

Second Report from the 2009 Programme for International Student Assessment



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Council of
Ministers
of Education,
Canada

Conseil des
ministres
de l'Éducation
(Canada)



**Human Resources and
Skills Development Canada**
Statistics
Canada

**Ressources humaines et
Développement des compétences Canada**
Statistique
Canada

Second Report from the 2009 Programme for International Student Assessment

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Table of Contents

Introduction	1
Objective of This Report	1
PISA 2009 Results	4
Part 1 Key Background Characteristics of 15-Year-Old Canadian Students and Their Skills	7
Immigrant Students	7
Parental Education	9
Parental Occupation Status	11
Socioeconomic Status	12
Conclusion	15
Part 2 School-Related Factors Associated with Reading Achievement	17
Variation in Performance between and within Schools	18
Teacher-Student Relations	19
Disciplinary Climate	19
Student- and Teacher-Related Factors	20
School Responsibilities and Leadership	21
Library Use	22
Extracurricular Activities	22
Factors Hindering Instruction	22
Conclusion	23
Part 3 A Profile of Student Engagement in Reading, Attitudes, and Approaches to Learning	25
Engagement in Reading	25
Approaches to Learning	29
Conclusion	35
References	37
Appendix	39

List of Tables and Figures

Figure 1.1	Average Scores and Confidence Intervals for Provinces and Selected Countries: Combined Reading	4
Figure 1.2	Average Scores and Confidence Intervals for Provinces and Selected Countries: Mathematics	5
Figure 1.3	Average Scores and Confidence Intervals for Provinces and Selected Countries: Science	5
Figure 1.4	Proportions of First- and Second-Generation Immigrants within 15-Year-Old Student Body, by Province	8
Figure 1.5	Average Reading Performance by Immigrant Status and Province	8
Figure 1.6	Distribution of 15-Year-Old Students by Levels of Parental Education, by Province	9
Figure 1.7	Differences in Average Reading, Mathematics, and Science Performance between Children of Parents with at Least Some Post-secondary Education and High School or Less	10
Table 1.1	Index of Parental Occupation Status and Its Effects on Average Reading Scores, by Province	11
Table 1.2	Index of Cultural Possessions and Its Effects on Average Reading Scores, by Province	12
Table 1.3	Index of Home Possessions and Its Effects on Average Reading Scores, by Province	13
Table 1.4	Index of Educational Possessions and Its Effects on Average Reading Scores, by Province	14
Table 1.5	Index of Economic, Social and Cultural Status and Its Effects on Average Reading Scores, by Province	15
Table 2.1	Average PISA Reading Score for Students at Grade Levels Relative to the Most Common Grade	18
Figure 2.1	Between-Schools Variance in Student Achievement	19
Figure 2.2	Index of Disciplinary Climate and Performance on the Reading Scale	20
Figure 3.1	Mean Score on the Index of Enjoyment of Reading, Canada, the OECD Average, and the Provinces	26
Figure 3.2	Distribution of 15-Year-Olds by Time Spent Reading for Enjoyment (Canada, the OECD Average, and the Provinces)	27
Figure 3.3	Performance on the Combined Reading Scale by Time Spent on Reading for Enjoyment, PISA 2009	28
Table 3.1	Mean Score on the Index of Diversity in Reading and Proportion of Variation in Reading Performance Explained by the Index (Canada and the Provinces)	28

Table 3.2	Proportion of 15-Year-Old Students with Internet Access at Home (Canada and the Provinces)	29
Figure 3.4	Mean Index Score on Students' Use of Various Learning Strategies (Canada, the OECD, and the Provinces).....	31
Figure 3.5	Mean Index Score on Students' Awareness of Various Metacognition Strategies (Canada, the OECD, and the Provinces).....	33
Figure 3.6	Relationship between Enjoyment of Reading, Summarizing Strategies, and PISA Combined Reading Performance for Canada and the Provinces, PISA 2009.....	34
Table A.1.1	Differences in Student Performance in Reading by Immigrant Status	40
Table A.1.2	Differences in Student Performance by Highest Level of Parental Education Attainment.....	41
Table A.1.3	Index of Parental Occupation Status, by National/Provincial Quarters of the Index	42
Table A.1.4	Index of Cultural Possessions at Home, by National/Provincial Quarters of the Index	43
Table A.1.5	Index of Home Possessions at Home, by National/Provincial Quarters of the Index	44
Table A.1.6	Index of Home Educational Resources, by National/Provincial Quarters of the Index	45
Table A.1.7	Index of Economic, Social and Cultural Status, by National/Provincial Quarters of the Index.....	46
Table A.2.1	Between-School and Within-School Variance in Student Performance on the Reading Scale.....	47
Table A.2.2	Index of Teacher-Student Relations and Performance on the Reading Scale, by National/Provincial Quarters of the Index	48
Table A.2.3	Index of Disciplinary Climate and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	49
Table A.2.4	Index of Student-Related Factors Affecting School Climate and Performance on the Reading Scale, by National/Provincial Quarters of the Index	50
Table A.2.5	Index of Teacher-Related Factors Affecting School Climate and Performance on the Reading Scale, by National/Provincial Quarters of the Index	51
Table A.2.6	Index of Teachers' Stimulation of Students' Reading Engagement and Reading Skills and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	52
Table A.2.7	Index of School Responsibility for Resource Allocation and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	53
Table A.2.8	Index of School Responsibility for Curriculum and Assessment and Performance on the Reading Scale, by National/Provincial Quarters of the Index	54
Table A.2.9	Index of School Principal's Leadership and Performance on the Reading Scale, by National/Provincial Quarters of the Index	55

Table of Contents

Table A.2.10	Index of Library Use in or Outside School and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	56
Table A.2.11	Index of Schools' Extra-curricular Activities and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	57
Table A.2.12	Index of Teacher Shortage and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	58
Table A.2.13	Index of Quality of Schools' Educational Resources and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	59
Table A.3.1	Index of Enjoyment of Reading and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	60
Table A.3.2	Percentage of Students and Performance on the Reading Scale by Time Spent on Reading for Enjoyment.....	61
Table A.3.3	Index of Diversity in Reading and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	62
Table A.3.4	Index of On-line Reading Activities and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	63
Table A.3.5	Index of Memorization Strategies and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	64
Table A.3.6	Index of Elaboration Strategies and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	65
Table A.3.7	Index of Control Strategies and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	66
Table A.3.8	Index of Understanding and Remembering and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	67
Table A.3.9	Index of Summarizing and Performance on the Reading Scale, by National/Provincial Quarters of the Index.....	68

Introduction



Objective of This Report

In 2009, the Programme for International Student Assessment (PISA) was administered in 65 countries and economies, including Canada, where approximately 23,000 students from about 1,000 schools in the nation's 10 provinces participated. In addition to responding to a two-hour paper-and-pencil assessment in reading, mathematics, and science, students completed a 30-minute questionnaire on their backgrounds, their school experiences, and their homes, as well as a 10-minute questionnaire on information technology and communication. Their school principals also completed a 30-minute questionnaire about their schools.

In December 2010, initial results from the PISA 2009 assessment were released at both the Canadian and the international levels (OECD, 2010a; OECD, 2010b; OECD, 2010c; OECD, 2010d; OECD, 2010e; Knighton, Brochu, & Gluszynski, 2010). In the Canadian report, results were presented for the reading, mathematics, and science assessments — for Canada overall and for individual provinces. Results were further broken down by language of the school system and by gender.

This report is the second of two reports providing initial results from the PISA 2009 assessment for Canada and the provinces. Whereas the first report focused on the initial results in the three domains assessed by PISA, this second report complements the first one by looking at contextual variables associated with reading achievement.

Part 1 provides information concerning individual student factors measured by PISA; Part 2 looks at school-related factors; and Part 3 examines variables related to student engagement in reading, attitudes, and approaches to learning. In each part, descriptive data related to the selected variables are presented — followed by an examination of linkages between the variables of interest and achievement.

In most cases, a number of questionnaire items have been summarized in the form of an index (see text box Statistical Note). In the tables in the appendix, mean values are presented for variables of interest at the provincial and Canadian levels. Mean scores are also broken down by quarter of the distribution of the variable or index of interest (four groups each representing each 25% of the distribution). PISA mean scores in reading are displayed by provincial/national quarter of the distribution of the variable or index of interest. This presentation helps clarify the relationship between the variable under study and achievement in reading. As a measure of effect, the change in reading score by unit of the variable/index is displayed; the greater the change, the larger the effect. Finally, the explained variance in student performance is provided (this is the proportion of the variance in student reading score that can be explained by the variable/index of interest).

Statistical Note

The averages were computed from the scores of random samples of students from each province and country and not from the population of students in each province or country. Consequently, it cannot be said with certainty that a sample average has the same value as the population average that would have been obtained had all 15-year-old students been assessed. In addition, a degree of error is associated with the scores describing student performance, as these scores are estimated based on student responses to test items. A statistic, called the “standard error,” is used to express the degree of uncertainty associated with sampling error and measurement error. The standard error can be used to construct a confidence interval, which provides a means of making inferences about the population averages and proportions in a manner that reflects the uncertainty associated with sample estimates.

When comparing scores among countries, provinces, or population subgroups, the degree of error in each average must be considered in order to determine whether the true population averages are likely different from each other. Standard errors and confidence intervals may be used as the basis for performing these comparative statistical tests. Such tests can identify, with a known probability, whether there are actual differences in the populations being compared. When applicable, statistically significant differences between jurisdictions are indicated in boldface in the tables in the appendix.

Several PISA measures reflect indices that summarize responses from students or principals to a series of related questions. The questions were selected from a larger pool of questions on the basis of theoretical considerations and previous research. Structural Equation Modeling (SEM) was used to validate the indices.

In the appendix tables, the PISA populations of interest are often divided into four equal groups, or quartiles, with regard to the value of the variable under study. In these tables, mean scores for each of these groups are presented.



Questionnaire Framework

The theory underlying the PISA 2009 assessment is described in the *PISA 2009 Assessment Framework* (OECD, 2009). In addition to describing the conceptual framework for the development of the assessment in the three subject domains, it presents the framework that led the design of the PISA 2009 questionnaires that are used to gather background information addressing policy issues linked to student achievement.

Student Questionnaire

The Student Questionnaire helps ascertain individual differences between students that may account for differences in educational achievement. More specifically, this questionnaire focuses on the following elements:

- educational background
- family and home situation
- reading activities
- learning time
- school characteristics
- classroom and school climate
- language classes
- library access and activities
- strategies for reading and understanding texts

The additional Familiarity with ICT Questionnaire covered these specific dimensions:

- availability of ICT (Information and Communication Technology) devices and equipment at home and at school
- use of computers for educational activities in school and outside of school
- student capability at computer tasks
- attitudes toward computer use

School Questionnaire

The School Questionnaire is the key source of information about all dimensions of each school. This questionnaire provides comprehensive information concerning the following characteristics:

- structure and organization of the school
- student and teacher body
- school instruction, curriculum, and assessment
- school climate
- school policies and practices
- characteristics of the principal or designate

The PISA questionnaires, as well as the international data set related to these questionnaires, is available on the OECD website: <http://pisa2009.acer.edu.au/downloads.php>.

PISA 2009 Results

Generally, both the OECD and the Canadian reports concluded that Canadian students continue to perform well in reading in a global context, having been surpassed by only four countries on the combined reading scale. Students in nine of the Canadian provinces performed at or above the OECD average on the combined reading scale. Canadian results remain similar to those of the original PISA in 2000, although reading performance decreased in five provinces between 2000 and 2009 (see Figure 1.1).

The Canadian report of 2009 results confirmed that there is significant variation in performance between Canadian provinces in reading and that girls continue to outperform boys in this subject area. Canadian results in reading are characterized by a high level of equity, in spite of the difference in performance between

minority-language and majority-language schools in most Canadian provinces.

In the minor domains of mathematics and science, Canadian students also performed well. Of 65 participating countries, only 7 achieved significantly higher results in mathematics and only 6 performed at higher levels in science (see Figures 1.2 and 1.3).

Most provinces performed at or above the OECD average in mathematics and in science. Canadian 15-year-old males outperformed females in both mathematics and science, but the gender gap was much smaller in these subjects than in reading. The Canadian report further concluded that majority-language school systems outperformed minority-language systems and that Canadian results remained stable over time in those two subject areas.

Figure 1.1 Average Scores and Confidence Intervals for Provinces and Selected Countries: Combined Reading

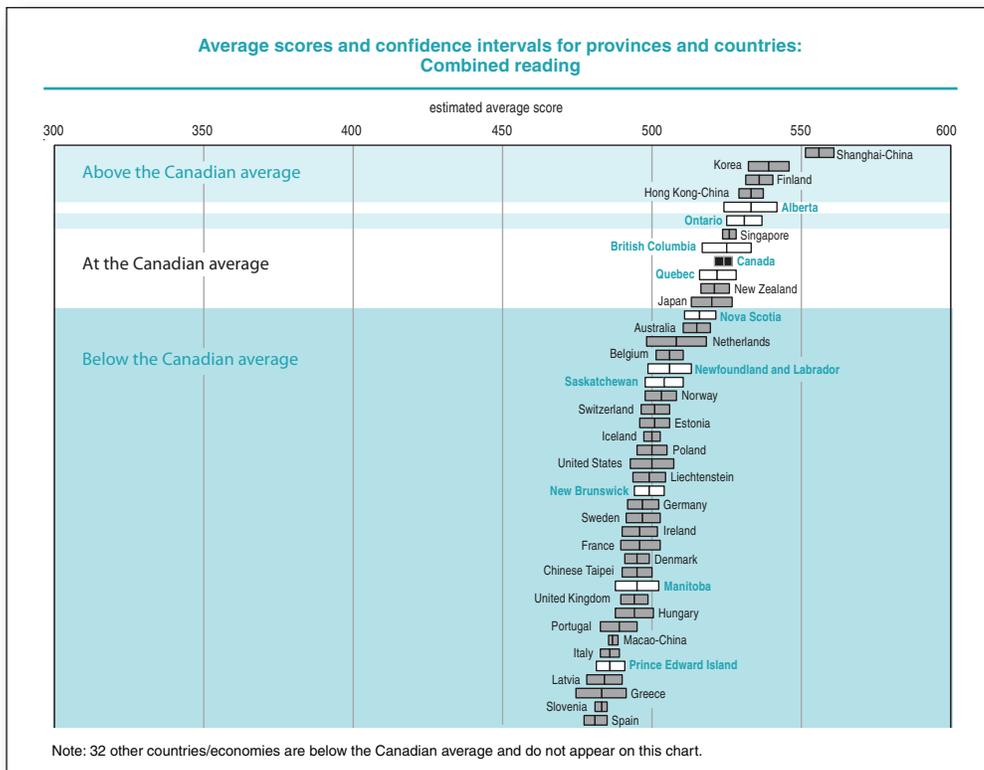


Figure 1.2 Average Scores and Confidence Intervals for Provinces and Selected Countries: Mathematics

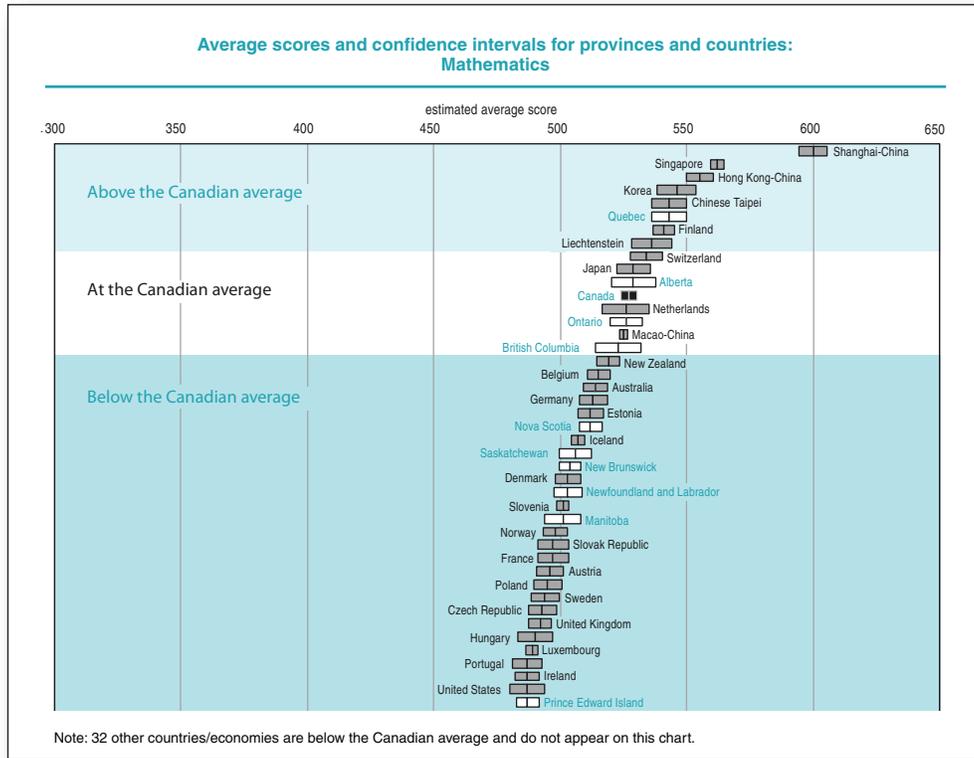
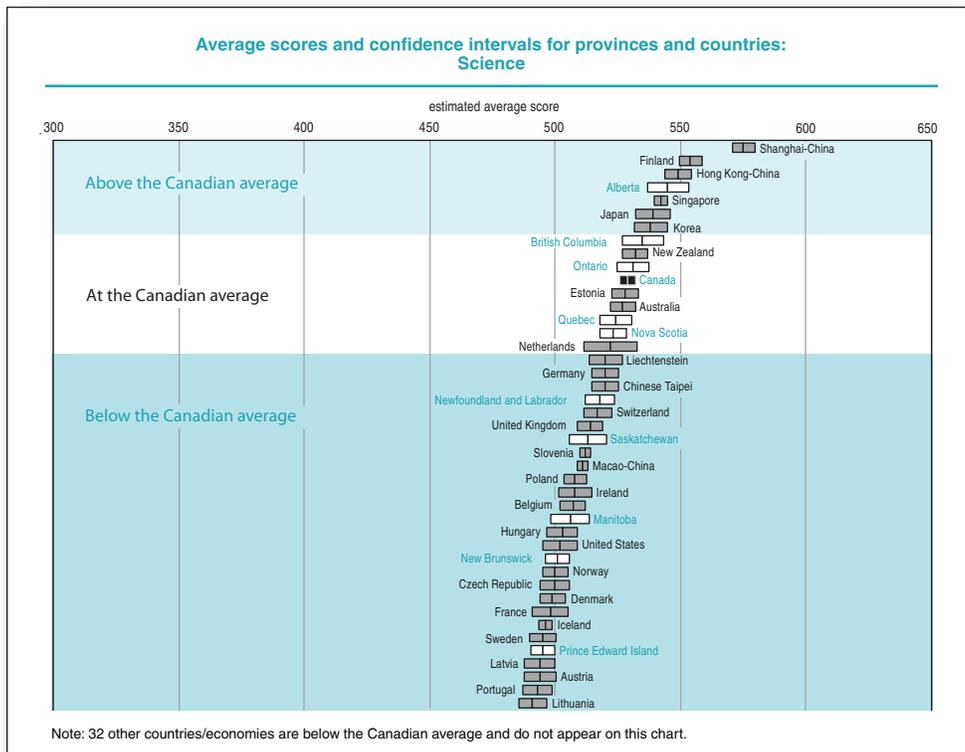


Figure 1.3 Average Scores and Confidence Intervals for Provinces and Selected Countries: Science



Part 1

Key Background Characteristics of 15-Year-Old Canadian Students and Their Skills



Students' success is affected to a great extent by their individual and family characteristics, and a vast array of literature has illustrated that learning outcomes are dependent on these factors. This chapter presents the results of analyses of PISA performance based on some key background characteristics of 15-year-old Canadian students. First, results of Canadian immigrant students are presented. Second, to highlight the issue of intergenerational skill transfers, PISA achievement is analyzed based on the level of educational attainment of the students' parents. Third, the results are presented based on parental occupation status. Lastly, a detailed analysis of the effects of socioeconomic status (SES) on reading scores is presented. Throughout this chapter, all results are presented at the Canadian and provincial levels. In addition, where applicable, international comparisons are introduced and discussed.

Immigrant Students

For Canada, a country highly dependent on immigration, it is important to understand the skill levels of students with immigrant backgrounds. Such information can highlight the rate of social integration in Canada, as well as showing whether any disadvantages faced by Canadian immigrants persist over time.

For the purpose of this analysis, the 15-year-old students assessed by PISA in 2009 have been grouped into

three categories, corresponding to the following definitions:

native students – students who were born in the country where they were assessed by PISA or who had at least one parent born in that country

second-generation students – students who were born in the country of assessment but whose parents were foreign-born

first-generation students – students who were foreign-born (OECD, 2010b, p. 66)

Applying these definitions to the Canadian 15-year-old students assessed by PISA revealed that 24 percent of the student body consisted of individuals with immigrant backgrounds (see Figure 1.4). This is a significant proportion, whereas the OECD average is only 10 percent. Provincially, these proportions vary from almost 35 percent in British Columbia to less than 1 percent in Newfoundland and Labrador.

On average, Canadian students with immigrant backgrounds, regardless of their immigrant category, have reading skills not significantly different than those of native students (see Figure 1.5). The equity between first-generation, second-generation, and native students puts Canada in a unique position internationally, as in most countries with significant immigrant populations, immigrant students are at a significant disadvantage with regard to reading skills.

Figure 1.4 Proportions of First- and Second-Generation Immigrants within 15-Year-Old Student Body, by Province

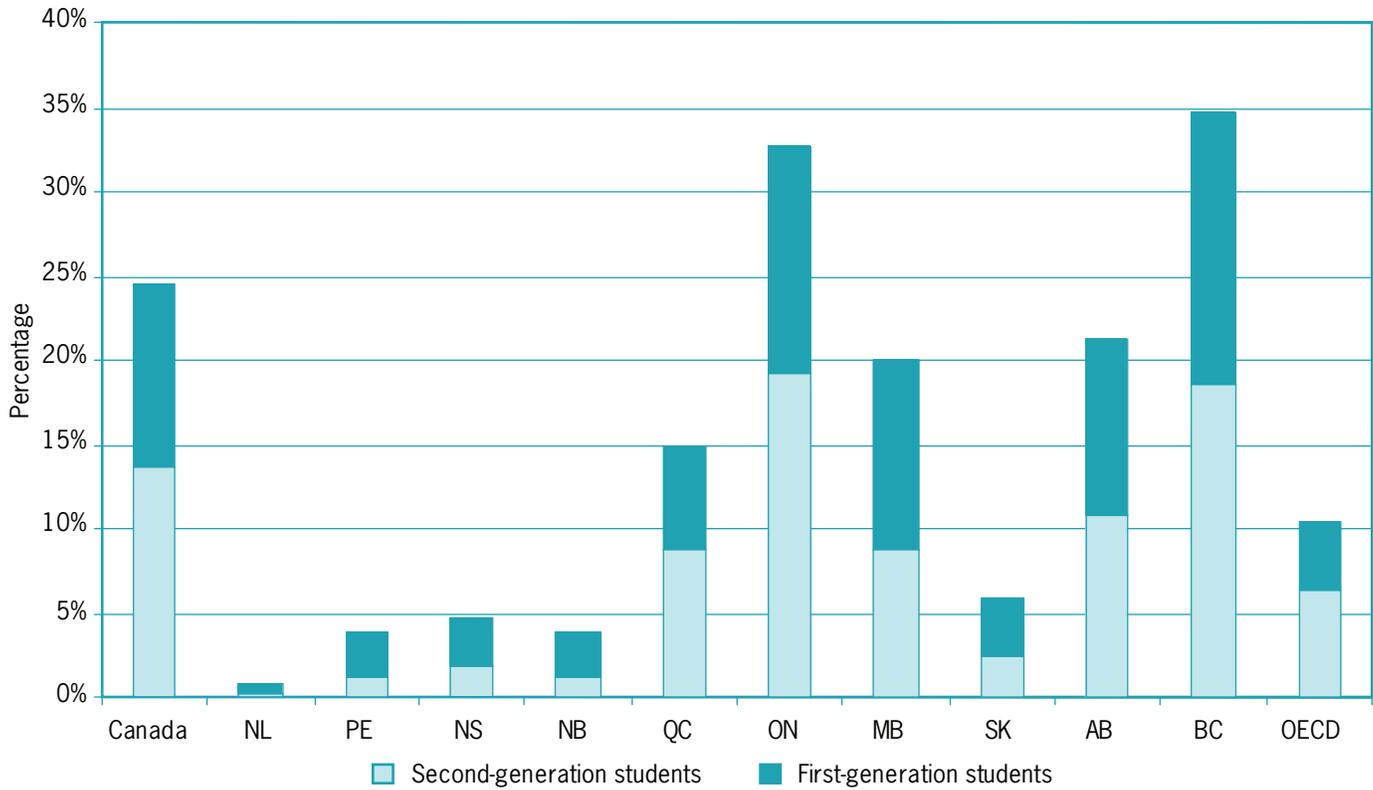
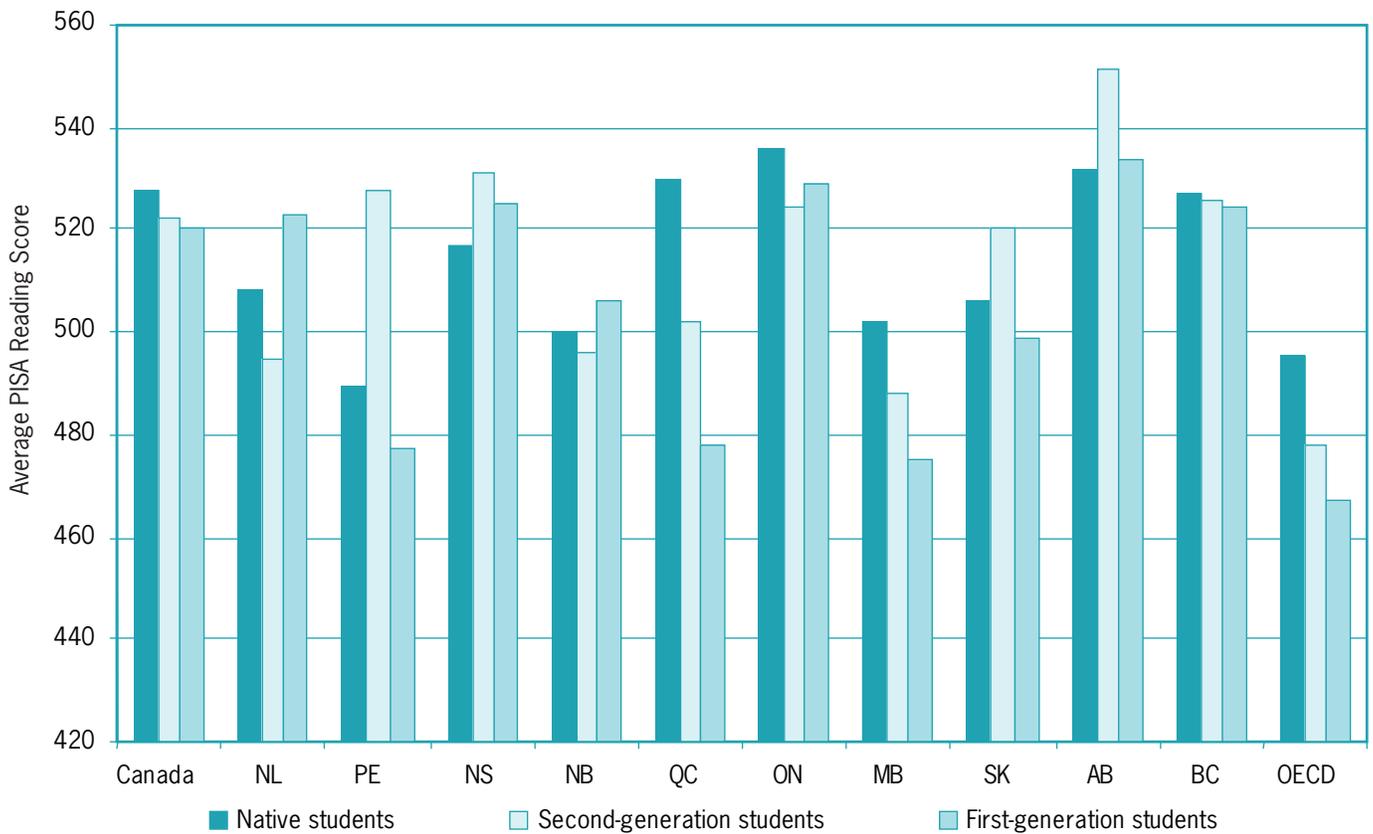


Figure 1.5 Average Reading Performance by Immigrant Status and Province



Provincially, the performance of immigrant students also does not vary a great deal between the different categories of students. Native students significantly outperform immigrant students in only one province: Quebec. In Prince Edward Island, second-generation immigrants outperform first-generation immigrants and native students. In Alberta, second-generation students outperform their native peers. In all other provinces, there are no significant differences in reading skills between these groups of students.

