

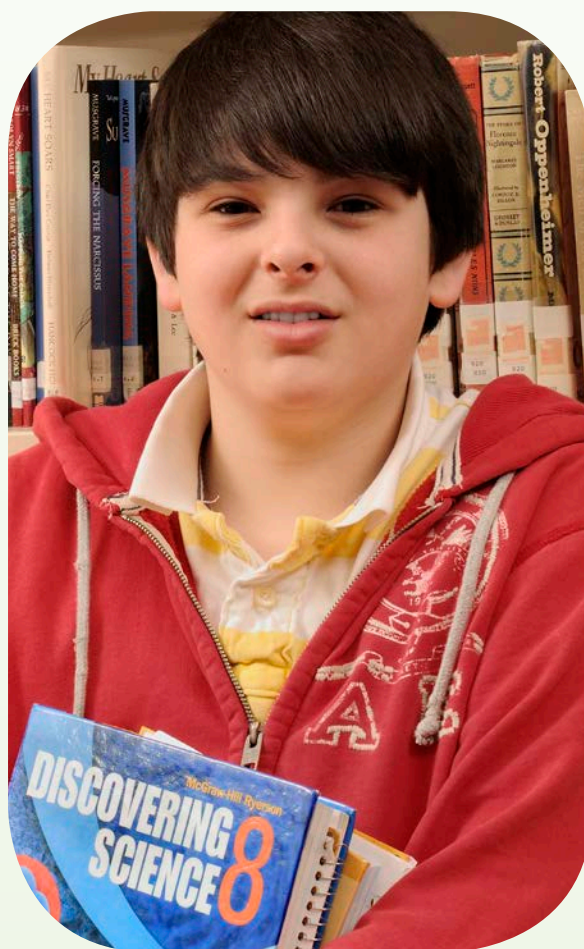
CHAPTER 7: PAN-CANADIAN ASSESSMENT PROGRAM

In 2010, over 32,000 Grade 8 students from across Canada took part in the Pan-Canadian Assessment Program (PCAP). This included 1,861 students from Newfoundland and Labrador. This chapter will provide an overview of how this province's students are performing in the three areas assessed: reading, mathematics and science. Information in this chapter was obtained from the PCAP-2010 report produced by the Council of Ministers of Education. This report can be viewed at <http://www.cmec.ca/Publications/Lists/Publications/Attachments/270/pcap2010.pdf>.

What is PCAP?

The Pan-Canadian Assessment Program (PCAP) was created by the Council of Ministers of Education, Canada (CMEC) to assess the performance of students in Grade 8 across three core subjects: reading, mathematics and science. Since the PCAP assessment is not tied to any specific provincial or territorial curriculum, it can be considered to be a fair measurement of a student's ability to use his/her learning skills to solve real-life situations.

Similar to PISA, PCAP is administered once every three years with each cycle assessing one major domain and two minor domains. In its first cycle in 2007, reading was the major domain and in 2010, it was mathematics.



Question types

The PCAP assessment is composed of two different question types. On selected response (or multiple choice) items, students are provided with a list of specific choices from which they must select a response. The second type is constructed response items where students must write a response to a question. This response can range from a single word or phrase to longer responses of two to three sentences. For the mathematics questions, responses can include symbols, numbers, graphs, diagrams, and calculations.

Performance measures

Two performance measures can be derived from the assessment results: mean (or average) score and proficiency level. In PCAP, the Canadian average score was set at 500 points with a standard deviation of 100. In other words, about two thirds of all the Canadian students scored between 400 and 600 points in the assessments. This standardization of the Canadian mean allows comparisons to be made across provincial jurisdictions.

Significant differences among the jurisdictions were calculated in the same way as on the PISA assessment – based on confidence intervals. The reported average scores in this report provide an estimate of the achievement result students would have demonstrated if all students participated in the assessment. Since these were estimated (not exact) scores, there was some degree of error produced. To take into account this error, a range of scores is provided for each estimated average score. This range of scores is called a confidence interval. PCAP used a 95% confidence interval which means the actual mean score should fall between the low and high points of the range, 95% of the time. In the charts in this chapter, the confidence intervals are represented by the following symbol: I—I. If the confidence intervals overlap, then the differences among the average scores are defined as not statistically significant.

