

Highlights from the Final Report of the International Adult Literacy Survey: *Literacy in the Information Age*

Skills for the Twenty-first century

Skills are becoming increasingly important in the knowledge economy, both for individuals and for countries. The use of new technologies in everyday life, changing demands in the labour market, and participation in the globalisation process are exerting a major influence on employment and workforce skills. This involves a shift in labour demand away from workers with lower skill levels to those with higher skill levels.

Because of these changes, individuals are increasingly required not only to have higher levels of education, but also the capacity to adapt, learn and master changes quickly and efficiently. This requires broad foundation skills that must be regularly updated and complemented with specific skills through training and lifelong learning processes. Literacy skills are critical in this context.

Developing a high skill work force is also important for firms and for countries. Firms require highly skilled employees to compete internationally, to adapt to new technologies and to attain higher levels of efficiency and productivity. Similarly, countries with higher levels of skills will adjust more effectively to challenges and opportunities opened up by globalisation.

The increase in demand for highly skilled workers is evident in many ways. In occupational terms, there has been a shift away from blue-collar jobs (labourers, transport and production workers) towards high-skill, white-collar positions, particularly in professional, technical, administrative and managerial occupations. And even within occupational categories, evidence indicates there has been an increase in job complexity and greater use of communication, social and problem solving skills. Changes in workplace organisation point in the same direction, as the growing number of firms using flexible workplace practices (such as team work and multi-skilling) tend to have more highly skilled and better educated workforces than firms organized along more traditional lines. Given the shift in demand towards highly skilled labour, the employment prospects for workers with lower levels of skill have deteriorated. This is evident in rising unemployment rates, lower levels of labour force participation and declines in real wages.

In this context, the literacy skills of individuals and of nations are an essential ingredient in the process of skills upgrading that accompanies the economic and social changes that are occurring in OECD countries. Bringing together data drawn from 20 countries, the findings of this report confirm the importance of skills for the effective functioning of labour markets and for the economic success and social advancement of both individuals and societies. They offer policy-makers new insights for crafting policies for lifelong learning that would contribute to economic and social progress.

Literacy in the Information Age is the final report from the International Adult Literacy Survey (IALS), a comparative study of literacy skills in 20 countries: Australia, Belgium (Flanders), Canada, Chile, Czech Republic, Denmark, Finland, Germany, Hungary, Ireland, Netherlands, New Zealand, Norway, Poland, Portugal, Slovenia, Sweden, Switzerland, the United Kingdom and the United States. The study provides the world's first reliable and comparable estimates of the level and distribution of literacy skills in the adult population, and offers new insights into the factors that influence the development of adult skills at home and at work. The report is published

under the responsibility of the Secretary-General of the Organisation for Economic Co-operation and Development, the Minister of Industry of the Government of Canada and the Chief Statistician of Statistics Canada. This Highlights Report was prepared by the National Literacy Secretariat, Human Resources Development Canada. Interested readers are encouraged to see the full report for more detail.

Defining and Measuring Literacy

Literacy is defined 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*. In order to measure proficiency levels in the processing of information, IALS examined three literacy domains: prose, document and quantitative. For each domain, literacy proficiency was measured on a scale ranging from 0 to 500. The scale was then divided into five broad literacy levels.

Prose literacy: the knowledge and skills needed to understand and use information from texts including editorials, news stories, poems and fiction.

Document literacy: the knowledge and skills required to locate and use information contained in various formats, including job applications, payroll forms, transportation schedules, maps, tables and charts.

Quantitative literacy: the knowledge and skills required to apply arithmetic operations, either alone or sequentially, to numbers embedded in printed materials, such as balancing a chequebook, figuring out a tip, completing an order form or determining the amount of interest on a loan from an advertisement.

Level 1 indicates persons with 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 denotes a weak level of skill, but more hidden than Level 1. It identifies people who can read, but test poorly. They may have developed coping skills to manage everyday literacy demands, but their low level of proficiency makes it difficult for them to face novel demands, such as learning new job skills.

