The International Adult Literacy Survey: Implications for Canadian Social Policy

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Results of the first (1994) International Adult Literacy Survey show a disproportionate number of Canadians scoring at the high and low ends of the scales used in the study. We outline three significant Canadian results; examine their implications for educators and policy makers; propose a number of interventions to support literacy learning, especially for families from low socio-economic backgrounds; and argue that a concerted effort by schools, communities, families, and governments is essential for literacy skill development throughout life.

Les résultats de la première enquête internationale sur l'alphabétisation des adultes (1994) indiquent un nombre disproportionné de Canadiens se situant aux extrémités supérieures et inférieures des échelles d'évaluation utilisées dans cette étude. Les auteurs présentent trois résultats canadiens significatifs, analysent leurs implications pour les enseignants et les décideurs, proposent plusieurs interventions en matière d'alphabétisation, notamment pour les familles défavorisées sur le plan socio-économique, et affirment la nécessité d'un effort concerté de la part des écoles, des familles et des gouvernements pour le développement de la littératie tout au long de la vie.

In 1994, Canada, along with Germany, the Netherlands, Poland, Sweden, Switzerland, and the United States, participated in the International Adult Literacy Survey (IALS). The survey's aims were to determine the level and distribution of literacy skills in the adult population in each country and to investigate and compare factors relevant to literacy development (Statistics Canada & Organisation for Economic Co-operation and Development, 1995). In most countries, the survey relied on household-based interviews and testing, and was administered to a representative sample of adults aged 16 to 65. In Canada, the sample included adults aged 16 to 90. The interviews included a number of questions about respondents' early linguistic experiences, experiences in the labour force, participation in adult education, and personal and family background.

The test covered three literacy domains – prose, document, and quantitative – all of which share a knowledge and skill set for understanding and using information from written texts. They are distinct, however, in the

purposes for which information is presented and how the information is communicated. Prose literacy required reading, understanding, and using information from texts such as stories and editorials. Document literacy required locating and using information from texts such as job applications, transportation schedules, and maps. Quantitative literacy required finding, understanding, and using mathematical operations embedded in texts such as newspaper weather charts and loan interest charts. The results in each domain were reported as five literacy levels ranging from simple tasks (Level 1) to complex (Level 5). The distributions yielded indicators of literacy levels in each domain for each country (Statistics Canada & Organisation for Economic Co-operation and Development, 1995, pp. 14–52). The results are a poignant reminder of the work still to be done to raise the literacy skills of a significant number of citizens, especially adults and children from disadvantaged backgrounds, to an acceptable standard. We examine some key Canadian findings, particularly the relationship between literacy skills and socio-economic status; set out a policy framework for the early years, which are so crucial to language development; and consider important language-learning practices to promote literacy development in schools and the workplace.

CANADIAN RESULTS

Among the many findings of the IALS, three have significant implications for educators and policy makers in Canada. First, countries differ dramatically in their distribution of literacy skills, and important differences exist within countries. A disproportionate number of Canadians scored at the high and low ends of the literacy scales, and a substantial number of adults scored at the bottom two levels in all three domains. Although more than 20% of the population scored at Levels 4 and 5, more than 40% scored at the lower end at Levels 1 and 2, and of these, nearly 20% scored at Level 1. Although Canada's overall ratings were comparable to those of the United States, it is still alarming that such a high proportion of our population achieved the lowest level of literacy in all three domains. These results are markedly worse than those of nearly all European countries and stand in sharp contrast to the results of Sweden, where only about 8% of the adult population scored in the bottom category.

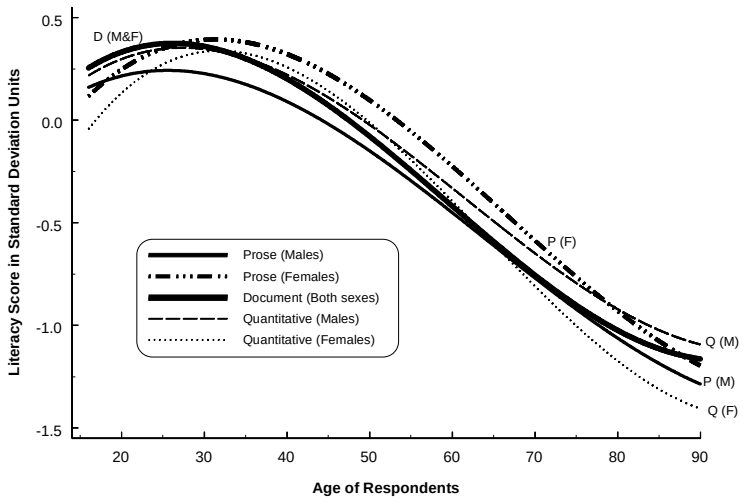
The second important finding is the significant relationship among literacy skill, age, and level of education: Age is an important factor in explaining differences in the literacy profiles of populations, and the incidence of low literacy increases with age (see Figure 1; see also Willms, 1997). In Canada, more than 40% of the adults aged between 56 and 65 scored at Level 1, an outcome not surprising given that only 49% of this