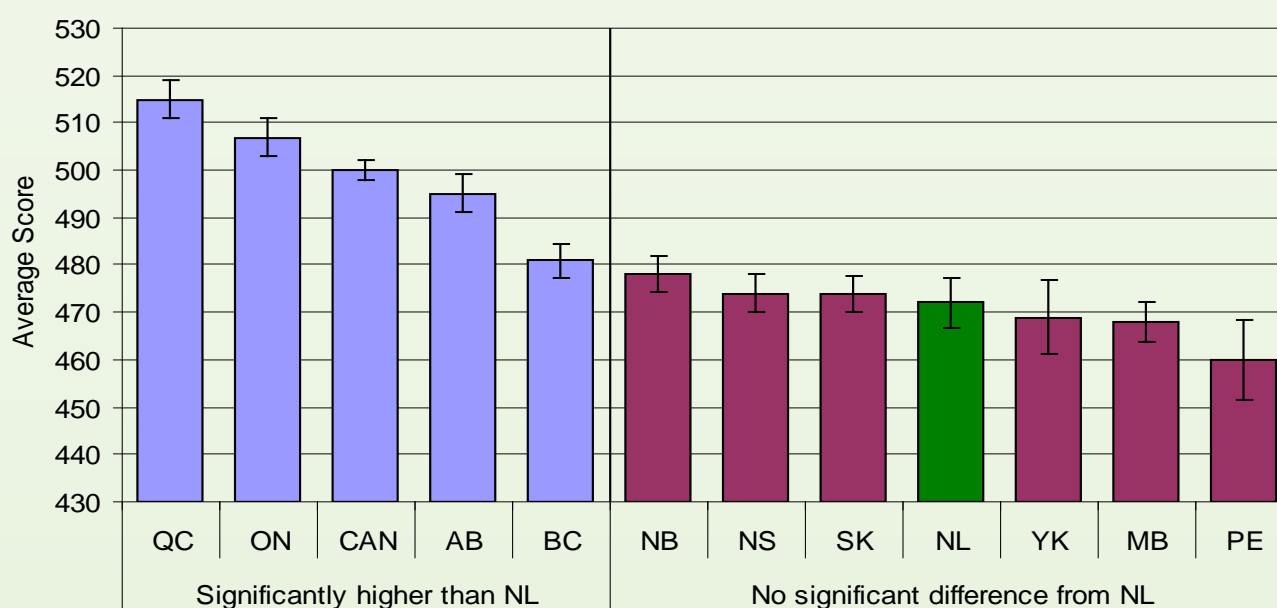
The second measure allows student performance to be ranked into four proficiency levels of increasing difficulty. A student assessed at a proficiency level of 4 would be able to demonstrate a greater depth of understanding as compared to a student assessed at level 1. Based on current curriculum expectations in mathematics across Canada, students in Grade 8 should demonstrate a proficiency of at least 2. Students who demonstrate a proficiency level of one are performing below what is expected in Grade 8.

Since reading and science were the minor domains in the 2010 assessment, proficiency levels were not reported. Also, gender differences at the provincial level were not available in these two subject areas.

The Mathematics Assessment

In Newfoundland and Labrador, the average score of the mathematics assessment was 472. As shown in figure 7.1, this was significantly lower than the Canadian average and the average in four provinces (Québec, Ontario, Alberta and British Columbia). There was no significant difference present between Newfoundland and Labrador and the remaining provinces where the average score ranged between 460 and 478.

