Intelligence MEMOS

From: John Richards

To: Concerned Canadians

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Re: **A Back to School Wake-up Call**

In an industrial age, whether a country educates its children well is perhaps the most important determinant of whether the next generation will be prosperous or poor, whether income inequality will be high or low.

Good schools are not a panacea for avoiding all social ills, but weak schools are a guarantee of problems.

The gold standard in international assessment for 15 year olds is the Program for International Student Assessment (PISA), a massive 70-nation exercise, with a worldwide sample of 500,000 students, including more than 30,000 in Canada. It is conducted every three years and measures competence in reading, science and mathematics.

Until the last quarter of the 20th century, the United States was ahead of most other industrial countries in realizing primary then secondary education for nearly all children, a major – perhaps the major – factor in explaining the country's economic success in the 20th century. But there is no guarantee that a country can preserve its lead in education. For many reasons, over the past generation the United States has lost its pre-eminence. In the 2015 PISA round, its overall ranking among participating countries was 40th in mathematics, 24th in reading and 25th in science.

By contrast, Canada's PISA score has consistently ranked well above the average. In 2015, it was 10th in mathematics, third in reading and seventh in science. Overall, the Canadian school system is faring well and the initial reporting trumpeted that fact.

However, PISA also provides ample evidence to prompt some humility among Canadians.

There are three dimensions along which average Canadian outcomes are unsatisfactory.

1. Trends in mathematics: Since PISA's inauguration, overall Canadian performance in mathematics has consistently declined from one round to the next, and the gap between 2003 and 2015 results is statistically significant.
2. Gender gaps: Canada is not faring well on this dimension; it is close to the OECD average. In Canada, there are modest gender gaps in mathematics and science that favour boys. A much larger gender gap in reading favours girls. A less well-known result is that, across OECD countries including Canada and for all three subjects, the gaps increasingly favour girls at lower percentiles of combined-gender student performance. The gap favouring boys in science and mathematics disappears at lower percentiles, and the gap favouring girls in reading expands.
3. There are mediocre outcomes in the six small provinces, particularly Manitoba and Saskatchewan: From the base year for each subject, PISA score declines in all three subjects have been statistically significant in Manitoba and Saskatchewan. The scores in all three subjects in the two provinces are now below the base year averages for OECD member countries.

As well, if we consider 2015 provincial performance there are several other evident sources of concern: in Newfoundland, the declines in science and mathematics are statistically significant. In Ontario, the decline in mathematics is statistically significant. Alberta has declined from being the highest-performing province in 2003 to a 2015 score below the Canadian average in mathematics, one of eight of 10 provinces to display statistically significant declines. (The only exceptions are Quebec and Prince Edward Island.)

As school begins for another year, Canadians can take comfort that the K-12 school system is faring well overall. But there are reasons for humility. Educators, administrators and parents should use the PISA results as a guide to strategic directions in education policy to address Canada's troubling decline in mathematics performance and its serious gender gap in reading.

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