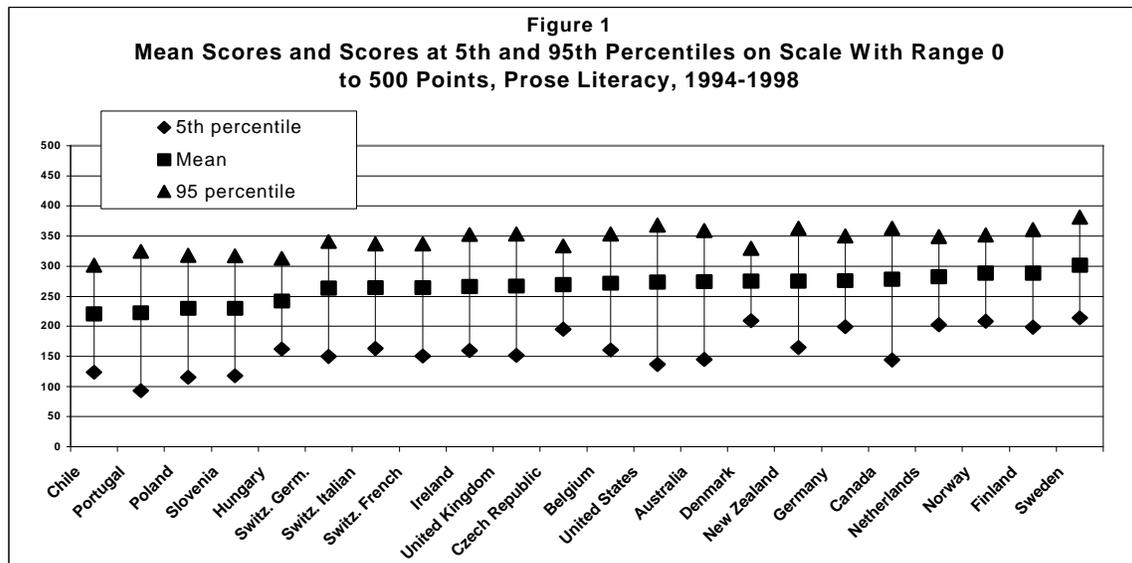
Level 3 is considered a suitable minimum for coping with demands of everyday life and work in a complex, advanced society. It denotes roughly the skill level required for successful secondary school completion and college entry. Like higher levels, it requires the ability to integrate several sources of information and solve more complex problems.

Levels 4 and 5 describe respondents who demonstrate command of higher-order information processing skills.

Population Distributions of Adult Literacy

Countries differ markedly in the literacy attainment of their adult populations. It is not possible to find a single literacy ranking of countries as there is considerable variation in average scores of countries on the prose, document and quantitative literacy scales (each scale has a range of 0 to 500 points). Of the countries included in the IALS, Sweden has the highest average scores on all three scales (from 301 to 306 points) while Chile has the lowest average scores (from 209 to 221 points). Canada falls between these extremes. On the prose literacy scale, Canada ranks 5th (at 279 points) behind Sweden, Finland, Norway and the Netherlands. The United States and the United Kingdom rank 10th and 13th respectively. On the document literacy scale, Canada ranks 8th (at 279 points) behind the Nordic countries, Denmark, Germany and the Czech Republic. Australia ranks 11th on that scale while the United States and United Kingdom are further down the list ranking 15th and 16th respectively. Finally, Canada ranks 9th on the quantitative literacy

scale (at 281 points), again below the countries of Northern European and the Czech Republic. Australia and the United States rank 12th and 13th respectively, while the United Kingdom ranks 17th. Overall, Canada ranks amongst the top countries on the prose scale but is in the middle of the pack on the quantitative scale.



The distribution of literacy skills *within* countries also varies considerably (see Figure 1). Comparing the range of scores between persons at the 5th percentile (those with low literacy skills) with persons at the 95th percentile (those with high literacy skills) provides a measure of the discrepancy in skills within a country. In many European countries, this discrepancy is relatively small. For example, in Denmark the range of scores between the 5th and 95th percentiles on the prose scale is 120 points. In the United States, the range of scores between these percentiles is almost twice as large, at 231 points. Issues of equity arise when there is a large discrepancy between people with the lowest and highest literacy skills, and questions of why countries differ in this respect ought to concern citizens and policy makers.

