

“Raising and Leveling the Bar”

Increasing student performance, reducing socioeconomic differences

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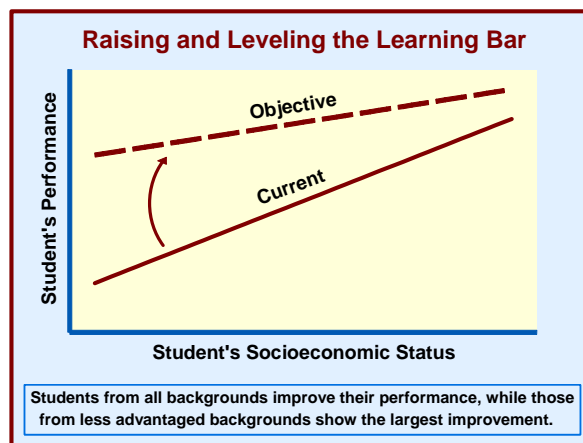
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International tests indicate that, on average, Canada’s children are relatively good at mastering the knowledge and skills needed to succeed in the modern world. But how can they raise their performance further, and how can the wide disparities between students from different socioeconomic backgrounds be reduced? Policy interventions need to address what is happening to our children as they grow up, both within and outside of school. Research evidence provides valuable clues about how learning, behavioural and health outcomes for young people can be improved, and about how these different outcomes are linked.

The Canadian Research Institute for Social Policy (CRISP) recently launched a four-year collaborative research program called “Raising and Leveling the Bar”, which will study this evidence and consider its implications for public policy. This first Policy Brief of the program considers the scope for raising and leveling Canada’s “learning bar”.

KEY POINTS:

- According to the authoritative survey of the Organization for Economic Cooperation and Development (OECD)’s Program for International Student Assessment (PISA), Canadian 15 year-olds demonstrate higher knowledge and skills than 15 year-olds in most other countries. However, as in the other countries, students with fewer home advantages are much more likely to under-perform.
- About 1.3 million Canadian children live in poverty. Eliminating this poverty would have a dramatic effect on their academic performance and skills, thereby raising and leveling the learning bar.
- Nurturing and stimulating children during infancy and the pre-school years are more important to future success than previously believed. A strong foundation of learning skills acquired during these early years leads to superior learning and life skills in early adulthood.
- Students in schools with a positive climate, good student-teacher relations and high expectations are more likely to succeed.
- Socially segregated schools accentuate differences in student achievement. Greater integration, together with other policies for social inclusion, would help level the bar.
- Learning outcomes depend heavily on the overall quality of children’s environments within their families, their schools, and their local communities.



Introduction

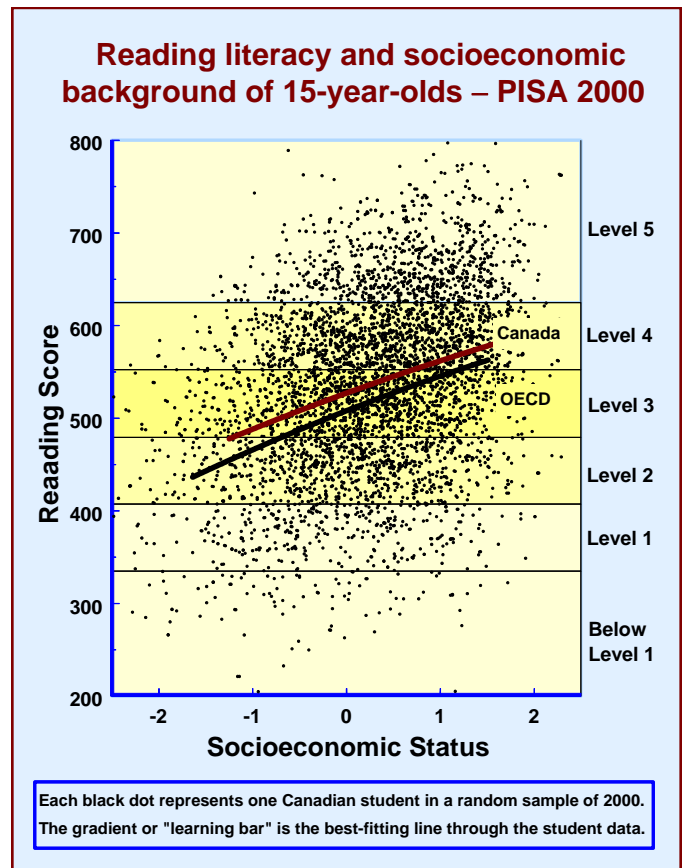
How can we help every Canadian child prepare adequately for the future? In a competitive world, where a successful workforce needs to be well-skilled, we have to aim high. The Federal Government's Innovation Strategy has set ambitious educational "milestones". These include Canada being one of the top three countries in reading, math and science, and for all students to complete high school with literacy levels sufficient to participate in the knowledge-based economy.