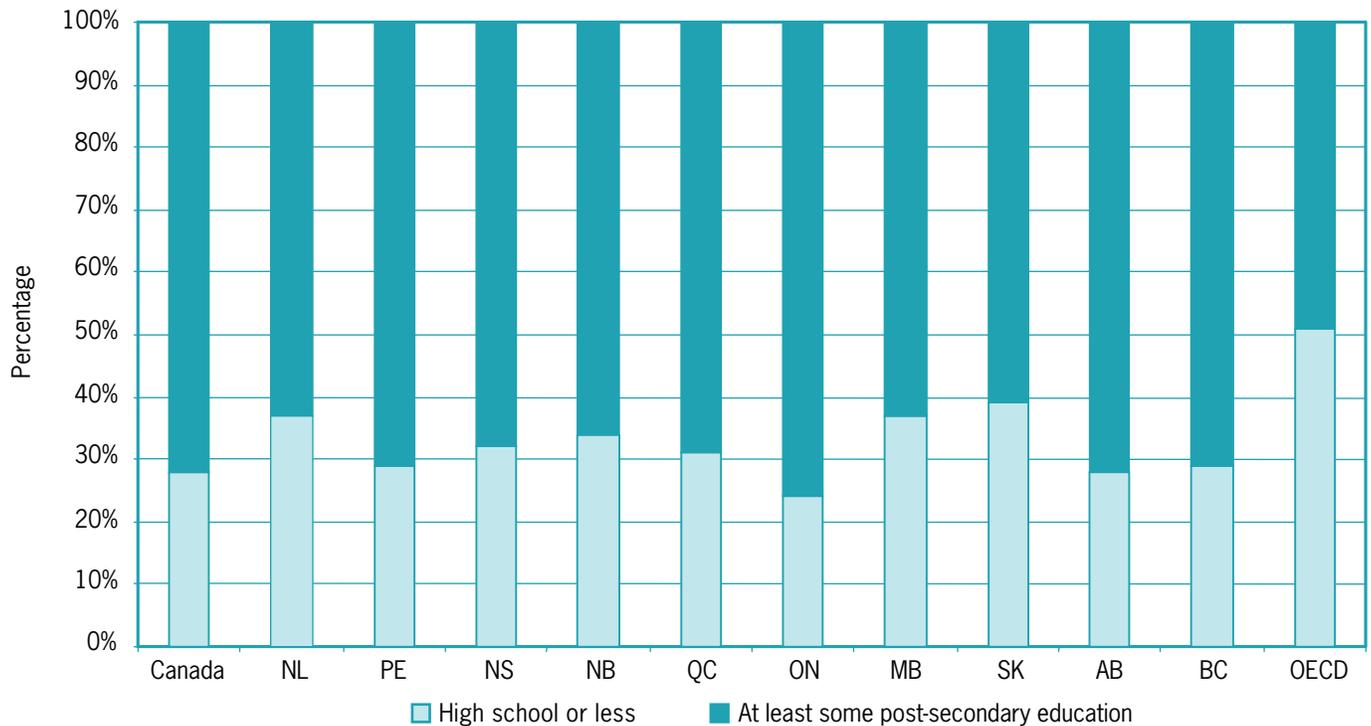
The 2009 PISA results for Canadian 15-year-old students with immigrant backgrounds are very positive. Unlike the case in most other countries with high levels of immigrants, any disadvantages faced by these students are small or non-existent. In addition, any disadvantage disappears within one generation. There are significant differences in only two provinces (Quebec and Alberta), but even these are relatively small compared to the differences in other countries.

Parental Education

Level of parental education can be used as a proxy for the social and cultural environment of the student. Intergenerational factors have also been found to be significant in previous research, where less educated parents held lower educational expectations for their children and were less engaged in their children's schooling (Looker & Thiessen, 2004).

Information on parental education was collected from the students. Where a student reported that two parents were educated, the higher education level was used in the analysis. It was discovered that Canadian parents of 15-year-old students have high levels of educational attainment. At the Canadian level, 72 percent have at least some post-secondary education. This was much higher than international levels, where, across the OECD countries, only 49 percent were estimated to have this level of educational attainment (see Figure 1.6).

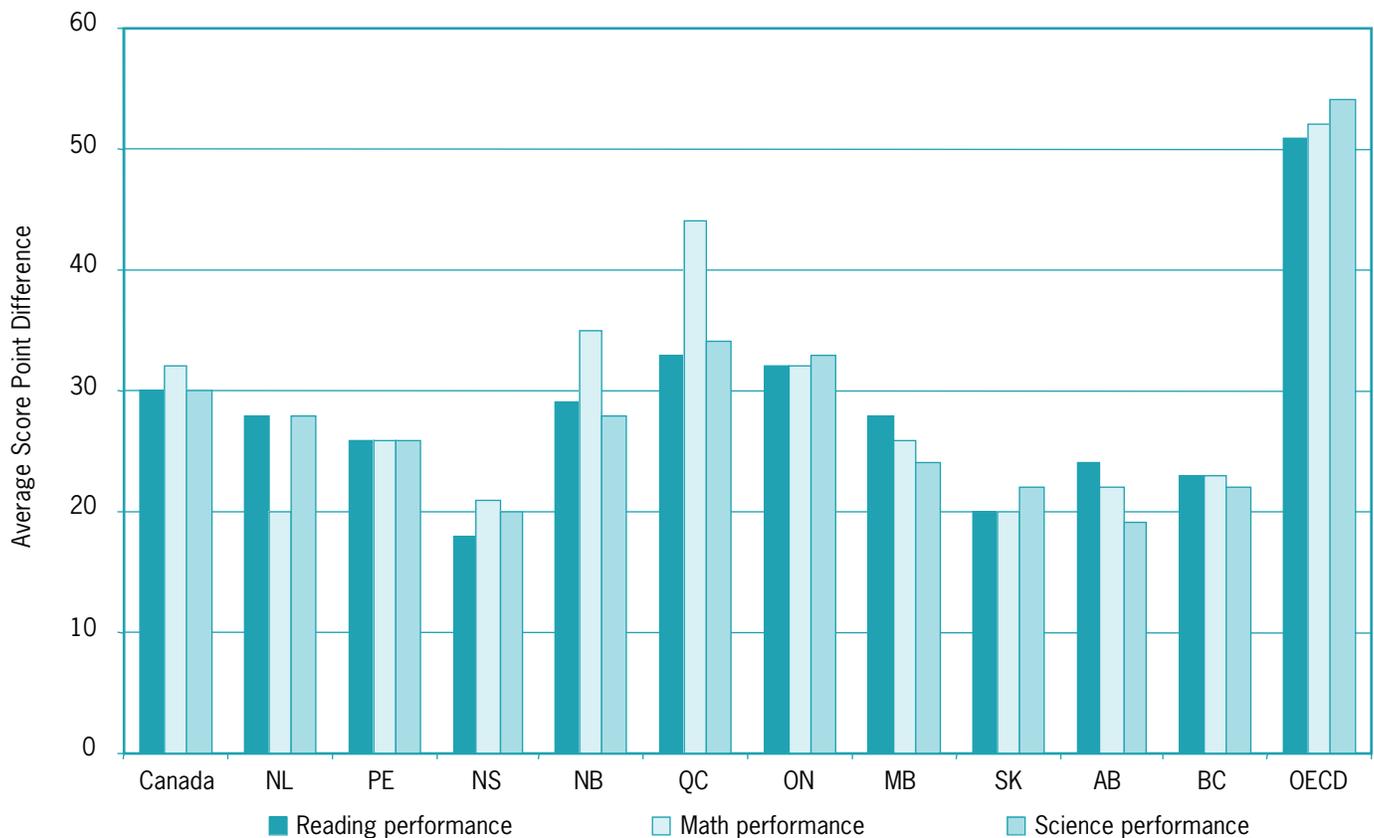
Figure 1.6 Distribution of 15-Year-Old Students by Levels of Parental Education, by Province



The differences in performance in all three domains measured by PISA — reading, mathematics, and science — are significant when compared between parental education levels. In Canada, in all three domains, an average of more than 30 score points lies between students from more educated households and those from less educated households, as illustrated in Figure 1.7. This difference was smaller than the OECD average difference of over 50 score points in all three domains of PISA.

Provincially, the differences in scores also vary. The largest differences were observed in Quebec in all three domains, but especially in mathematics, where there are almost 45 score points between students from more educated households and those from less educated households. The smallest differences in all three domains are in Nova Scotia.

Figure 1.7 Differences in Average Reading, Mathematics, and Science Performance between Children of Parents with at Least Some Post-secondary Education and High School or Less



Parental Occupation Status

An attempt to estimate the measures of parental occupation is important to understanding skill outcomes of Canadian students. Although this is a less direct measure than collecting this information from parents themselves, it represents an attempt to measure the economic status of students' households. PISA used the International Socio-economic Index of occupational status (ISEI)¹ [of either mother or father]. Where students reported an occupation for both parents, the higher ISEI level was used in analysis.

The results of analysis of this measure on PISA reading scores yield very weak effects. On average, in Canada, parental occupation status explains 6.5 percent of the differences in PISA reading scores, as shown in Table 1.1. This compares well with the OECD average of 12.9 percent.

Following the overall Canadian results, the explanatory power of the index on PISA scores is also small among the provinces, ranging from 4.7 percent in Saskatchewan to 8.1 percent in Manitoba (see Table 1.1).

Table 1.1 Index of Parental Occupation Status and Its Effects on Average Reading Scores, by Province

	Mean index		Change in the reading score per one (integer) unit change in the index ²		Percentage of explained variance in reading performance	
	Mean index	Standard error	Change in the reading score per one (integer) unit change in the index ²	Standard error	Percentage of explained variance in reading performance	Standard error
Canada	53.3	(0.2)	1.39	(0.1)	6.5	(0.6)
NL	49.5	(0.4)	1.32	(0.2)	5.7	(2.0)
PE	51.4	(0.4)	1.57	(0.2)	7.1	(1.4)
NS	52.5	(0.5)	1.36	(0.2)	6.0	(1.5)
NB	50.7	(0.5)	1.44	(0.1)	6.3	(1.3)
QC	53.9	(0.4)	1.36	(0.1)	6.3	(1.2)
ON	53.2	(0.4)	1.34	(0.1)	6.8	(1.2)
MB	50.4	(0.6)	1.59	(0.2)	8.1	(1.7)
SK	51.5	(0.5)	1.26	(0.2)	4.7	(1.3)
AB	54.2	(0.5)	1.60	(0.2)	6.9	(1.4)
BC	53.9	(0.7)	1.21	(0.2)	4.9	(1.2)
OECD	48.6	(0.2)	2.09	(0.0)	12.9	(0.5)

¹ The Programme for International Student Assessment (PISA) International Socio-Economic Index of occupational status (ISEI) was derived from students' responses regarding parental occupation. The index captures the attributes of occupations that convert parents' education into income. It was derived through the optimal scaling of occupation groups in order to maximize the indirect effect of education on income through occupation and to minimize the direct effect of education on income, net of occupation (both effects being net of age). For more information on the methodology, see Ganzeboom, H.B.G.; De Graaf, P.; Treiman, D. J.; (with De Leeuw, J.) (1992).

² The model used in estimating this value assumes a linear relationship between PISA scores and the Index of Parental Occupation Status. Therefore, on average, one would expect a change in the student's score if that student's parental occupation status were to increase by one unit.

Socioeconomic Status

The ability to collect information related to socioeconomic status from 15-year-olds is limited. Nevertheless, PISA attempted to measure this in a way that would be feasible based on student reports. By collecting information about their home possessions, three indices have been created: the Index of Cultural Possessions, the Index of Home Possessions, and the Index of Educational Possessions. The information collected with respect to each of these is relevant to learning outcomes in that it helps measure the quality of learning environments.

The Index of Cultural Possessions was constructed to measure the student's exposure to cultural materials at home. It encompasses information about the following items that might be found in a student's household: classical artwork, books of poetry, and works of art (OECD, 2010b p. 29). The OECD average on this index is -0.11.

On average, Canadian students come from households with the same level of exposure to these types of cultural media (-0.12) as the average OECD 15-year-old student (-0.11) (see Table 1.2).

A small proportion of the variance in PISA reading scores is explained by exposure to cultural possessions at home (5.6 percent), an estimate of a similar value to the OECD average of 7.0 percent. Provincially, this exposure ranges from 4.1 percent in Ontario to 8.9 percent in New Brunswick (Table 1.2).

The Index of Home Possessions is calculated from information about households' ownership of the following items: a desk where the student could study, a room of his or her own, a link to the Internet, a dishwasher, a DVD player or VCR, and access to cellular phones, televisions, computers, cars, and books at home (including numbers for each of these) (OECD, 2010b, p. 29).

Table 1.2 Index of Cultural Possessions and Its Effects on Average Reading Scores, by Province

	Mean index	Standard error	Change in the reading score per one (integer) unit change in the index	Standard error	Percentage of explained variance in reading performance	Standard error
Canada	-0.12	(0.01)	20.78	(1.0)	5.6	(0.5)
NL	-0.12	(0.03)	21.20	(3.0)	5.6	(1.4)
PE	-0.30	(0.03)	23.08	(2.6)	6.6	(1.5)
NS	-0.15	(0.04)	22.98	(2.6)	7.6	(1.7)
NB	-0.30	(0.03)	26.15	(2.3)	8.9	(1.6)
QC	-0.31	(0.02)	21.48	(1.8)	6.0	(0.9)
ON	-0.04	(0.02)	17.63	(1.9)	4.1	(0.8)
MB	-0.21	(0.03)	18.79	(2.6)	4.2	(1.2)
SK	-0.19	(0.03)	20.87	(2.7)	5.2	(1.3)
AB	-0.05	(0.04)	22.83	(2.6)	6.1	(1.4)
BC	0.00	(0.04)	23.93	(1.7)	7.3	(1.1)
OECD	-0.11	(0.01)	25.90	(0.6)	7.0	(0.3)

Table 1.3 Index of Home Possessions and Its Effects on Average Reading Scores, by Province

	Mean index	Standard error	Change in the reading score per one (integer) unit change in the index	Standard error	Percentage of explained variance in reading performance	Standard error
Canada	0.41	(0.02)	22.72	(1.4)	4.5	(0.5)
NL	0.21	(0.03)	28.75	(3.7)	6.7	(1.7)
PE	0.18	(0.02)	16.78	(3.6)	1.9	(0.9)
NS	0.27	(0.02)	15.84	(2.6)	2.1	(0.7)
NB	0.16	(0.02)	31.81	(2.8)	7.2	(1.3)
QC	0.15	(0.02)	22.77	(3.1)	3.8	(1.0)
ON	0.50	(0.03)	23.62	(2.4)	5.2	(1.0)
MB	0.28	(0.03)	20.18	(3.8)	3.4	(1.3)
SK	0.46	(0.03)	20.69	(3.3)	3.5	(1.1)
AB	0.58	(0.03)	25.21	(2.6)	4.9	(0.9)
BC	0.54	(0.03)	15.51	(3.0)	2.1	(0.8)
OECD	-0.22	(0.01)	31.20	(0.6)	13.0	(0.5)

On average, Canadian students rank significantly higher (0.41) than the OECD average on the Index of Home Possessions (-0.22) (see Table 1.3). The provincial averages on this index vary from 0.15 in Quebec to 0.58 in Alberta. As in the case of the Index of Cultural Possessions, this index is able to explain very little of the variation in PISA reading scores (4.5 percent), ranging from 1.9 percent in Prince Edward Island to 7.2 percent in New Brunswick. These proportions were significantly lower than the OECD average, where 13 percent of the variation is explained by this measure (see Table 1.3).

The Index of Educational Possessions was calculated from students' responses concerning the following household possessions: a quiet place to study, educational software, their own calculator, books to help them with school work, and a dictionary (OECD, 2010b, p. 29).

The average value reported by Canadian students (0.10) on this index is higher than the OECD average of -0.18 (see Table 1.4). The provincial averages on this index range from -0.13 in Manitoba to 0.17 in Ontario.

Table 1.4 Index of Educational Possessions and Its Effects on Average Reading Scores, by Province

	Mean index	Standard error	Change in the reading score per one (integer) unit change in the index	Standard error	Percentage of explained variance in reading performance	Standard error
Canada	0.10	(0.01)	19.94	(1.2)	3.8	(0.4)
NL	-0.01	(0.03)	17.22	(3.3)	3.1	(1.2)
PE	-0.10	(0.02)	15.27	(3.2)	2.3	(0.9)
NS	-0.04	(0.03)	17.02	(2.7)	3.3	(1.0)
NB	-0.08	(0.03)	23.72	(2.5)	6.0	(1.2)
QC	0.07	(0.02)	18.33	(2.6)	2.8	(0.8)
ON	0.17	(0.02)	19.58	(2.4)	3.8	(0.9)
MB	-0.13	(0.02)	15.40	(3.2)	2.5	(1.0)
SK	-0.11	(0.03)	22.12	(2.6)	5.3	(1.1)
AB	0.05	(0.03)	21.17	(2.7)	4.3	(1.1)
BC	0.13	(0.03)	17.72	(2.4)	3.0	(0.8)
OECD	-0.18	(0.01)	26.49	(0.5)	7.9	(0.3)

Again, this index is unable to explain a large proportion of the differences in PISA reading scores, covering only 3.8 percent of the variation, which is significantly lower than the OECD average of 7.9 percent.

Finally, PISA combined all the indices in order to create the most complete measure of socioeconomic status: the Index of Economic, Social, and Cultural Status. This measure was constructed from indices that were discussed before: the International Socio-economic Index of occupational status, [the level of education of mother or father (whichever was higher)], the Index of Cultural Possessions, the Index of Home Possessions, and the Index of Educational Possessions (OECD, 2010b, p. 29). The OECD average on this index is 0.

On this combined measure, Canada obtains one of the highest values (0.50) among all OECD countries (see Table 1.5). The average measure varies provincially between 0.26 in Newfoundland and Labrador to 0.61 in Alberta (Table 1.5).

Despite being the most comprehensive measure of socioeconomic status, only 8.6 percent of the total PISA reading score variation is explained by this combined measure. Internationally, only in Iceland, Estonia and Finland does socioeconomic status explains less difference in scores as compared to Canada (OECD, 2010b). This again highlights Canada's equitable reading skill outcomes.

Table 1.5 Index of Economic, Social and Cultural Status and Its Effects on Average Reading Scores, by Province

			Change in the reading score per one (integer) unit change in the index		Percentage of explained variance in reading performance	
	Mean index	Standard error		Standard error		Standard error
Canada	0.50	(0.02)	31.72	(1.4)	8.6	(0.7)
NL	0.26	(0.03)	31.94	(3.4)	9.1	(1.9)
PE	0.36	(0.02)	29.68	(3.1)	6.5	(1.4)
NS	0.42	(0.03)	26.37	(3.2)	5.6	(1.3)
NB	0.31	(0.02)	34.62	(2.8)	9.5	(1.5)
QC	0.39	(0.02)	31.55	(3.2)	8.7	(1.6)
ON	0.56	(0.03)	31.82	(2.7)	9.4	(1.4)
MB	0.33	(0.03)	29.22	(3.2)	7.8	(1.7)
SK	0.43	(0.02)	28.15	(3.3)	5.8	(1.3)
AB	0.61	(0.03)	33.31	(3.2)	7.9	(1.4)
BC	0.59	(0.04)	27.20	(3.2)	5.7	(1.3)
OECD	0.00	(0.01)	38.34	(0.6)	14.2	(0.2)

Conclusion

The analyses presented in this chapter highlight the positive aspects of Canadian students' performance in PISA. However, students' family characteristics explain very little of the variation in their skills. In addition, student characteristics that are associated with inequities in student performance in other countries, such as immigrant status and socioeconomic status, have very little effect in Canada. These results may explain, in part, the overall strong performance of Canadian 15-year-old students.

It should be noted that the measure of socioeconomic status obtained through information collected from students is limited. In some cases, students may have had only limited knowledge of their households' educational and financial situations. However, this situation was addressed by PISA's use of an innovative method of collecting data about students' socioeconomic status — by asking students about items that they would normally know of, which are also pertinent to socioeconomic status.

Using these measures, results for Canada reveal two main findings. First, with some provincial variation, Canadian students tend to come from more advantaged backgrounds than those of students in other countries. Their parents also tend to have higher levels of education, and they report higher levels of household possessions, which may foster more positive learning environments. Second, all measures used to determine socioeconomic status have small effects on Canadian students' reading performance. This means that Canadian students compare well with international students, since in most other countries there are much larger disparities in learning outcomes between students who have high socioeconomic status and those who have low socioeconomic status. This comparison speaks well to the level of equity achieved in Canada, especially in light of its unique educational systems.

Part 2

School-Related Factors Associated with Reading Achievement



Most formal learning takes place in schools. However, PISA assesses how well students are prepared for real-life situations they will face in adult life with a focus on knowledge and skills in reading, mathematics, and science — regardless of whether the students' learning took place formally in schools or less formally elsewhere in their environment. A school questionnaire is distributed to principals where PISA is administered, in order to gather contextual information on factors expected to be associated with student achievement. The following are examples of such factors:

- the quality of the schools' human and material resources
- public and private control and funding
- decision-making processes
- staffing practices and the school's curricular emphasis
- extracurricular activities offered

Although PISA 2009 did not include a direct assessment of classroom-based factors associated with learning through a teacher questionnaire, the School Questionnaire collected information on the related context of instruction, including institutional structures and types, class size, classroom and school climate, and reading activities in class.

Box 2.1

In Canada, school principals or their designates responded to the School Questionnaire, which took approximately 30 minutes to complete. The international version of the questionnaire is available on the OECD PISA website: http://pisa2009.acer.edu.au/downloads/PISA09_School_questionnaire.pdf.

Overall, more than 970 questionnaires were returned, representing a response rate of 99 percent. Many of the measures reported in this chapter are composite indices, in which a number of individual items were grouped into a single construct. Although indices have the advantage of effectively synthesizing information from a number of related items, they are also limited in indicating which of the underlying factors have more or less impact on the index. Furthermore, most indices are based on students' or principals' perceptions of the construct being measured, so they are not objective measurements.

While the information gathered from the School Questionnaire is invaluable in helping explain student achievement, the inferences made from its analysis need to be kept in their proper perspective. The School Questionnaire is administered in schools where students

are studying at age 15. (In most cases, this would mean that they would be toward the end of Grade 10, while in Newfoundland and Labrador, they would be in Level 1, and in Quebec, they would be in Secondary 4.) Table 2.1 shows the relationship between the PISA Reading score and the grade level of Canadian 15-year-old students.

In many instances, students may have spent a significant portion of their prior schooling in another school, and this may have had a greater impact on their formal learning than their current school. Furthermore, although students may have spent a significant amount of time in their current schools, some of the factors measured by the School Questionnaire may have changed over the course of their studies. For instance, class size, reading activities in class, or extracurricular activities practised in school may have been quite different in the previous years than in their current year, and this could have had a greater impact on their performance on the PISA assessment. Nevertheless, the information gathered through the School Questionnaire sheds light on the impact of different school environments on PISA scores.³ In interpreting the significance of the effects of school on educational decision making, it is also important to consider the role of the variation observed in relationships between school factors and student achievement. Although many relationships appear insignificant in Canada relative to those in other OECD countries, this does not necessarily mean that these factors are unimportant. Low variability in school characteristics will also reduce the magnitude of statistical relationships, even if they have real, practical significance. The variability of a school characteristic within and between provinces may be as informative as the relationship of that characteristic to student performance.

Table 2.1 Average PISA Reading Score for Students at Grade Levels Relative to the Most Common Grade

Student grade, relative to most common grade for students born in same month in the same province who had not repeated a grade	Average PISA reading proficiency	Standard error
-2	496	(7.9)
-1	523	(2.4)
0	536	(1.8)
1	544	(1.8)

Variation in Performance between and within Schools

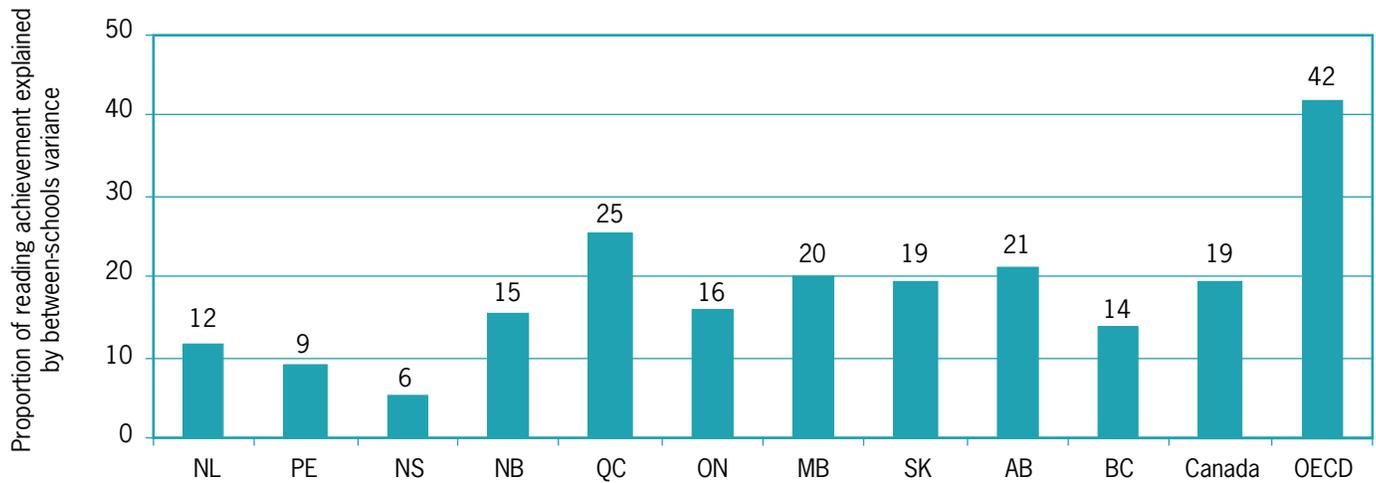
As mentioned in the first Canadian report on the PISA 2009 assessment (Knighton, Brochu, & Gluszynski, 2010), one of the most salient characteristics of the Canadian PISA results for 2009 was the combination of high performance and high equity in achievement. Equity can manifest itself in a variety of ways, including low variability in results between schools.⁴ Across the OECD countries, 42 percent of the variance in student performance can be explained by between-schools variation. In Canada, this between-schools variance is about 19 percent,⁵ with a low of 6 percent in Nova Scotia and a high of 25 percent in Quebec (Figure 2.1). The low between-schools variance explained by study programs suggests that Canadian schools tend not to group students based on ability (about 2 percent in Canada compared to 21 percent across OECD countries). With Canada's large geographic size, distance, and student mobility, schools face challenges in moderating external factors that affect equity in average school performance. Across Canadian provinces, the extent to which provinces are urbanized has a correlation of -0.67 with the proportion of variance at the school level.⁶

³ When correlations between student and school factors are analyzed, the major domain of assessment (Reading for PISA 2009) is used as the performance measure.