FIGURE 1

The Relationships Among Literacy Scores

age group has completed secondary education. Only in Poland, which has consistently high percentages of low-literacy skills at all age levels, was the percentage higher. The Canadians with the strongest literacy skills were aged between 26 and 45, a trend characteristic of all the other countries except Switzerland, where 16- to 25-year-olds were strongest. In every country, scores generally rose until age 40–45 and then declined substantially.

The strong relationship between age and literacy has two important implications. First, the literacy levels of Canadians today appear to be improving compared to the scores of previous generations, given that those aged 26 to 45 have the strongest literacy skills and there are more in this cohort with higher levels of education than among those aged 56–65. Consequently, as the population ages, our pool of ability, in terms of literacy skills, will increase. Second, literacy / age distributions have significant implications for the workforce and the strategies provinces use to improve literacy. New Brunswick and Quebec, for example, have disproportionately large populations above age 40.


0.5
0.0
-0.5
-1.0
-1.5
Literacy Score in Standard Deviation Units
20
30
40
50
60
70
80
90
Age of Respondents
D (M&F)
P (F)
Q (M)
P (M)
Q (F)
Prose (Males)
Prose (Females)
Document (Both sexes)
Quantitative (Males)
Quantitative (Females)

Age does not operate alone but in conjunction with effects attributable to different life experiences. Education is the most prominent in determining an individual's opportunity to participate in literacy and literacy-learning activities. In all age groups, those with more education scored higher in all three domains than those with less education. Youth who dropped out before completing high school scored substantially below those who completed high school, and those attending university or with a university degree scored higher than those who completed only secondary school.

The third striking finding is that Canadian adults from low socio-economic backgrounds do poorly in all three domains. Socio-economic status (SES) refers to the relative position of a family or individual in a hierarchical social structure, as determined by access to, and control over, wealth, prestige, and power (Mueller & Parcel, 1981; Willms & Shields, 1996). SES is typically operationalized through measures of parents' levels of education, the prestige of parents' occupations, and family income.

Literacy levels on the IALS were related to parents' levels of education in each country. Parents with higher levels of education and literacy are consistently better able to build a strong foundation for their children's literacy. They tend to have higher incomes, provide homes rich in literacy-learning opportunities and practices, and send their children to better schools (Elkind, 1991). Since educational attainment is a defining feature of social class, disparities in literacy skills also tend to be distributed along class lines and associated with economic and social inequalities (Organisation for Economic Co-operation & Human Resources Development Canada, 1997). People with low literacy levels have restricted access to labour markets; those with high literacy levels are more likely to have high-paying jobs and greater social mobility. Moreover, the relationship between literacy and education is complex: Literacy levels affect a person's job and income, and these, in turn, affect levels of literacy (Raudenbush & Kasim, 1998).