In Canada, the range of scores between the 5th and 95th percentile is consistently large. On the prose scale, the difference in literacy scores between these percentiles is 219 points - the third largest difference of all countries included in the IALS study. This means that the discrepancy between people with low and high literacy skills is far larger in Canada than it is in many European countries, such as Denmark, Norway, Germany, Finland and Sweden. The same pattern is found on the document and quantitative literacy scales. The United States, the United Kingdom, Poland, Portugal and Slovenia are similar to Canada as the discrepancies between people with low and high literacy skills are large in those countries as well.

Using the literacy levels described above, it is possible to assess how countries differ in the proportions of people with different levels of literacy skills. The results clearly document the existence of significant numbers of adults with low literacy skills in all the countries surveyed. Even in Sweden, where average literacy scores are high, 28 per cent of all adults aged 16 to 65 are at levels 1 or 2 on the prose scale. These individuals have literacy skills below what is considered a suitable minimum for coping with demands of everyday life and work in a complex,

advanced society. In Canada, 42 per cent of all adults aged 16 to 65 are at levels 1 or 2 on the prose literacy scale, while 43 per cent are at levels 1 or 2 on the document and quantitative scales.

Considering the highest level of literacy, 23 per cent of Canadian adults are at level 4/5 on the prose literacy scale. Sweden is the only IALS country with a larger proportion of adults at this level, at 32 per cent. Overall, while countries differ in the literacy attainment of their adult populations, none does so well that it can be said that it has no literacy problem.

Literacy skills are to a large extent acquired in school and there is an association between education and literacy in every country. In Canada, for example, individuals with less than upper secondary education have an average score of 233 points on the prose literacy scale, while those with completed upper secondary and completed tertiary education score considerably higher (at 284 and 315 points respectively). The same pattern is evident in other countries.

But while educational attainment is a main factor influencing literacy skills, lack of initial formal education need not inevitably consign an adult to a low level of skill. Indeed, in some countries large number of adults with low levels of education do attain high levels of literacy skill. For example, of the adults in Sweden who have not completed upper secondary education, 59 per cent score at levels 3 or 4/5 on the document scale. This figure is 51 per cent in Germany. Canada does not fare as well in this regard, as 27 per cent of adults who have not completed upper secondary education score at levels 3 or 4/5. It is important to understand why certain countries succeed more than others in providing high literacy skills to the least educated.

How Literacy is Developed and Sustained

An important aspect of the IALS study was to learn about the factors that help to develop and sustain literacy proficiency. The report found that a person's socio-economic background, educational attainment and labour force experience are just some of the factors influencing literacy skills.

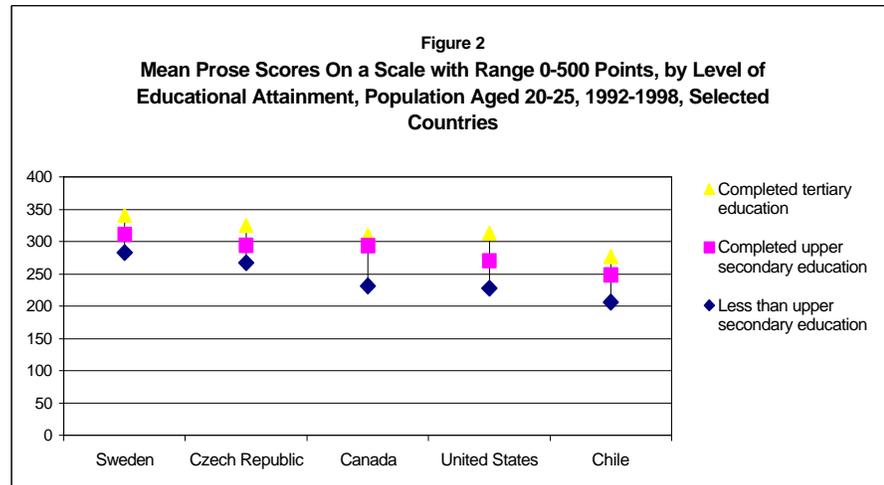
Home Background and Literacy Outcomes

Differences in literacy proficiency emerge early in life. In the early 1990s, the International Association for the Evaluation of Educational Achievement (IEA) collected comparable data on the literacy proficiency of children aged 9 and 14. Even by these early ages, there were significant differences in average literacy performance between countries. And within countries, large differences in literacy proficiency among young children of the same age could be observed. Socialisation within the family and by peer groups explained some of this difference.