⁴ Canada, Finland, Japan, Korea, and the partner economies Hong Kong–China and Shanghai–China all perform well above the OECD mean performance, and students tend to perform well regardless of their own background or the school they attend (OECD, 2010f, p. 9).

⁵ The international report shows a between-schools variance of 22 percent for Canada due to a different method of calculation.

⁶ Proportions of rural population were taken from Statistics Canada, 2006 Census, Statistics Canada, 2007. Population and dwelling counts, for urban areas, 2006 and 2001 censuses - 100% data (table). Population and Dwelling Count Highlight Tables. 2006 Census. Statistics Canada Catalogue no. 97-550-XWE2006002. Ottawa. Released March 13, 2007. Logarithms of proportions were used to estimate correlations.

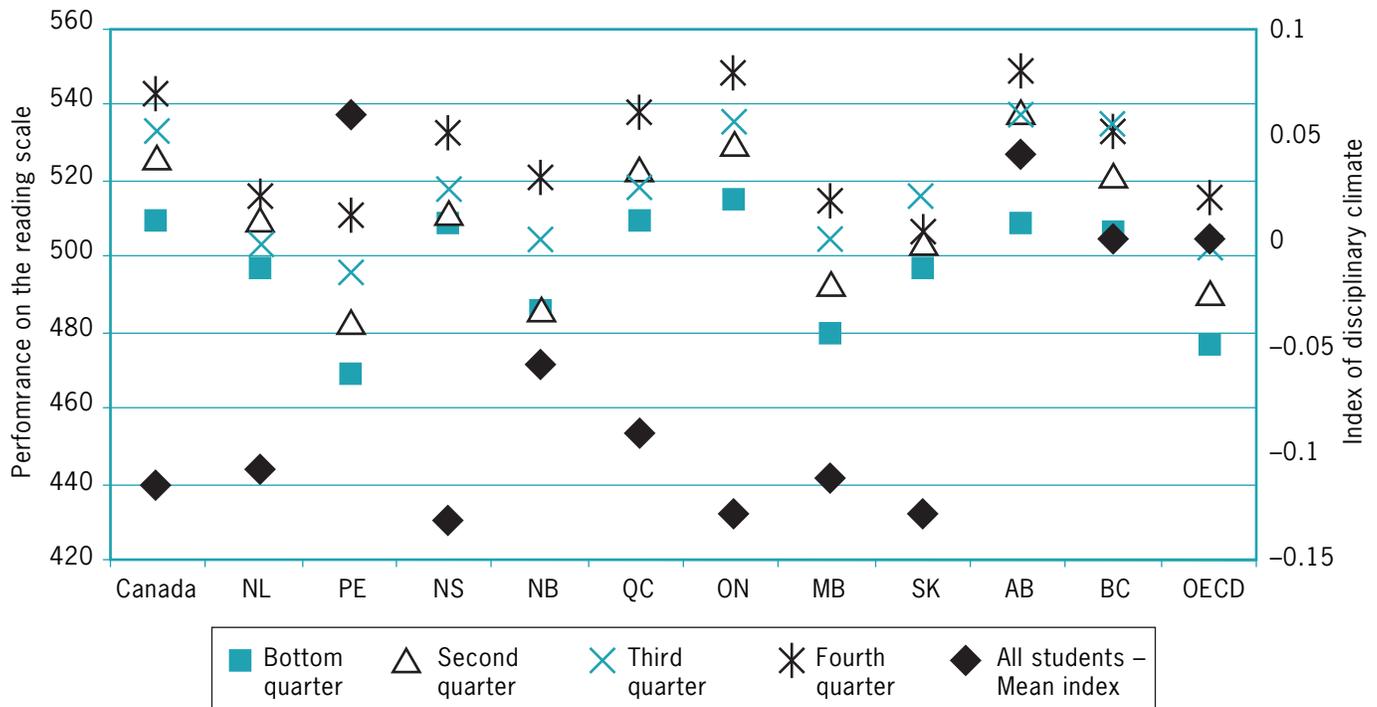
Figure 2.1 Between-Schools Variance in Student Achievement

Teacher-Student Relations

PISA 2009 also developed an index of teacher-student relations by asking students to indicate the extent of their agreement with several statements regarding their relationships with teachers in school. These statements included whether they got along with the teachers, whether teachers were interested in their personal well-being, whether teachers took the student seriously, whether teachers were a source of support if the student needed extra help, and whether teachers treated the student fairly. Higher values indicated better teacher-student relations. Across OECD countries, the mean index was set to 0, with a standard deviation of 1. Turkey (0.44), Portugal (0.37), and the United States and Canada (0.32) showed the highest values. In the Canadian provinces, these values ranged from 0.41 in Quebec to 0.18 in British Columbia. Conversely, the index had the lowest impact on student reading scores in Quebec and the highest in British Columbia (see Table A.2.2 in the Appendix).

Disciplinary Climate

Students were asked to describe the frequency with which interruptions occurred in reading lessons. An index of disciplinary climate was derived, based on the hypothesis that more interruptions in the classroom might impede students' engagement and their ability to follow lessons. Again, with an OECD average of 0, the values ranged from -0.40 in Greece (least discipline) to 0.75 in Japan (most discipline). The Canadian average of -0.08 suggests slightly lower levels of discipline, with lower values in Saskatchewan, Nova Scotia, and Ontario (-0.13) and higher values in Prince Edward Island (0.06) (see Table A.2.3 in the Appendix). The impact of disciplinary climate on achievement was quite consistent across Canada, where more discipline was correlated with higher reading scores.

Figure 2.2 Index of Disciplinary Climate and Performance on the Reading Scale

Student- and Teacher-Related Factors

An index of student-related factors affecting school climate was computed by asking principals to indicate the extent to which learning was hindered by behaviours such as student absenteeism, the use of alcohol or illegal drugs, bullying, disruption of classes by students, and students' lack of respect for teachers. Positive values reflected principals' perceptions that student-related behaviours hindered learning to a lesser extent, and negative values indicated that school principals believed students' behaviour hindered learning to a greater extent. The OECD average was set at -0.06. Turkey, Finland, and Canada showed the lowest values of this index, with -1.66, -0.43, and -0.41, respectively, and Japan (0.60) and Korea (0.40) showed the highest values. This indicates that principals believed that student-related factors did hinder school climate to a greater extent in Canada than in most other countries. The index varied from -0.62 in Nova Scotia (more hindrance) to -0.12 in Alberta (less hindrance). It should be noted that this factor explains a much higher proportion of the variance in student performance in Quebec (8 percent) than in the other provinces, since the Canadian average was 1.7 percent (see Table A.2.4 in the Appendix).

A similar index of teacher-related factors affecting school climate was also computed by asking principals to indicate the extent to which they perceived learning in their schools to be hindered by such factors as teachers' low expectations of students, poor student-teacher relations, absenteeism among teachers, staff resistance to change, teachers not meeting individual students' needs, teachers being too strict with students, and students not being encouraged to achieve their full potential. Again, positive values reflect principals' perceptions that teacher-related behaviours hindered learning to a lesser extent, and negative values indicate that school principals believed teachers' behaviour hindered learning to a greater extent. The OECD average was set at -0.09. Turkey showed the lowest value, at -1.82, while Hungary had the highest value, at 0.51. Canada's mean index was close to the OECD average, at -0.08, with the lowest value in Prince Edward Island (-0.43) and the highest in Alberta (0.22). Interestingly, the index seemed to impact student performance differently in Prince Edward Island than in the other provinces and in most other countries. This aspect would be worthy of further

investigation. Furthermore, the explained variance in student performance for this index was larger in Quebec (4.4 percent) than in the other provinces (see Table A.2.5 in the Appendix).

Through the Student Questionnaire, an index of teachers' stimulation of students' reading engagement and reading skills was derived from the data set. Students were asked to describe the frequency with which teachers asked students to explain the meaning of a text, asked questions that challenged students, gave enough time for students to think about their answers, recommended a book or author to students, encouraged students to express their opinions about a text, helped students relate the stories they read to their lives, and showed students how the information in the texts built on what they already knew. Higher values indicate greater involvement among teachers in stimulating students' engagement with reading according to students' reports. The index, with an OECD average of 0, ranged from -0.43 in Korea to 0.60 in Turkey. With an average of 0.23, Canadian students generally felt that their teachers were stimulating students' reading engagement more than in other countries. Across the country, indices ranged between -0.11 in Quebec (less stimulation) to 0.38 in Ontario (more stimulation). The index explained a larger proportion of the variation in student performance in Alberta, Nova Scotia, Prince Edward Island, and Ontario (ranging from 2.4 percent to 2.8 percent) than in the other provinces (see Table A.2.6 in the Appendix).

School Responsibilities and Leadership

School principals were asked to report whether the teachers, the principal, the school's governing board, the regional or local education authorities, or the provincial/national education authority had considerable responsibility for allocating resources to schools (appointing and dismissing teachers, establishing teachers' starting salaries and salary raises, formulating school budgets and allocating them within the school). From their responses, an index of school responsibility for resource allocation was developed. Higher values indicate more autonomy for school principals and teachers compared to the other stakeholders. With an OECD average of -0.06, Canadian principals indicated slightly less autonomy, with a mean of -0.39 and with

the index ranging from -0.77 in Greece to 1.30 in the Netherlands. Among provinces, the index varied from -0.62 in New Brunswick to -0.09 in Manitoba. The index showed very little variability between Canadian schools, and the relationship with reading performance was quite limited, except in Quebec, where students from schools expressing a higher degree of responsibility for resource allocation tended to perform better on PISA (see Table A.2.7 in the Appendix).

A related index of school responsibility for curriculum and assessment was developed from principals' views as to whether "principals," "teachers," "school governing board," "regional or local education authority," or "provincial/national education authority" had considerable responsibility for establishing student assessment policies; choosing which textbooks were used; determining course content; and deciding which courses were offered. Positive values on this index indicate relatively more responsibility for schools than for a local, regional, or provincial/national education authority. This index had an OECD mean of -0.06 and a standard deviation of 1. It varied between -1.25 in Greece to 1.06 in Japan. With a mean index of -0.66, Canadian principals generally felt that their schools had less responsibility for curriculum and assessment than did schools in the other OECD countries. The index did not vary greatly among provinces, with lower values in Newfoundland and Labrador (-1.05) and in Prince Edward Island (-1.03). The impact of this index on student achievement was quite limited across Canada, though a higher value appeared in Manitoba, where it explained about 2.7 percent of the variance in student reading scores (see Table A.2.8 in the Appendix).

PISA asked principals to report on their level of involvement in, and leadership concerning, several issues, including making sure that teachers' work and development reflected the educational goals of the school, monitoring student performance and classroom activities, and working with teachers to resolve problems. From their answers, an index of school principal's leadership was developed, with a mean of -0.02 and a standard deviation of 1 for the OECD countries. Higher values on the index indicate higher levels of principal leadership in the school. The index ranged from -1.29 in Japan to 1.03 in the United Kingdom, with a Canadian average of 0.42. All provinces showed positive values of the index, with principals in Alberta indicating stronger leadership (0.82). However, the impact of the variable on reading performance was very limited in all provinces (see Table A.2.9 in the Appendix).

Library Use

Students were asked to report on how frequently they visited a library for the following activities: borrow books to read for pleasure; borrow books for school work; work on homework; do course assignments or research papers; read magazines or newspapers; read books for fun; learn about things that are not course-related; and use the Internet.

The index of library use in and outside school varied greatly between provinces — from a high of 0.33 in Saskatchewan to a low of -0.40 in Newfoundland and Labrador, with a Canadian mean of 0.13. The effect of this index on reading achievement was quite limited and somewhat variable across provinces (see Table A.2.10 in the Appendix).

Extracurricular Activities

The index of extracurricular activities was derived from school principals' reports as to whether their schools offered the following activities to students in the academic year of the PISA assessment: band, orchestra, or choir; school play or school musical; school yearbook, newspaper, or magazine; volunteering or service activities; book club; debating club or debating activities; school club or school competition for foreign language, mathematics, or science; academic club; art club or art activities; sporting team or sporting activities; lectures and/or seminars; and collaboration with local libraries and with local newspapers. Higher values on the index indicate higher levels of extracurricular school activities. The OECD average was 0.17, and the country means ranged from -0.99 in Denmark (low level of extracurricular activities) to 1.21 in New Zealand (high level). In Canada, the mean index was 0.71, with some variability between provinces (a low of 0.44 in Newfoundland and Labrador and a high of 1.03 in Prince Edward Island). The index showed a small but consistent positive relationship with reading achievement across countries and across provinces (see Table A.2.11 in the Appendix).

Factors Hindering Instruction

School principals surveyed by PISA reported on the extent to which they thought instruction in their school was hindered by a lack of qualified teachers and staff

in key areas (language arts, mathematics, science), and from this information, an index of teacher shortages was developed. Lower values on the index indicate higher levels of teacher shortage. The OECD country mean of -0.04 ranged between -0.80 in Portugal and 2.05 in Turkey. The Canadian average was -0.23, and provincial means ranged from -0.63 in Newfoundland and Labrador to 0.57 in Quebec, suggesting that principals in Newfoundland and Labrador perceived teacher shortage as hindering instruction more than did principals in other provinces. However, this index explains only a very small proportion of the variance in PISA reading score (less than 1 percent) — except in Newfoundland and Labrador and Alberta, where it explains 2.9 percent and 1.8 percent, respectively (see Table A.2.12 in the Appendix).

The index on the quality of school's educational resources was derived from several items measuring school principals' perceptions of potential factors hindering instruction at their school: shortage or inadequacy of science laboratory equipment; shortage or inadequacy of instructional materials; shortage or inadequacy of computers for instruction; lack or inadequacy of Internet connectivity; shortage or inadequacy of computer software for instruction; shortage or inadequacy of library materials; and shortage or inadequacy of audiovisual resources. Higher values on this index indicate better quality of educational resources in the school. This mean index for OECD countries was 0.04 and ranged from -1.35 in Turkey to 0.53 in Switzerland. The value of the Canadian index (0.39) suggests that principals in this country perceived the lack of educational resources in schools hindering instruction as being less of a problem than did principals in many other countries. At the provincial level, the index was positive in all provinces and varied from 0.03 in Prince Edward Island to 0.72 in Alberta. This index explains a very small portion of the variance in reading scores, with the highest value at 1.5 percent in Quebec (see Table A.2.13 in the Appendix). As can be expected, economically advantaged schools tend to be schools with better educational resources, and research usually shows a weak relationship between educational resources and student performance, with more variation explained by the quality of human resources (i.e., teachers and school principals) than by material and financial resources, particularly among industrialized nations (OECD, 2010d).

Conclusion

As stated in the OECD report from PISA 2009, on average across OECD countries, 42 percent of the performance variation observed within countries lies between schools, of which 24 percentage points are attributable to differences in schools' socioeconomic intake (OECD, 2010d). Differences in the policies and practices applied by schools contribute to this portion of the overall variation in student performance. The remaining proportion of variance among OECD countries results from differences in the performance of individual students within schools.

Given the relatively small between-school variation among Canadian schools compared to the variation in other countries, it is not surprising that for many of the school factors mentioned in this chapter, the provincial differences are quite small and the proportion of the variance in student performance these factors explained is also quite limited. This does not mean, however, that a school cannot contribute positively to student learning. On the contrary, it could suggest that the high performance of Canadian students on PISA may be due to highly equitable school systems across the country.

The strongest factor distinguishing schools in terms of both characteristics and performance is the social, economic, and cultural status of the students and schools. However, the relative homogeneity of characteristics under the influence of school systems in Canada, as well as their small relationships to student performance, indicate that school systems in Canada are successful in moderating the effects of geographic disparity.

Compared to other OECD countries, according to Canadian students, teacher-student relations are among the most positive across provinces, and this factor accounts for a relatively high proportion of the variance in student performance in reading.

Canadian students also reported lower levels of classroom disciplinary problems (less interruption in classroom learning time), while Canadian principals perceived that student-related factors such as absenteeism or bullying were negatively affecting classes less than in the rest of the OECD countries.

Although Canadian students generally felt that their teachers were stimulating their reading engagement more than in other countries, interprovincial differences were observed in terms of both the value of the index and its relationship with reading performance.

Generally, Canadian principals felt that their school had less responsibility for allocating resources and for curriculum and assessment than in the other OECD countries. In the Canadian context, this is to be expected, since curricula tend to be developed by provinces and territories, and each province and territory is implementing its own student assessment programs, in addition to the Pan-Canadian Assessment Program (PCAP).⁷

Students' self-reported use of libraries in and out of schools varied across provinces, but at the Canadian level, it was very close to the OECD average in all aspects measured by PISA.

According to principals, Canadian schools are also characterized by offering more extracurricular activities and being less hindered by a lack of qualified teaching staff or lack of educational resources than in the other OECD countries.

⁷ See www.cmec.ca/pcap for further information.

Part 3

A Profile of Student Engagement in Reading, Attitudes, and Approaches to Learning



PISA reading performance is important as an outcome of learning until age 15. However, continued skill acquisition into and throughout adulthood is an equally important goal for the success of individuals and societies. PISA assesses several factors associated with how students develop reading skills. These factors become increasingly important as youth move beyond the formal environment of mandatory schooling and take a more active role in determining their individual learning trajectories.

Engagement in Reading

Literacy studies have found that exposure to print reading materials is important to literacy acquisition (Nagy, Herman, & Anderson, 1983; Stanovich & Cunningham, 1992; Stanovich, West, & Harrison, 1995; Stanovich, 2000). Reading is unique compared to other schooling domains. Unlike mathematics or science, explicit reading is typically regarded as a leisure activity, rather than a learning activity. Reading for enjoyment may more frequently indicate a greater interest and ability in reading, but it may also be the case that a greater ability and interest in reading precipitates greater frequency of reading (Stanovich, 2000). However, regardless of the reason for reading, greater engagement with reading activities should lead to higher levels of reading proficiency. PISA produces four measures that describe the likelihood that an individual will engage in reading activities: enjoyment of reading, time spent reading for enjoyment, diversity

of reading materials, and on-line reading activities. Each index is scaled such that the average for OECD countries is 0 for the first time the scale was constructed, with a standard deviation of 1.0.

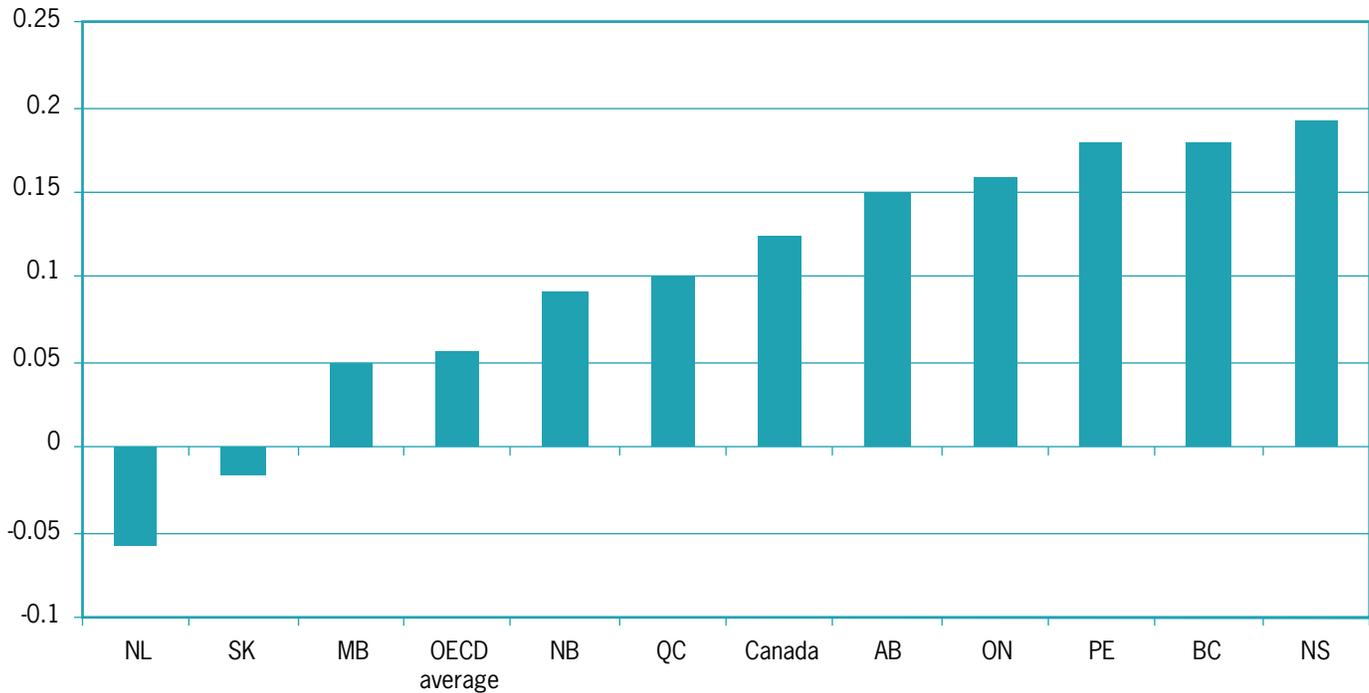
PISA 2009 calculated students' level of *enjoyment of reading* by asking the extent of their agreement with 11 statements. These statements were as follows: I read only if I have to, reading is one of my favourite hobbies, I like talking about books with other people, I find it hard to finish books, I feel happy if I receive a book as a present, for me reading is a waste of time, I enjoy going to a bookstore or a library, I read only to get information that I need, I cannot sit still and read for more than a few minutes, I like to express my opinions about books I have read, and I like to exchange books with my friends. All items that are negatively phrased are reverse-scored so that scores on this index indicate higher levels of reading for enjoyment.

As shown in Figure 3.1, the average across Canada is 0.13 on this index, and Canadian students read slightly more for enjoyment than the average OECD student. Prince Edward Island, Nova Scotia, Ontario, Alberta, and British Columbia have even higher averages, suggesting that students in those provinces likely enjoy reading more than do their peers in other provinces and countries. New Brunswick and Quebec are below the national average but still above the OECD average. Students in Newfoundland and Labrador, Saskatchewan, and Manitoba have average index scores that are below the Canadian average, as

well as being just slightly below the OECD average. In all provinces, females report greater levels enjoyment of reading than males (see Table A.3.1 in the Appendix).

The differences between males and females, ranging from 0.70 in Manitoba to 1.06 in Prince Edward Island, are much larger than interprovincial differences.

Figure 3.1 Mean Score on the Index of Enjoyment of Reading, Canada, the OECD Average, and the Provinces

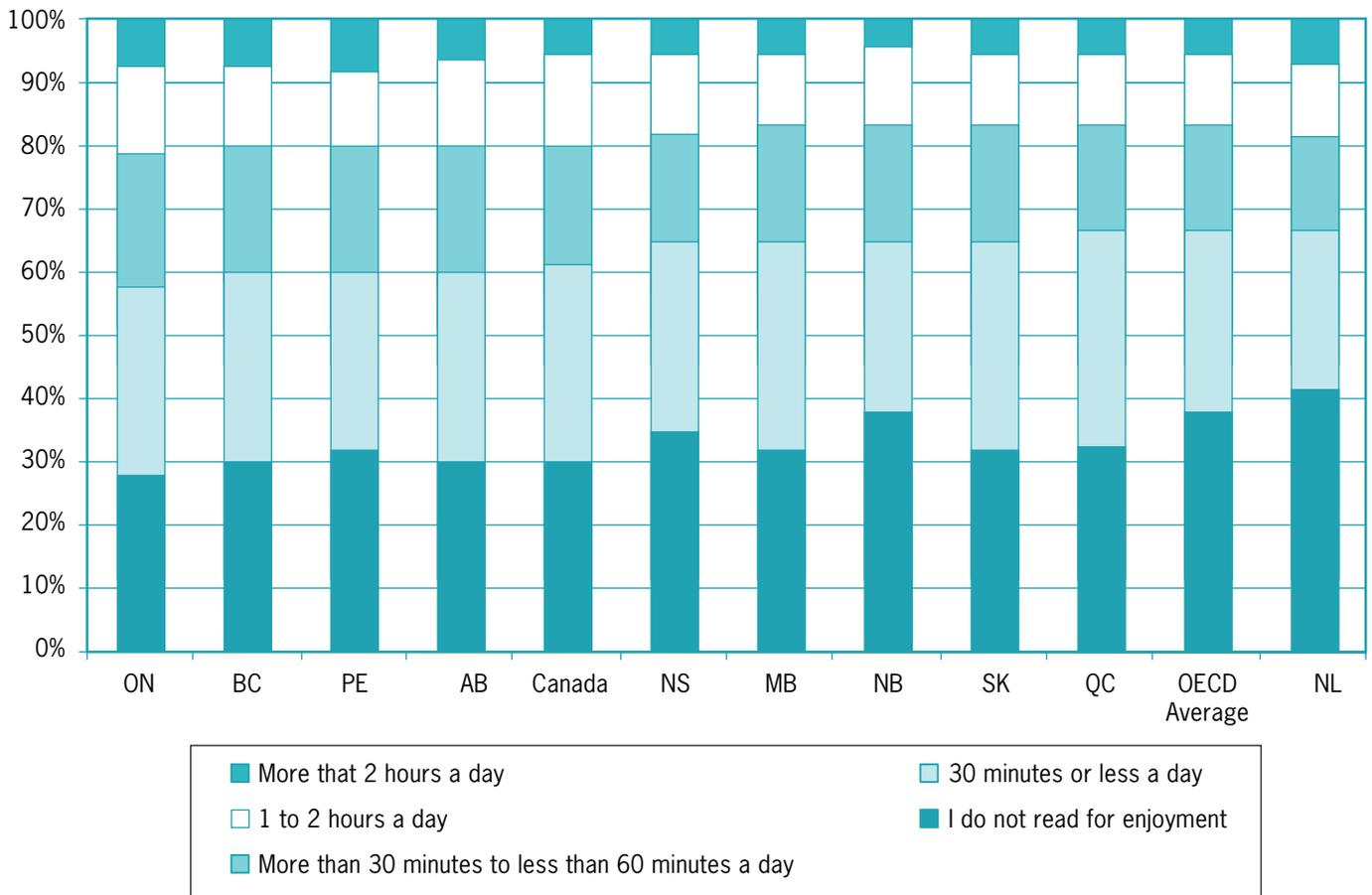


There is a strong and consistent association between PISA reading performance and enjoyment of reading (see Table A.3.1 in the Appendix). Enjoyment of reading explains 20 percent of the variation in reading performance in Canada, from a low of 17 percent in Quebec to a high of 29 percent in Prince Edward Island. Each unit increase in the index for reading enjoyment corresponds to an increase in the reading score of the average Canadian student of about 36 points. The effect in Quebec is about 5 points below that of the Canadian average, while the effect in all provinces is not significantly different from the Canadian average. Although there is interprovincial variation in both enjoyment of reading and reading proficiency, there is no significant relationship between average enjoyment of reading and average reading proficiency at the provincial level.