Figure 7.1: Average scores in mathematics (PCAP-2010)



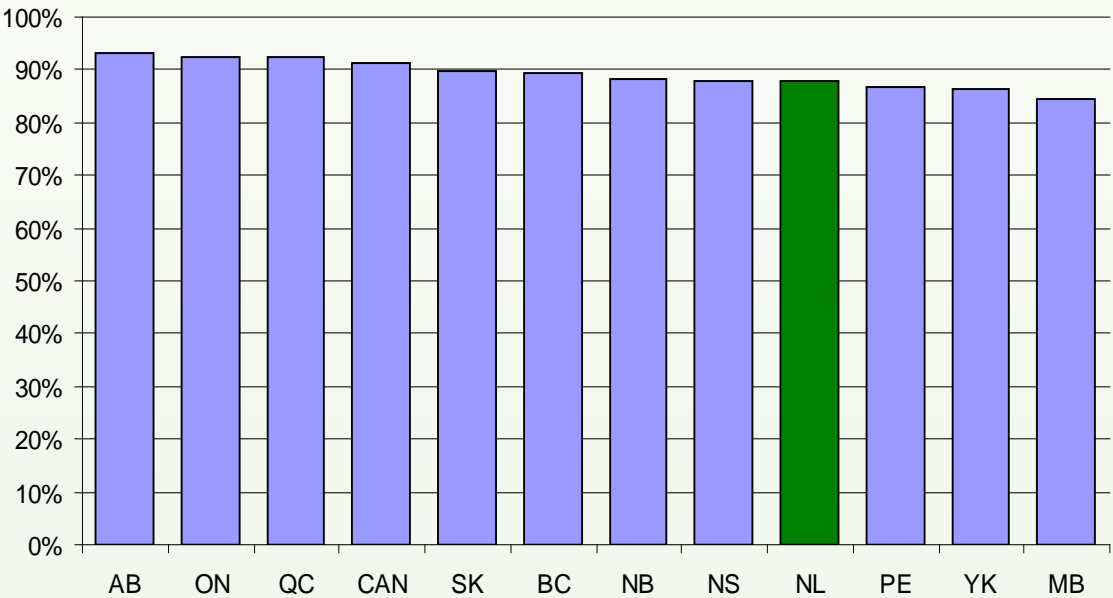
(Source: Table 7.1)



Proficiency levels

As previously stated, grade 8 students should be able to demonstrate a proficiency level of at least 2. As shown in figure 7.3, this was indeed the case. The percentage of students at or above level 2 ranged from 84% in Manitoba to 93% in Ontario. For Newfoundland and Labrador, this percentage was 89%.

Figure 7.2: Percentage of students with a proficiency of level 2 or higher (PCAP-2010)



(Source: Table 7.2)