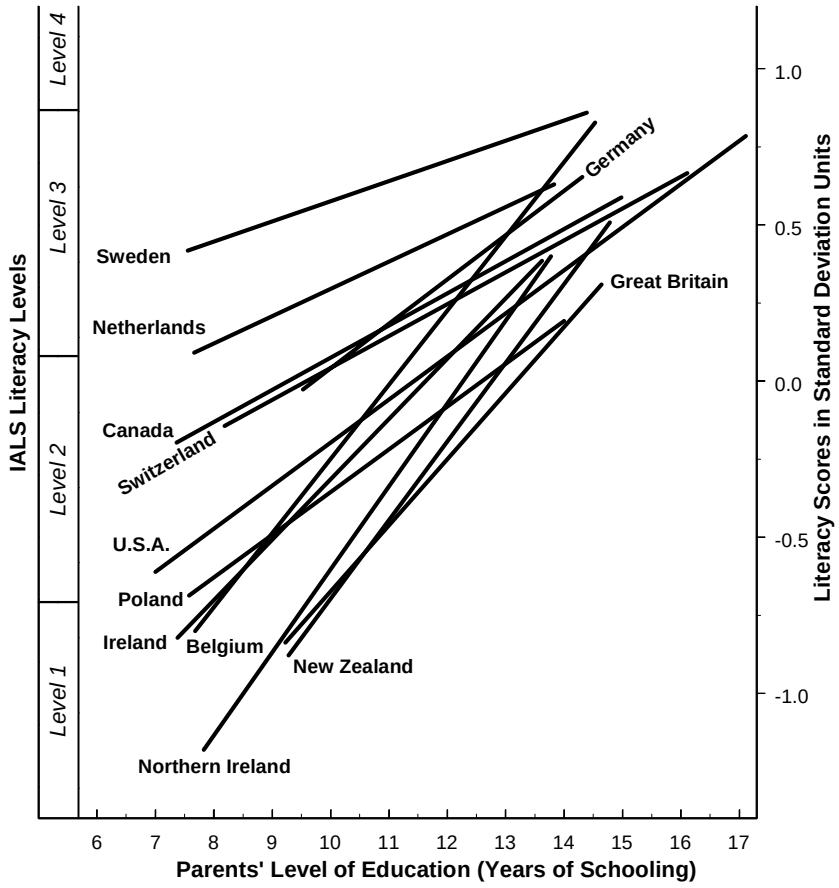
Socio-economic gradients are a useful device for understanding how literacy skills are distributed within a population. A gradient portrays the relationship between an outcome measure – in our case, literacy skills – and socio-economic status. The height or *level* of the gradient line indicates the level of literacy skills for people with differing socio-economic backgrounds. The *slope* of the line indicates how equitably literacy skills are distributed along socio-economic lines. Gradual slopes are an indication of fewer inequalities in literacy attainment. For a country's youth, socio-economic gradients indicate to what extent investments in education have yielded returns in the literacy skills and are thus a key marker of the success of its education system. Gradients also represent the skills of our

future workforce, and therefore are a measure of future economic success (Willms, 1997).

In the IALS data, parental education is the best available indicator of SES. Figures 2, 3, and 4 display the socio-economic gradients for youth aged 16 to 25 (see also Willms, 1998). These gradients were determined by regressing the standardized literacy scores on a variable describing the average of the mothers' and fathers' levels of education. The lines were

FIGURE 2

Prose Literacy Scores for Youth Aged 16–25
(Statistics Canada & the Organisation for Economic Co-operation and Development, 1995)


IALS Literacy Levels
Level 4
Level 3
Level 2
Level 1
Literacy Scores in Standard Deviation Units
1.0
0.5
0.0
-0.5
-1.0
Sweden
Germany
Netherlands
Great Britain
Canada
Switzerland
U.S.A.
Poland
Ireland
Belgium
New Zealand
Northern Ireland
6
7
8
9
10
11
12
13
14
15
16
17
Parents' Level of Education (Years of Schooling)

drawn to encompass the range of parents' education, from the 10th to the 90th percentile, for each country. The left-hand Y-axis displays the IALS literacy levels. The right-hand Y-axis displays the skill levels as effect sizes. An effect size of 0.15 of a standard deviation is roughly equivalent to one additional year of schooling (Human Resources Development Canada, Organisation for Economic Co-operation and Development, & Statistics Canada, 1997).

FIGURE 3

Document Literacy Scores for Youth Aged 16–25 (Statistics Canada & the Organisation for Economic Co-operation and Development, 1995)