Students were also asked how much time they spent reading for enjoyment. Students had responded using the following options: “I do not read for

enjoyment,” “30 minutes or less a day,” “more than 30 minutes to less than 60 minutes a day,” “1 to 2 hours a day,” and “more than 2 hours a day.” Figure 3.2 shows that, on average across Canada, 31 percent of 15-year-olds say they never read for enjoyment and about the same proportion said they read 30 minutes or less a day, while 19 percent read between 30 minutes and 1 hour each day, 13 percent read 1 to 2 hours a day, and only 6 percent read more than 2 hours a day. Thus, despite the fact that reading for enjoyment seems to be higher in Canada relative to other countries, almost two-thirds (62 percent) of students in Canada read for enjoyment less than 30 minutes a day. Compared to the Canadian average, a higher proportion of students in Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Manitoba, and Saskatchewan read for enjoyment less than 30 minutes a day. In contrast, a higher proportion of students in Ontario read for enjoyment more than 30 minutes a day than the Canadian average.

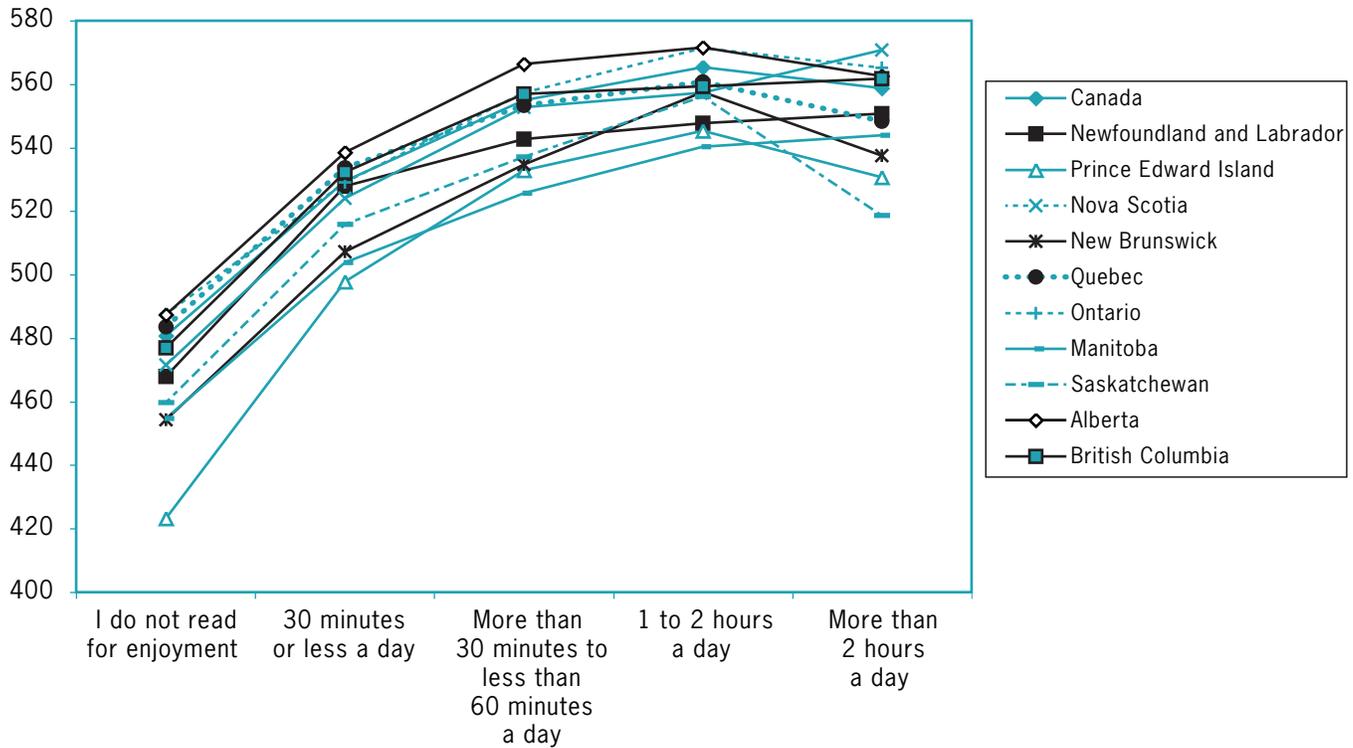
Figure 3.2 Distribution of 15-Year-Olds by Time Spent Reading for Enjoyment (Canada, the OECD Average, and the Provinces)



Note: Jurisdictions are shown in ascending order by the proportion of students who read less than 30 minutes a day.

The frequency of reading for enjoyment also has a strong relationship with reading performance. On average in Canada, students had a mean reading score of 481 if they did not read at all for enjoyment, climbing to a high of 565 if they read for enjoyment 1 to 2 hours a day. Reading for enjoyment more than 2 hours a day was associated with lower reading performance than reading for 1 to 2 hours. This pattern, illustrated in Figure 3.3, is also observed in six provinces, including Prince Edward Island, New Brunswick, Ontario, Quebec, Saskatchewan, and Alberta. In Saskatchewan, the decline in reading score

drops the most between 1 to 2 hours a day and more than 2 hours a day (i.e., from 556 to 519, a drop of 37 points). This pattern of decreasing PISA score for students reading more than 2 hours is also prevalent in the majority of OECD countries. This may suggest that the returns on the time students spend reading for enjoyment decrease as time invested by students increases or, alternatively, that poor readers need more time to read a text. However, the types of materials that students read, as well as their levels of complexity, are also relevant.

Figure 3.3 Performance on the Combined Reading Scale by Time Spent on Reading for Enjoyment, PISA 2009

Students were asked to indicate how often they chose to read several different types of reading materials. They could report frequencies from “never or almost never” to “several times a week” for the following types of reading materials: magazines, comic books, fiction books, nonfiction books, and newspapers. Items were organized so that positive scores on this index indicate greater diversity in type of reading material. The average across Canada is -0.11 (Table 3.1), indicating that the reading activities of Canadian 15-year-olds are slightly less diverse than those of an average 15-year-old from other OECD countries. All provinces except British Columbia also had a mean value of less than 0, with lower averages in Newfoundland and Labrador (-0.58), Quebec (-0.22), and New Brunswick (-0.21).

In every province, increasing diversity of reading tends to be associated with higher reading performance. The index of diversity of reading explains the most variance in Prince Edward Island (at 9.8 percent) and the least in Quebec (at 2.9 percent); across Canada, the proportion is 4.3 percent. Despite this consistent effect, diversity of reading has a much weaker relationship with reading performance than enjoyment of reading. Similar to time spent reading, while diversity of reading material may be a significant contributor to the development of reading proficiency, it appears to be much less important for

Table 3.1 Mean Score on the Index of Diversity in Reading and Proportion of Variation in Reading Performance Explained by the Index (Canada and the Provinces)

	Index of diversity in reading		Proportion of variance in student performance explained by the index	
	Mean index score	Standard error	%	Standard error
Canada	-0.11	(0.01)	4.3	(0.4)
NL	-0.58	(0.04)	5.9	(1.9)
PE	-0.08	(0.03)	9.8	(1.5)
NS	-0.18	(0.03)	7.4	(1.8)
NB	-0.21	(0.03)	6.0	(1.2)
QC	-0.22	(0.02)	2.9	(0.7)
ON	-0.07	(0.03)	4.0	(0.9)
MB	-0.11	(0.03)	6.8	(2.0)
SK	-0.08	(0.03)	3.1	(1.2)
AB	-0.09	(0.02)	4.8	(1.0)
BC	0.01	(0.03)	5.2	(1.1)

reading achievement than the interest and engagement of students with reading, regardless of type of reading activity.

One reading activity that has shown rapidly increasing popularity in recent years is reading on-line, particularly among youth. Computer access is nearly universal in Canada, with 97 percent of 15-year-olds reporting that they used the Internet at home (see Table 3.2), ranging from 94 percent in Manitoba to 98 percent in British Columbia, Newfoundland and Labrador, and Ontario. At the same time, however, not all Internet use is devoted to reading. PISA 2009 examined on-line reading activity by asking students how frequently they engaged in the following seven activities: reading e-mails, chatting on-line, reading on-line news, using an on-line dictionary or encyclopedia, searching on-line information to learn about a particular topic, taking part in on-line group discussions or forums, and searching on-line for practical information such as schedules, events, tips, and recipes.

Table 3.2 Proportion of 15-Year-Old Students with Internet Access at Home (Canada and the Provinces)

	Proportion of 15-year-olds with internet access at home	
	%	Standard error
Canada	97.1%	(0.20)
NL	97.8%	(0.49)
PE	95.7%	(0.51)
NS	96.4%	(0.51)
NB	96.2%	(0.44)
QC	96.3%	(0.36)
ON	97.9%	(0.34)
MB	93.6%	(1.04)
SK	95.9%	(0.52)
AB	96.4%	(0.90)
BC	98.1%	(0.51)

Across Canada, the mean on this index is approximately the same as the OECD average (see Table A.3.4), suggesting that the average student in Canada reads on-line about the same amount as the average OECD student. On-line reading was substantially greater in Ontario than in the other provinces, with an average of 0.12. In contrast, the on-line reading activities of students in a few provinces were much lower, with averages of

-0.19, -0.27, and -0.33 in Prince Edward Island, Quebec, and Saskatchewan, respectively. Although Internet access is nearly universal in all provinces, lower frequency of on-line reading may be associated with the cultural relevance of on-line activities, and provinces with greater Internet access, such as Newfoundland and Labrador and British Columbia — even if only by a single percentage point — had significantly higher frequencies of on-line reading.

Only about 2.2 percent of the variance in reading proficiency in Canada is explained by on-line reading. This is much lower than the explained variance observed for the enjoyment of reading (20.1 percent), and even the index of diversity in reading (4.3 percent). Across provinces, the proportion of variance ranged from 0.8 percent in Saskatchewan to 3.9 percent in Prince Edward Island.

Approaches to Learning

The ways students learn may have a substantial impact on their ability to comprehend, retain, and integrate new material and may also be influenced by their ability to engage in the processes of learning or their ability to “learn how to learn.” PISA explored two types of approaches to learning: learning strategies and metacognition strategies.

Learning strategies are typically classified as “surface learning” (which is characterized by the reproduction of knowledge) or “deep learning” (which is characterized by the construction of personal meaning). PISA 2009 sought to understand students’ five different approaches to learning, which are separated into two main areas: learning strategies and metacognition strategies. Learning strategies include memorization, elaboration, and control. In addition, PISA 2009 focused on metacognitive strategies for learning. Metacognitive strategies include understanding and remembering material and summarizing learning goals specific to learning. The indices describing these five approaches to learning are robust across different countries and languages (Marsh, Hau, Artelt, Baumert, & Peschar, 2006). For each index, the OECD average is 0, with a standard deviation of 1. Positive scores represent greater use of, or efficacy with, each strategy.

To measure learning strategies, students are asked questions about the frequency with which they use different strategies, similar to the reading engagement indices. The items used to measure memorization, elaboration, and control strategies are presented in Box 3.1.

Box 3.1 How PISA 2009 Assesses Students' Use of Learning Strategies

MEMORIZATION STRATEGIES

Memorization strategies refer to the memorization of texts and contents in all their details and repeated reading.

Items included in the index of memorization strategies:

- When I study, I try to memorize everything that is covered in the text.
- When I study, I try to memorize as many details as possible.
- When I study, I read the text so many times that I can recite it.
- When I study, I read the text over and over again.

ELABORATION STRATEGIES

Elaboration strategies refer to the transfer of new information to prior knowledge, out-of-school context, and personal experiences.

Items included in the index of elaboration strategies:

- When I study, I try to relate new information to prior knowledge acquired in other subjects.
- When I study, I figure out how the information might be useful outside school.
- When I study, I try to understand the material better by relating it to my own experiences.
- When I study, I figure out how the text information fits in with what happens in real life.

CONTROL STRATEGIES

Control strategies refer to the formulation of control questions about the purpose of a task or a text and its main concepts. They also include self-supervision of current study activities, particularly relating to whether the reading material was understood.

Items included in the index of control strategies:

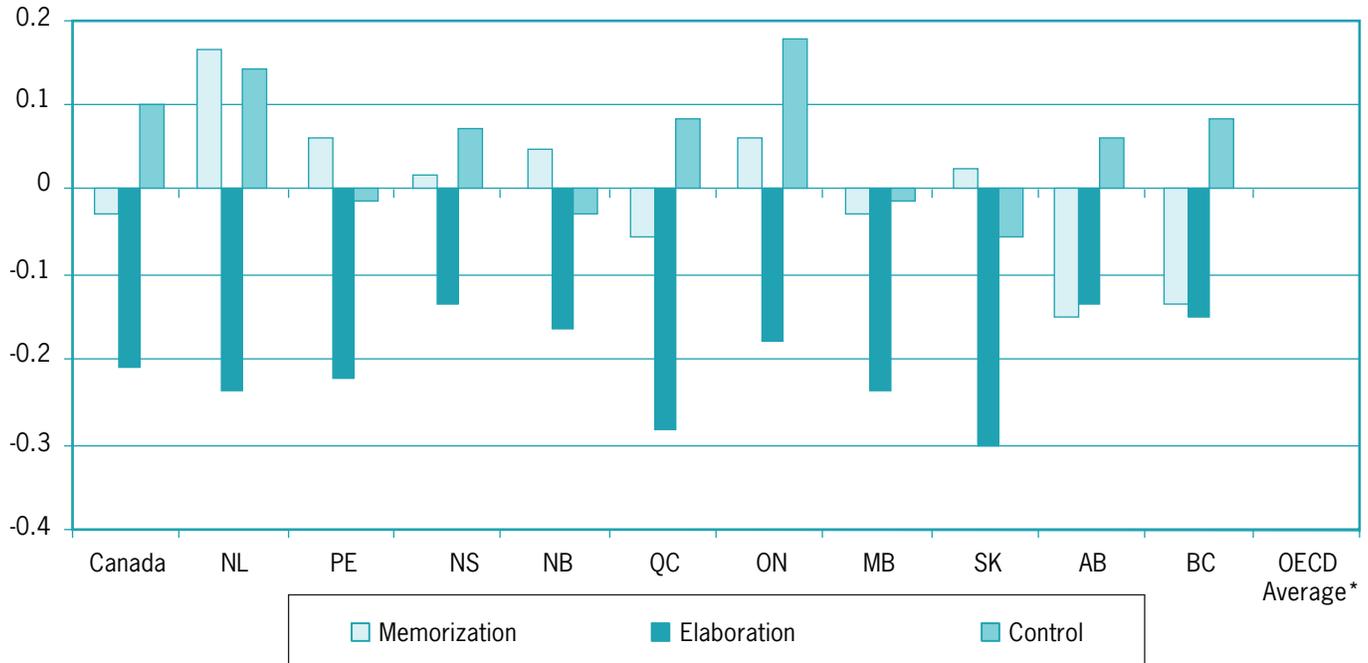
- When I study, I start by figuring out what exactly I need to learn.
- When I study, I check if I understand what I have read.
- When I study, I try to figure out which concepts I still haven't really understood.
- When I study, I make sure that I remember the most important points in the text.
- When I study and I don't understand something, I look for additional information to clarify this.

As shown in Box 3.1, the Memorization Strategies Index measures the extent to which students try to memorize material, memorize new material in order to be able to recite it, and practise by reading the material over and over again. The Elaboration Strategies Index measures whether students try to understand the material better by relating it to things they already know, whether they try to relate new material to things learned in other subjects, or whether they try to determine how the information might be useful in the real world. The Control Strategies Index defines control strategies as the plans students say they use to ensure that they reach their learning goals. These involve determining what one has already learned and working out what one still needs to learn. The Control Strategies Index measures whether students know which concepts they have not understood from their reading, whether they check that they have remembered the most important points from the text

they have read, and whether they look for additional information to clarify what they do not understand.

Figure 3.4 shows the mean score for Canada and the provinces on each of the learning strategy indices. For memorization strategies, although the Canadian average, at -0.02, was approximately the same as the OECD average, some provinces were substantially different in this area. The average scores of Alberta and British Columbia (-0.15 and -0.14, respectively) indicated that students in these provinces were somewhat less likely to use memorization than other students in Canada and the OECD. In contrast, students in Newfoundland and Labrador, with an average of 0.16 on this index, were more likely to use memorization strategies. This was also true, to a lesser extent, in Ontario and Prince Edward Island. In all provinces, females made much greater use of memorization than did males (see Table A.3.5).

Figure 3.4 Mean Index Score on Students' Use of Various Learning Strategies (Canada, the OECD, and the Provinces)



*Note: The OECD average is zero.

However, use of memorization was not a driving factor for the gender difference in reading performance. The use of memorization appears to have had little to no association with PISA 2009 reading proficiency, accounting for less than 1 percent of the variation in reading performance in most provinces, with the exception of Saskatchewan (1.2 percent) and Prince Edward Island (2.6 percent). The largest effect was in Prince Edward Island, where a unit increase in this index was associated with an increase of 13 points on the PISA reading scale (see Table A.3.5).

For the Elaboration Strategies Index, in all the provinces, the average was below 0 (Figure 3.4), suggesting that Canadian students did not use elaboration strategies as regularly as did other students in the OECD. Within Canada, there was also substantial variation across provinces, with students in Saskatchewan and Quebec using elaboration strategies even less frequently than students in the rest of the country. In contrast, students in Nova Scotia, Alberta, and British Columbia used these strategies considerably more than the national average. In most provinces, males made more frequent use of elaboration strategies than females. The gender difference ranged from -0.05 in New Brunswick to 0.16 in Quebec.

The association between elaboration strategies and reading scores tended to be positive, but the effects were inconsequential in all provinces. Across Canada, the use of elaboration strategies accounted for 0.1 percent of the variation in reading proficiency and less than 1 percent in each of the provinces (see Table A.3.6).

For the Control Strategies Index, the Canadian average (0.10) suggests that Canadian students tended to use control strategies slightly more than other OECD students did, on average. Students in Prince Edward Island, New Brunswick, Manitoba, and Saskatchewan tended to use control strategies less frequently than the Canadian average, while students in Newfoundland and Labrador and Ontario tended to use control strategies more frequently. In all provinces, females made much more use of control strategies than males did, with the gender difference ranging from 0.28 in British Columbia to 0.59 in Prince Edward Island.

Control strategies are linked to self-regulated learning, and they are more strongly associated with reading proficiency than either memorization or elaboration. Across Canada, a unit increase in this index corresponded to an increase of about 26 points in PISA 2009 reading proficiency. This effect size was consistent

across provinces, accounting for about 10 percent of the variation in reading proficiency across Canada. In addition, the explanatory power of control strategies with respect to reading proficiency in Canada was approximately 50 to 100 times the power of memorization and elaboration strategies, respectively (see Table A.3.7).

As well as assessing the use of learning strategies, PISA measured students' awareness of the use of two metacognition strategies (Box 3.2): (1) awareness of the most effective strategies for understanding and remembering information and (2) awareness of the most effective strategies for summarizing information.

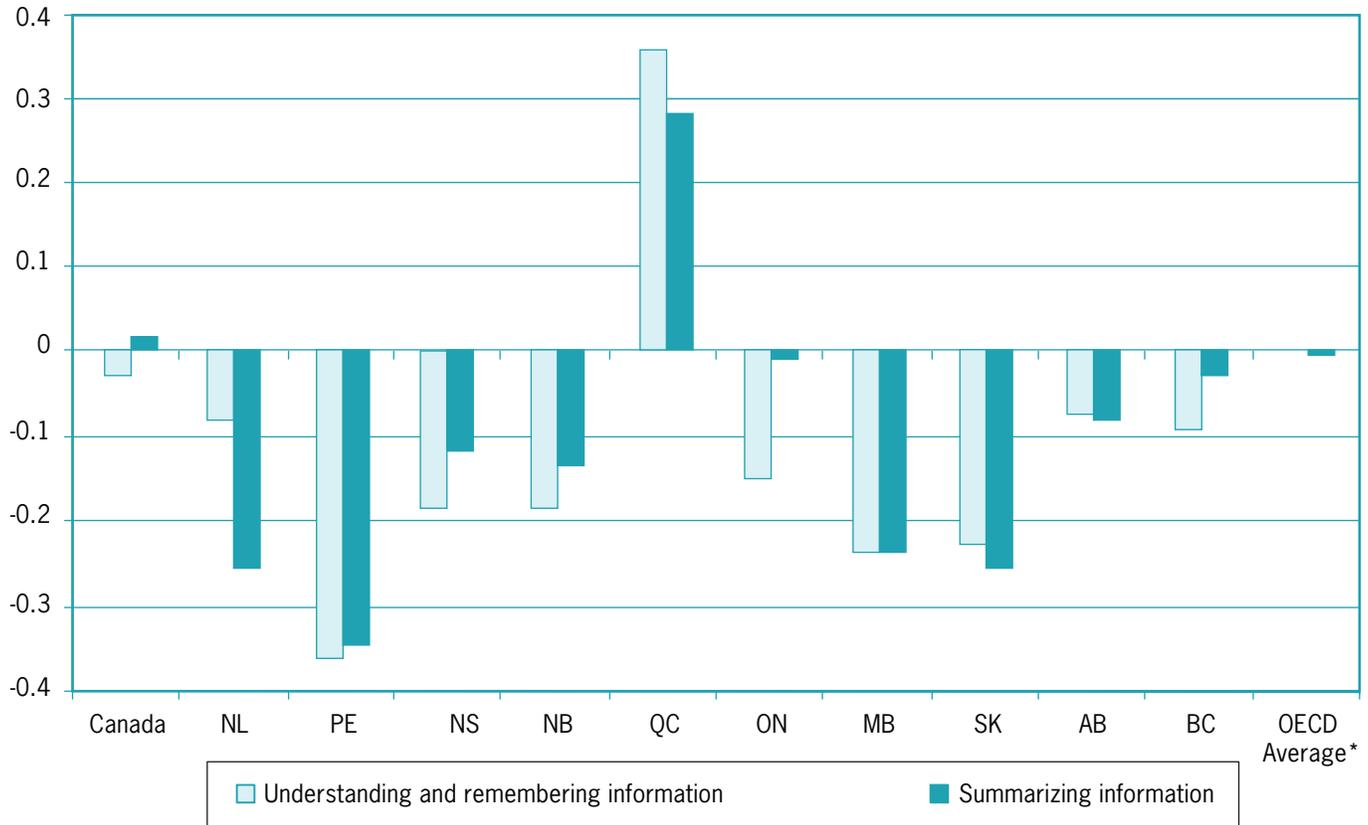
The index measuring metacognitive strategies for *understanding and remembering* text was based on how students rate the relative usefulness of the following strategies: (1) I concentrate on the parts of the text that are easy to understand, (2) I quickly read through the text twice, (3) After reading the text, I discuss its content with

others, (4) I underline important parts of the text, (5) I summarize the text in my own words, and (6) I read the text aloud to another person. The Canadian average was -0.03, which was similar to the OECD average (see Table A.3.8). However, this national average hid wide variation between provinces. Most provinces were at or below the Canadian average, with the lowest averages being in Prince Edward Island (-0.36), Manitoba (-0.24), and Saskatchewan (-0.23). The notable exception was Quebec, which had an average of 0.36. These results suggest that, while students in most Canadian provinces may use less effective approaches to understanding and remembering text than other students in the OECD, students in Quebec are clearly advanced in their understanding of appropriate metacognition for this task. Females are also consistently more aware of the effectiveness of metacognitive strategies for this task than males, with gender differences ranging from one-quarter to more than one-third of a standard deviation on the OECD scale in all provinces.

Box 3.2

Metacognition is commonly described as “thinking about thinking.” In educational psychology, it refers to the strategies individuals use to self-regulate their cognitive learning processes. Unlike the assessment of studying strategies, the assessment of metacognition strategies in PISA 2009 focuses on students' awareness of the relative usefulness, rather than the frequency of use, of different information-processing strategies. The reason for the different approach is related to the nature of self-regulated learning (Schneider, 2010). Metacognition is not an activity in which students explicitly engage. Rather, they employ metacognitive strategies internally while pursuing other learning goals. Being aware of the usefulness of different metacognitive strategies helps students efficiently manage their cognitive resources while learning.

PISA 2009 compared students' ranking of the usefulness of different learning strategies to “optimal” rankings determined by experts in cognitive processing. Greater agreement with the expert rankings resulted in higher scores on the indices. Although the method of calculating the indices for metacognitive strategies is different than for studying other learning strategy indices, the values are interpreted in a similar way. Higher values on these indices indicate greater likelihood that students will efficiently self-regulate their own learning.

Figure 3.5 Mean Index Score on Students' Awareness of Various Metacognition Strategies (Canada, the OECD, and the Provinces)


*Note: The OECD average is zero.

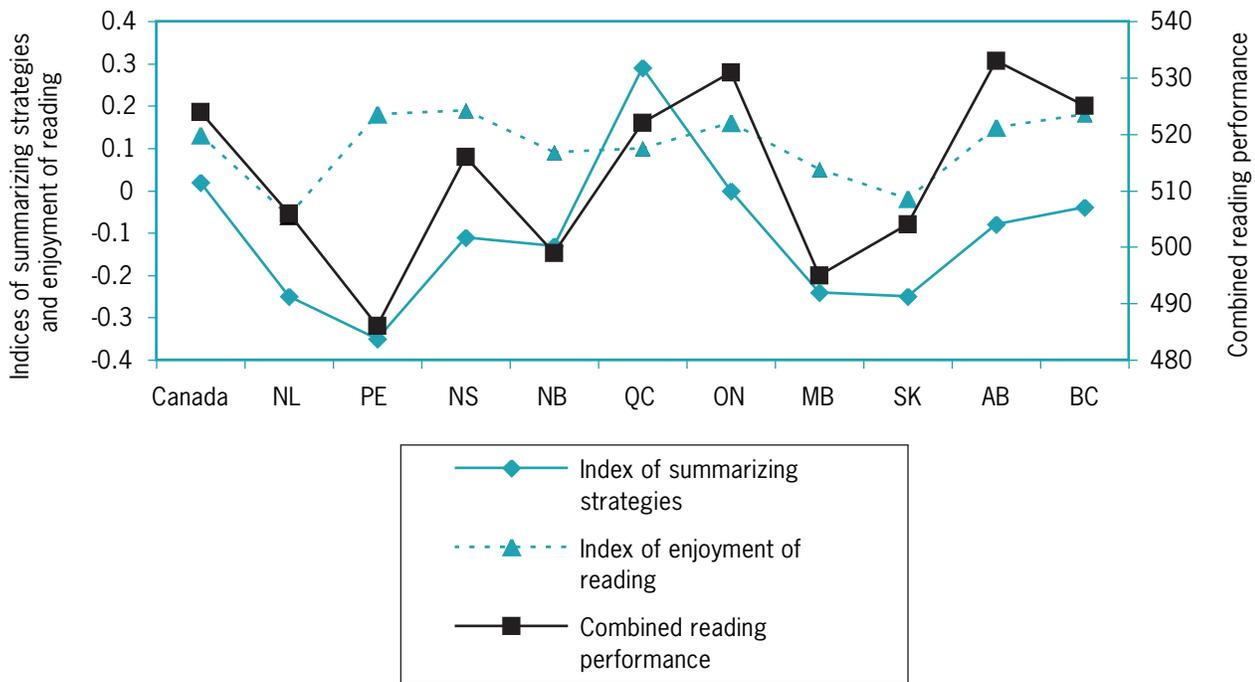
Consistent with previous research, higher scores on the *understanding and remembering* index were positively associated with reading proficiency. Across Canada, a unit increase on this index was associated with an increase in student reading proficiency of about 27 points, accounting for 9.4 percent of the variation in reading proficiency. This pattern of association was consistent across all provinces, explaining the least variation in Newfoundland and Labrador (at 7.9 percent) and the greatest variation in Prince Edward Island (at 12.6 percent).

The second index, used to evaluate awareness of metacognitive strategies for *summarizing* text, was based on students' responses to the following reading task: "You have just read a long and rather difficult two-page text about fluctuations in the water level of a lake in Africa. You have to write a summary. How do you rate the usefulness of the following strategies for writing a summary of this two-page text?" Students were asked to rate the usefulness of the following five strategies: (1) I write a summary. Then I check that each paragraph is covered in the summary, because the content of each paragraph should be included; (2) I try to copy out accurately as many sentences as

possible; (3) Before writing the summary, I read the text as many times as possible; (4) I carefully check whether the most important facts in the text are represented in the summary; and (5) I read through the text, underlining the most important sentences. Then I write them in my own words as a summary.

