



Strategic Research La recherche stratégique

Skills in Canada

PRELIMINARY RESULTS OF THE PROGRAMME FOR THE INTERNATIONAL ASSESSMENT OF ADULT COMPETENCIES

Key Findings:

- While Canada's mean literacy score is at the OECD average of 273, the national literacy average for Aboriginal respondents is 13 points lower.
- Canada's mean numeracy score of 265 is just below the OECD average of 269. The gap between Aboriginal and non-Aboriginal respondents is greater for numeracy than literacy.
- Canada scored above the OECD average for problem solving using technology. Relatively small gaps between Aboriginal and non-Aboriginal respondents were found in Ontario, British Columbia, and Manitoba, while the largest gaps were found in the territories.
- The test was applied in French and English only, which may have affected results for some respondents with neither English nor French as their first language.

Background

What is the Programme for the International Assessment of Adult Competencies?

On October 8, 2013, the Organization for Economic Cooperation and Development (OECD) and 25 participating countries, including Canada, released data on literacy, numeracy, and problem solving in technology-rich environments as a part

of the Programme for the International Assessment of Adult Competencies (PIAAC). This latest international literacy and skills survey is the first to include nationally-representative information-processing skills for the off-reserve Aboriginal adult population (aged 16 to 65 years old).

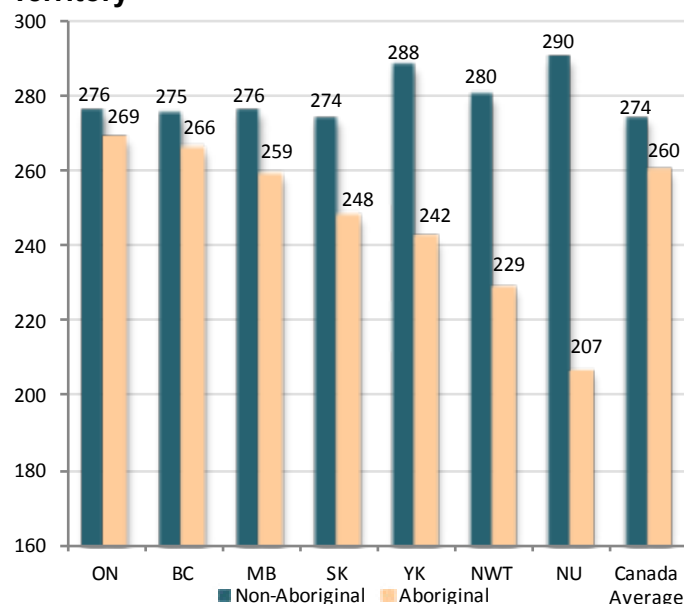
This strategic research brief draws on findings published in Statistics Canada's paper *Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies* and the *2011 National Household Survey*.

Measuring literacy, numeracy, and problem solving

PIAAC measures the three information-processing skills – literacy, numeracy, and problem solving in technology-rich environments.

- Literacy is defined as understanding, evaluating, using, and engaging with written texts to participate in society, to achieve one's goals, and to develop one's knowledge and potential. Literacy in PIAAC extends well beyond the skills of decoding or comprehending texts, to using them appropriately in context. This includes continuous texts (sentences or paragraphs) and non-continuous texts (words associated with graphics, maps, etc.).
- Numeracy is defined as the ability to access, use, interpret and communicate mathematical information and ideas, in order to engage in and manage the mathematical demands of a range of situations in adult life. This definition extends beyond quantity and numbers to include things like dimensions, shapes, proportions, relationships, and statistics.
- Problem Solving in Technology-Rich Environments (PS-TRE) is defined as using digital technology, communication tools, and networks to acquire and evaluate information, communicate with others, and perform practical tasks. It represents the intersection of what are sometimes described as "computer literacy" skills (or the capacity to use computer-based tools and applications) and the cognitive skills required to solve problems.

Figure 1: Average literacy scores of Aboriginal and non-Aboriginal respondents, by Province or Territory



Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012

These skills are measured through a direct assessment of each respondent and scored on a scale from a theoretical low of 0 to a high of 500. These scores are divided into five categories representing different competency levels for literacy and numeracy and three categories for PS-TRE. PIAAC also includes a module on skill use, including respondents' reading, numeric, and problem-solving behaviour at work and at home, as well as basic socio-economic and demographic information.

One consideration to keep in mind when interpreting PS-TRE scores is that not all respondents answered this portion of the survey. As a result, PS-TRE results are expressed as the percentage of people who completed the test achieving a certain skill level, with the proportion of PIAAC respondents who did not attempt the computer-administered PS-TRE test reported separately. Respondents did not take the computer-administered test if they either: declined to do so, said that they had never used a computer before, or failed a basic information and communications technology test.