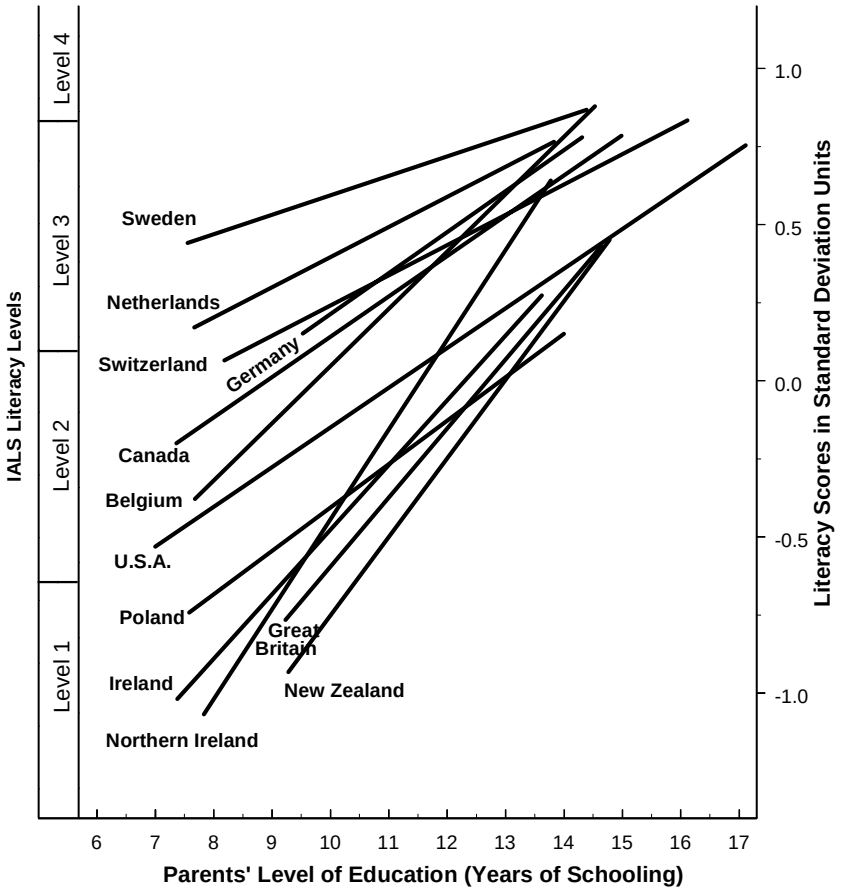
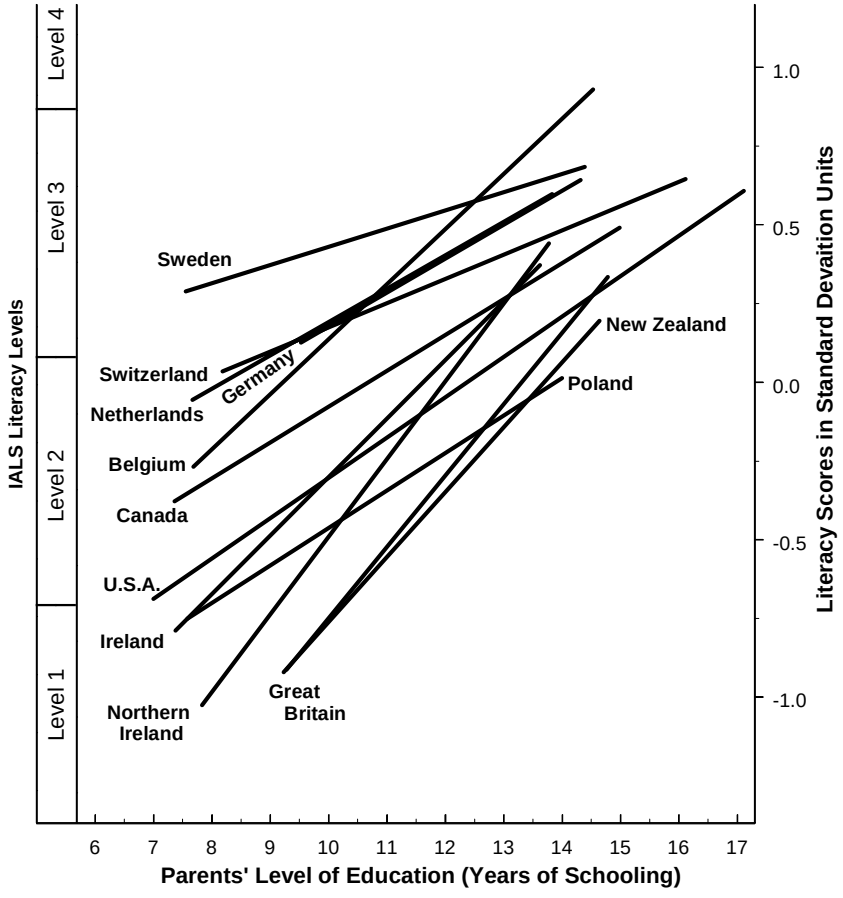