The pattern of results for the *summarizing* index was similar to that of the *index* for *understanding and remembering* text. Across Canada, the average was 0.02 (which is slightly higher than the average for the OECD), but the majority of provinces were at or substantially below the OECD average (see Table A.3.9). Only Quebec (0.29) and Ontario (0) had an average score on this index that was at or higher than the OECD average. In British Columbia, the average was similar to the OECD average. In all other provinces, the average score was lower. The averages in Manitoba, Newfoundland and Labrador, Prince Edward Island, and Saskatchewan were all less than -0.24 — more than half a standard deviation below that of Quebec. The female advantage on this index was also much larger than for other indices — approximately one-third to one-half of a standard deviation on the OECD scale in all provinces.

Figure 3.6 Relationship between Enjoyment of Reading, Summarizing Strategies, and PISA Combined Reading Performance for Canada and the Provinces, PISA 2009



Note: Provinces are ordered from east to west.

Awareness of metacognitive strategies for *summarizing* has a strong and positive association with reading proficiency. Across Canada, this index explained almost 16 percent of the variance in reading scores. The explanatory power of this index varied substantially across provinces, ranging from 11 percent in Quebec to 21 percent in British Columbia. However, much of this variation appears to have resulted from the restriction of range; provinces with higher averages also tended to have lower variation in scores, which artificially reduced the observed proportion of explained variation (Spearman, 1904). In all provinces, the effect of a unit increase on this index was associated

with an increase in reading proficiency of around 35 points on the PISA reading scale. Figure 3.6 illustrates the relationships between enjoyment of reading, summarizing strategies, and reading performance at the provincial level. Although, at the individual level, both enjoyment of reading and summarizing strategies have relatively strong relationships with reading performance, at the provincial level, the relationship is much stronger for summarizing strategies. The comparison is similar for the *understanding and remembering* index, suggesting that metacognition may be more related to systemic interprovincial differences than other student approaches to reading.

Conclusion

Measurement of reading proficiency describes success in learning up to age 15. However, future development of reading proficiency is predicted by the attitudes, behaviours, and strategies of students who are able to learn how to learn and who continue to learn throughout their lives. PISA 2009 assesses student engagement with reading through student enjoyment of reading, frequency of reading for enjoyment, diversity of reading materials, and on-line reading. Engagement with reading is an important determiner of the development of reading proficiency because it increases exposure to print materials. Independently of the frequency of reading, the effectiveness of reading activity as a means of acquiring and retaining information is moderated by the learning strategies of students.

Compared to students in other OECD countries, Canadian students have above-average enjoyment of reading. Although there is some variation between provinces in enjoyment of reading, these differences are unrelated to provincial differences in reading proficiency. Enjoyment of reading does have a strong association with proficiency for individual students, but no patterns exist at the interprovincial level.

Time spent reading for enjoyment is also positively associated with reading proficiency, but, consistent with findings from previous PISA studies in Canada, there is no advantage to reading beyond 2 hours per day. Rather, the average proficiency of students who read more than 2 hours per day is lower than that of students who read 1 to 2 hours per day, suggesting that excessive time spent reading may be more a function of lower levels of reading proficiency than interest or engagement with reading.

Reading different types of materials, including on-line text, is positively associated with reading proficiency, but the extent of student enjoyment of reading is not positively associated with reading proficiency. This weaker association may explain why Canada has

consistently high international ranking in average reading proficiency, despite being average or even lower than average on indices associated with the diversity of texts students read.

Learning strategies related to memorization and elaboration have little to no relationship with reading proficiency. However, substantial gender differences exist, with females heavily favouring memorization strategies and males tending to favour elaboration strategies.

In contrast, control strategies, which students use to determine their learning needs and monitor their understanding of texts as they read, have a stronger association with reading proficiency. Canadian students tend to use control strategies slightly more than other students in the OECD, and provinces with greater use of control strategies also tended to have higher average reading proficiency.

The stronger association between control strategies and proficiency may be a result of the similarity between control, or self-regulated learning strategies, and metacognition. Awareness of effective metacognitive strategies for *understanding and memorizing*, as well as *summarizing*, text both had very strong associations with reading. In addition, interprovincial differences in awareness of effective metacognitive strategies reflect interprovincial differences in average proficiency.

Although enjoyment of reading has the strongest association with reading proficiency, its somewhat random pattern of association with interprovincial differences suggests that this factor is relatively insensitive to systemic differences between education systems in Canada. In contrast, metacognitive strategies have strong associations with reading proficiency and interprovincial patterns of variation associated with reading proficiency. Of particular interest are students in Quebec, who show very high awareness of metacognitive strategies.

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Appendix



Table A.1.1 Differences in Student Performance in Reading by Immigrant Status

	Percentage of Students by Immigrant Status				Performance on the reading scale				Difference in the reading score									
	Native students		Second-generation students		First-generation students		Native students		Second-generation students		First-generation students		Second-generation students minus native students					
	Percentage of Students	Standard error	Percentage of Students	Standard error	Percentage of Students	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Difference	Standard error				
Canada	75.6	(1.3)	13.7	(0.8)	10.7	(0.7)	528	(1.5)	522	(3.6)	520	(4.6)	-5	(3.8)	-8	(4.7)	-3	(4.4)
Newfoundland and Labrador	99.3	(0.3)	0.2	(0.1)	0.6	(0.3)	508	(3.7)	495	(36.0)	523	(40.4)	-13	(36.0)	15	(40.7)	29	(52.9)
Prince Edward Island	96.2	(0.5)	1.2	(0.3)	2.6	(0.4)	489	(2.5)	528	(22.0)	477	(14.6)	38	(22.6)	-13	(14.8)	-51	(27.0)
Nova Scotia	95.3	(0.7)	1.9	(0.4)	2.7	(0.5)	517	(2.8)	531	(22.5)	525	(18.8)	13	(22.6)	8	(19.5)	-6	(31.1)
New Brunswick	96.3	(0.6)	1.2	(0.3)	2.6	(0.6)	500	(2.5)	496	(24.7)	506	(28.3)	-4	(24.8)	6	(28.6)	11	(38.0)
Quebec	85.1	(2.0)	8.7	(1.2)	6.2	(0.9)	530	(2.9)	502	(9.7)	478	(12.1)	-28	(10.0)	-52	(12.2)	-24	(14.0)
Ontario	67.3	(2.7)	19.1	(1.7)	13.6	(1.5)	536	(3.2)	524	(5.6)	529	(6.8)	-12	(6.0)	-6	(7.3)	6	(6.4)
Manitoba	80.1	(1.4)	8.8	(0.9)	11.2	(1.4)	502	(3.1)	488	(8.3)	475	(15.0)	-14	(8.3)	-27	(14.7)	-13	(17.0)
Saskatchewan	94.0	(0.7)	2.5	(0.4)	3.5	(0.5)	506	(3.5)	520	(15.5)	499	(15.2)	15	(16.3)	-7	(15.2)	-22	(22.9)
Alberta	78.7	(2.0)	10.8	(1.2)	10.5	(1.1)	532	(4.6)	551	(9.7)	534	(11.4)	19	(9.0)	2	(11.8)	-17	(12.2)
British Columbia	65.3	(2.7)	18.6	(1.9)	16.1	(1.7)	527	(4.7)	526	(6.6)	524	(7.6)	-1	(7.2)	-2	(7.6)	-1	(9.2)

Table A.1.2 Differences in Student Performance by Highest Level of Parental Education Attainment

	Parents with high school or below						Parents with post-secondary education						Difference in scores: Parents with high school or less - parents with post-secondary education					
	Percentage of students			Performance			Percentage of students			Performance			Difference			Performance		
				Reading	Mathematics	Science				Reading	Mathematics	Science						
	Mean score	Standard error	Standard error	Mean score	Standard error	Standard error	Mean score	Standard error	Standard error	Mean score	Standard error	Standard error	Difference	Standard error	Standard error	Difference		
Standard error	Mean score	Standard error	Mean score	Standard error	Standard error	Mean score	Standard error	Standard error	Mean score	Standard error	Standard error	Difference	Standard error	Standard error	Difference			
Canada	28.0 (0.7)	504 (2.2)	505 (2.3)	509 (2.4)	509 (2.4)	509 (2.4)	72.0 (0.7)	534 (1.6)	537 (1.7)	539 (1.6)	539 (1.6)	-31 (2.6)	-32 (2.5)	-30 (2.5)	-31 (2.6)	-32 (2.5)	-30 (2.5)	
Newfoundland and Labrador	37.0 (2.0)	490 (5.8)	491 (4.2)	502 (5.1)	502 (5.1)	502 (5.1)	63.0 (2.0)	518 (4.0)	511 (3.5)	530 (3.6)	530 (3.6)	-28 (6.7)	-21 (5.3)	-28 (6.2)	-28 (6.7)	-21 (5.3)	-28 (6.2)	
Prince Edward Island	29.0 (1.1)	468 (4.7)	470 (4.3)	477 (4.7)	477 (4.7)	477 (4.7)	71.0 (1.1)	494 (3.0)	496 (2.8)	503 (3.0)	503 (3.0)	-26 (5.9)	-25 (5.3)	-27 (5.9)	-26 (5.9)	-25 (5.3)	-27 (5.9)	
Nova Scotia	32.0 (1.4)	505 (4.7)	499 (4.5)	511 (5.3)	511 (5.3)	511 (5.3)	68.0 (1.4)	523 (3.1)	520 (2.9)	531 (3.0)	531 (3.0)	-18 (5.6)	-21 (5.6)	-20 (6.2)	-18 (5.6)	-21 (5.6)	-20 (6.2)	
New Brunswick	34.0 (1.4)	480 (4.3)	481 (4.5)	483 (4.1)	483 (4.1)	483 (4.1)	66.0 (1.4)	509 (3.2)	516 (3.0)	511 (3.2)	511 (3.2)	-29 (5.6)	-35 (5.9)	-27 (5.5)	-29 (5.6)	-35 (5.9)	-27 (5.5)	
Quebec	31.0 (1.0)	500 (5.1)	514 (5.1)	502 (5.2)	502 (5.2)	502 (5.2)	69.0 (1.0)	533 (2.9)	558 (3.3)	536 (2.9)	536 (2.9)	-33 (5.2)	-44 (4.9)	-35 (5.1)	-33 (5.2)	-44 (4.9)	-35 (5.1)	
Ontario	24.0 (1.4)	508 (4.8)	503 (5.2)	508 (4.8)	508 (4.8)	508 (4.8)	76.0 (1.4)	540 (3.2)	535 (3.3)	541 (3.4)	541 (3.4)	-33 (5.7)	-32 (5.8)	-33 (5.3)	-33 (5.7)	-32 (5.8)	-33 (5.3)	
Manitoba	37.0 (1.1)	479 (5.7)	486 (5.9)	492 (6.5)	492 (6.5)	492 (6.5)	63.0 (1.1)	507 (3.9)	512 (3.8)	516 (4.1)	516 (4.1)	-28 (6.1)	-26 (6.1)	-25 (6.9)	-28 (6.1)	-26 (6.1)	-25 (6.9)	
Saskatchewan	39.0 (1.2)	493 (5.3)	495 (5.3)	501 (5.3)	501 (5.3)	501 (5.3)	61.0 (1.2)	513 (3.2)	515 (3.2)	523 (3.7)	523 (3.7)	-21 (5.3)	-20 (5.5)	-22 (5.5)	-21 (5.3)	-20 (5.5)	-22 (5.5)	
Alberta	28.0 (1.6)	517 (4.5)	514 (4.3)	532 (4.6)	532 (4.6)	532 (4.6)	72.0 (1.6)	541 (5.3)	536 (5.1)	551 (4.9)	551 (4.9)	-24 (5.0)	-22 (5.0)	-20 (5.3)	-24 (5.0)	-22 (5.0)	-20 (5.3)	
British Columbia	29.0 (1.4)	509 (4.7)	508 (4.8)	520 (5.0)	520 (5.0)	520 (5.0)	71.0 (1.4)	532 (4.7)	531 (5.0)	542 (4.6)	542 (4.6)	-23 (5.0)	-22 (4.9)	-21 (5.6)	-23 (5.0)	-22 (4.9)	-21 (5.6)	

Table A.1.3 Index of Parental Occupation Status, by National/Provincial Quarters of the Index

	Index of parental occupation status					Performance on the reading scale, by national/provincial quarters of this index					Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Standard error	Mean score	Standard error		Effect
		Mean index	Standard error	Mean index	Standard error									
Canada	53.0 (0.2)	32.0 (0.1)	48.0 (0.1)	60.0 (0.1)	73.0 (0.1)	500 (2.3)	516 (1.6)	540 (1.9)	557 (2.4)	1.39 (0.1)	6.5 (0.6)			
Newfoundland and Labrador	50.0 (0.4)	29.0 (0.3)	44.0 (0.2)	55.0 (0.2)	71.0 (0.4)	479 (5.8)	514 (6.5)	503 (7.1)	542 (7.5)	1.32 (0.2)	5.7 (2.0)			
Prince Edward Island	51.0 (0.4)	31.0 (0.4)	45.0 (0.2)	56.0 (0.2)	73.0 (0.4)	461 (5.3)	485 (5.0)	495 (5.6)	525 (5.0)	1.57 (0.2)	7.1 (1.4)			
Nova Scotia	52.0 (0.5)	32.0 (0.3)	47.0 (0.2)	58.0 (0.2)	73.0 (0.4)	492 (5.1)	511 (5.0)	520 (5.1)	551 (5.6)	1.36 (0.2)	6.0 (1.5)			
New Brunswick	51.0 (0.5)	30.0 (0.3)	46.0 (0.2)	55.0 (0.2)	72.0 (0.5)	472 (3.9)	498 (5.7)	506 (4.9)	530 (4.7)	1.44 (0.1)	6.3 (1.3)			
Quebec	54.0 (0.4)	33.0 (0.3)	49.0 (0.2)	61.0 (0.2)	73.0 (0.3)	495 (4.8)	519 (3.9)	538 (3.8)	549 (4.3)	1.36 (0.1)	6.3 (1.2)			
Ontario	53.0 (0.4)	31.0 (0.3)	48.0 (0.2)	60.0 (0.2)	74.0 (0.3)	508 (4.6)	522 (3.2)	547 (4.1)	564 (4.7)	1.34 (0.1)	6.8 (1.2)			
Manitoba	50.0 (0.6)	29.0 (0.4)	44.0 (0.2)	56.0 (0.2)	72.0 (0.4)	460 (6.1)	498 (5.9)	510 (5.0)	533 (4.3)	1.59 (0.2)	8.1 (1.7)			
Saskatchewan	52.0 (0.5)	32.0 (0.3)	46.0 (0.2)	56.0 (0.2)	72.0 (0.3)	484 (5.5)	498 (6.6)	514 (4.5)	533 (4.3)	1.26 (0.2)	4.7 (1.3)			
Alberta	54.0 (0.5)	34.0 (0.3)	49.0 (0.2)	61.0 (0.2)	73.0 (0.3)	504 (5.2)	523 (5.8)	550 (4.6)	568 (7.7)	1.60 (0.2)	6.9 (1.4)			
British Columbia	54.0 (0.7)	32.0 (0.3)	49.0 (0.2)	60.0 (0.2)	74.0 (0.3)	501 (5.6)	521 (4.9)	535 (5.1)	554 (5.5)	1.21 (0.2)	4.9 (1.2)			

Note: Results based on students' self-reports

Table A.1.4 Index of Cultural Possessions at Home, by National/Provincial Quarters of the Index

	Index of cultural possessions at home						Performance on the reading scale, by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Mean index	Standard error	Mean score	Standard error	Mean score	Standard error	Effect		Standard error
Canada	-0.12 (0.01)	-1.36 (0.01)	-0.55 (0.00)	0.16 (0.01)	1.28 (0.00)	1.28 (0.00)	500 (2.0)	519 (1.8)	531 (2.0)	554 (2.5)	20.78 (1.0)	5.6 (0.5)		
Newfoundland and Labrador	-0.12 (0.03)	-1.28 (0.04)	-0.55 (0.00)	0.13 (0.02)	1.21 (0.01)	1.21 (0.01)	489 (5.9)	503 (7.0)	502 (5.3)	540 (5.6)	21.20 (3.0)	5.6 (1.4)		
Prince Edward Island	-0.30 (0.03)	-1.70 (0.00)	-0.58 (0.01)	-0.09 (0.02)	1.17 (0.02)	1.17 (0.02)	449 (4.3)	491 (4.7)	502 (5.6)	518 (5.8)	23.08 (2.6)	6.6 (1.5)		
Nova Scotia	-0.15 (0.04)	-1.49 (0.03)	-0.55 (0.00)	0.17 (0.02)	1.28 (0.00)	1.28 (0.00)	492 (5.2)	505 (4.6)	521 (4.1)	552 (5.2)	22.98 (2.6)	7.6 (1.7)		
New Brunswick	-0.30 (0.03)	-1.66 (0.01)	-0.55 (0.00)	-0.09 (0.02)	1.10 (0.02)	1.10 (0.02)	463 (4.3)	498 (5.9)	503 (5.2)	534 (5.3)	26.15 (2.3)	8.9 (1.6)		
Quebec	-0.31 (0.02)	-1.58 (0.02)	-0.55 (0.00)	-0.10 (0.02)	1.00 (0.02)	1.00 (0.02)	499 (4.2)	516 (4.4)	525 (4.3)	553 (4.0)	21.48 (1.8)	6.0 (0.9)		
Ontario	-0.04 (0.02)	-1.24 (0.02)	-0.55 (0.00)	0.37 (0.01)	1.28 (0.00)	1.28 (0.00)	510 (4.2)	524 (3.7)	543 (3.7)	552 (4.8)	17.63 (1.9)	4.1 (0.8)		
Manitoba	-0.21 (0.03)	-1.50 (0.02)	-0.55 (0.00)	0.05 (0.02)	1.16 (0.02)	1.16 (0.02)	468 (5.1)	503 (4.9)	500 (5.3)	519 (6.8)	18.79 (2.6)	4.2 (1.2)		
Saskatchewan	-0.19 (0.03)	-1.40 (0.03)	-0.55 (0.00)	0.01 (0.02)	1.16 (0.02)	1.16 (0.02)	477 (6.0)	509 (4.4)	506 (4.5)	533 (4.8)	20.87 (2.7)	5.2 (1.3)		
Alberta	-0.05 (0.04)	-1.31 (0.03)	-0.55 (0.00)	0.38 (0.02)	1.28 (0.00)	1.28 (0.00)	506 (6.0)	525 (5.5)	536 (5.8)	568 (6.7)	22.83 (2.6)	6.1 (1.4)		
British Columbia	0.00 (0.04)	-1.21 (0.02)	-0.55 (0.00)	0.51 (0.02)	1.28 (0.00)	1.28 (0.00)	498 (5.0)	513 (4.4)	538 (5.5)	554 (5.5)	23.93 (1.7)	7.3 (1.1)		

Note: Results based on students' self-reports

Table A.1.5 Index of Home Possessions at Home, by National/Provincial Quarters of the Index

	Index of home possessions at home				Performance on the reading scale, by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Effect		Standard error
Canada	0.41 (0.02)	-0.61 (0.01)	0.14 (0.00)	0.64 (0.00)	1.45 (0.0)	500 (2.3)	522 (1.8)	532 (2.0)	549 (2.5)	22.72 (1.4)	4.5 (0.5)	
Newfoundland and Labrador	0.21 (0.03)	-0.74 (0.03)	-0.03 (0.01)	0.43 (0.01)	1.18 (0.0)	483 (7.9)	507 (7.0)	509 (7.6)	535 (6.5)	28.75 (3.7)	6.7 (1.7)	
Prince Edward Island	0.18 (0.02)	-0.73 (0.03)	-0.06 (0.01)	0.37 (0.01)	1.17 (0.0)	469 (5.1)	487 (5.1)	496 (5.5)	504 (5.6)	16.78 (3.6)	1.9 (0.9)	
Nova Scotia	0.27 (0.02)	-0.71 (0.03)	0.02 (0.01)	0.48 (0.01)	1.28 (0.0)	497 (4.8)	520 (5.4)	518 (5.4)	532 (4.3)	15.84 (2.6)	2.1 (0.7)	
New Brunswick	0.16 (0.02)	-0.79 (0.02)	-0.06 (0.01)	0.39 (0.01)	1.10 (0.0)	468 (5.3)	489 (5.0)	511 (5.4)	530 (4.9)	31.81 (2.8)	7.2 (1.3)	
Quebec	0.15 (0.02)	-0.76 (0.02)	-0.08 (0.01)	0.34 (0.01)	1.08 (0.0)	498 (6.4)	524 (3.5)	529 (3.9)	542 (4.4)	22.77 (3.1)	3.8 (1.0)	
Ontario	0.50 (0.03)	-0.53 (0.02)	0.24 (0.01)	0.74 (0.01)	1.56 (0.0)	506 (4.4)	525 (4.3)	540 (4.2)	556 (4.4)	23.62 (2.4)	5.2 (1.0)	
Manitoba	0.28 (0.03)	-0.79 (0.03)	0.03 (0.01)	0.50 (0.01)	1.37 (0.0)	467 (6.8)	492 (5.9)	508 (5.2)	520 (4.9)	20.18 (3.8)	3.4 (1.3)	
Saskatchewan	0.46 (0.03)	-0.55 (0.03)	0.21 (0.01)	0.67 (0.01)	1.52 (0.0)	475 (6.1)	507 (5.1)	522 (5.2)	519 (5.1)	20.69 (3.3)	3.5 (1.1)	
Alberta	0.58 (0.03)	-0.42 (0.03)	0.32 (0.01)	0.79 (0.01)	1.64 (0.0)	506 (5.7)	530 (5.3)	537 (6.6)	562 (6.0)	25.21 (2.6)	4.9 (0.9)	
British Columbia	0.54 (0.03)	-0.46 (0.03)	0.28 (0.01)	0.76 (0.01)	1.59 (0.0)	507 (5.9)	524 (4.6)	535 (5.7)	538 (6.1)	15.51 (3.0)	2.1 (0.8)	

Note: Results based on students' self-reports

Table A.1.6 Index of Home Educational Resources, by National/Provincial Quarters of the Index

	Index of home educational resources								Performance on the reading scale, by national/provincial quarters of this index						Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter	Second quarter		Third quarter		Top quarter	Effect		Standard error
		Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error		Mean score	Standard error	Mean score	Standard error				
Canada	0.10 (0.01)	-1.06 (0.01)	-0.15 (0.01)	0.59 (0.01)	0.99 (0.00)	501 (2.1)	524 (2.0)	534 (2.2)	543 (2.3)	501 (2.1)	524 (2.0)	534 (2.2)	543 (2.3)	19.94 (1.2)	3.8 (0.4)			
Newfoundland and Labrador	-0.01 (0.03)	-1.18 (0.04)	-0.27 (0.01)	0.41 (0.03)	0.99 (0.00)	487 (6.6)	511 (5.6)	516 (6.1)	521 (5.0)	487 (6.6)	511 (5.6)	516 (6.1)	521 (5.0)	17.22 (3.3)	3.1 (1.2)			
Prince Edward Island	-0.10 (0.02)	-1.37 (0.02)	-0.37 (0.01)	0.33 (0.02)	0.99 (0.00)	470 (5.7)	491 (5.6)	495 (5.8)	501 (5.6)	470 (5.7)	491 (5.6)	495 (5.8)	501 (5.6)	15.27 (3.2)	2.3 (0.9)			
Nova Scotia	-0.04 (0.03)	-1.26 (0.04)	-0.29 (0.02)	0.40 (0.02)	0.99 (0.00)	497 (5.2)	517 (5.4)	518 (5.5)	535 (4.5)	497 (5.2)	517 (5.4)	518 (5.5)	535 (4.5)	17.02 (2.7)	3.3 (1.0)			
New Brunswick	-0.08 (0.03)	-1.32 (0.04)	-0.34 (0.01)	0.35 (0.02)	0.99 (0.00)	466 (4.8)	497 (5.2)	516 (5.2)	518 (4.5)	466 (4.8)	497 (5.2)	516 (5.2)	518 (4.5)	23.72 (2.5)	6.0 (1.2)			
Quebec	0.07 (0.02)	-0.92 (0.02)	-0.17 (0.01)	0.40 (0.02)	0.99 (0.00)	502 (5.2)	520 (4.1)	538 (4.4)	533 (4.2)	502 (5.2)	520 (4.1)	538 (4.4)	533 (4.2)	18.33 (2.6)	2.8 (0.8)			
Ontario	0.17 (0.02)	-1.00 (0.02)	-0.06 (0.01)	0.75 (0.02)	0.99 (0.00)	510 (4.6)	531 (4.1)	542 (4.1)	544 (3.9)	510 (4.6)	531 (4.1)	542 (4.1)	544 (3.9)	19.58 (2.4)	3.8 (0.9)			
Manitoba	-0.13 (0.02)	-1.42 (0.03)	-0.36 (0.01)	0.28 (0.02)	0.99 (0.00)	472 (6.7)	500 (6.9)	507 (5.6)	509 (5.5)	472 (6.7)	500 (6.9)	507 (5.6)	509 (5.5)	15.40 (3.2)	2.5 (1.0)			
Saskatchewan	-0.11 (0.03)	-1.37 (0.03)	-0.40 (0.01)	0.35 (0.02)	0.99 (0.00)	471 (5.2)	511 (6.4)	520 (3.7)	522 (5.6)	471 (5.2)	511 (6.4)	520 (3.7)	522 (5.6)	22.12 (2.6)	5.3 (1.1)			
Alberta	0.05 (0.03)	-1.22 (0.04)	-0.19 (0.01)	0.61 (0.02)	0.99 (0.00)	506 (6.3)	535 (6.0)	542 (6.2)	552 (5.8)	506 (6.3)	535 (6.0)	542 (6.2)	552 (5.8)	21.17 (2.7)	4.3 (1.1)			
British Columbia	0.13 (0.03)	-1.05 (0.03)	-0.10 (0.01)	0.70 (0.02)	0.99 (0.00)	503 (5.6)	525 (4.7)	539 (4.9)	536 (6.0)	503 (5.6)	525 (4.7)	539 (4.9)	536 (6.0)	17.72 (2.4)	3.0 (0.8)			

Note: Results based on students' self-reports

Table A.1.7 Index of Economic, Social and Cultural Status, by National/Provincial Quarters of the Index

	Index of economic, social and cultural status					Performance on the reading scale, by national/provincial quarters of this index					Change in the reading score per unit of this index	Explained variance in student performance (r-squared X 100)
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Effect		
		Mean index	Standard error	Mean index	Standard error		Mean index	Standard error	Mean score		Standard error	Mean score
Canada	0.50 (0.02)	-0.59 (0.01)	0.25 (0.00)	0.83 (0.00)	1.52 (0.00)	494 (2.3)	514 (1.7)	533 (2.1)	561 (2.4)	31.72 (1.4)	8.6 (0.7)	
Newfoundland and Labrador	0.26 (0.03)	-0.79 (0.03)	-0.03 (0.01)	0.55 (0.01)	1.33 (0.00)	479 (5.7)	498 (6.6)	509 (6.8)	547 (6.5)	31.94 (3.4)	9.1 (1.9)	
Prince Edward Island	0.36 (0.02)	-0.69 (0.02)	0.10 (0.01)	0.64 (0.01)	1.39 (0.00)	458 (4.8)	482 (5.3)	493 (4.8)	525 (5.1)	29.68 (3.1)	6.5 (1.4)	
Nova Scotia	0.42 (0.03)	-0.61 (0.02)	0.17 (0.01)	0.71 (0.01)	1.40 (0.00)	489 (5.3)	512 (4.9)	521 (4.7)	547 (5.1)	26.37 (3.2)	5.6 (1.3)	
New Brunswick	0.31 (0.02)	-0.74 (0.03)	0.08 (0.01)	0.58 (0.01)	1.32 (0.00)	464 (4.0)	493 (5.5)	502 (4.7)	538 (5.3)	34.62 (2.8)	9.5 (1.5)	
Quebec	0.39 (0.02)	-0.68 (0.02)	0.13 (0.01)	0.72 (0.01)	1.39 (0.00)	490 (6.1)	515 (3.7)	531 (4.1)	557 (4.0)	31.55 (3.2)	8.7 (1.6)	
Ontario	0.56 (0.03)	-0.54 (0.03)	0.32 (0.01)	0.89 (0.01)	1.58 (0.00)	500 (4.2)	520 (3.7)	540 (3.9)	569 (4.3)	31.82 (2.7)	9.4 (1.4)	
Manitoba	0.33 (0.03)	-0.83 (0.04)	0.06 (0.01)	0.67 (0.01)	1.42 (0.00)	461 (6.0)	492 (5.3)	506 (5.2)	531 (5.3)	29.22 (3.2)	7.8 (1.7)	
Saskatchewan	0.43 (0.02)	-0.55 (0.02)	0.14 (0.01)	0.70 (0.01)	1.46 (0.00)	481 (5.7)	493 (6.2)	513 (4.5)	536 (4.2)	28.15 (3.3)	5.8 (1.3)	
Alberta	0.61 (0.03)	-0.45 (0.03)	0.36 (0.01)	0.92 (0.01)	1.59 (0.00)	503 (6.0)	519 (5.5)	542 (5.8)	572 (6.7)	33.31 (3.2)	7.9 (1.4)	
British Columbia	0.59 (0.04)	-0.47 (0.03)	0.36 (0.01)	0.88 (0.01)	1.57 (0.00)	503 (5.5)	511 (5.1)	532 (5.1)	558 (5.7)	27.20 (3.2)	5.7 (1.3)	

Note: Results based on students' self-reports

Table A.2.1 Between-School and Within-School Variance in Student Performance on the Reading Scale

	Total variance in student performance ¹	Variance in student performance between schools (%)	Variance in student performance within schools (%)
Newfoundland and Labrador	940	11.69	88.31
Prince Edward Island	845	8.74	91.26
Nova Scotia	476	6.05	93.95
New Brunswick	1261	15.28	84.72
Quebec	1874	24.54	75.46
Ontario	1280	16.16	83.84
Manitoba	1851	20.34	79.66
Saskatchewan	1719	19.25	80.75
Alberta	1908	21.27	78.73
British Columbia	1152	13.80	86.20
Canada	1541	18.88	81.12

¹ The total variance in student performance is calculated from the square of the standard deviation for the students used in the analysis.