Aboriginal data from PIAAC

PIAAC's Aboriginal sample covers all ten provinces and three territories. In the provinces, the sample covers a mostly urban population. In the territories, the sample is not limited to larger centres but also covers smaller communities. PIAAC does not include First Nation reserves. In addition to the national sample, four provinces (British Columbia, Saskatchewan, Manitoba, and Ontario) and all three territories funded Aboriginal-specific oversamples, allowing for regional-level analysis for these jurisdictions.

Various factors must be taken into account when trying to understand the results of Aboriginal respondents. Development of the skills tested by PIAAC are closely, but not entirely, linked to education. As such, the performance of Aboriginal respondents must be considered in the context of lower overall educational attainment rates observed in Canada's Aboriginal population. Furthermore, many Aboriginal adults, including (according to the 2011 National Household Survey) 84% of Inuit adults in Nunavut, have neither English nor French as their mother tongue, which may have had an impact on PIAAC results, as the test was administered in English and French only.

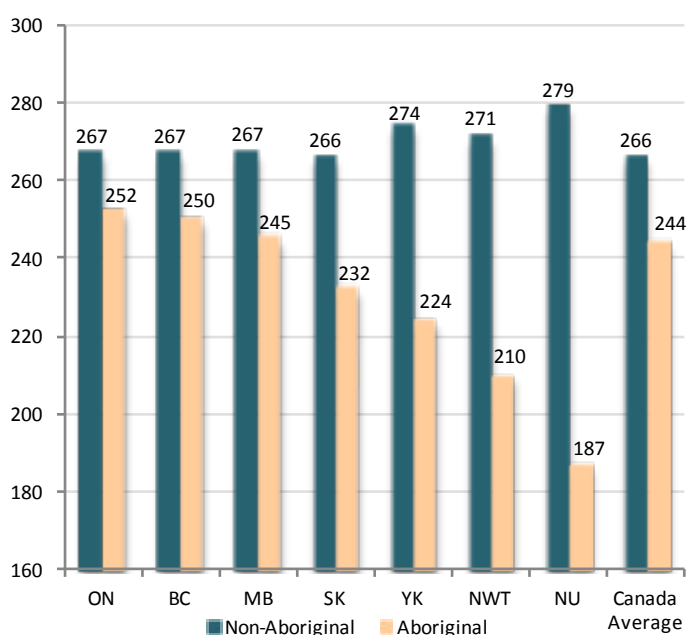
Finally, it is worth emphasizing that due to the urban focus of the survey sample outside the territories, PIAAC findings cannot be assumed to be representative of all Aboriginal peoples either nationally or within a particular region, as previous studies have shown profound demographic and socioeconomic differences among Aboriginal identity groups and between Aboriginal people living on- versus off-reserve.

How did Canada fare in the 2013 PIAAC?

Literacy

Internationally, average literacy scores ranged from a high of 296 in Japan to a low of 250 in Italy. Nationally, Canada had a mean literacy score of 273¹, which is at the OECD average. Fourteen percent of Canadians had a literacy score in the highest levels (levels 4 and 5) and 17% had a score in

Figure 2: Average numeracy scores of Aboriginal and non-Aboriginal respondents, by Province or Territory



Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012

the lowest levels (level 1 or below). Both of these figures are just above the OECD average, with more Canadians having scored both at the highest and lowest levels. Within Canada, scores ranged from 278 in Alberta to 219 in Nunavut. There was no difference in literacy scores between men and women at the national level. More information on national and international results can be found at the Canadian PIAAC site.

The average literacy score for Aboriginal adults is 260, thirteen points below the national score for all respondents and fourteen points below the national score of 274 for non-Aboriginal respondents. There were wide variations in numeracy between Aboriginal and non-Aboriginal Canadians across the country but the gaps were generally less pronounced within some provinces. For instance, Ontario (276 for non-Aboriginal versus 269 for Aboriginal respondents) and British Columbia (275 versus 266) had the smallest gaps. In contrast, Saskatchewan had a larger gap (274 versus 248) but it was not quite as large as those observed in the territories (288 versus 242 for Yukon, 280 versus 229 for the Northwest Territories, and 290 versus 207 for Nunavut - Figure 1).

Numeracy

The average international scores for numeracy ranged from a high of 288 in Japan to a low of 246 in Spain. Canada's mean numeracy score is 265, just under the OECD average of 269. Thirteen percent of Canadians had a numeracy score at the highest levels (level 4 or 5), which is the same as the OECD average. At the other end, 23% scored at the lowest levels (level 1 or below), which is a little higher than the OECD average. Canadian jurisdictions had numeracy scores ranging from 269 in Alberta to 201 in Nunavut. In Canada, men had higher numeracy scores than women.