IALS Literacy Levels
Level 4
Level 3
Level 2
Level 1
Literacy Scores in Standard Deviation Units
1.0
0.5
0.0
-0.5
-1.0
Sweden
Netherlands
Switzerland
Germany
Canada
Belgium
U.S.A.
Poland
Great Britain
Ireland
New Zealand
Northern Ireland
6
7
8
9
10
11
12
13
14
15
16
17
Parents' Level of Education (Years of Schooling)

FIGURE 4

Quantitative Literacy Scores for Youth Aged 16–25 (Statistics Canada & the Organisation for Economic Co-operation and Development, 1995)

The results indicate that Canada is about average among the countries in the IALS. Overall, the Canadian gradients appear relatively steep. Among youth with better-educated parents, the proportion in the top two literacy categories was relatively high – second only to Sweden. However, about 10% of the Canadian respondents with parents who had completed secondary education but had no post-secondary education scored at the


Level 4
Level 3
Level 2
Level 1
IALS Literacy Levels
1.0
0.5
0.0
-0.5
-1.0
Literacy Scores in Standard Devaition Units
Sweden
Switzerland
Germany
Netherlands
Belgium
Canada
U.S.A.
Ireland
Northern Ireland
Great Britain
New Zealand
Poland
6
7
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17
Parents' Level of Education (Years of Schooling)

lowest level of literacy, compared with about 3% in both Sweden and the Netherlands and 6% in Germany, suggesting that Canadian education systems do not provide well for children whose parents have low levels of education. The SES gradient for the United States is even steeper.

Overall, countries with high literacy scores, such as Sweden, tend to have shallow gradients, which indicates that policies and practices are in place to ensure that greater numbers of citizens, especially those from less advantaged backgrounds, attain strong literacy skills. National differences in attainment among youth from average or above-average socio-economic backgrounds are relatively small, but there are large national differences in the attainments of youth from lower socio-economic backgrounds. Thus, countries that do well, do so by raising the performance of youth from lower socio-economic backgrounds.

INEQUALITY AND POLICY REFORM

Early Childhood Literacy Development

Parents' education and a family's status and income clearly affect children's literacy. Parents with more economic and social capital are likely to talk more with their children, read to them more often, buy them more educational toys, and generally provide them with a richer environment than parents with fewer resources. Children from homes rich with language and print experiences, and where literacy is valued, tend to be more linguistically proficient than children from homes where literacy is neither valued nor practised to a great extent (Beals, DeTemple, & Dickinson, 1994; Lancy, 1994).

Understanding the relationship between literacy and SES, especially its influence during the formative years of language development, is essential to developing effective policies for children from disadvantaged backgrounds. A useful starting point is the *quantity* and *quality* of language used in the home during the pre-school years. The fact that the mother's level of education is consistently a better predictor of language and reading skills than the father's suggests that the quality of maternal language, or that of the primary care giver, is an important factor. Analysis of data from Canada's National Longitudinal Study of Children and Youth (NLSCY), a survey of over 20,000 children that included administering the Peabody Picture Vocabulary Test (PPVT) to over 3,000 preschool children, showed that the level of education of the person most knowledgeable about the child, in most cases the mother, was a significant predictor of children's verbal ability at ages 4 and 5. The level of education of the spouse was not a significant predictor, but the prestige of the spouse's occupation and the household income were (Willms, 1996).

Studies of mother-child interactions during the preschool years clearly indicate that the rate of vocabulary growth and the emergence of language structures are directly related to both the quantity and the quality of language to which children are exposed. For example, using data about the vocabulary growth of children between 14 and 26 months, Huttenlocher and her colleagues (Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991) found that children vary considerably in the rate at which they acquire vocabulary and that about 20% of this variation is attributable to the quantity of mothers' speech. They also found that the frequency with which mothers use particular words correlates strongly with the age at which children acquire those words.

The importance of positive influences on early language development is also seen in the effects of preschool day-care settings on children's linguistic, cognitive, and social abilities. There are two major categories of day-care research, one aimed at determining the factors associated with high-quality day care, as gauged by their effects on the developmental outcomes of all children, the other at determining whether compensatory preschool programs benefit disadvantaged children. Studies that compare different types of care arrangements show that high-quality day care increases children's linguistic, cognitive, and social competencies and has long-lasting benefits for children from disadvantaged backgrounds. Children from low-income families who are cared for in facilities outside the home, either regulated (licensed) or unregulated, have vocabulary skills superior to those cared for at home by their parents or a relative (Kohen & Hertzman, in press).

