Skills in Canada: First results from the Programme for the International Assessment of Adult Competencies, 2012 (final)

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According to a new international survey on adult competencies led by the Organisation for Economic Co-operation and Development (OECD), Canadian adults aged 16 to 65 had above average skills among countries surveyed in problem solving in technology-rich environments.

Given the centrality of written communication and basic mathematics in virtually all areas of life, coupled with the rapid integration of information and communication technology, individuals must be able to understand, process, and respond to textual and numerical information, in print and digital form, if they are to participate fully in society — whether as citizens, family members, consumers or employees.

In order to assess people's level of proficiency in skills related to literacy, numeracy and problem solving in technology-rich environments (referred to as PS-TRE), and to understand how those skills are being used, Canada took part in 2012 in the OECD Programme for the International Assessment of Adult Competencies (PIAAC). PIAAC provides internationally comparable measures of these three skills that are essential to processing information. PS-TRE is an innovative component of PIAAC and is unique in incorporating digital technology in the solution of problems. PS-TRE was only assessed for respondents who did the assessment using the computer. Those who were unable to complete the PIAAC assessment by computer were assessed by paper in the other domains.

Among the 22 countries taking part in PIAAC, 19 countries participated in PS-TRE. Of those, Canada had the second-largest proportion of adults aged 16 to 65 who perform at the highest level in PS-TRE.

A high proportion of Canadians engage with information and communication technologies compared with the OECD average

With 81% of its population doing the assessment using the computer-based assessment, Canada was above the OECD average of 74%. The proportion of those who completed the computer-based assessment version of PIAAC varied from 88% in Sweden to 44% in Cyprus. Almost all provinces and territories were at or above the OECD average.

Canada is among the countries with the largest proportion of adults who perform at the highest level of PS-TRE

Adults were grouped into levels of proficiency based on their performance in PS-TRE. Among Canadians surveyed, 37% scored at the top two levels (Level 2 or 3) on the PS-TRE scale, which was above the OECD average of 34%.

Overall, 7% of Canadians performed at the highest level (Level 3) in PS-TRE, meaning they can complete tasks involving multiple applications and a large number of steps in an environment that may be unfamiliar, and they can establish a plan to arrive at a solution as they deal with unexpected outcomes and impasses. At this level, Canada was above the OECD average of 6%, and only Sweden had a higher proportion. Within Canada, two provinces, Ontario and Alberta, exceeded the OECD average.

On the other hand, 15% of Canadians fell below Level 1, which is 3 percentage points higher than the OECD average. These individuals display the basic information and communication technology abilities for undertaking the test, but have difficulty in their ability to solve problems.

Among Canadians surveyed, 30% performed at Level 1, which was similar to the OECD average. Individuals at Level 1 can solve problems that have an explicitly stated goal, and that involve a relatively small number of steps to be completed in a familiar environment.

Among participating countries, Canada has a higher proportion of its population at the highest and lowest levels in literacy

On a scale of 0 to 500, Canada's performance in literacy was similar to the OECD average of 273 points. However, 14% of Canadians scored at Level 4 or 5, meaning they can undertake tasks that involve integrating information across multiple dense texts and reasoning by inference. This places Canada above the OECD average of 12%. Among the provinces and territories, Alberta, British Columbia and Ontario each registered a proportion of adults scoring at Level 4 or 5 higher than the OECD average.

At the other end of the scale, on average, 17% of Canadians scored at Level 1 or below compared with 15% across OECD countries.

Among respondents, 13% scored at Level 1. These individuals have skills that enable them to undertake tasks of limited complexity, such as locating single pieces of information in short texts in the absence of other distracting information.

The remaining 4% scored below Level 1 and do not have these skills. They demonstrate only basic vocabulary, as well as the ability to read brief texts on familiar topics to locate a single piece of specific information.

Among participating countries, Canada has a similar proportion of its population at the highest levels of numeracy, and a higher proportion at the lowest levels

Canada's average score of 265 points in numeracy was below the OECD average (269). About 13% of Canadians scored at Level 4 or 5 in numeracy proficiency, which means they can understand complex mathematical information and work with mathematical arguments and models. This proportion was equal to the OECD average. No provinces or territories had a proportion of their population scoring higher than the OECD average.

At the low end of the scale, a higher proportion of Canadians (23%) scored at Level 1 or below, compared with the OECD average of 19%. Among respondents, 17% scored at Level 1, which means that they have the skills to perform simple mathematical operations involving a single step, such as counting or ordering. The remaining 6% fell below Level 1, which means they can cope with very simple tasks placed in concrete, familiar contexts where the mathematical content is explicit and requires only simple processes.

Note to readers

This is the first release of data analysis from the Programme for the International Assessment of Adult Competencies (PIAAC). PIAAC is a joint education and labour initiative of the Organisation for Economic Co-operation and Development (OECD) and provides internationally comparable measures of the following three skills that are essential to processing information.

***Literacy**: defined as the ability to engage with written texts (print-based and digital) and thereby participate in society, achieve goals, and develop their knowledge and potential. This requires accessing, identifying, and processing information from a variety of texts that relate to a range of settings.*

***Numeracy**: defined as the ability to engage with mathematical information in order to manage the mathematical demands of a range of situations in everyday life. This requires understanding mathematical content and ideas (for example, quantities, numbers, dimensions, relationships), and the representation of that content (for example, objects, pictures, diagrams, graphs).*

***Problem solving in technology-rich environments (referred to as PS-TRE)**: defined as the ability to use digital technology, communications tools, and networks to acquire and evaluate information, communicate with others, and perform practical tasks. This requires understanding technology (for example, hardware, software applications, commands and functions) and solving problems with it. Measurement is divided into two different but related parameters: 1) familiarity with computers and how to use them; and 2) the ability to solve problems commonly encountered in a technology-rich world.*

The skill of adults in literacy, numeracy and PS-TRE was assessed using a computer-based assessment. However, a portion of respondents were given a paper based assessment if they did not have experience with computers, were not able to pass a simple test of their basic computer skills, or they opted out.

Literacy and numeracy were measured on a continuous scale ranging from 0 to 500 and are reported as either the average proficiency of the population (average score) or as the distribution of the population across five proficiency levels from 1 to 5 with an additional category, "below Level 1". Level 1 contains respondents displaying the lowest level of ability. Levels 4 and 5 were combined for both literacy and numeracy and contain those with the highest level of ability.

PS-TRE was assessed using a measurement scale ranging from 0 to 500 and was only reported for individuals who had experience with computers and were able to pass a test of their basic computer skills. In order to take into account the proportion of the population who does not have a score for PS-TRE, results for PS-TRE focus on the proportion of the population by proficiency levels only. PS-TRE is reported using three proficiency levels with an additional category, "below Level 1".

Definitions, data sources and methods: survey number 4406.

The report *Programme for the International Assessment of Adult Competencies Series*: "Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies (PIAAC)," 2012 (89-555-X2013001), is now available from the *Browse by key resource* module of our website under *Publications*.

Additional tables are available on the Council of Ministers of Education, Canada website.

An international public use microdata file, which includes data for all participating Programme for the International Assessment of Adult Competencies countries, is available on the Organisation for Economic Co-operation and Development (OECD) website.

The International Report published by the OECD is also available on the OECD website.

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; infostats@statcan.gc.ca) or Media Relations (613-951-4636; mediahotline@statcan.gc.ca).