Another factor important in determining literacy is the educational background of parents. In Canada, Australia, Ireland, New Zealand, the United Kingdom and the United States, a young person aged 16 to 25 whose parents had eight years of schooling would on average score about 250 points, whereas someone whose parents received 12 years of schooling would on average score about 280 points. In other countries such as Denmark, Finland, Norway and Sweden, the impact of parents' education on literacy proficiency is not as pronounced. Young adults in these countries not only have high literacy on average, but little of the variation in skills is attributable to differing levels of parental education.

Education and Literacy Outcomes

Besides home background, education also plays a critical role in influencing literacy proficiency. On average, for youth and adults, each additional year of school attended corresponds to an increase of 10 points on the literacy scores on the IALS test. In all countries, young adults aged 20-25 who have completed secondary school score higher, on average, than those who have not and, in turn, in many countries those who have completed tertiary education score still higher.



The gains from completed secondary education are much larger in some countries than in others (see Figure 2). In Canada, the gains are substantial. On the prose scale, for example, the mean score of young adults aged 20-25 increased by 62 points, from 231 among those who have not completed secondary education, to 293 among those with completed secondary education. The average increase in mean score for all countries in the IALS study was 41 points.

Completed tertiary education also tends to increase literacy scores relative to individuals with secondary education. Looking at the 20 countries in the IALS study, the mean prose score rose by an average of 22 points for individuals with completed tertiary education. In Canada, the impact of tertiary education on literacy scores was somewhat lower than this 20-country average, increasing prose literacy by 16 points. In contrast, the mean prose score of young adults in the United States increased from 270 among those with completed secondary education to 313 among those with completed tertiary education. In other countries such as Denmark, the gains of tertiary education are small relative to those for secondary.

How does literacy among young adults vary from country to country when controlling for educational attainment? There is substantial variation in mean scores between countries and across scales for young adults with completed tertiary education. Young tertiary graduates reach particularly high levels of literacy in the Czech Republic, Norway and Sweden on all three scales, while the lowest average scores are found in Chile and Poland. Canada's young tertiary graduates rank roughly in the middle of the 20 IALS countries: 12th on the prose literacy, 8th on document literacy, and 11th on quantitative literacy. Among the population of young adults without completed tertiary education, but who have completed secondary education, again Canada ranks roughly in the middle of the 20 IALS countries: 10th on prose literacy, 9th on document literacy, and 14th on quantitative literacy.

In every country in the IALS study, when only age is considered, younger adults aged 26-35 have higher literacy scores than adults closer to retirement aged 56-65. Canada is among the countries with the largest differences, where the mean literacy scores for the two age groups are greater than 50 points. Part of the reason why younger adults have higher average literacy scores is that a

larger proportion of younger population has received extended formal schooling. However, even when comparing age groups with the same level of educational attainment, the skill differences among countries by age remain.