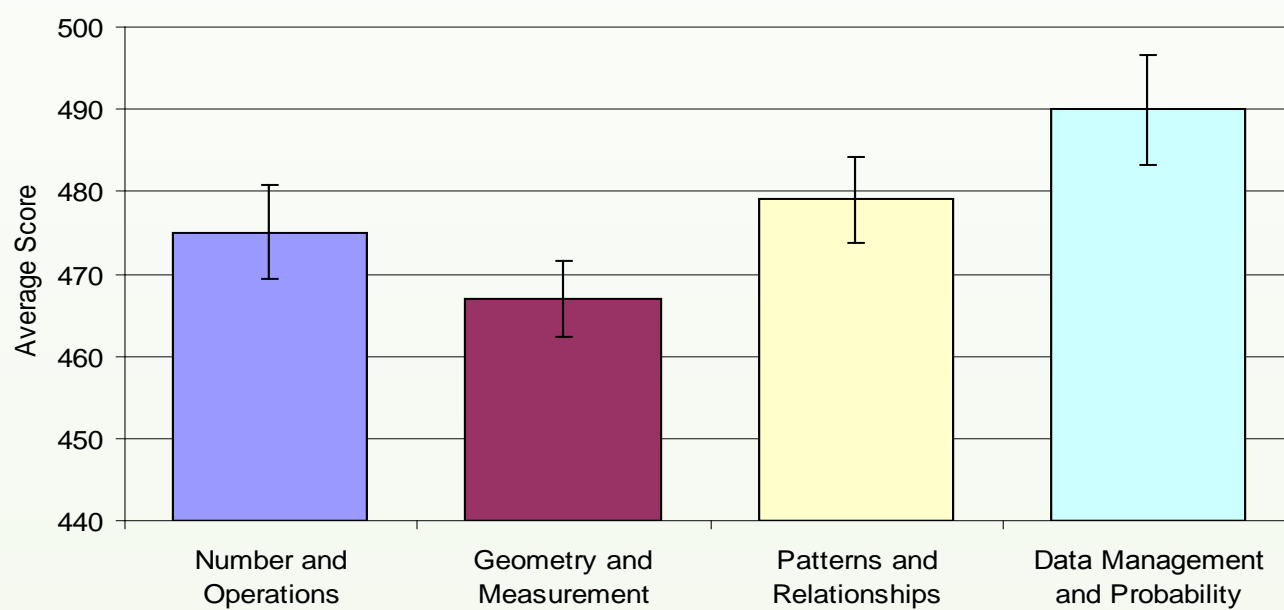
Mathematics sub-domains

PCAP assessed student ability in four sub-domains of mathematics: number and operations, geometry and measurement, patterns and relationships, and data management and probability.

In Newfoundland and Labrador, the average score ranged from a low of 467 on the geometry and measurement sub-domain to a high of 490 on the data management and probability sub-domain. The average score on the data management and probability sub-domain was significantly higher than the average score in both the number and operations, and the geometry and measurement sub-domains (see figure 7.3).

Table C compares the average score in Newfoundland and Labrador to the rest of Canada. As shown, the province performed the best on the data management and probability sub-domain where only two provinces (Ontario and Québec) had a significantly higher average score. On the other hand, on the number and operations sub-domain, six provinces had a significantly higher average score. Table 7.3 in Appendix A provides the actual average scores in each sub-domain.