This research stresses the importance of increasing high-quality day care for children from disadvantaged families. The number of dual-earner families in Canada has almost doubled in the last 25 years, and in 1994, when the data for the NLSCY were collected, 63% of women with children were working outside the home (Statistics Canada & Organisation for Economic Co-operation and Development, 1995). Families increasingly use non-parental care arrangements for their preschool-aged children. Forty percent of Canadian children aged 4 and 5 spend part of their week in care arrangements so that their parents can study or work outside the home (Kohen & Hertzman, in press). However, despite the evidence that high-quality care is important for disadvantaged children, fewer than half of Canadian 4-year-olds from low-income families attend a licensed day care or pre-kindergarten, and no single or concerted effort exists to address the problem nation-wide. Canada, as well as the United States, needs a long-range program to provide the greatest possible support and have the greatest possible effects on the many children requiring educational intervention. A well-planned, universal day-care system could

provide the early-language foundation needed to foster language development (Dickinson, 1994; Elkind, 1991). For instance, implementing a dialogic or interactive reading program for low-SES children at the day-care level improves the length, quantity, and complexity of their speech patterns (Arnold & Whitehurst, 1994).

Although planned day-care intervention is particularly crucial for children from low-income families, some researchers argue that universal day care in a social and academic environment that promotes holistic development should be available to all families regardless of socio-economic status, particularly as more mothers and single parents enter the work force (Elkind, 1991; Hirsh-Burger, 1991). McCain and Mustard (1999) go even further, calling for early child development and parenting centres to support all children from the prenatal stage to school entry. A key role of these centres would be to teach literacy and numeracy to parents and other caregivers to enhance their children's learning and development at home. Whatever the nature and structure of the program, a universal program that supports early childhood development should be an important and necessary part of Canada's social framework.

School-Age Literacy Development

Because of their early language experiences, children enter school already oriented toward success or failure in many ways (Elkind, 1991). Parents continue to be an important influence, but schooling becomes an equally important influence. High-SES parents tend to be more involved in their children's education than low-SES parents. Lareau (1989) identified low-income parents' overwhelming sense of separation from the world of the school and consequently the world of their children. As a result, children from lower-income families generally have less parental support for, or involvement in, their education compared to children from middle- and upper-income families. In many instances, parents in poverty find it difficult to understand and converse with their children's teachers and, because of their lower occupational status in unskilled and semi-skilled jobs, do not consider themselves equal to teachers – people they regard as professionals. Feelings of inferiority cause them to stay away from situations they do not understand, and, because of their sense of alienation, give teachers full responsibility for educating their children. Lacking combined home and school support, children in poverty are far more likely to fail. Conversely, parents with at least one college degree typically feel confident about interacting with the school system (Lareau, 1989). They do not see themselves as inferior to teachers and are comfortable taking the initiative with teachers or a school principal.

School practices also contribute to students' learning. One line of research attempts to determine whether differences in school effects are attributable to measurable aspects of school climate that can be altered by teachers' and principals' practices – aspects such as organization of students for instruction; formal and informal rules of the school; types of interactions among participants; and teachers' and students' attitudes, values, and expectations. A number of studies suggest, for instance, that successful schools have greater academic press: the principal and teachers project the belief that all students can master the curriculum. High expectations are manifested in a number of teaching practices and school routines such as the content and pace of the curriculum, the type and amount of homework, and the way that time and resources are used in the classroom and school (Anderson, 1985; Dreeben & Gamoran, 1986; Plewis, 1991).

Other practices are also important. Grade retention not only fails to remediate academic problems but also is associated with low self-esteem, negative attitudes toward school, and higher dropout rates (Mantzicopoulos & Morrison, 1992; Rumberger, 1995). Tracking contributes to differential school outcomes and unfairly sorts students for subsequent social and economic roles (Gamoran, 1992; Kerckhoff, 1996). A child's school and classroom reference group can substantially affect his or her outcomes over and above the effects associated with ability and social class. Schools or classrooms with intakes of high social class or high ability are likely to have support from parents, fewer disciplinary problems, and an atmosphere conducive to learning, and such schools tend to attract and retain talented and motivated teachers (Willms, 1999). Usually peer effects occur when bright and motivated students work together. When students are segregated, either between classes or tracks within schools or between schools within a community, students from advantaged backgrounds sometimes do marginally better, whereas those from disadvantaged backgrounds tend to do considerably worse (see Willms, 2000).