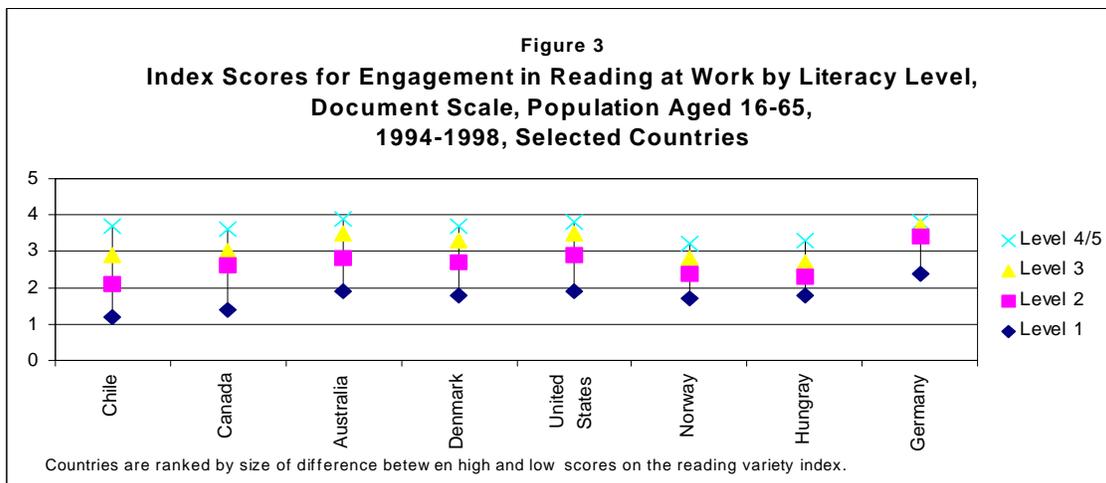
Literacy at Work

A considerable amount of reading, writing and arithmetic occurs in the workplace. For this reason it is a very important contributor to the maintenance and acquisition of literacy. Unfortunately, adults with low skills are less likely to be labour force participants and more likely to experience unemployment. They, therefore, find themselves at a distinct disadvantage. But even among individuals with low skills who have employment, the opportunity to use and expand their skills is diminished.

The IALS developed two indices to measure engagement in reading and writing in the workplace. In all countries, engagement in reading and writing in the workplace is lowest among individuals with the lowest literacy skills (Level 1). In contrast, individuals with high literacy skills have improved employment prospects, and are often in jobs requiring more frequent involvement in complex activities - activities that build and maintain skills. As Figure 3 shows, individuals with the highest literacy skills (Level 4/5) also have the most engagement in reading at work. It is also interesting to note that countries with large differences in reading and writing engagement in the workplace also have wide differences in literacy skills. In Canada, for example, the range of literacy scores in the population is relatively large, as is the contrast between high and low scores on the workplace reading practices index.

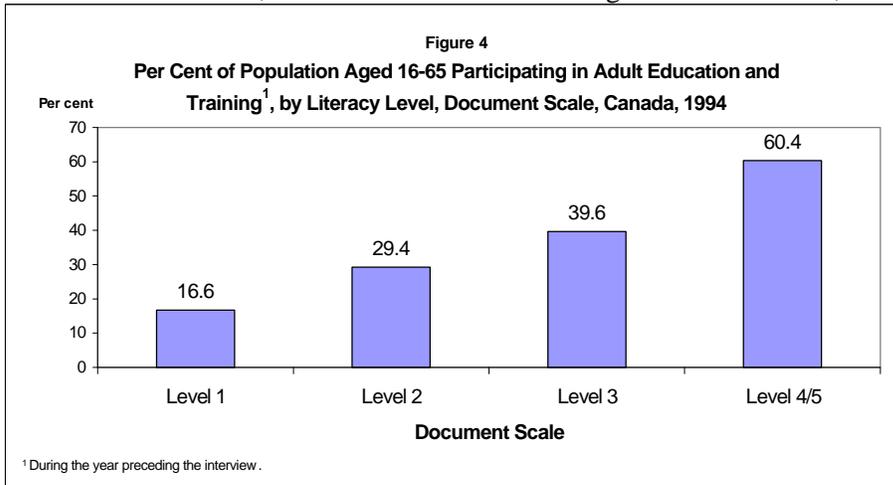
What do the reading and writing indices measure?

Individuals were asked how frequently at work they engaged in literacy activities with various kinds of texts: reports, letters, schemas, manuals, invoices and instructions. The reading variety index records how many of the six different types of texts the respondent said that he or she read at least once a week. Thus, someone whose index is 6 would have reported using each of the six every week. The writing index is constructed in the same way using four questions about the different kinds of writing activities in the workplace: letters and memos, reports, financial documents and specifications.