Figure 7.3: Provincial average scores on the mathematics sub-domains (PCAP-2010)



(Source: Table 7.3)





Table C: Significant differences in average scores

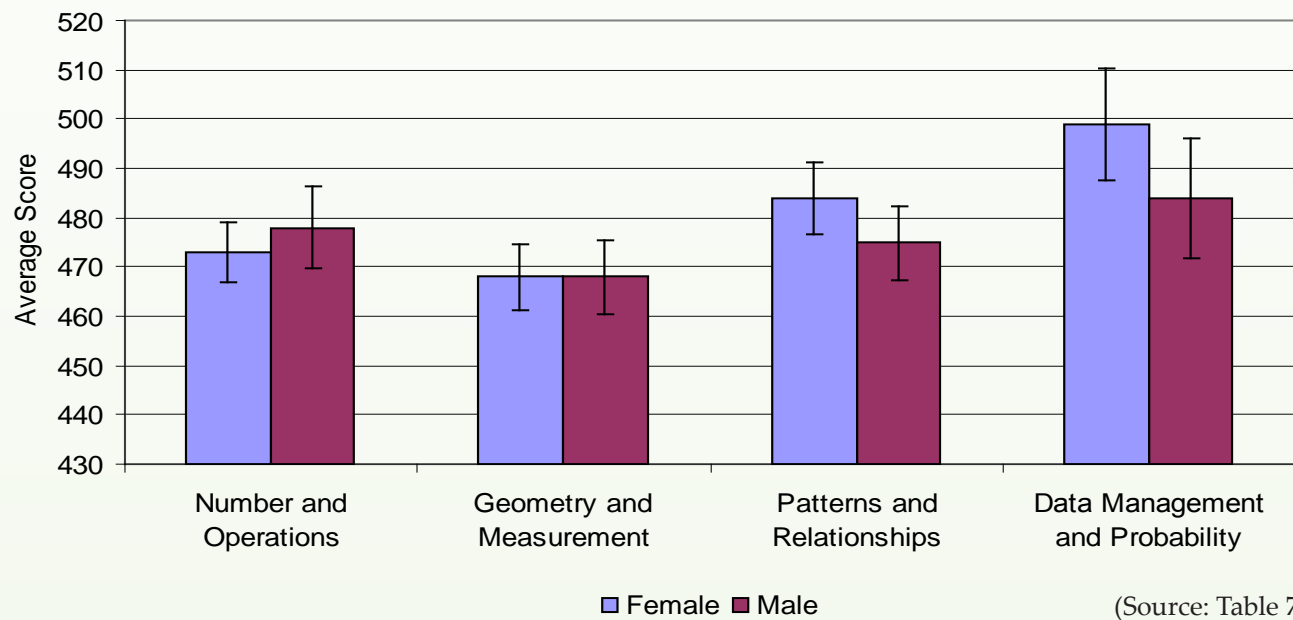
Mathematics sub-domain	List of provinces where the average score was:		
	Significantly higher than NL	Not significantly different	Significantly lower than NL
Number and Operations	British Columbia Alberta Saskatchewan Ontario Québec New Brunswick Canada	Manitoba Nova Scotia Prince Edward Island Yukon	--
Geometry and Measurement	Alberta Ontario Québec Nova Scotia Canada	British Columbia Saskatchewan New Brunswick Yukon	Manitoba Prince Edward Island
Patterns and Relationships	Alberta Ontario Québec Canada	British Columbia Saskatchewan Manitoba New Brunswick Nova Scotia Yukon	Prince Edward Island
Data Management and Probability	Ontario Québec Canada	British Columbia Alberta New Brunswick Nova Scotia	Saskatchewan Manitoba Prince Edward Island Yukon