International research is now providing valuable evidence that can help benchmark Canada's performance globally. The evidence points to those aspects of children's experiences inside and outside school that are most closely associated with their future success. While this evidence cannot provide a precise blueprint for academic achievement, it does show where policy efforts aiming to raise performance and reduce inequalities are most likely to be effective.

Canada's learning bar

How well prepared are our students for future challenges in work and in higher learning, as they near the end of compulsory education? The knowledge and skills of 15 year-olds throughout the industrialised world and beyond are now being monitored every three years by the OECD's Program for International Student Assessment (PISA). The survey tests how well students can apply their reading, mathematical and scientific literacies to perform real-world tasks.

Canada's students placed second in reading, sixth in math, and fifth in science among the 28 OECD countries first tested by PISA in 2000. The results of the second, 2003 survey, are expected at the end of 2004. They will demonstrate whether Canadians have maintained or improved this performance, as other countries also endeavour to move ahead. While Canada is thus far meeting its international target for average reading performance, it needs to move up towards levels reached by Japanese and Korean students to reach the top three in math and science. More fundamentally, if all Canadian students are to reach adequate literacy levels, the socioeconomic differences in outcomes illustrated in the above graph need to be reduced. One in ten Canadian students can at best perform only the very basic reading tasks at PISA Reading Level 1. Students with lower socioeconomic status (SES) are more likely to lack adequate skills than their more advantaged counterparts. A student in the bottom 5% in terms of SES can expect to be over one-and-a half literacy levels behind students in the top 5%.



The term "learning bar" refers to what is often called a "socioeconomic gradient". In this instance, the socioeconomic gradient depicts the relationship between student performance and the socio-economic status of the student's family. This gradient is not as steep in Canada as on average internationally: the blue line on the graph shows that across OECD countries socioeconomic difference is associated with a performance gap of two literacy levels. However, not all Canadian students are achieving their potential, and overall Canada falls short of the goals set by Canada's innovation strategy.

Five strategies for raising and leveling the bar

Raising Canada's learning bar cannot be achieved simply through education reforms that address schools' curriculum and resources. A more comprehensive approach has to involve families, teachers, community leaders, employers, and the broad policy community. The strategies below should be based on solid evidence about the relationship between children's experiences and their eventual learning outcomes. Some are universal in nature, expected to improve learning throughout the student population. Others are more targeted, expected to reduce particular consequences of a disadvantaged background.

1. Reduce poverty. Approximately 1 in every 5 Canadian children lives in poverty. Children who grow up in poverty are more likely to arrive unprepared for school than their financially better-off counterparts. Once in school, their performance may be affected by hunger, low self-esteem, interrupted school attendance, and less motivation to learn. The PISA results indicate that the 20% of 15 year-olds in the least advantaged social circumstances – roughly equivalent to those in poverty – were found on average to read at nearly half a proficiency level below the next-most disadvantaged 20%. Reducing poverty can be expected to raise performance at the bottom. A rise of half a proficiency level among the bottom fifth would greatly cut under-achievement, and also raise average achievement by about 40% of the amount needed to bring Canada into the top three countries in reading, math and science.

2. Improve early childhood experience. Recent neurobiological research has shown that environments experienced in the first years of life are much more critical for future development than previously believed. A baby is born with billions of nerve cells that have yet to form those critical life-forming connections that determine emotional, social, and intellectual makeup. Most of this “wiring” occurs between birth and age 3. By the time children reach age 3, most of their potential has been defined. It is during gestation and the early years after birth that experience-based brain development is most active, most malleable, and therefore most vulnerable. Infants and toddlers are therefore biologically primed for learning, but those who do not receive the nutrition and stimulation they need for strong and healthy development during the early years, typically struggle to overcome these deficits through their entire lives.

Other research shows that linguistic development during the pre-school years is a strong predictor of children’s success at school. Children who are exposed to more language at home, and read to more often, tend to develop language skills at a faster pace (Hart & Risley, 1995). Children with more educated mothers tend to have a substantial advantage, and for those who do not, benefits can come from the stimulus of quality child care and pre-school education. How much difference could improvements in early childhood education and support for parents make to eventual student performance? One rough estimate shows that the exposure of all preschoolers to the benefits of quality daycare could potentially “level the learning bar” enough to move 40% of the way to Canada’s international targets for achievement at age 15 (Willms, 2002a). This does not take account of the possible compounded effect of faster learning development during the school years.

