult Canadians who would benefit from an increase in their literacy levels. Considering the social and economic benefits cited by other studies regarding literacy acquisition, the beneficiaries of such an investment would be individual learners, the companies they work for, and Canada as a viable competitor on the world stage.

The authors of *Addressing Canada's Literacy Challenge: A Market Segmentation Analysis* consulted literacy experts<sup>12</sup> in an attempt to determine the extent of the investment that would have to be made to raise the level of all Canadian adults to the level deemed necessary for them to participate fully in society and the modern economy.

Specific procedures for addressing the various groups of learners were chosen and the costs attending to those procedures, including reference to an hourly wage for the literacy practitioners, were estimated. It should be noted that there are numerous other ways of offering instruction and providing learning opportunities, beyond the procedures cited here, but these were chosen as a means of arriving at some cost estimates. The estimates, which should be taken as indicative of the required magnitude of investment and not as definitive, provide a starting point for discussion.

The authors estimate an overall investment of some \$6.4 billion, reflecting the cost *if all adults were to have their literacy levels increased*. It should also be noted that there would be numerous factors that would influence how widely that literacy acquisition would actually take place. Also, it is unknown to what degree the workforce would be able to absorb all of those adults who raised their literacy proficiency to the targeted levels.

## **5. The cost benefits of investment**

There would be cost benefits accruing from an investment in adult literacy upgrading, and the authors underscore that point.

Based on calculations the authors made regarding estimated outcomes in areas such as annual labour earnings, income tax revenues, and reductions in the number of welfare recipients and employment insurance beneficiaries, the authors estimate a rate of return of 251%.

A second analysis that uses the relationship between literacy skill and long-term economic growth observed in Statistics Canada-OECD's IALSS data yields an 83% rate of return. The fact that this rate is lower than the initial estimate suggests that the level of skill demand may be insufficient to ensure that all of the newly created skills will be absorbed by the economy. Nevertheless, the analyses leave little doubt that investment in literacy would yield economic benefits.

This market segmentation analysis provides a good picture of the ubiquity and nature of the low literacy issue among adult Canadians. It also emphasizes the great potential within our adult population to realize more fully their participation in the workforce and in their community.

*March, 2008*

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<sup>12</sup> Kyle Downie, literacy instructor, Douglas College; Lynda Fownes, workplace instruction and essential skills, SkillPlan, BC Construction Skills Council; Melissa Gardner, workplace instruction and essential skills, Bow Valley College; Ester Geva, literacy researcher, University of Toronto; Stan Jones, literacy consultant; Bob McConkey, college and workplace essential skills; Linda Siegel, immigrant literacy and programming, University of British Columbia

## APPENDIX

### DETAILS OF LATENT CLASSES

#### **English latent class A1:**

- 240,000 adults with low literacy
- largely immigrants and small proportion of Aboriginal people with a mother tongue other than English
- very limited literacy skills; at a severe disadvantage

#### **English latent class A2:**

- 379,000 adults with low literacy
- largely immigrants and small proportion of Aboriginal people with a mother tongue other than English
- very limited literacy skills; at a severe disadvantage

#### **English latent class B1:**

- smallest market segment; 48,000 adults with low literacy
- Canadian-born, English mother tongue
- only 23% of them employed
- expressed a negative attitude towards computers

#### **English latent class B2:**

- 430,000 adults with low literacy
- largely immigrants and small proportion of Aboriginal people with a mother tongue other than English
- 84% employed
- expressed a negative attitude towards computers

#### **English latent class C:**

- 1,914,000 adults with low literacy (about 31% of all English test takers); second-largest group
- Most (67%) report English as mother tongue
- Canadian-born members of class C less educated than immigrants (23% Canadian-born have more than a high-school education, compared to 60% of immigrants)
- Almost half (47%) of Canadian-born report incomes in bottom quartile, compared to 32% of immigrants reporting incomes in bottom quartile
- 73% are high-school graduates

#### **English latent class D:**

- largest learner group (3,161,000), roughly half of potential English-language learners with low literacy
- largely Canadian-born and educated
- 74% have English mother tongue
- largely at a stage where they are 'reading to learn' (as opposed to 'learning to read') but they still require further increase in proficiency to achieve the literacy level deemed necessary for full participation in our society and modern economy.
- only class where a majority reported "reading books once a week or more"

**French latent class A1 & A2:**

- majority (85%) whose mother tongue is French are Canadian-born
- very low education (71% have less than secondary school education)

**French latent class B1 & B2:**

- overwhelming majority (75%) have French mother tongue
- 91% have less than high school diploma
- 29% report incomes in lowest quartile

**French latent class C:**

- second-largest French segment (522,000 adults with low literacy)
- 87% has French mother tongue
- 68% have less than high-school diploma
- negative attitude towards computers

**French latent class D:**

- largest French segment (1,158,000 adults with low literacy)
- 98% have French mother tongue
- 95% Canadian-born
- 60% have high school or less; 37% have less than high school
- 21% report incomes in lowest quartile
- negative attitudes towards computers

Note: 81% of French test-takers did not complete secondary school education, compared to 31% of English test-takers