Gender differences

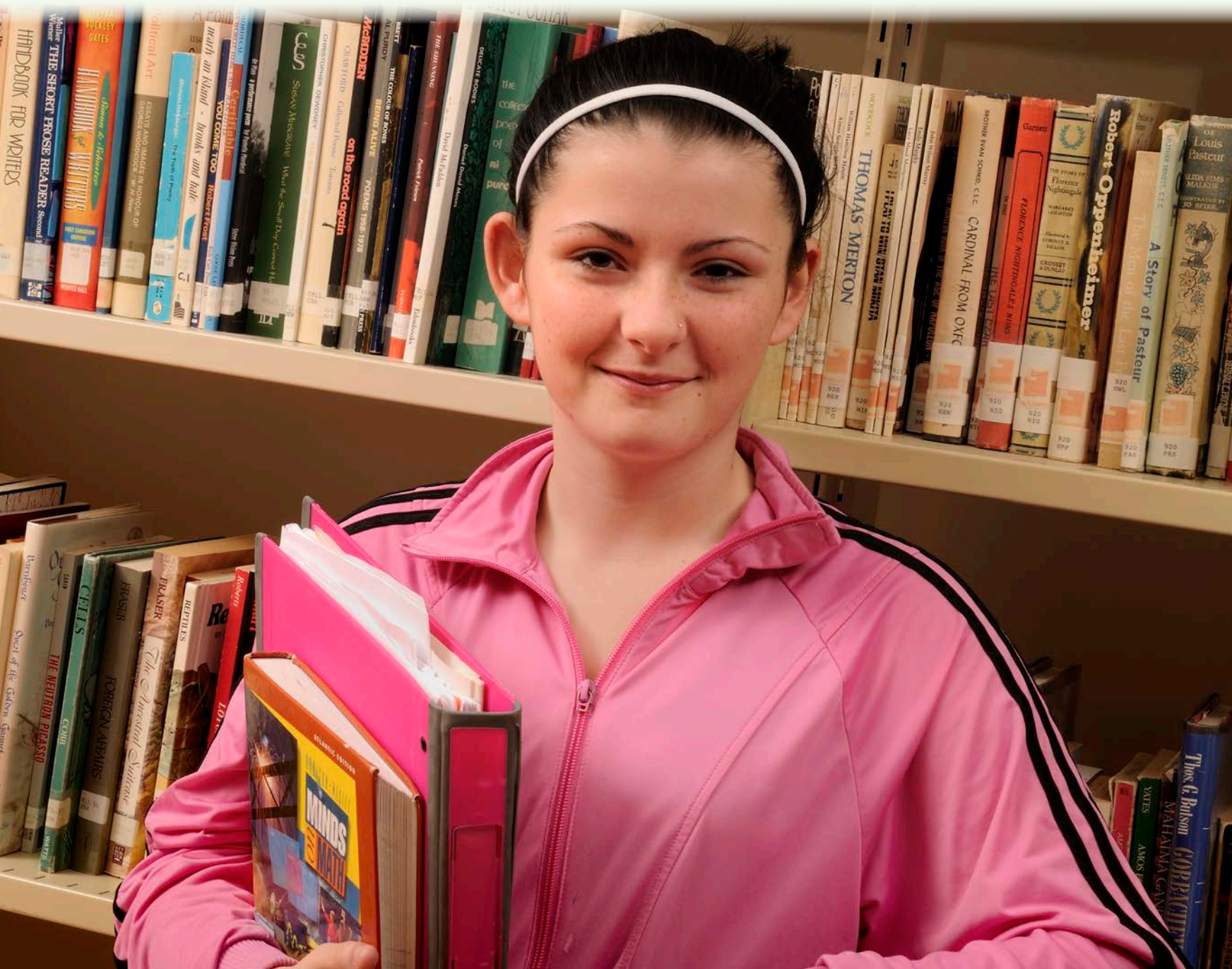
In general, there were typically no significant difference between the female and male average score across Canada. This was the case in Newfoundland and Labrador (see figure 7.4).