Literacy and Formal Adult Education

Given that persons with poor skills have little exposure to literacy tasks at work, it would seem unlikely that they can develop their skills without some form of formal instruction or training. However, the evidence from IALS about participation in training suggests that in most countries – including Canada – people with lower literacy skills are not having this opportunity. Figure 4 shows that in Canada, less than one in five adults age 16-65 at Level 1, and fewer than one in



three individuals with Level 2 on the Document Scale received training during the year preceding the survey date. In stark contrast, the training participation rate was 60 per cent among those with Level 4/5 on the document scale.

A challenge facing all countries is how to overcome the disparity between the rising demand for skills in the knowledge economy, and the presence in the workforce of large numbers of people with poor literacy skills. The findings of the IALS study suggest strongly that first step is to recognize the importance of the “long arm of the job” in determining adults’ frequency of engagement in both formal and informal learning.

The IALS study also assessed the overall formal adult education effort of participant countries by measuring the average hours of continuing education and training per adult aged 16-65. The results show substantial variation across countries. New Zealand recorded the highest hours per adult (135) and Poland the lowest (21). Canada ranks fourth out of 17 countries with a mean of 115 hours per adult (three countries – Sweden and Portugal and Germany did not ask about training hours in a comparable way).

In terms of training participation rates – that is, the per cent of persons aged 16-65 who participated in education and training in the previous year (excluding full-time students aged 16 to 24 and people who obtained less than six hours of training) – Canada ranked 10th out of the 19 countries for which information was available. Canada’s training participation rate of 37.7 per cent is in line with the majority of countries studied, and slightly above the average participation rate of 35.0. In a small group of countries – Denmark, Finland and Sweden – training participation rates were higher than 50 per cent.

Financial Support for Training

Employers play a central role in training, as they are by far the main external source of financial support for adult education. But there are important gender differences, as men benefit more often than women from employer support for their education. For men in all countries, employers are the main source of financial support. Women must, to a larger extent than men, rely on self-

financing of training. Still, in 9 out of 17 countries, employers are the main source of financial support for adult education of women. In Canada, 26% of men received support from employers compared with 20% of women. The gender difference in the financing of training is in part a result of the lower labour market participation rate of women and the fact that they work part time more often than men.

Literacy, Culture and Civic Skills

In addition to the workplace and the home, other important arenas for informal learning are voluntary associations and community activities. The voluntary sector can be extremely important in the delivery of adult education – especially in reaching out to adults with low literacy skills who otherwise might not enroll in adult education. Participation in the voluntary sector can enhance and build literacy skills, while promoting the development of civic skills and fostering social cohesion in the knowledge economy.

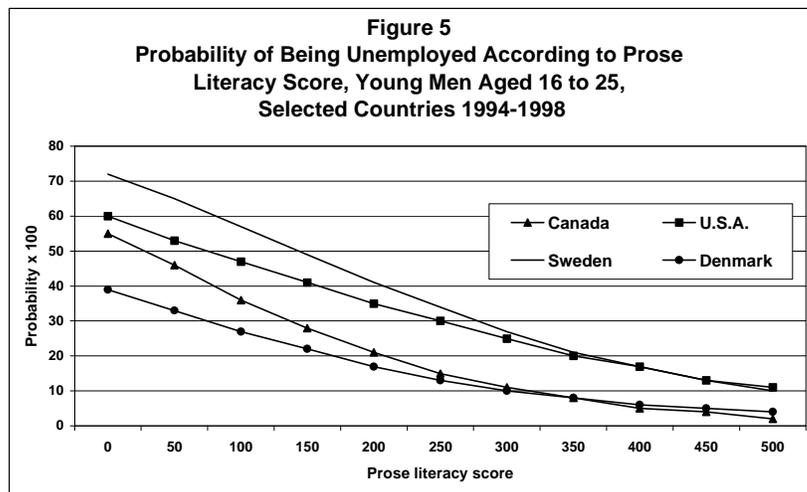
Another factor influencing the distribution of literacy skills in the population is immigration. This is because immigrants bring different educational experiences, and may have learned an official language only as a second or third language, or may be less familiar than the native-born population with the dominant culture of the country. The IALS report compares the literacy levels of each country’s native born population with the literacy levels of the second-language foreign-born population. In Canada, nearly three-quarters (74.7%) of the second-language foreign-born have literacy levels of 2 or 1 on the document scale, compared to 40.4 per cent of the native-born population. However, a large number of Canada’s immigrants have English or French as their mother tongue. The proportion of all immigrants at Level 4/5 is larger than the proportion of native-born at this level.