The numeracy gap between Aboriginal and non-Aboriginal Canadians was greater than the literacy gap. The national score for all Aboriginal participants (244) is over twenty points below the non-Aboriginal Canadian average (266). The gaps for numeracy are wider in every province and territory, than are the gaps for literacy. Ontario, Manitoba, and British Columbia had the same numeracy scores for non-Aboriginal respondents (267), while in Saskatchewan non-Aboriginal respondents scored one point less (266). Aboriginal respondents in these four provinces obtained scores of 252, 250, 245, and 232, respectively. The territories, once again, had the widest gaps (279 versus 187 for Nunavut, 271 versus 210 for the Northwest Territories, and 274 versus 224 for Yukon - Figure 2).

Problem-solving in technology-rich environments

Compared internationally, Canada is above the average for PS-TRE, with 37% of all adults in the top two skill levels, compared to 34% for all participating OECD countries. Nationally, Alberta has the highest proportion in levels two or three (39.5%) and Nunavut the lowest (10.9%). One point of interest is the number of people who did not or were

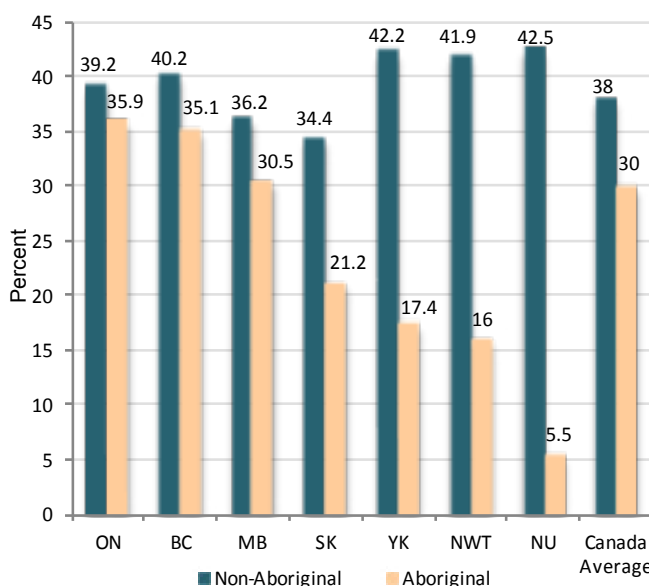
unable to take the PS-TRE test. The Canadian proportion of PS-TRE non-respondents was 19%, well below the OECD average of 24%.

Information-processing skill levels are higher for those with higher levels of schooling, those that are employed, and those in managerial and professional occupations. Age is an important factor, with younger adults receiving higher PS-TRE scores, though the difference between age groups largely disappears when looking at those with higher levels of education.

With respect to the comparison of Aboriginal and non-Aboriginal respondents, the same pattern as those observed in numeracy and literacy was repeated in the results on problem solving. Canada-wide, 30% of Aboriginal respondents achieved higher levels of problem solving (level 2 or 3), compared to 38% of non-Aboriginal Canadians. Relatively small gaps were revealed in the provinces, especially in Ontario (39.2% of non-Aboriginal respondents had a higher skill level versus 35.9% of Aboriginal respondents), British Columbia (40.2% versus 35.1%), and Manitoba (36.2% versus 30.5%). Consistent with other PIAAC results, Saskatchewan (34.4% versus 21.2%) posted a larger gap than the three other provinces studied but still did not match the major differences between Aboriginal and non-Aboriginal respondents found in the territories.

It is interesting to see that, as was the case for both literacy and numeracy, the Northwest Territories (41.9% versus 16%),

Figure 3: Proportion of Aboriginal and non-Aboriginal respondents with higher levels of problem solving skills in technology rich environments (level 2 or 3), by province or territory



Source: Statistics Canada, Programme for the International Assessment of Adult Competencies, 2012

Yukon (42.2% versus 17.4%), and Nunavut (42.5% versus 5.5%) posted the highest scores in Canada for non-Aboriginal respondents. In addition, it posted the lowest scores for Aboriginal respondents (Figure 3). It should also be noted that about 55% of Aboriginal respondents in Nunavut did not participate in the PS-TRE part of the study for one of the three reasons stated above.

Conclusion

Canada scored at the international average or slightly lower in terms of literacy and numeracy. It scored above average in problem solving in technology-rich environments. However, a significant gap exists between the off-reserve Aboriginal and the non-Aboriginal populations. Large variations are also present among the different parts of the country. Certain provinces, such as Ontario and British Columbia, show a smaller difference between these two populations. Others, like Saskatchewan, demonstrate larger gaps but the territories, particularly Nunavut, have the widest gaps by far. Any efforts undertaken to reduce the skills gap between Aboriginal and non-Aboriginal Canadians will require detailed information and solid analysis on the complex realities behind literacy, numeracy, and problem solving in technology rich environments.

Note

1. Mean scores for Canada include all Canadian respondents, Aboriginal and Non-Aboriginal alike. This means that the scores for Non-Aboriginal Canadians are slightly higher than for all Canadians.

Disclaimer

The views expressed in this report are solely those of the authors and do not necessarily reflect those of
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QS-6355-000-EE-A1 Catalogue : R3-222/2015E-PDF ISBN: 978-1-100-25852-2