There was one exception to this. The male average score on the number and operations sub-domain in British Columbia, Alberta, Québec and Canada was significantly higher than the female average score.

Figure 7.4: Provincial gender differences in the average scores on the mathematics sub-domains (PCAP-2010)



(Source: Table 7.4)



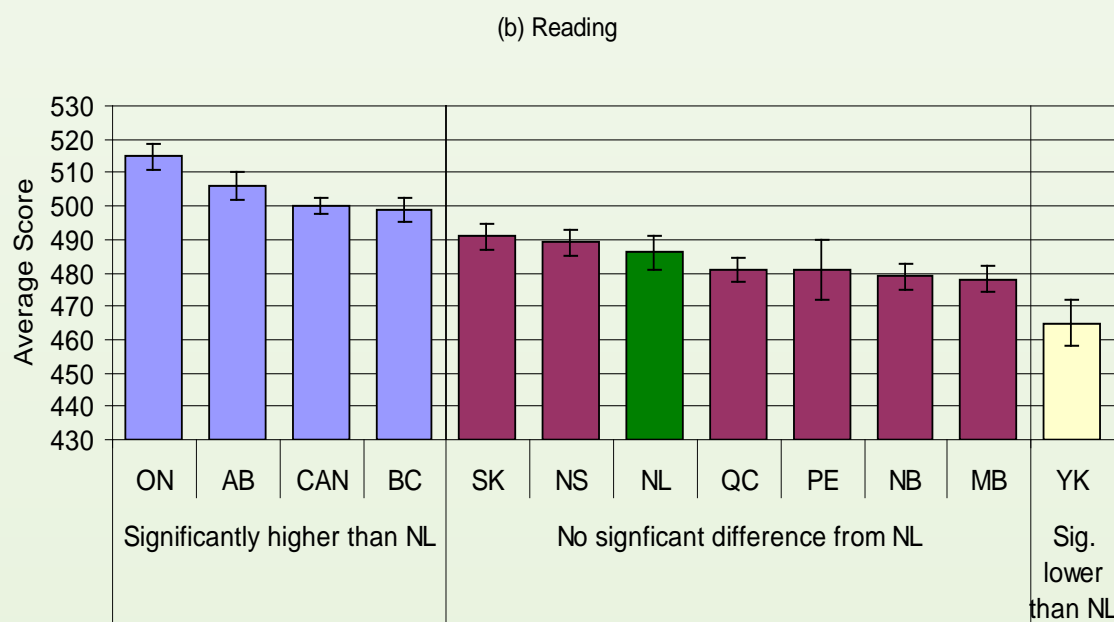
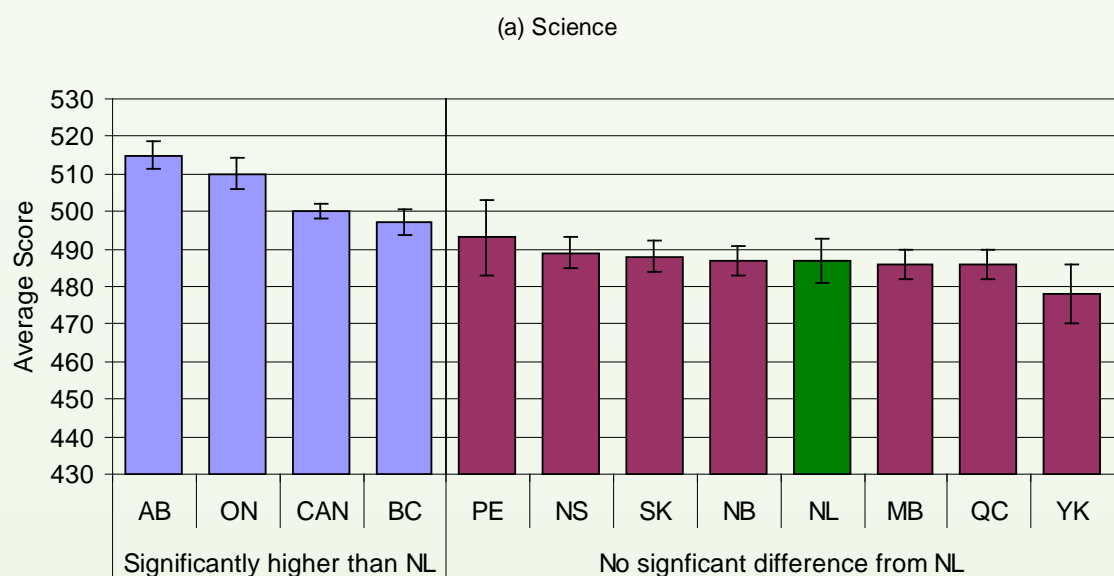


Across Canada, the average score on the science assessment ranged from a low of 478 in the Yukon Territory to 515 in Alberta. In Newfoundland and Labrador, the average score was 487. As shown in figure 7.5a, only three provinces (British Columbia, Alberta and Ontario) had a significantly higher score.

On the reading assessment, Canadian scores ranged from 465 in the Yukon Territory to 515 in Ontario. In this province, the average score was 486. Once again, only British Columbia, Alberta and Ontario achieved a significantly higher average score (see figure 7.5b).

In Newfoundland and Labrador, the female average score was significantly higher than the male average score. As shown in table D, this significant gender difference was present in most of the provinces across Canada. Table 7.5 in Appendix A provides the actual average scores.