Table A.2.2 Index of Teacher-Student Relations and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of teacher-student relations						Performance on the reading scale by national quarters of this index				Change in the reading score per unit of this index	Explained variance in student performance (r-squared X 100)
	All students	Bottom quarter		Second quarter		Third quarter		Bottom quarter		Third quarter		
		Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean score	Standard error	Effect
Canada	0.32 (0.01)	-0.89 (0.01)	0.04 (0.00)	0.42 (0.01)	1.72 (0.01)	503 (2.10)	523 (1.80)	532 (2.30)	544 (2.40)	15.70 (1.1)	3.3 (0.4)	
Newfoundland and Labrador	0.29 (0.04)	-0.93 (0.03)	0.01 (0.01)	0.36 (0.02)	1.71 (0.03)	487 (5.60)	515 (6.90)	509 (5.90)	522 (7.30)	13.99 (3.2)	2.7 (1.2)	
Prince Edward Island	0.39 (0.03)	-0.87 (0.03)	0.07 (0.01)	0.45 (0.02)	1.92 (0.03)	454 (5.20)	495 (5.00)	501 (5.20)	509 (5.20)	18.05 (2.6)	4.2 (1.2)	
Nova Scotia	0.25 (0.03)	-0.99 (0.03)	-0.02 (0.01)	0.35 (0.01)	1.67 (0.03)	487 (5.70)	516 (4.70)	527 (5.20)	539 (5.10)	18.48 (2.6)	4.9 (1.4)	
New Brunswick	0.28 (0.03)	-0.96 (0.03)	-0.02 (0.01)	0.34 (0.01)	1.76 (0.03)	473 (5.00)	502 (5.10)	506 (4.60)	515 (4.50)	13.81 (2.0)	2.7 (0.8)	
Quebec	0.41 (0.03)	-0.81 (0.02)	0.07 (0.01)	0.59 (0.01)	1.78 (0.02)	509 (3.90)	518 (4.30)	535 (3.70)	531 (4.80)	8.53 (1.8)	1.0 (0.5)	
Ontario	0.35 (0.02)	-0.86 (0.02)	0.04 (0.01)	0.45 (0.01)	1.76 (0.02)	514 (4.60)	522 (3.80)	539 (4.50)	554 (4.50)	15.72 (2.4)	3.5 (1.1)	
Manitoba	0.24 (0.03)	-0.94 (0.03)	0.04 (0.01)	0.29 (0.01)	1.57 (0.03)	463 (4.50)	500 (7.30)	510 (5.30)	515 (6.00)	18.81 (2.8)	4.0 (1.2)	
Saskatchewan	0.19 (0.02)	-1.05 (0.03)	-0.01 (0.01)	0.29 (0.01)	1.53 (0.04)	477 (6.50)	501 (4.90)	517 (5.60)	527 (6.80)	18.41 (3.0)	4.3 (1.4)	
Alberta	0.33 (0.04)	-0.90 (0.03)	0.07 (0.01)	0.40 (0.01)	1.74 (0.03)	503 (6.10)	532 (5.20)	540 (6.50)	560 (6.90)	20.26 (2.8)	4.9 (1.3)	
British Columbia	0.18 (0.03)	-1.02 (0.03)	-0.04 (0.01)	0.27 (0.01)	1.51 (0.03)	494 (5.70)	522 (5.90)	536 (5.30)	550 (4.40)	21.89 (2.4)	5.8 (1.2)	

Note: Results based on students' self-reports

Table A.2.3 Index of Disciplinary Climate and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of disciplinary climate						Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Mean score	Standard error	Effect		Standard error
		Mean index	Standard error	Mean index	Standard error		Mean index	Standard error	Mean score					
Canada	-0.08 (0.01)	-1.34 (0.01)	-0.31 (0.01)	0.25 (0.00)	1.07 (0.01)	509 (2.50)	524 (2.20)	529 (2.20)	541 (2.30)	541 (2.30)	12.29 (1.2)	1.7 (0.3)		
Newfoundland and Labrador	-0.07 (0.04)	-1.30 (0.04)	-0.29 (0.02)	0.23 (0.01)	1.06 (0.03)	498 (6.90)	512 (6.60)	505 (5.60)	518 (6.80)	518 (6.80)	6.77 (2.8)	0.5 (0.4)		
Prince Edward Island	0.06 (0.03)	-1.19 (0.04)	-0.16 (0.01)	0.36 (0.01)	1.24 (0.02)	470 (5.50)	482 (4.80)	497 (5.20)	513 (4.70)	513 (4.70)	16.89 (2.8)	2.9 (1.0)		
Nova Scotia	-0.13 (0.03)	-1.46 (0.03)	-0.37 (0.02)	0.22 (0.01)	1.10 (0.02)	508 (5.00)	511 (4.60)	518 (4.80)	533 (5.00)	533 (5.00)	10.85 (2.5)	1.6 (0.8)		
New Brunswick	-0.06 (0.03)	-1.43 (0.04)	-0.27 (0.01)	0.31 (0.01)	1.16 (0.02)	486 (4.50)	487 (4.40)	503 (5.80)	521 (5.30)	521 (5.30)	13.59 (2.6)	2.4 (0.9)		
Quebec	-0.09 (0.02)	-1.38 (0.02)	-0.35 (0.01)	0.28 (0.01)	1.10 (0.02)	510 (3.90)	524 (4.60)	521 (4.40)	539 (3.50)	539 (3.50)	9.66 (1.8)	1.2 (0.4)		
Ontario	-0.13 (0.03)	-1.38 (0.02)	-0.36 (0.01)	0.21 (0.01)	1.02 (0.02)	515 (5.30)	532 (4.50)	536 (3.80)	548 (4.40)	548 (4.40)	13.15 (2.4)	2.1 (0.7)		
Manitoba	-0.11 (0.03)	-1.32 (0.03)	-0.34 (0.01)	0.17 (0.01)	1.05 (0.02)	479 (4.70)	491 (5.50)	503 (6.10)	515 (5.70)	515 (5.70)	14.31 (2.8)	2.0 (0.8)		
Saskatchewan	-0.13 (0.05)	-1.40 (0.03)	-0.34 (0.01)	0.21 (0.01)	1.02 (0.02)	498 (6.20)	503 (5.20)	515 (6.10)	506 (5.20)	506 (5.20)	6.96 (2.4)	0.6 (0.4)		
Alberta	0.04 (0.03)	-1.16 (0.02)	-0.18 (0.01)	0.35 (0.01)	1.15 (0.02)	510 (5.50)	538 (5.60)	538 (6.00)	550 (8.20)	550 (8.20)	14.57 (3.6)	2.0 (1.0)		
British Columbia	0.00 (0.04)	-1.22 (0.03)	-0.21 (0.01)	0.31 (0.01)	1.12 (0.02)	506 (4.80)	521 (5.10)	537 (5.90)	539 (5.00)	539 (5.00)	14.64 (2.4)	2.3 (0.7)		

Note: Results based on students' self-reports

Table A.2.4 Index of Student-Related Factors Affecting School Climate and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of student-related factors affecting school climate					Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)		
	All students	Bottom quarter		Second quarter		Third quarter		Top quarter		Mean score	Standard error	Effect	Standard error	%
		Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error					
Canada	-0.41 (0.03)	-1.37 (0.04)	-0.70 (0.01)	-0.25 (0.01)	0.67 (0.06)	513 (3.60)	521 (3.20)	523 (2.60)	539 (3.30)	507 (4.60)	14.02 (2.2)	1.7 (0.6)		
Newfoundland and Labrador	-0.57 (0.04)	-1.49 (0.01)	-0.96 (0.01)	-0.41 (0.02)	0.58 (0.07)	504 (8.60)	513 (5.60)	499 (10.20)	507 (4.60)	507 (4.60)	0.89 (3.6)	0.0 (0.1)		
Prince Edward Island	-0.54 (0.01)	-1.24 (0.00)	-1.02 (0.01)	-0.38 (0.01)	0.50 (0.01)	504 (5.90)	494 (5.80)	458 (5.60)	487 (6.00)	487 (6.00)	-10.83 (3.6)	0.7 (0.5)		
Nova Scotia	-0.62 (0.06)	-1.63 (0.07)	-0.83 (0.02)	-0.35 (0.01)	0.31 (0.05)	528 (4.90)	509 (6.60)	519 (6.50)	507 (5.20)	507 (5.20)	-10.67 (3.2)	0.9 (0.5)		
New Brunswick	-0.60 (0.04)	-1.38 (0.01)	-0.81 (0.01)	-0.38 (0.01)	0.19 (0.08)	486 (4.70)	497 (5.50)	516 (5.70)	496 (5.20)	496 (5.20)	11.91 (4.1)	0.7 (0.5)		
Quebec	-0.31 (0.05)	-1.33 (0.07)	-0.74 (0.01)	-0.18 (0.02)	1.01 (0.09)	496 (6.30)	516 (6.80)	519 (5.50)	557 (5.80)	557 (5.80)	25.77 (2.6)	7.9 (1.8)		
Ontario	-0.59 (0.07)	-1.55 (0.09)	-0.84 (0.02)	-0.38 (0.02)	0.41 (0.13)	527 (6.70)	530 (5.60)	531 (6.60)	533 (6.40)	533 (6.40)	7.06 (4.2)	0.4 (0.6)		
Manitoba	-0.39 (0.04)	-1.35 (0.05)	-0.51 (0.00)	-0.18 (0.02)	0.49 (0.05)	481 (7.50)	493 (5.60)	486 (7.40)	520 (7.80)	520 (7.80)	22.86 (5.2)	3.2 (1.4)		
Saskatchewan	-0.33 (0.07)	-1.08 (0.05)	-0.63 (0.01)	-0.09 (0.01)	0.48 (0.07)	491 (6.90)	500 (7.00)	504 (4.70)	521 (5.20)	521 (5.20)	20.86 (5.5)	2.1 (1.1)		
Alberta	-0.12 (0.06)	-1.00 (0.05)	-0.40 (0.02)	0.04 (0.01)	0.89 (0.09)	513 (6.30)	517 (8.70)	548 (5.70)	553 (9.60)	553 (9.60)	23.66 (7.6)	3.7 (2.5)		
British Columbia	-0.19 (0.07)	-0.97 (0.04)	-0.46 (0.01)	-0.08 (0.03)	0.74 (0.11)	518 (8.70)	518 (6.20)	521 (9.50)	540 (8.30)	540 (8.30)	10.29 (4.9)	0.6 (0.6)		

Table A.2.5 Index of Teacher-Related Factors Affecting School Climate and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of teacher-related factors affecting school climate						Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r -squared X 100)
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Effect	Standard error		
		Mean index	Standard error	Mean index	Standard error		Mean index	Standard error	Mean score			Standard error	
Canada	-0.08 (0.03)	-1.04 (0.05)	-0.35 (0.01)	0.10 (0.01)	0.97 (0.05)	512 (3.90)	525 (3.40)	525 (3.70)	535 (3.20)	10.18 (2.6)	0.8 (0.5)		
Newfoundland and Labrador	0.09 (0.04)	-0.99 (0.01)	-0.18 (0.01)	0.34 (0.02)	1.20 (0.04)	485 (10.20)	525 (5.70)	505 (5.50)	509 (4.90)	6.49 (5.1)	0.4 (0.6)		
Prince Edward Island	-0.43 (0.01)	-0.96 (0.00)	-0.70 (0.01)	-0.31 (0.00)	0.27 (0.02)	503 (6.10)	486 (6.30)	482 (5.10)	471 (5.40)	-22.30 (4.6)	1.8 (0.7)		
Nova Scotia	0.13 (0.05)	-0.86 (0.05)	-0.23 (0.02)	0.29 (0.02)	1.34 (0.04)	515 (6.80)	522 (6.30)	519 (5.90)	506 (5.70)	-4.90 (2.8)	0.2 (0.3)		
New Brunswick	-0.28 (0.04)	-1.06 (0.01)	-0.57 (0.01)	-0.22 (0.01)	0.73 (0.10)	488 (4.00)	491 (6.70)	512 (5.30)	505 (5.90)	8.44 (3.6)	0.5 (0.5)		
Quebec	-0.33 (0.07)	-1.43 (0.06)	-0.66 (0.03)	0.02 (0.03)	0.74 (0.06)	492 (8.00)	527 (5.50)	519 (4.30)	550 (6.80)	21.10 (3.6)	4.4 (1.5)		
Ontario	-0.06 (0.07)	-0.91 (0.09)	-0.33 (0.01)	0.05 (0.02)	0.97 (0.12)	524 (6.50)	536 (5.90)	532 (7.40)	529 (6.90)	3.22 (6.0)	0.1 (0.5)		
Manitoba	-0.04 (0.05)	-1.01 (0.04)	-0.24 (0.02)	0.17 (0.02)	0.93 (0.04)	467 (7.20)	497 (5.70)	507 (6.00)	510 (6.20)	18.75 (4.5)	2.4 (1.1)		
Saskatchewan	0.01 (0.06)	-0.84 (0.07)	-0.25 (0.01)	0.13 (0.02)	1.00 (0.06)	491 (5.80)	497 (5.70)	528 (6.00)	500 (5.90)	10.19 (4.3)	0.7 (0.6)		
Alberta	0.22 (0.07)	-0.62 (0.06)	-0.13 (0.02)	0.35 (0.02)	1.28 (0.08)	520 (7.50)	532 (9.70)	535 (8.00)	545 (7.70)	9.79 (5.2)	0.6 (0.6)		
British Columbia	0.00 (0.07)	-0.78 (0.03)	-0.33 (0.02)	0.11 (0.03)	0.99 (0.10)	522 (7.80)	516 (7.50)	516 (8.00)	543 (10.10)	10.12 (5.2)	0.6 (0.6)		

Table A.2.6 Index of Teachers' Stimulation of Students' Reading Engagement and Performance on the Reading Scale, by National/ Provincial Quarters of the Index

	Index of teachers' stimulation of students' reading skills						Performance on the reading scale by national/ provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Standard error	Mean score	Standard error		Effect
		Mean index	Standard error	Mean index	Standard error		Mean index	Standard error	Mean score					
Canada	0.23 (0.01)	-1.02 (0.01)	-0.06 (0.00)	0.53 (0.00)	1.49 (0.02)	507 (1.90)	525 (2.00)	532 (2.00)	539 (2.70)	10.43 (1.2)	1.5 (0.3)			
Newfoundland and Labrador	0.16 (0.04)	-1.05 (0.04)	-0.07 (0.01)	0.47 (0.01)	1.31 (0.05)	494 (6.10)	507 (7.30)	517 (6.00)	515 (6.20)	4.40 (3.7)	0.2 (0.4)			
Prince Edward Island	0.28 (0.03)	-1.04 (0.04)	-0.03 (0.01)	0.56 (0.01)	1.65 (0.05)	460 (5.20)	498 (4.50)	494 (5.10)	511 (4.30)	12.90 (2.5)	2.4 (0.9)			
Nova Scotia	0.24 (0.04)	-1.08 (0.05)	-0.01 (0.01)	0.59 (0.01)	1.47 (0.04)	494 (5.40)	521 (5.30)	526 (5.00)	530 (4.90)	13.04 (2.5)	2.6 (1.0)			
New Brunswick	0.02 (0.04)	-1.28 (0.04)	-0.28 (0.01)	0.35 (0.01)	1.28 (0.04)	482 (5.50)	497 (5.20)	506 (4.60)	512 (5.40)	9.40 (2.5)	1.2 (0.7)			
Quebec	-0.11 (0.03)	-1.23 (0.03)	-0.41 (0.01)	0.16 (0.01)	1.06 (0.02)	520 (4.10)	523 (4.10)	534 (4.10)	517 (5.20)	0.08 (2.5)	0.0 (0.1)			
Ontario	0.38 (0.03)	-0.88 (0.02)	0.10 (0.01)	0.65 (0.01)	1.67 (0.03)	512 (4.40)	528 (4.40)	539 (4.10)	552 (4.60)	12.64 (2.1)	2.4 (0.8)			
Manitoba	0.29 (0.03)	-0.97 (0.03)	-0.01 (0.01)	0.58 (0.01)	1.57 (0.04)	473 (5.20)	497 (5.90)	504 (4.80)	517 (6.40)	12.73 (2.8)	2.1 (0.9)			
Saskatchewan	0.10 (0.04)	-1.15 (0.04)	-0.17 (0.01)	0.41 (0.01)	1.32 (0.05)	488 (5.10)	509 (3.90)	511 (5.10)	515 (6.20)	6.48 (3.3)	0.6 (0.5)			
Alberta	0.34 (0.04)	-0.88 (0.03)	0.07 (0.01)	0.60 (0.01)	1.58 (0.04)	508 (6.40)	531 (6.50)	546 (5.20)	553 (7.60)	15.57 (3.7)	2.8 (1.3)			
British Columbia	0.33 (0.03)	-0.91 (0.03)	0.04 (0.01)	0.59 (0.01)	1.61 (0.03)	501 (5.40)	529 (5.30)	535 (4.80)	540 (6.20)	11.36 (2.5)	1.7 (0.7)			

Note: Results based on students' self-reports

Table A.2.7 Index of School Responsibility for Resource Allocation and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of school responsibility for resource allocation								Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Mean score	Standard error	Mean score	Standard error	Effect	Standard error	%
Canada	-0.39 (0.02)	-0.68 (0.00)	-0.59 (0.00)	-0.48 (0.00)	0.19 (0.07)	517 (3.30)	522 (3.00)	525 (3.00)	533 (3.40)	17.50 (2.9)	1.1 (0.5)					
Newfoundland and Labrador	-0.59 (0.01)	-0.70 (0.01)	-0.62 (0.00)	-0.58 (0.00)	-0.47 (0.01)	503 (6.80)	504 (9.60)	498 (6.90)	519 (5.40)	64.75 (27.4)	0.5 (0.5)					
Prince Edward Island	-0.53 (0.00)	-0.61 (0.00)	-0.54 (0.00)	-0.52 (0.00)	-0.43 (0.00)	473 (4.80)	492 (6.20)	501 (5.10)	477 (5.50)	27.02 (17.4)	0.1 (0.1)					
Nova Scotia	-0.58 (0.02)	-0.75 (0.00)	-0.64 (0.00)	-0.59 (0.00)	-0.33 (0.07)	516 (4.80)	505 (6.00)	522 (5.80)	520 (6.40)	8.05 (6.5)	0.1 (0.1)					
New Brunswick	-0.62 (0.02)	-0.75 (0.00)	-0.67 (0.00)	-0.62 (0.00)	-0.47 (0.08)	493 (5.40)	501 (4.80)	492 (5.00)	508 (4.70)	27.26 (5.9)	0.7 (0.5)					
Quebec	-0.31 (0.05)	-0.69 (0.01)	-0.59 (0.00)	-0.50 (0.01)	0.53 (0.17)	503 (7.90)	521 (4.50)	510 (5.30)	553 (6.60)	27.14 (3.2)	5.4 (1.5)					
Ontario	-0.44 (0.04)	-0.67 (0.01)	-0.60 (0.00)	-0.48 (0.01)	0.00 (0.13)	526 (5.20)	529 (6.80)	530 (6.30)	538 (5.90)	10.42 (9.6)	0.3 (0.6)					
Manitoba	-0.09 (0.05)	-0.68 (0.00)	-0.51 (0.01)	-0.20 (0.01)	1.02 (0.09)	494 (5.80)	496 (7.90)	486 (6.10)	506 (7.10)	11.56 (5.2)	0.8 (0.7)					
Saskatchewan	-0.48 (0.02)	-0.69 (0.01)	-0.59 (0.00)	-0.48 (0.01)	-0.15 (0.04)	496 (4.70)	500 (6.50)	513 (6.10)	507 (6.90)	17.60 (11.5)	0.3 (0.4)					
Alberta	-0.35 (0.04)	-0.62 (0.01)	-0.53 (0.00)	-0.43 (0.01)	0.16 (0.10)	524 (8.10)	538 (6.50)	533 (9.00)	536 (7.40)	11.45 (10.4)	0.2 (0.4)					
British Columbia	-0.37 (0.05)	-0.70 (0.01)	-0.59 (0.01)	-0.45 (0.01)	0.25 (0.18)	524 (8.70)	528 (6.30)	517 (5.80)	528 (12.40)	14.22 (7.9)	0.8 (0.9)					

Table A.2.8 Index of School Responsibility for Curriculum and Assessment and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of school responsibility for curriculum and assessment					Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Effect	Standard error	
		Mean index	Standard error	Mean index	Standard error							Mean index
Canada	-0.66 (0.03)	-1.07 (0.01)	-0.91 (0.00)	-0.76 (0.00)	0.11 (0.07)	520 (3.30)	526 (3.50)	524 (2.90)	528 (3.80)	6.80 (3.6)	0.2 (0.2)	
Newfoundland and Labrador	-1.05 (0.02)	-1.22 (0.02)	-1.10 (0.00)	-1.03 (0.00)	-0.86 (0.01)	490 (8.30)	513 (5.00)	509 (5.70)	512 (7.00)	52.36 (29.7)	0.8 (0.9)	
Prince Edward Island	-1.03 (0.00)	-1.15 (0.00)	-1.07 (0.00)	-1.02 (0.00)	-0.89 (0.00)	478 (4.40)	493 (4.80)	499 (5.60)	472 (5.30)	-4.34 (12.6)	0.0 (0.0)	
Nova Scotia	-0.97 (0.02)	-1.29 (0.01)	-1.09 (0.01)	-0.95 (0.01)	-0.56 (0.04)	506 (6.00)	515 (5.00)	519 (6.10)	523 (5.00)	9.24 (5.2)	0.2 (0.2)	
New Brunswick	-0.96 (0.02)	-1.27 (0.00)	-1.09 (0.00)	-0.92 (0.00)	-0.55 (0.05)	500 (5.80)	502 (5.50)	490 (4.40)	504 (5.10)	10.49 (11.0)	0.1 (0.3)	
Quebec	-0.44 (0.06)	-0.97 (0.01)	-0.83 (0.01)	-0.59 (0.02)	0.62 (0.12)	517 (6.20)	515 (4.90)	519 (8.30)	537 (7.20)	13.74 (5.7)	1.3 (1.1)	
Ontario	-0.70 (0.06)	-1.09 (0.01)	-0.91 (0.00)	-0.80 (0.01)	0.00 (0.15)	527 (7.60)	532 (5.30)	530 (5.90)	533 (7.40)	2.92 (8.1)	0.0 (0.3)	
Manitoba	-0.65 (0.02)	-0.96 (0.00)	-0.83 (0.01)	-0.68 (0.01)	-0.14 (0.07)	493 (6.60)	493 (6.00)	491 (5.50)	504 (6.50)	34.19 (4.7)	2.7 (0.8)	
Saskatchewan	-0.74 (0.03)	-1.07 (0.01)	-0.91 (0.00)	-0.83 (0.01)	-0.16 (0.08)	488 (7.30)	519 (5.30)	510 (5.80)	499 (6.70)	-14.82 (8.1)	0.6 (0.7)	
Alberta	-0.83 (0.02)	-1.07 (0.02)	-0.93 (0.00)	-0.84 (0.01)	-0.48 (0.05)	533 (10.30)	541 (6.70)	531 (7.10)	526 (6.30)	-5.02 (15.6)	0.0 (0.2)	
British Columbia	-0.56 (0.05)	-0.98 (0.01)	-0.83 (0.01)	-0.63 (0.02)	0.20 (0.13)	523 (7.30)	518 (7.00)	530 (9.70)	526 (7.80)	1.48 (5.8)	0.0 (0.1)	