Outcomes and Benefits of Literacy

Literacy skills yield many benefits. For individuals, literacy contributes to personal development through improved participation in society and the labour market. Literacy also contributes to the economic and social performance of society. It is a necessary ingredient for citizenship and community participation, and shapes the labour force of a country through higher participation rates, higher skill composition and lower chances of unemployment.

Labour Market Outcomes

Literacy proficiency is related to labour force participation. For example, 67 per cent of Canadian adults (aged 25 to 65) at prose levels 1 and 2 participate in paid employment compared with 82 per cent of those at levels 3 or 4/5. For those with higher literacy skills, lower likelihood of unemployment and higher expected earnings act as incentives for participation in the labour force.



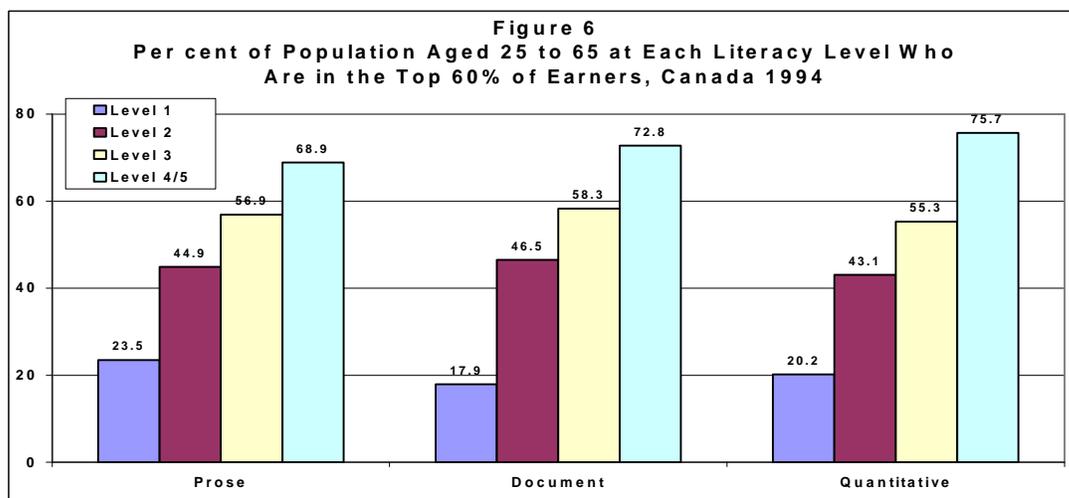
In almost every country included in the IALS study, the chances of being unemployed decrease as literacy scores on the prose scale increase (see Figure 5). This relationship remains when other factors, such as educational attainment and age, are taken into account. It is important to note that while the likelihood of unemployment declines across the entire range of literacy scores (from 0 to 500), the decline is the greatest between 0 and 300 points. This suggests that efforts to raise the literacy skills of individuals with lower scores would be more effective in reducing the likelihood of unemployment than efforts directed at people with higher scores. Overall, strategies to raise literacy skills can be one element in the mix of policies required to boost employability and counter unemployment.

Literacy skills are also associated with occupational outcomes for countries and for individuals. Across the IALS countries, there is a positive association between literacy skills and the proportion of national workforces employed in white-collar high-skilled jobs. In Chile, where the average prose score is 221 points, only 17 per cent of employed workers are in high-skill white-collar jobs. In Sweden, where the average prose score is 301 points, over half (56%) of employed workers are in such jobs. Canada falls between these extremes, ranking eighth among the IALS countries in the share of workers in white-collar high-skilled jobs.