Schools may also need to modify other instructional practices to deal with students' literacy deficits. Long-term success requires ongoing support throughout school (Ollila & Mayfield, 1992). An effective educational support framework must identify the foundational language experiences children lack and provide appropriate interventions for learning the language of school together with many continuing meaningful and varied opportunities for children to use language so they can develop a more complex and multifaceted literacy.

Further, literacy is promoted when schools reinforce the integrated and interdependent nature of the language arts – reading, writing, speaking, and listening (Atwell, 1987; Goodman, 1986; Tchudi, 1985). On one level, in an academic environment, language elements must grow collectively to

support and enhance each other. On another level, language learning must be supported in all content areas (Christie, 1985; Monson & Monson, 1994), not restricted to language arts classes alone. Students need to learn effective communication strategies in all content areas. Because language is pivotal to acquiring and using knowledge in every subject, literacy should be a priority for all of them.

Literacy and Transition to the Labour Force

Business also has a crucial role in literacy. The motivation to pursue a post-secondary education and the desire to participate in the workforce are vital factors in finding employment. Many people in the corporate world maintain that far too many young people lack the drive needed to achieve success in the workplace and that schools have failed to teach students the values and work ethic needed to participate in the workforce. They blame schools for producing a weak labour pool and limiting Canada's ability to compete in international markets. Schools, on the other hand, often counter that massive downsizing and the subsequent lack of economic opportunities reduce discipline and motivation among youth. Rather than polarizing the debate and blaming each other, businesses and schools need to work together to cultivate the values, morale, and motivation young people need to succeed in the labour force (Krahn & Lowe, 1998; Ray & Mickelson, 1993).

Research also suggests that individuals with higher levels of education have more access to employer-sponsored training and skill upgrading after entering the workforce. In Canada, those with a university education received substantially more training than those with only high school or less (Rubenson & Willms, 1993). Data from the 1992 Adult Education and Training Survey show that Canadians' overall participation rate in educational programs, courses, and on-the-job training was about 30% and that participation varied considerably among the 10 provinces (Rubenson & Willms, 1993). This rate was higher than previously but low compared to 44% for Sweden. The average time Canadians spent on work-related courses (excluding full-time training programs) was about 10 hours per year. Workplace training patterns in Canada contribute to the bifurcation of the labour market: those with "good jobs" tend to have access to employer-sponsored training; those with "bad jobs" do not. There are relatively few jobs in between.

CONCLUSION

The participation of seven countries in the IALS indicates the importance now placed on literacy at the national level. Literacy and the economy are

interdependent. A country's economic performance now depends on the ability of its labour market to adapt quickly to innovation and to capitalize on the transformation and development of world markets. The ability of the labour market to do these things depends, in turn, on the knowledge and skills of the population. New theories of economic growth hold that production is a function not only of capital and labour but also of knowledge and ideas because "knowledge workers" at all levels contribute to an organization's productivity (Romer, 1993). A major premise of the IALS is that "the central importance of the human factor in securing an adequate foundation for economic growth, personal development and social and cultural revitalization underscores the imperative of cultivating a highly literate population" (Statistics Canada & Organisation for Economic Co-operation and Development, 1995, p. 23).

National and international comparisons of results from the IALS show that the most literate populations have achieved relatively high levels of literacy for their most disadvantaged groups. Substantial empirical evidence as well as theory indicates that literacy development begins at birth and that better-educated parents are more likely to rear children with higher levels of literacy. School reinforces initial advantages or disadvantages. The most important risk factors for low levels of literacy are low levels of mothers' education, inadequate income, poor parenting, low family functioning, and maternal depression (Willms, in press).

To minimize differences in literacy attainment, interventions clearly need to start when children are young. Inequities can be reduced by measures that bolster the efforts of struggling families and ensure that all children and youth have equal access to high-quality preschool care, parenting centres, and schools. For instance, day-care and preschool programs with a particular focus on teaching young children the language patterns of schooling have proven effective. Schools may need to modify their curricula and approaches to teaching to make literacy in all content areas more accessible to all students. Businesses must also recognize the crucial role they play in fostering literacy development in the workplace.

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