Table A.2.9 Index of School Principal's Leadership and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of school principal's leadership								Performance on the reading scale by national/provincial quarters of this index					Change in the reading score per unit of this index	Explained variance in student performance (r-squared X 100)		
	All students	Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter	Second quarter	Third quarter	Top quarter			Standard error	Effect
		Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error					Mean score	Standard error		
Canada	0.42 (0.04)	-0.66 (0.04)	0.05 (0.01)	0.63 (0.01)	1.68 (0.08)	517 (3.50)	527 (3.50)	525 (3.40)	528 (3.40)	517 (3.50)	527 (3.50)	525 (3.40)	528 (3.40)	4.05 (2.1)	0.2 (0.2)		
Newfoundland and Labrador	0.69 (0.04)	-0.33 (0.02)	0.32 (0.01)	0.87 (0.02)	1.90 (0.06)	507 (8.00)	500 (5.00)	509 (9.40)	508 (4.20)	507 (8.00)	500 (5.00)	509 (9.40)	508 (4.20)	-0.37 (2.6)	0.0 (0.1)		
Prince Edward Island	0.22 (0.00)	-0.62 (0.01)	-0.02 (0.01)	0.51 (0.01)	1.00 (0.00)	476 (4.20)	486 (5.60)	485 (4.40)	496 (5.10)	476 (4.20)	486 (5.60)	485 (4.40)	496 (5.10)	7.47 (3.6)	0.2 (0.2)		
Nova Scotia	0.59 (0.09)	-0.57 (0.09)	0.24 (0.01)	0.62 (0.01)	2.06 (0.11)	519 (5.50)	517 (5.50)	509 (8.20)	514 (6.00)	519 (5.50)	517 (5.50)	509 (8.20)	514 (6.00)	-1.69 (2.4)	0.0 (0.1)		
New Brunswick	0.42 (0.03)	-0.57 (0.01)	-0.01 (0.01)	0.71 (0.02)	1.55 (0.03)	500 (4.70)	510 (4.30)	488 (6.00)	497 (4.90)	500 (4.70)	510 (4.30)	488 (6.00)	497 (4.90)	4.62 (2.6)	0.2 (0.2)		
Quebec	0.18 (0.06)	-0.87 (0.06)	-0.12 (0.03)	0.48 (0.03)	1.25 (0.07)	523 (7.70)	516 (8.30)	520 (6.80)	530 (7.80)	523 (7.70)	516 (8.30)	520 (6.80)	530 (7.80)	0.84 (4.6)	0.0 (0.2)		
Ontario	0.52 (0.10)	-0.56 (0.10)	0.08 (0.02)	0.66 (0.03)	1.91 (0.17)	521 (7.00)	530 (6.00)	537 (5.80)	532 (6.20)	521 (7.00)	530 (6.00)	537 (5.80)	532 (6.20)	4.75 (3.7)	0.3 (0.5)		
Manitoba	0.10 (0.07)	-0.99 (0.06)	-0.20 (0.01)	0.23 (0.01)	1.36 (0.17)	482 (5.90)	486 (10.10)	513 (7.60)	500 (6.30)	482 (5.90)	486 (10.10)	513 (7.60)	500 (6.30)	5.84 (3.1)	0.4 (0.3)		
Saskatchewan	0.12 (0.05)	-0.90 (0.03)	-0.19 (0.03)	0.42 (0.02)	1.16 (0.06)	495 (6.20)	496 (6.20)	532 (6.10)	494 (5.30)	495 (6.20)	496 (6.20)	532 (6.10)	494 (5.30)	6.20 (3.4)	0.3 (0.3)		
Alberta	0.82 (0.07)	-0.16 (0.07)	0.50 (0.01)	0.96 (0.02)	1.96 (0.10)	546 (10.80)	531 (7.20)	510 (7.30)	544 (5.10)	546 (10.80)	531 (7.20)	510 (7.30)	544 (5.10)	0.56 (3.7)	0.0 (0.1)		
British Columbia	0.32 (0.08)	-0.64 (0.10)	-0.08 (0.03)	0.51 (0.05)	1.47 (0.08)	523 (6.00)	521 (7.20)	528 (10.90)	526 (9.10)	523 (6.00)	521 (7.20)	528 (10.90)	526 (9.10)	1.13 (4.1)	0.0 (0.1)		

Table A.2.10 Index of Library Use in or Outside School and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of library use in or outside school				Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Effect		Standard error
Canada	0.13 (0.01)	-1.07 (0.01)	0.02 (0.00)	0.47 (0.00)	1.13 (0.01)	524 (2.30)	538 (1.80)	528 (2.10)	514 (2.40)	-1.12 (1.2)	0.0 (0.0)	
Newfoundland and Labrador	-0.40 (0.03)	-1.85 (0.00)	-0.63 (0.02)	0.09 (0.01)	0.80 (0.02)	513 (6.00)	524 (6.30)	506 (6.50)	490 (6.10)	-9.52 (2.8)	1.2 (0.7)	
Prince Edward Island	0.20 (0.03)	-1.08 (0.03)	0.13 (0.01)	0.56 (0.01)	1.19 (0.03)	480 (5.20)	491 (5.00)	502 (5.20)	489 (5.10)	10.10 (2.8)	1.0 (0.6)	
Nova Scotia	-0.02 (0.04)	-1.39 (0.03)	-0.14 (0.01)	0.37 (0.01)	1.08 (0.03)	517 (4.40)	522 (5.00)	520 (5.10)	509 (5.70)	-1.55 (2.7)	0.0 (0.1)	
New Brunswick	0.05 (0.03)	-1.20 (0.03)	-0.08 (0.01)	0.38 (0.01)	1.08 (0.03)	494 (5.00)	514 (5.60)	501 (5.20)	489 (5.70)	-0.02 (3.0)	0.0 (0.1)	
Quebec	-0.02 (0.02)	-1.18 (0.02)	-0.15 (0.01)	0.32 (0.01)	0.95 (0.01)	518 (5.00)	536 (4.20)	532 (4.20)	509 (4.50)	-1.29 (2.2)	0.0 (0.1)	
Ontario	0.20 (0.02)	-0.98 (0.03)	0.06 (0.01)	0.51 (0.01)	1.18 (0.02)	534 (4.60)	544 (3.70)	533 (4.40)	518 (4.20)	-3.06 (2.3)	0.1 (0.1)	
Manitoba	0.24 (0.03)	-0.98 (0.04)	0.13 (0.01)	0.58 (0.01)	1.24 (0.03)	489 (5.50)	501 (4.70)	499 (5.40)	500 (7.40)	5.35 (3.5)	0.3 (0.4)	
Saskatchewan	0.33 (0.03)	-0.70 (0.03)	0.24 (0.01)	0.60 (0.01)	1.20 (0.03)	509 (5.20)	512 (4.90)	505 (6.10)	497 (5.30)	-3.44 (3.6)	0.1 (0.2)	
Alberta	0.13 (0.03)	-1.11 (0.03)	0.05 (0.01)	0.47 (0.01)	1.11 (0.02)	532 (6.30)	547 (4.50)	538 (6.90)	521 (6.30)	0.08 (2.8)	0.0 (0.1)	
British Columbia	0.24 (0.02)	-0.92 (0.03)	0.13 (0.01)	0.56 (0.01)	1.20 (0.02)	523 (5.70)	532 (5.70)	528 (5.10)	521 (5.20)	1.42 (2.5)	0.0 (0.1)	

Note: Results based on students' self-reports

Table A.2.11 Index of Schools' Extra-curricular Activities and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of schools' extra-curricular activities						Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter		Second quarter		Third quarter		Top quarter		Mean score	Standard error	Effect		Standard error
		Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error					
Canada	0.71 (0.03)	-0.14 (0.02)	0.43 (0.01)	0.86 (0.01)	1.72 (0.05)	509 (3.10)	521 (3.30)	530 (3.10)	537 (3.20)	536 (4.90)	14.24 (2.3)	1.4 (0.5)		
Newfoundland and Labrador	0.44 (0.03)	-0.48 (0.05)	0.25 (0.01)	0.73 (0.01)	1.26 (0.01)	480 (8.20)	497 (4.40)	511 (7.10)	536 (4.90)	29.91 (5.5)	5.3 (1.8)			
Prince Edward Island	1.03 (0.00)	0.54 (0.01)	0.93 (0.01)	1.22 (0.01)	1.42 (0.00)	479 (4.70)	473 (5.30)	500 (5.30)	491 (5.10)	16.11 (5.8)	0.4 (0.3)			
Nova Scotia	0.74 (0.05)	-0.22 (0.05)	0.50 (0.01)	0.86 (0.03)	1.82 (0.03)	512 (4.30)	503 (5.30)	524 (5.40)	524 (5.90)	7.70 (3.1)	0.5 (0.4)			
New Brunswick	0.60 (0.02)	-0.17 (0.03)	0.42 (0.01)	0.78 (0.01)	1.39 (0.02)	497 (5.40)	505 (4.80)	496 (5.00)	498 (5.40)	1.39 (3.4)	0.0 (0.1)			
Quebec	0.55 (0.05)	-0.22 (0.04)	0.31 (0.02)	0.69 (0.02)	1.42 (0.08)	500 (7.40)	518 (5.60)	535 (5.70)	538 (5.70)	20.79 (4.5)	2.6 (1.0)			
Ontario	0.88 (0.07)	0.05 (0.05)	0.57 (0.02)	1.00 (0.03)	1.88 (0.10)	519 (6.70)	528 (6.20)	530 (5.90)	544 (5.80)	12.41 (4.8)	1.1 (0.9)			
Manitoba	0.59 (0.05)	-0.33 (0.06)	0.34 (0.01)	0.84 (0.02)	1.52 (0.02)	481 (8.20)	481 (7.40)	505 (6.40)	515 (6.40)	14.58 (5.9)	1.4 (1.1)			
Saskatchewan	0.51 (0.04)	-0.32 (0.06)	0.32 (0.02)	0.69 (0.02)	1.37 (0.02)	487 (8.70)	500 (6.80)	512 (4.20)	521 (5.40)	18.35 (5.7)	1.9 (1.2)			
Alberta	0.59 (0.06)	-0.33 (0.06)	0.32 (0.02)	0.76 (0.02)	1.60 (0.06)	509 (7.80)	521 (6.10)	555 (6.70)	547 (6.40)	18.99 (4.6)	2.4 (1.1)			
British Columbia	0.73 (0.07)	-0.21 (0.05)	0.39 (0.02)	0.90 (0.03)	1.83 (0.10)	515 (7.70)	524 (6.30)	543 (8.60)	516 (8.40)	3.56 (5.2)	0.1 (0.3)			

Table A.2.12 Index of Teacher Shortage and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of teacher shortage								Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)	
	All students	Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter		Second quarter		Third quarter		Top quarter		Standard error		Effect
						Mean index	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error			
Canada	-0.23 (0.03)	-1.02 (0.00)	-0.88 (0.02)	0.00 (0.02)	0.97 (0.03)	530 (2.80)	529 (3.00)	524 (2.90)	514 (2.70)	-6.03 (1.9)	0.3 (0.2)					
Newfoundland and Labrador	-0.63 (0.05)	-1.02 (0.00)	-1.02 (0.00)	-0.77 (0.04)	0.29 (0.04)	524 (6.00)	509 (7.90)	509 (5.00)	481 (7.40)	-25.90 (6.7)	2.9 (1.7)					
Prince Edward Island	-0.14 (0.01)	-1.02 (0.00)	-0.18 (0.01)	0.15 (0.00)	0.49 (0.02)	483 (4.30)	490 (5.80)	497 (5.00)	473 (5.20)	-5.83 (3.6)	0.1 (0.2)					
Nova Scotia	-0.27 (0.05)	-1.02 (0.00)	-0.86 (0.02)	0.08 (0.03)	0.71 (0.02)	516 (5.00)	522 (5.00)	517 (6.20)	507 (6.60)	-5.73 (4.1)	0.2 (0.3)					
New Brunswick	-0.07 (0.03)	-1.02 (0.00)	-0.31 (0.01)	0.18 (0.01)	0.90 (0.01)	507 (5.10)	503 (6.70)	497 (4.50)	488 (4.10)	-9.02 (3.1)	0.5 (0.3)					
Quebec	0.57 (0.07)	-0.66 (0.07)	0.35 (0.02)	0.91 (0.03)	1.70 (0.06)	528 (5.00)	520 (8.80)	517 (7.10)	523 (6.00)	-3.00 (3.1)	0.1 (0.2)					
Ontario	-0.56 (0.05)	-1.02 (0.00)	-1.02 (0.00)	-0.58 (0.05)	0.37 (0.04)	530 (5.00)	531 (5.30)	534 (4.70)	526 (5.50)	-5.65 (4.7)	0.2 (0.3)					
Manitoba	-0.33 (0.06)	-1.02 (0.00)	-1.02 (0.00)	-0.16 (0.04)	0.87 (0.05)	495 (5.00)	502 (6.10)	500 (10.70)	484 (5.80)	-6.02 (4.2)	0.3 (0.4)					
Saskatchewan	-0.36 (0.06)	-1.02 (0.00)	-0.98 (0.01)	-0.11 (0.03)	0.69 (0.04)	503 (5.80)	504 (6.50)	516 (7.20)	494 (4.40)	-4.91 (4.4)	0.2 (0.3)					
Alberta	-0.43 (0.06)	-1.02 (0.00)	-1.02 (0.00)	-0.17 (0.02)	0.49 (0.06)	541 (7.50)	539 (7.30)	547 (6.20)	504 (7.00)	-19.27 (6.4)	1.8 (1.2)					
British Columbia	-0.38 (0.08)	-1.02 (0.00)	-0.97 (0.02)	-0.16 (0.04)	0.63 (0.06)	529 (7.00)	529 (6.90)	513 (7.80)	527 (8.50)	-4.43 (5.8)	0.1 (0.3)					

Table A.2.13 Index of Quality of Schools' Educational Resources and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of quality of schools' educational resources								Performance on the reading scale by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)
	All students	Bottom quarter		Second quarter		Third quarter		Top quarter		Mean score	Standard error	Effect	Standard error		
		Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error						
Canada	0.39 (0.04)	-0.74 (0.04)	-0.04 (0.01)	0.57 (0.02)	1.78 (0.03)	521 (3.90)	518 (3.10)	526 (3.00)	532 (3.10)	543 (2.0)	0.3 (0.3)				
Newfoundland and Labrador	0.59 (0.08)	-0.66 (0.04)	0.06 (0.02)	1.05 (0.03)	1.93 (0.00)	504 (9.20)	500 (7.40)	510 (5.00)	511 (5.70)	0.55 (3.3)	0.0 (0.1)				
Prince Edward Island	0.03 (0.00)	-0.56 (0.00)	-0.21 (0.01)	0.24 (0.01)	0.66 (0.01)	478 (4.50)	471 (4.90)	491 (5.80)	503 (4.90)	18.04 (4.8)	0.9 (0.5)				
Nova Scotia	0.33 (0.05)	-0.76 (0.02)	-0.11 (0.01)	0.45 (0.02)	1.73 (0.09)	513 (6.50)	518 (5.90)	526 (6.50)	505 (4.90)	-1.38 (3.3)	0.0 (0.2)				
New Brunswick	0.06 (0.03)	-0.98 (0.02)	-0.18 (0.01)	0.17 (0.01)	1.25 (0.05)	483 (4.50)	507 (4.80)	500 (5.70)	505 (6.10)	1.38 (2.8)	0.0 (0.1)				
Quebec	0.36 (0.07)	-0.62 (0.06)	-0.01 (0.02)	0.53 (0.03)	1.54 (0.06)	519 (6.20)	501 (5.40)	534 (7.50)	534 (6.40)	12.32 (3.4)	1.5 (0.9)				
Ontario	0.27 (0.08)	-0.87 (0.06)	-0.16 (0.02)	0.43 (0.04)	1.70 (0.07)	525 (8.00)	532 (4.30)	527 (4.50)	537 (7.40)	4.94 (4.1)	0.3 (0.6)				
Manitoba	0.46 (0.06)	-0.73 (0.06)	-0.01 (0.01)	0.72 (0.03)	1.84 (0.01)	492 (6.60)	491 (10.10)	488 (5.10)	510 (5.20)	4.60 (2.9)	0.2 (0.3)				
Saskatchewan	0.63 (0.07)	-0.46 (0.05)	0.18 (0.02)	0.88 (0.05)	1.93 (0.00)	500 (5.50)	510 (6.60)	493 (8.60)	514 (6.00)	4.35 (3.4)	0.2 (0.3)				
Alberta	0.72 (0.08)	-0.53 (0.06)	0.26 (0.04)	1.23 (0.07)	1.93 (0.00)	517 (8.70)	532 (8.00)	544 (6.00)	538 (8.60)	9.29 (5.0)	0.9 (1.0)				
British Columbia	0.54 (0.11)	-0.61 (0.06)	0.08 (0.03)	0.75 (0.06)	1.93 (0.00)	535 (6.00)	514 (6.60)	531 (10.40)	518 (9.10)	-2.60 (4.2)	0.1 (0.3)				

Table A.3.1 Index of Enjoyment of Reading and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of enjoyment of reading										Performance on the reading scale, by national/provincial quarters of this index				Change in the reading score per unit of this index	Explained variance in student performance (r-squared X 100)		
	All students	Males	Females	Gender difference (M - F)	Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter	Second quarter			Third quarter	Top quarter
					Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error						
Canada	0.13 (0.01)	-0.28 (0.02)	0.55 (0.02)	-0.83 (0.02)	-1.25 (0.01)	-0.24 (0.00)	0.45 (0.00)	1.57 (0.01)	1.82 (0.04)	473 (2.0)	506 (2.1)	542 (2.1)	582 (1.8)	35.70 (0.8)	20.1 (0.8)			
Newfoundland and Labrador	-0.06 (0.03)	-0.56 (0.05)	0.42 (0.05)	-0.97 (0.08)	-1.45 (0.05)	-0.49 (0.01)	0.26 (0.02)	1.45 (0.05)	1.82 (0.04)	458 (5.4)	477 (6.2)	529 (6.6)	567 (6.6)	35.75 (2.9)	21.8 (2.8)			
Prince Edward Island	0.18 (0.03)	-0.33 (0.04)	0.73 (0.05)	-1.06 (0.07)	-1.39 (0.04)	-0.24 (0.01)	0.54 (0.01)	1.82 (0.04)	1.82 (0.04)	418 (4.1)	465 (5.0)	521 (4.8)	556 (4.1)	39.81 (1.9)	28.7 (2.2)			
Nova Scotia	0.19 (0.03)	-0.27 (0.04)	0.66 (0.04)	-0.93 (0.05)	-1.19 (0.02)	-0.22 (0.02)	0.5 (0.01)	1.69 (0.03)	1.69 (0.03)	460 (4.8)	493 (4.6)	538 (3.9)	576 (4.6)	37.51 (2.1)	23.8 (2.0)			
New Brunswick	0.09 (0.03)	-0.32 (0.04)	0.50 (0.04)	-0.82 (0.06)	-1.43 (0.03)	-0.28 (0.01)	0.45 (0.01)	1.63 (0.04)	1.63 (0.04)	433 (4.2)	482 (5.2)	523 (4.4)	560 (4.2)	38.67 (1.7)	26.9 (2.0)			
Quebec	0.10 (0.02)	-0.29 (0.04)	0.47 (0.03)	-0.76 (0.05)	-1.34 (0.02)	-0.26 (0.01)	0.47 (0.01)	1.53 (0.02)	1.53 (0.02)	478 (3.5)	503 (5.1)	538 (4.2)	573 (3.2)	31.36 (1.2)	17.1 (1.2)			
Ontario	0.16 (0.03)	-0.31 (0.03)	0.62 (0.03)	-0.93 (0.04)	-1.20 (0.02)	-0.22 (0.01)	0.45 (0.01)	1.61 (0.03)	1.61 (0.03)	481 (4.3)	512 (3.9)	547 (4.3)	588 (3.5)	34.44 (1.7)	19.6 (1.8)			
Manitoba	0.05 (0.03)	-0.31 (0.05)	0.39 (0.04)	-0.70 (0.07)	-1.27 (0.03)	-0.33 (0.01)	0.33 (0.01)	1.47 (0.05)	1.47 (0.05)	444 (4.5)	474 (5.8)	511 (6.3)	560 (5.6)	40.68 (2.1)	22.4 (1.9)			
Saskatchewan	-0.02 (0.04)	-0.39 (0.06)	0.38 (0.04)	-0.76 (0.07)	-1.38 (0.02)	-0.40 (0.01)	0.31 (0.01)	1.38 (0.03)	1.38 (0.03)	454 (5.3)	480 (5.1)	522 (4.9)	565 (3.8)	39.44 (2.2)	22.5 (2.0)			
Alberta	0.15 (0.03)	-0.21 (0.03)	0.51 (0.04)	-0.71 (0.05)	-1.23 (0.03)	-0.18 (0.01)	0.47 (0.01)	1.56 (0.03)	1.56 (0.03)	478 (4.8)	511 (4.4)	554 (5.5)	595 (6.4)	39.18 (2.1)	20.8 (1.5)			
British Columbia	0.18 (0.03)	-0.18 (0.04)	0.55 (0.04)	-0.72 (0.05)	-1.14 (0.02)	-0.18 (0.01)	0.48 (0.01)	1.57 (0.03)	1.57 (0.03)	467 (5.4)	512 (5.5)	543 (4.6)	584 (3.9)	40.21 (1.9)	23.2 (1.9)			

Note: Results based on students' self-reports

Table A.3.2 Percentage of Students and Performance on the Reading Scale by Time Spent on Reading for Enjoyment

	Percentage of students by time spent on reading for enjoyment						Performance on the reading scale by time spent on reading for enjoyment:													
	I do not read for enjoyment		30 minutes or less a day		More than 30 minutes to less than 60 minutes a day		1 to 2 hours a day		More than 2 hours a day		I do not read for enjoyment		30 minutes or less a day		More than 30 minutes to less than 60 minutes a day		1 to 2 hours a day		More than 2 hours a day	
	%	Standard error	%	Standard error	%	Standard error	%	Standard error	%	Standard error	Score	Standard error	Score	Standard error	Score	Standard error	Score	Standard error	Score	Standard error
Canada	31.1	(0.5)	30.5	(0.5)	19.0	(0.4)	13.3	(0.4)	6.0	(0.2)	481	(1.9)	530	(1.8)	555	(2.2)	565	(2.5)	559	(3.7)
Newfoundland and Labrador	43.8	(1.4)	24.8	(1.6)	13.5	(1.1)	11.6	(1.0)	6.3	(0.8)	468	(4.7)	528	(4.9)	543	(7.8)	548	(10.6)	551	(14.0)
Prince Edward Island	32.2	(1.2)	28.4	(1.0)	18.9	(1.1)	13.3	(0.9)	7.1	(0.8)	423	(4.1)	498	(5.0)	533	(5.1)	545	(7.2)	531	(8.6)
Nova Scotia	35.8	(1.6)	29.0	(1.5)	17.1	(1.0)	12.5	(0.8)	5.6	(0.6)	472	(4.5)	524	(4.2)	553	(5.9)	557	(6.0)	571	(8.1)
New Brunswick	37.8	(1.3)	28.2	(1.2)	16.4	(1.1)	11.5	(0.9)	6.0	(0.6)	454	(4.3)	507	(4.6)	535	(5.6)	558	(7.4)	538	(8.8)
Quebec	34.5	(1.1)	33.1	(1.1)	17.2	(0.8)	10.6	(0.7)	4.6	(0.4)	484	(3.5)	534	(3.7)	553	(4.8)	561	(4.5)	548	(7.5)
Ontario	27.9	(1.1)	29.7	(1.0)	20.6	(0.8)	14.6	(0.7)	7.2	(0.5)	488	(4.3)	529	(3.5)	557	(4.7)	571	(4.6)	565	(6.5)
Manitoba	35.1	(1.4)	30.5	(1.2)	17.6	(1.4)	11.5	(0.9)	5.2	(0.7)	455	(4.0)	504	(5.2)	526	(9.7)	540	(7.3)	544	(10.7)
Saskatchewan	33.5	(1.5)	32.8	(1.0)	17.3	(0.8)	11.7	(1.0)	4.7	(0.6)	460	(4.6)	516	(4.5)	537	(5.0)	556	(6.4)	519	(12.4)
Alberta	30.8	(1.1)	29.9	(1.0)	19.5	(0.8)	14.4	(0.8)	5.3	(0.4)	487	(4.3)	539	(4.9)	566	(6.8)	571	(8.0)	563	(9.5)
British Columbia	30.3	(1.3)	30.0	(0.8)	19.4	(1.1)	14.5	(0.8)	5.8	(0.5)	477	(5.8)	532	(4.2)	557	(5.4)	559	(5.3)	562	(9.0)

Note: Results based on students' self-reports

Table A.3.3 Index of Diversity in Reading and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of diversity in reading										Performance on the reading scale, by national/provincial quarters of this index				Change in the reading score per unit of this index	Explained variance in student performance (r-squared X 100)	
	All students	Males	Females	Gender difference (M - F)		Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Standard error			Mean score
				Mean index	Standard error												
Canada	-0.11 (0.01)	-0.24 (0.02)	0.01 (0.01)	-0.25 (0.02)	-1.35 (0.01)	-0.33 (0.00)	0.21 (0.00)	1.03 (0.01)	499 (2.2)	524 (1.9)	534 (2.2)	545 (2.3)	18.41 (1.0)	4.3 (0.4)			
Newfoundland and Labrador	-0.58 (0.04)	-0.85 (0.06)	-0.32 (0.03)	-0.53 (0.06)	-1.96 (0.06)	-0.76 (0.02)	-0.20 (0.01)	0.60 (0.03)	475 (6.7)	508 (4.8)	525 (5.4)	522 (7.8)	20.17 (3.4)	5.9 (1.9)			
Prince Edward Island	-0.08 (0.03)	-0.27 (0.05)	0.11 (0.03)	-0.38 (0.05)	-1.41 (0.05)	-0.28 (0.01)	0.27 (0.01)	1.08 (0.04)	441 (4.7)	489 (5.0)	508 (5.1)	519 (5.3)	28.10 (2.5)	9.8 (1.5)			
Nova Scotia	-0.18 (0.03)	-0.34 (0.05)	-0.01 (0.04)	-0.34 (0.06)	-1.44 (0.05)	-0.39 (0.01)	0.15 (0.01)	0.97 (0.04)	485 (5.8)	514 (4.8)	521 (5.1)	548 (4.4)	23.03 (2.9)	7.4 (1.8)			
New Brunswick	-0.21 (0.03)	-0.32 (0.06)	-0.10 (0.03)	-0.23 (0.06)	-1.49 (0.05)	-0.42 (0.01)	0.14 (0.01)	0.94 (0.03)	468 (4.7)	490 (5.9)	514 (4.8)	525 (4.7)	21.37 (2.2)	6.0 (1.2)			
Quebec	-0.22 (0.02)	-0.31 (0.04)	-0.14 (0.02)	-0.17 (0.04)	-1.38 (0.03)	-0.41 (0.01)	0.11 (0.01)	0.80 (0.02)	504 (3.9)	522 (4.6)	530 (5.6)	536 (4.2)	16.11 (1.8)	2.9 (0.7)			
Ontario	-0.07 (0.03)	-0.22 (0.04)	0.09 (0.02)	-0.31 (0.04)	-1.36 (0.03)	-0.27 (0.01)	0.28 (0.01)	1.09 (0.02)	509 (4.7)	528 (4.1)	543 (4.1)	549 (4.1)	16.77 (1.9)	4.0 (0.9)			
Manitoba	-0.11 (0.03)	-0.28 (0.05)	0.05 (0.04)	-0.34 (0.07)	-1.37 (0.04)	-0.33 (0.01)	0.22 (0.01)	1.04 (0.03)	462 (5.3)	492 (5.4)	510 (7.2)	522 (6.6)	24.06 (3.7)	6.8 (2.0)			
Saskatchewan	-0.08 (0.03)	-0.17 (0.04)	0.02 (0.04)	-0.19 (0.05)	-1.21 (0.03)	-0.33 (0.01)	0.15 (0.01)	1.06 (0.04)	477 (5.6)	502 (5.3)	523 (5.4)	518 (5.6)	16.52 (3.3)	3.1 (1.2)			
Alberta	-0.09 (0.02)	-0.18 (0.04)	0.01 (0.03)	-0.19 (0.04)	-1.29 (0.03)	-0.33 (0.01)	0.22 (0.01)	1.05 (0.03)	503 (5.0)	536 (6.3)	541 (6.0)	554 (6.5)	21.31 (2.4)	4.8 (1.0)			
British Columbia	0.01 (0.03)	-0.08 (0.05)	0.10 (0.04)	-0.18 (0.05)	-1.24 (0.02)	-0.26 (0.01)	0.32 (0.01)	1.20 (0.02)	493 (4.9)	528 (5.8)	532 (5.7)	550 (5.5)	20.08 (2.0)	5.2 (1.1)			