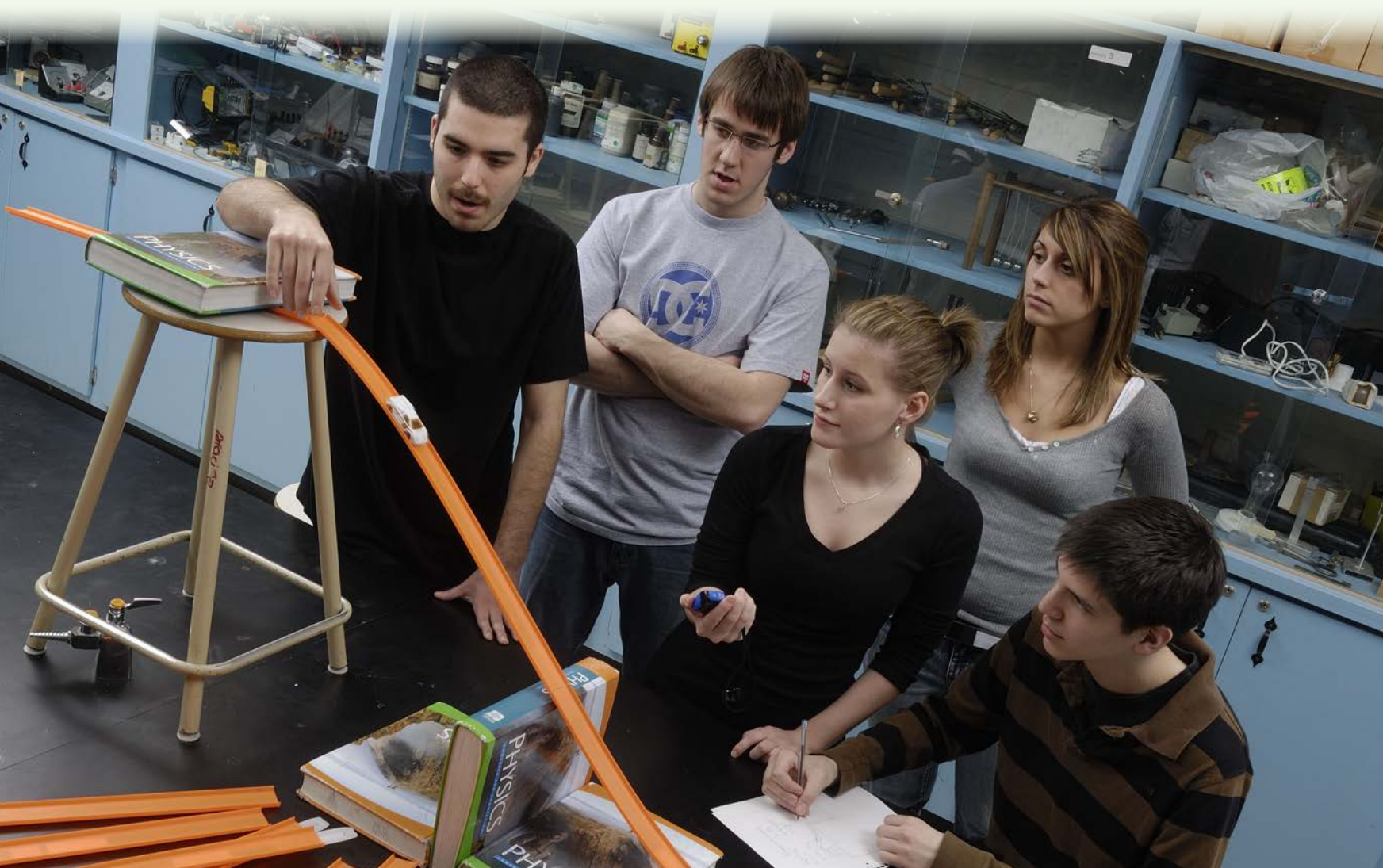
Figure 7.5: Average scores on the science and reading assessments (PCAP-2010)



(Source: Table 7.5)

Table D: Significant gender differences in the science and reading assessments

Subject area	Jurisdictions with a significant gender difference	Jurisdictions without a significant gender difference
Science	Saskatchewan Ontario Québec New Brunswick Nova Scotia Newfoundland and Labrador Canada	British Columbia Alberta Manitoba Prince Edward Island Yukon
Reading	British Columbia Alberta Saskatchewan Manitoba Ontario Québec New Brunswick Nova Scotia Newfoundland and Labrador Canada	Prince Edward Island Yukon





Provincial Trends

Average scores on the mathematics, science and reading assessments were available for the 2007 and 2009 administrations. In Newfoundland and Labrador, the average score on mathematics and science did not change significantly. The 2009 reading average score was significantly higher than 2007 with a difference of approximately 22 points (see figure 7.6).

Figure 7.6: Average scores (PCAP 2007 and 2010)