Literacy skills have an impact on individual prospects as well. The occupation in which an individual works is influenced by many factors, such as their age, gender, education, and adult training. IALS data show that, after taking these factors into account, higher literacy scores are associated with a lower likelihood of being employed in a blue-collar job and a higher likelihood of being employed in a high-skill white-collar job. This has implications for lifelong learning, as upgrading the literacy skills of less-advantaged workers could help them improve their position in the labour market.

Most employment creation in OECD countries is concentrated in sectors with high knowledge intensity. As a result, all types of skills - including literacy skills - can be expected to play an increasingly important role in wage determination. IALS data clearly indicate that the percentage of people with relatively high incomes increases with levels of literacy proficiency. For example, only 24 per cent of Canadians at prose literacy level 1 are in the top 60 per cent of wage earners, while this is the case for 69 per cent of Canadians at level 4/5 (see Figure 6). It is generally believed that this earnings gain arises in part because people with higher skills are more productive on the job and are therefore paid a wage premium. It also appears that in Canada, as well as in the United Kingdom and the United States, there is a larger return to quantitative skills than to prose skills.

The evidence also shows that literacy proficiency has a substantial effect on earnings in most IALS countries when other aspects of human capital, specifically educational attainment and



experience, are taken into account. This is especially the case in Canada and Norway, where literacy proficiency is a stronger determinant of earnings than educational attainment. Overall, the evidence supports the notion - still rather new in the economic literature - that there is a measurable net return to literacy skills.

In addition to labour market outcomes, literacy skills are associated with a range of other benefits. There is a strong association between a country's literacy skills and its economic performance. The larger the proportion of adults with high prose skills (levels 4/5) in a country, the higher the gross domestic product (GDP) per capita. And conversely, the higher the proportion of adults with low prose skills (levels 1 and 2), the lower the GDP per capita. Canada ranks among the top countries on both GDP per capita and prose literacy. The relationship between literacy and economic performance is mutually reinforcing. Countries with higher per capita income can devote more resources to literacy development, while at the same time, literacy skills can contribute to economic growth and productivity.

Health, Culture and Civic Skills

Life expectancy at birth is higher in countries that have a larger proportion of people at higher levels of prose literacy. For example, 23 per cent of Canadian adults are at level 4/5 on the prose scale and average life expectancy at birth in this country is 79.0 years. In Hungary, only 3 per cent of adults are at level 4/5 on the prose scale and life expectancy at birth is far shorter - at 70.9 years. Other countries fall between these extremes. Although it is not possible to say whether life expectancy is a cause or effect of higher literacy, there is a relationship between the two. Other studies have shown that individuals with higher levels of educational attainment have healthier habits and lifestyles. For example, in Canada and the United States people with more years of education are less likely to smoke, and are also less likely to be overweight. These risk factors which are influenced by literacy can have a strong impact on health outcomes.

Literacy also has a bearing on social and political participation. Higher levels of literacy are associated with participation in voluntary community activities. There is also a measurable association between literacy and female representation in government. More specifically,

countries with higher average scores on the prose scale have a greater share of their parliamentary seats held by women.

Future Developments

Improving the literacy skills of the population remains a large challenge for policy-makers. In all of the countries surveyed, including Canada, there exists a significant number of adults with low literacy skills. It is important to address this issue, as such skills are needed to sustain widespread participation in economic, social, cultural and political life. This is especially so given the emergence of the knowledge economy and the increasing demand for skills this has brought about.

Research underscores the fundamental importance of the quality and quantity of initial education for raising the overall literacy level of nations. Evidence from emerging economies, such as Chile, the Czech Republic and Slovenia show that the relationship between educational attainment and literacy proficiency is even stronger than previously believed. Moreover, evidence suggests those countries striving to reach the same level of literacy proficiency as the Nordic countries could focus on reducing inequalities in the range of literacy scores. This could be done by raising the level of literacy of adults with brief formal education and particularly, of youth from lower socio-economic backgrounds.

In addition to initial education, other factors are also important in supporting literacy acquisition and maintenance. These include labour force participation, the use of literacy skills in the workplace, participation in formal adult education and training, and the use of literacy skills at home. Programs in these areas would have a positive impact on the literacy skills of the population.