Note: Results based on students' self-reports

Table A.3.4 Index of On-line Reading Activities and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of on-line reading activities										Performance on the reading scale, by national/provincial quarters of this index						Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)
	All students		Males		Females		Gender difference (M - F)		Bottom quarter		Second quarter		Third quarter		Top quarter		Standard error	Effect	
	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean score	Standard error			
Canada	-0.04 (0.01)	-0.03 (0.02)	-0.04 (0.02)	0.00 (0.02)	-1.09 (0.01)	-0.34 (0.00)	0.16 (0.00)	1.12 (0.02)	500 (2.1)	529 (2.0)	536 (2.2)	536 (2.8)	14.07 (1.2)	2.2 (0.4)					
Newfoundland and Labrador	-0.02 (0.03)	-0.08 (0.04)	0.04 (0.03)	-0.13 (0.05)	-0.97 (0.02)	-0.30 (0.01)	0.18 (0.01)	1.02 (0.04)	481 (5.4)	510 (6.2)	514 (8.3)	526 (6.2)	18.99 (4.1)	3.1 (1.3)					
Prince Edward Island	-0.19 (0.03)	-0.27 (0.04)	-0.10 (0.03)	-0.17 (0.05)	-1.32 (0.05)	-0.46 (0.01)	0.05 (0.01)	0.99 (0.04)	458 (5.7)	492 (4.6)	502 (5.7)	505 (4.5)	18.47 (2.9)	3.9 (1.2)					
Nova Scotia	-0.05 (0.02)	-0.03 (0.04)	-0.06 (0.03)	0.03 (0.05)	-1.10 (0.04)	-0.32 (0.01)	0.18 (0.01)	1.06 (0.03)	488 (5.0)	525 (4.2)	523 (4.1)	532 (5.5)	18.69 (2.7)	3.8 (1.1)					
New Brunswick	-0.13 (0.03)	-0.17 (0.04)	-0.09 (0.04)	-0.08 (0.05)	-1.22 (0.03)	-0.44 (0.01)	0.06 (0.01)	1.08 (0.05)	464 (5.1)	506 (5.2)	514 (5.6)	513 (4.9)	17.66 (2.6)	3.6 (1.1)					
Quebec	-0.27 (0.02)	-0.29 (0.02)	-0.26 (0.03)	-0.03 (0.03)	-1.23 (0.02)	-0.52 (0.01)	-0.08 (0.01)	0.73 (0.02)	496 (4.3)	526 (4.1)	535 (5.5)	535 (4.4)	15.93 (2.9)	2.2 (0.8)					
Ontario	0.12 (0.03)	0.12 (0.04)	0.12 (0.03)	0.00 (0.04)	-0.94 (0.03)	-0.19 (0.01)	0.31 (0.01)	1.29 (0.03)	512 (4.7)	538 (4.0)	536 (4.1)	542 (5.1)	10.42 (2.2)	1.3 (0.5)					
Manitoba	-0.20 (0.03)	-0.17 (0.05)	-0.22 (0.04)	0.05 (0.06)	-1.35 (0.07)	-0.50 (0.01)	0.00 (0.01)	1.07 (0.05)	474 (6.4)	495 (5.6)	517 (5.1)	500 (5.8)	8.99 (3.2)	1.0 (0.7)					
Saskatchewan	-0.33 (0.02)	-0.33 (0.03)	-0.34 (0.03)	0.01 (0.04)	-1.26 (0.02)	-0.63 (0.01)	-0.17 (0.01)	0.74 (0.04)	487 (5.9)	511 (4.8)	511 (4.5)	513 (6.3)	9.34 (3.7)	0.8 (0.6)					
Alberta	-0.09 (0.04)	-0.07 (0.05)	-0.12 (0.04)	0.05 (0.04)	-1.12 (0.03)	-0.40 (0.01)	0.12 (0.01)	1.04 (0.02)	503 (7.2)	534 (4.8)	547 (5.1)	550 (7.3)	19.50 (3.1)	3.5 (1.0)					
British Columbia	0.08 (0.04)	0.10 (0.05)	0.06 (0.04)	0.04 (0.04)	-1.02 (0.04)	-0.24 (0.01)	0.27 (0.01)	1.33 (0.03)	502 (4.9)	528 (4.9)	538 (4.9)	537 (5.6)	14.76 (1.9)	2.7 (0.7)					

Note: Results based on students' self-reports

Table A.3.5 Index of Memorization Strategies and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of memorization strategies										Performance on the reading scale, by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r^2 -squared X 100)		
	All students		Males		Females		Gender difference (M - F)		Bottom quarter		Second quarter		Third quarter		Top quarter			Standard error	Effect
	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean score	Standard error			
Canada	-0.02 (0.01)	-0.16 (0.02)	0.12 (0.02)	-0.28 (0.02)	-1.34 (0.02)	-0.27 (0.00)	0.30 (0.00)	1.22 (0.01)	523 (2.1)	526 (2.2)	528 (2.1)	525 (2.2)	3.30 (1.0)	0.2 (0.1)					
Newfoundland and Labrador	0.16 (0.03)	-0.05 (0.04)	0.36 (0.05)	-0.41 (0.06)	-1.19 (0.05)	-0.10 (0.01)	0.47 (0.02)	1.46 (0.04)	506 (7.4)	506 (7.0)	506 (5.7)	511 (7.2)	4.25 (3.2)	0.3 (0.5)					
Prince Edward Island	0.05 (0.03)	-0.19 (0.05)	0.31 (0.04)	-0.50 (0.07)	-1.40 (0.05)	-0.24 (0.01)	0.37 (0.01)	1.49 (0.04)	470 (5.6)	491 (5.1)	494 (4.7)	504 (4.9)	12.78 (2.1)	2.6 (0.8)					
Nova Scotia	0.01 (0.03)	-0.20 (0.05)	0.23 (0.04)	-0.43 (0.06)	-1.29 (0.05)	-0.27 (0.01)	0.31 (0.01)	1.29 (0.04)	514 (5.4)	518 (4.3)	518 (6.0)	518 (5.2)	3.90 (2.4)	0.2 (0.3)					
New Brunswick	0.03 (0.03)	-0.20 (0.05)	0.26 (0.04)	-0.46 (0.06)	-1.43 (0.05)	-0.20 (0.01)	0.39 (0.01)	1.37 (0.04)	494 (5.6)	497 (5.4)	502 (4.9)	505 (4.2)	4.95 (2.1)	0.4 (0.4)					
Quebec	-0.04 (0.02)	-0.19 (0.04)	0.09 (0.03)	-0.28 (0.05)	-1.28 (0.03)	-0.27 (0.01)	0.26 (0.01)	1.11 (0.02)	521 (4.6)	526 (4.2)	523 (4.5)	524 (3.7)	3.92 (2.0)	0.2 (0.2)					
Ontario	0.04 (0.03)	-0.10 (0.04)	0.19 (0.03)	-0.29 (0.04)	-1.29 (0.03)	-0.20 (0.01)	0.37 (0.01)	1.30 (0.03)	526 (4.5)	536 (4.3)	532 (4.4)	533 (4.5)	3.67 (1.9)	0.2 (0.2)					
Manitoba	-0.02 (0.03)	-0.22 (0.05)	0.16 (0.04)	-0.38 (0.06)	-1.40 (0.05)	-0.32 (0.01)	0.32 (0.01)	1.30 (0.04)	495 (6.0)	494 (6.5)	504 (5.6)	494 (6.0)	4.35 (2.6)	0.3 (0.3)					
Saskatchewan	0.02 (0.03)	-0.13 (0.04)	0.19 (0.04)	-0.32 (0.06)	-1.30 (0.05)	-0.27 (0.01)	0.34 (0.01)	1.32 (0.03)	499 (6.4)	498 (5.5)	511 (5.4)	513 (6.3)	9.00 (2.6)	1.2 (0.7)					
Alberta	-0.15 (0.03)	-0.25 (0.03)	-0.05 (0.04)	-0.20 (0.05)	-1.60 (0.03)	-0.39 (0.01)	0.20 (0.01)	1.17 (0.03)	540 (6.7)	537 (5.4)	533 (5.6)	525 (6.2)	-1.87 (2.7)	0.1 (0.2)					
British Columbia	-0.14 (0.02)	-0.22 (0.03)	-0.05 (0.04)	-0.16 (0.05)	-1.44 (0.04)	-0.37 (0.01)	0.19 (0.01)	1.07 (0.02)	523 (7.2)	528 (4.5)	527 (4.0)	524 (5.6)	3.68 (2.3)	0.2 (0.2)					

Note: Results based on students' self-reports

Table A.3.6 Index of Elaboration Strategies and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of elaboration strategies												Performance on the reading scale, by national/provincial quarters of this index				Change in the reading score per unit of this index		Explained variance in student performance (r-squared X 100)				
	All students			Males			Females			Gender difference (M - F)			Bottom quarter		Second quarter		Third quarter		Top quarter		Standard error	Effect	%
	Mean index	Standard error		Mean index	Standard error		Mean index	Standard error		Mean index	Standard error		Mean index	Standard error		Mean index	Standard error		Mean score	Standard error			
Canada	-0.21 (0.01)	-0.16 (0.02)	-0.25 (0.01)	0.09 (0.02)	-1.61 (0.01)	-0.45 (0.00)	0.16 (0.00)	1.08 (0.01)	526 (1.9)	522 (2.2)	527 (2.2)	527 (2.2)	527 (2.2)	527 (2.2)	511 (7.0)	511 (7.0)	527 (2.2)	527 (2.2)	527 (2.2)	527 (2.2)	2.59 (0.9)	4.10 (3.2)	0.1 (0.1)
Newfoundland and Labrador	-0.23 (0.03)	-0.17 (0.05)	-0.28 (0.04)	0.11 (0.06)	-1.66 (0.04)	-0.42 (0.01)	0.15 (0.01)	1.03 (0.03)	504 (7.7)	504 (7.1)	504 (7.1)	504 (7.1)	504 (7.1)	504 (7.1)	481 (5.4)	481 (5.4)	493 (5.2)	493 (5.2)	493 (5.2)	493 (5.2)	7.80 (2.3)	7.80 (2.3)	0.3 (0.4)
Prince Edward Island	-0.22 (0.03)	-0.23 (0.05)	-0.20 (0.04)	-0.03 (0.06)	-1.72 (0.03)	-0.44 (0.01)	0.16 (0.01)	1.14 (0.04)	479 (4.9)	481 (5.4)	481 (5.4)	481 (5.4)	481 (5.4)	481 (5.4)	479 (4.9)	479 (4.9)	493 (5.2)	493 (5.2)	493 (5.2)	493 (5.2)	7.80 (2.3)	7.80 (2.3)	0.9 (0.5)
Nova Scotia	-0.14 (0.04)	-0.15 (0.04)	-0.14 (0.05)	-0.01 (0.05)	-1.55 (0.04)	-0.38 (0.01)	0.22 (0.01)	1.14 (0.03)	509 (5.5)	512 (4.6)	512 (4.6)	512 (4.6)	512 (4.6)	512 (4.6)	509 (5.5)	509 (5.5)	528 (5.5)	528 (5.5)	528 (5.5)	528 (5.5)	7.24 (2.5)	7.24 (2.5)	0.8 (0.5)
New Brunswick	-0.17 (0.03)	-0.20 (0.05)	-0.15 (0.04)	-0.05 (0.07)	-1.67 (0.03)	-0.37 (0.01)	0.22 (0.01)	1.12 (0.04)	497 (5.0)	491 (4.9)	491 (4.9)	491 (4.9)	491 (4.9)	491 (4.9)	497 (5.0)	497 (5.0)	507 (5.2)	507 (5.2)	507 (5.2)	507 (5.2)	5.70 (2.4)	5.70 (2.4)	0.5 (0.5)
Quebec	-0.29 (0.02)	-0.21 (0.03)	-0.37 (0.02)	0.16 (0.04)	-1.64 (0.02)	-0.53 (0.01)	0.07 (0.01)	0.93 (0.02)	532 (4.0)	523 (3.9)	522 (4.6)	522 (4.6)	522 (4.6)	522 (4.6)	532 (4.0)	532 (4.0)	517 (4.6)	517 (4.6)	517 (4.6)	517 (4.6)	-3.05 (1.7)	-3.05 (1.7)	0.1 (0.1)
Ontario	-0.18 (0.03)	-0.15 (0.04)	-0.22 (0.03)	0.07 (0.05)	-1.59 (0.02)	-0.44 (0.01)	0.19 (0.01)	1.10 (0.03)	533 (3.7)	526 (4.2)	532 (4.5)	532 (4.5)	532 (4.5)	532 (4.5)	533 (3.7)	533 (3.7)	537 (4.4)	537 (4.4)	537 (4.4)	537 (4.4)	3.98 (1.6)	3.98 (1.6)	0.2 (0.2)
Manitoba	-0.24 (0.03)	-0.20 (0.04)	-0.28 (0.04)	0.07 (0.07)	-1.67 (0.03)	-0.45 (0.01)	0.10 (0.01)	1.06 (0.03)	502 (5.7)	492 (5.1)	492 (5.1)	492 (5.1)	492 (5.1)	492 (5.1)	502 (5.7)	502 (5.7)	490 (7.3)	490 (7.3)	490 (7.3)	490 (7.3)	-0.21 (2.6)	-0.21 (2.6)	0.0 (0.1)
Saskatchewan	-0.30 (0.03)	-0.27 (0.04)	-0.34 (0.05)	0.06 (0.06)	-1.67 (0.03)	-0.53 (0.01)	0.03 (0.01)	0.96 (0.03)	508 (5.0)	511 (5.6)	511 (5.6)	511 (5.6)	511 (5.6)	511 (5.6)	508 (5.0)	508 (5.0)	502 (5.9)	502 (5.9)	502 (5.9)	502 (5.9)	1.07 (2.7)	1.07 (2.7)	0.0 (0.1)
Alberta	-0.14 (0.03)	-0.08 (0.04)	-0.19 (0.04)	0.11 (0.05)	-1.60 (0.03)	-0.39 (0.01)	0.24 (0.01)	1.21 (0.04)	531 (6.1)	535 (4.6)	535 (4.6)	535 (4.6)	535 (4.6)	531 (6.1)	531 (6.1)	531 (6.6)	531 (6.6)	531 (6.6)	531 (6.6)	531 (6.6)	0.67 (2.3)	0.67 (2.3)	0.0 (0.1)
British Columbia	-0.15 (0.03)	-0.12 (0.04)	-0.19 (0.03)	0.06 (0.04)	-1.58 (0.02)	-0.38 (0.01)	0.23 (0.01)	1.12 (0.02)	516 (6.2)	522 (5.4)	522 (5.4)	522 (5.4)	522 (5.4)	516 (6.2)	516 (6.2)	530 (5.2)	530 (5.2)	530 (5.2)	530 (5.2)	530 (5.2)	6.92 (2.1)	6.92 (2.1)	0.7 (0.4)

Note: Results based on students' self-reports

Table A.3.7 Index of Control Strategies and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of control strategies										Performance on the reading scale, by national/provincial quarters of this index				Change in the reading score per unit of this index	Explained variance in student performance (r-squared X .100)
	All students	Males	Females	Gender difference (M - F)		Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Standard error		
				Mean index	Standard error										Mean index	Standard error
Canada	0.10 (0.01)	-0.09 (0.02)	0.30 (0.01)	-0.39 (0.02)	-1.25 (0.01)	-0.12 (0.00)	0.40 (0.00)	1.39 (0.01)	1.46 (0.04)	482 (2.2)	520 (1.5)	539 (2.1)	561 (2.3)	25.78 (1.0)	10.0 (0.7)	
Newfoundland and Labrador	0.14 (0.04)	-0.14 (0.05)	0.42 (0.05)	-0.56 (0.07)	-1.20 (0.06)	-0.11 (0.01)	0.42 (0.02)	1.46 (0.04)	469 (7.5)	501 (4.8)	522 (7.8)	537 (6.0)	23.45 (2.9)	8.5 (1.9)		
Prince Edward Island	-0.01 (0.04)	-0.29 (0.05)	0.29 (0.04)	-0.59 (0.06)	-1.60 (0.05)	-0.26 (0.01)	0.36 (0.01)	1.47 (0.04)	435 (5.4)	485 (4.1)	509 (4.7)	530 (4.9)	27.62 (2.2)	13.4 (1.9)		
Nova Scotia	0.07 (0.04)	-0.19 (0.06)	0.33 (0.04)	-0.51 (0.06)	-1.32 (0.05)	-0.24 (0.01)	0.39 (0.01)	1.44 (0.03)	480 (4.7)	511 (3.7)	524 (5.6)	553 (5.0)	21.78 (2.5)	8.0 (1.7)		
New Brunswick	-0.02 (0.04)	-0.25 (0.06)	0.20 (0.04)	-0.45 (0.07)	-1.57 (0.05)	-0.25 (0.01)	0.33 (0.01)	1.40 (0.04)	453 (5.0)	494 (5.0)	506 (4.6)	544 (4.9)	23.47 (2.0)	10.1 (1.6)		
Quebec	0.08 (0.02)	-0.14 (0.04)	0.28 (0.03)	-0.42 (0.04)	-1.23 (0.03)	-0.13 (0.01)	0.35 (0.00)	1.31 (0.02)	487 (4.8)	518 (3.9)	535 (3.8)	554 (4.3)	22.68 (2.0)	7.6 (1.3)		
Ontario	0.16 (0.03)	-0.04 (0.04)	0.37 (0.03)	-0.40 (0.05)	-1.17 (0.04)	-0.07 (0.01)	0.46 (0.01)	1.44 (0.02)	490 (4.6)	523 (3.3)	544 (4.0)	570 (4.1)	27.15 (2.0)	11.4 (1.5)		
Manitoba	-0.01 (0.03)	-0.20 (0.06)	0.17 (0.03)	-0.38 (0.06)	-1.44 (0.05)	-0.26 (0.01)	0.30 (0.01)	1.37 (0.04)	448 (5.0)	496 (5.0)	515 (6.3)	531 (5.3)	25.62 (2.2)	9.9 (1.6)		
Saskatchewan	-0.05 (0.03)	-0.24 (0.04)	0.16 (0.04)	-0.40 (0.06)	-1.36 (0.04)	-0.29 (0.01)	0.26 (0.01)	1.19 (0.03)	458 (5.5)	498 (5.7)	519 (4.3)	546 (5.4)	31.05 (2.5)	12.9 (2.0)		
Alberta	0.08 (0.03)	-0.08 (0.04)	0.24 (0.04)	-0.32 (0.04)	-1.38 (0.04)	-0.15 (0.01)	0.40 (0.01)	1.46 (0.03)	489 (6.0)	532 (4.7)	547 (5.6)	568 (6.2)	22.50 (2.6)	7.6 (1.5)		
British Columbia	0.09 (0.03)	-0.05 (0.05)	0.23 (0.04)	-0.28 (0.06)	-1.27 (0.04)	-0.15 (0.01)	0.39 (0.01)	1.39 (0.03)	479 (5.4)	524 (4.7)	539 (4.2)	560 (4.9)	27.75 (1.9)	11.3 (1.4)		

Note: Results based on students' self-reports

Table A.3.8 Index of Understanding and Remembering and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of understanding and remembering										Performance on the reading scale, by national/provincial quarters of this index				Change in the reading score per unit of this index	Explained variance in student performance (r-squared X 100)	
	All students	Males	Females	Gender difference (M - F)		Bottom quarter	Second quarter	Third quarter	Top quarter	Bottom quarter	Second quarter	Third quarter	Top quarter	Standard error			Effect
				Mean index	Standard error										Mean index	Standard error	
Canada	-0.03 (0.01)	-0.17 (0.02)	0.12 (0.01)	-0.29 (0.02)	-1.37 (0.01)	-0.37 (0.01)	0.42 (0.00)	1.22 (0.01)	1.22 (0.01)	490 (2.2)	519 (2.1)	541 (2.1)	559 (2.0)	27.23 (0.9)	27.23 (0.9)	9.4 (0.6)	
Newfoundland and Labrador	-0.07 (0.03)	-0.24 (0.06)	0.09 (0.04)	-0.33 (0.07)	-1.35 (0.03)	-0.40 (0.02)	0.32 (0.02)	1.14 (0.02)	1.14 (0.02)	482 (6.9)	498 (8.1)	517 (5.3)	538 (6.0)	25.34 (3.4)	25.34 (3.4)	7.9 (2.1)	
Prince Edward Island	-0.36 (0.03)	-0.57 (0.03)	-0.14 (0.04)	-0.43 (0.05)	-1.66 (0.01)	-0.76 (0.01)	0.07 (0.02)	0.92 (0.02)	0.92 (0.02)	445 (5.4)	483 (5.3)	511 (5.3)	531 (4.7)	33.21 (2.5)	33.21 (2.5)	12.6 (1.7)	
Nova Scotia	-0.19 (0.03)	-0.32 (0.04)	-0.06 (0.04)	-0.27 (0.06)	-1.50 (0.02)	-0.53 (0.01)	0.20 (0.01)	1.07 (0.02)	1.07 (0.02)	481 (5.2)	512 (5.4)	528 (5.0)	552 (5.0)	27.02 (2.4)	27.02 (2.4)	9.5 (1.6)	
New Brunswick	-0.19 (0.03)	-0.34 (0.04)	-0.04 (0.03)	-0.30 (0.05)	-1.49 (0.02)	-0.54 (0.01)	0.23 (0.01)	1.06 (0.02)	1.06 (0.02)	460 (4.8)	490 (4.1)	512 (5.1)	540 (4.9)	31.23 (2.2)	31.23 (2.2)	11.8 (1.5)	
Quebec	0.36 (0.02)	0.21 (0.03)	0.49 (0.02)	-0.28 (0.04)	-0.96 (0.02)	0.14 (0.01)	0.83 (0.01)	1.42 (0.00)	1.42 (0.00)	492 (4.4)	514 (4.2)	539 (3.8)	553 (4.2)	26.68 (2.0)	26.68 (2.0)	8.3 (1.2)	
Ontario	-0.15 (0.02)	-0.30 (0.03)	0.00 (0.03)	-0.31 (0.03)	-1.46 (0.01)	-0.49 (0.01)	0.29 (0.01)	1.07 (0.01)	1.07 (0.01)	499 (4.5)	523 (4.0)	546 (3.9)	567 (3.9)	27.39 (1.7)	27.39 (1.7)	9.7 (1.2)	
Manitoba	-0.24 (0.03)	-0.37 (0.05)	-0.11 (0.04)	-0.26 (0.06)	-1.61 (0.02)	-0.61 (0.01)	0.20 (0.01)	1.07 (0.02)	1.07 (0.02)	452 (5.3)	494 (5.3)	511 (5.0)	536 (5.2)	30.59 (2.5)	30.59 (2.5)	11.3 (1.9)	
Saskatchewan	-0.23 (0.02)	-0.37 (0.05)	-0.08 (0.04)	-0.30 (0.07)	-1.55 (0.02)	-0.63 (0.01)	0.20 (0.01)	1.05 (0.01)	1.05 (0.01)	469 (5.6)	498 (4.6)	513 (6.0)	545 (4.1)	28.69 (2.1)	28.69 (2.1)	10.1 (1.3)	
Alberta	-0.06 (0.03)	-0.18 (0.04)	0.06 (0.04)	-0.24 (0.05)	-1.40 (0.02)	-0.41 (0.01)	0.38 (0.01)	1.20 (0.01)	1.20 (0.01)	490 (5.5)	523 (6.2)	550 (5.0)	575 (5.7)	33.28 (2.2)	33.28 (2.2)	12.4 (1.4)	
British Columbia	-0.09 (0.03)	-0.21 (0.04)	0.04 (0.04)	-0.25 (0.04)	-1.46 (0.02)	-0.45 (0.01)	0.36 (0.01)	1.20 (0.01)	1.20 (0.01)	482 (5.1)	520 (5.2)	544 (4.6)	562 (4.6)	30.09 (1.9)	30.09 (1.9)	11.6 (1.4)	

Note: Results based on students' self-reports

Table A.3.9 Index of Summarizing and Performance on the Reading Scale, by National/Provincial Quarters of the Index

	Index of summarizing										Performance on the reading scale, by national/provincial quarters of this index						Change in the reading score per unit of this index	Standard error	Explained variance in student performance (r-squared X 100)
	All students		Males		Females		Gender difference (M - F)		Bottom quarter		Second quarter		Third quarter		Top quarter				
	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean index	Standard error	Mean score	Standard error			
Canada	0.02 (0.01)	-0.19 (0.01)	0.24 (0.01)	-0.43 (0.02)	-1.40 (0.01)	-0.16 (0.01)	0.49 (0.00)	1.17 (0.00)	476 (1.9)	520 (2.0)	543 (2.3)	568 (1.9)	35.29 (0.8)	15.7 (0.7)					
Newfoundland and Labrador	-0.25 (0.04)	-0.45 (0.05)	-0.06 (0.05)	-0.40 (0.07)	-1.71 (0.02)	-0.53 (0.02)	0.24 (0.02)	1.00 (0.02)	459 (7.1)	511 (5.4)	518 (6.0)	544 (5.5)	29.99 (2.8)	12.8 (2.3)					
Prince Edward Island	-0.35 (0.03)	-0.58 (0.04)	-0.12 (0.04)	-0.46 (0.06)	-1.83 (0.02)	-0.69 (0.02)	0.19 (0.02)	0.92 (0.02)	436 (5.4)	476 (4.8)	514 (5.1)	542 (4.7)	38.61 (2.5)	19.5 (2.1)					
Nova Scotia	-0.11 (0.03)	-0.34 (0.05)	0.12 (0.04)	-0.47 (0.06)	-1.54 (0.02)	-0.35 (0.02)	0.38 (0.01)	1.05 (0.02)	473 (4.5)	512 (5.4)	532 (4.9)	559 (4.9)	31.81 (2.3)	13.9 (1.9)					
New Brunswick	-0.13 (0.03)	-0.33 (0.04)	0.07 (0.04)	-0.40 (0.06)	-1.64 (0.02)	-0.36 (0.02)	0.39 (0.01)	1.09 (0.02)	440 (4.9)	499 (5.5)	515 (5.1)	545 (5.4)	36.87 (2.3)	18.6 (2.0)					
Quebec	0.29 (0.02)	0.13 (0.02)	0.44 (0.02)	-0.31 (0.03)	-0.87 (0.03)	0.18 (0.01)	0.61 (0.01)	1.24 (0.01)	482 (4.1)	520 (4.4)	543 (4.0)	553 (3.6)	34.25 (2.1)	11.4 (1.3)					
Ontario	0.00 (0.02)	-0.24 (0.03)	0.24 (0.03)	-0.48 (0.03)	-1.44 (0.02)	-0.21 (0.01)	0.48 (0.00)	1.17 (0.01)	484 (4.2)	524 (4.1)	550 (4.2)	576 (3.7)	34.31 (1.7)	16.2 (1.5)					
Manitoba	-0.24 (0.03)	-0.43 (0.04)	-0.07 (0.05)	-0.36 (0.07)	-1.70 (0.02)	-0.56 (0.01)	0.29 (0.01)	1.00 (0.02)	444 (5.7)	484 (5.5)	526 (5.0)	541 (4.8)	37.41 (2.4)	17.8 (2.2)					
Saskatchewan	-0.25 (0.03)	-0.48 (0.04)	0.01 (0.04)	-0.49 (0.06)	-1.68 (0.03)	-0.57 (0.01)	0.28 (0.01)	1.00 (0.02)	454 (5.9)	491 (4.8)	528 (4.6)	551 (4.4)	35.83 (2.4)	16.9 (1.8)					
Alberta	-0.08 (0.03)	-0.27 (0.03)	0.10 (0.04)	-0.37 (0.05)	-1.55 (0.03)	-0.31 (0.01)	0.41 (0.01)	1.13 (0.01)	477 (5.0)	529 (5.7)	553 (6.4)	580 (5.7)	38.23 (2.0)	17.5 (1.5)					
British Columbia	-0.04 (0.03)	-0.26 (0.04)	0.19 (0.03)	-0.45 (0.05)	-1.46 (0.02)	-0.28 (0.01)	0.42 (0.01)	1.15 (0.01)	469 (5.7)	515 (5.6)	545 (5.2)	577 (4.0)	41.09 (2.2)	21.2 (1.8)					

Note: Results based on students' self-reports