3. Make schools learning-friendly. A wide range of research on school improvement has pointed to the features of schools that foster a better learning environment (Scheerens, 1992). The PISA results emphasise that student success is not just a matter of curriculum and teaching techniques, but depends heavily on the atmosphere of the school and the classroom. In particular, students attending schools where teachers and students had good relations, where there was a strong disciplinary climate and where academic achievement was emphasised, performed better. The results suggest that an increase of one point on a 10-point scale for each of these three factors is associated with an increase of 15.8 points in overall PISA scores (Willms, 2002a). Evidence also indicates that student performance is higher in schools that practice heterogeneous grouping and team teaching (Lee and Smith, 1993) and in schools where there is a higher level of parental involvement (Ho and Willms, 1996). The fact that these features are found to be crucial across countries, and more so than the effect of extra resources for schools, emphasises the need for attention to the measurable aspects of school climate.

4. Reduce social segregation. Who you go to school with makes a difference. The PISA results confirm other studies that have shown that segregating students from lower socioeconomic backgrounds is associated with considerably worse school results. In Canada, as in many countries, children are segregated along socioeconomic lines within cities due to residential segregation. Also, in many school districts, children are assigned to particular schools according to the school zone in which they live. However, the geographic boundaries of these areas are not necessarily drawn with a view to achieving a heterogeneous mix of students across schools. Moreover, some types of school choice programs such as language immersion programs, or magnet or charter schools, can also contribute to socioeconomic segregation. District and provincial-level policies that could help to decrease segregation include rezoning school areas so that the children from poor residential areas are more evenly distributed, and ensuring that certain public schools do not “cream” relatively advantaged students from disadvantaged areas. Reducing segregation within the most disadvantaged schools could potentially have significant effects on improving school achievement and reducing inequalities in achievement associated with students’ family background.

5. Improve children’s environments. Intensive study of what is happening in students’ homes shows that learning outcomes are more strongly influenced by

specific aspects of family life than by socio-economic background alone. In particular, parenting practices, the cohesiveness of the family unit, the mental health of the mother, and the extent to which parents engage with their children are all important. The quality of children's environments within their neighbourhoods and local communities are also significant with respect to their school performance (Willms 2002b). "These findings require us to shift our thinking from childhood vulnerability as being a problem stemming from poverty and single parenting to vulnerability as a problem arising from the environments in which children are raised. It requires us to focus less on ameliorating risk factors to creating environments that support children's development" (Willms, 2002b). Universal policy interventions aimed at providing families and communities the support they need to raise their children will therefore have direct educational benefits.

In conclusion, two important themes run through this analysis. (1) There are large and meaningful differences in student performance between children from advantaged and less-advantaged backgrounds. If we are to improve our overall scores, we must not only raise the learning bar, but also level it. (2) PISA results reflect the success of our efforts to educate our youth from birth to age 15. Thus, any strategy to improve performance must be multi-faceted, and begin at birth. It needs to be aimed at eliminating poverty, increasing provision during the early years, improving schools, and enabling families and communities.

❖ About CRISP

The Canadian Research Institute for Social Policy (CRISP) is a multi-disciplinary research organization dedicated to: conducting policy research aimed at improving the education and care of Canadian children and youth, contributing to the training of social scientists in quantitative research methods, and supporting low-income countries in their efforts to build research capacity in child development.

❖ About the research

The OECD's PISA measured the knowledge and skills of over 300,000 15 year olds in 43 countries in its first round in 2000 and 2001. Of these, 28 are the OECD's member countries, representing roughly the "industrialised" world. Around 30,000 students were surveyed in Canada. The survey's results are set out in OECD (2001).

CRISP's "Raising the Bar" program will conduct further research to follow up on these findings and on the findings from Canada's National Longitudinal Survey on Children and Youth (NLSCY). It will explore specific factors that can contribute to the improvement of outcomes for Canada's young people. The programme is funded by the Social

Sciences and Humanities Research Council's Initiative on the New Economy.

❖ About this Policy Brief

CRISP's Policy Briefs are designed to highlight key policy implications of research findings. They are available in paper form and electronically on CRISP's website at www.unb.ca/crisp/pbrief.html. The main analysis in this Policy Brief was carried out by J. Douglas Willms, Director of CRISP (Willms 2002a, Willms 2002b). Donald Hirsch, a consultant to the PISA project, helped draft the brief.

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❖ Further reading

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