



Skills of Official-Language Minority Communities in Canada:

Findings from the Programme for the International Assessment of Adult Competencies (PIAAC)



Government
of Canada

Gouvernement
du Canada



cmec

Council of
Ministers
of Education,
Canada

Conseil des
ministres
de l'Éducation
(Canada)

This report was prepared by Sarah Bergeron, Édith Duclos, Mohsen Bouaissa, and Bruno Rainville from Employment and Social Development Canada (ESDC). We acknowledge the valuable comments and suggestions we received from Jean-Pierre Corbeil of Statistics Canada, Geneviève Brouyaux of the Government of Ontario, Marcel Lavoie of the Government of New Brunswick, Employment Social Development Canada officials, the Council of Ministers of Education, Canada (CMEC), and members of the working group that was created for the preparation of this report as part of the PIAAC research partnership.

The opinions expressed and arguments employed herein do not necessarily reflect the official views of ESDC, CMEC, or the other provincial/territorial or federal departments and agencies involved in PIAAC.

CONTENTS

TABLES AND FIGURES.....	i
Executive Summary	1
Note to Reader	2
What is PIAAC?.....	2
Key skills: literacy, numeracy, and problem solving in technology-rich environments (PS-TRE) ...	3
Main elements of PIAAC in Canada.....	3
Interpretation of the report data	5
CHAPTER 1: Introduction.....	7
CHAPTER 2: PIAAC’s Definition of the First Official Language Spoken	11
CHAPTER 3: Linguistic Context of OLMCs.....	15
3.1 Changes in the OLMC population according to censuses.....	16
3.2 Sociodemographic portrait of OLMCs according to PIAAC.....	17
3.2.1 Francophones outside Quebec.....	17
3.2.2 Anglophones in Quebec.....	19
3.3 Description of minority-language behaviours according to PIAAC data	20
3.3.1 Francophones outside Quebec.....	20
3.3.2 Anglophones in Quebec.....	24
CHAPTER 4: Skills Profile of OLMCs	25
4.1 Skills of linguistic minorities.....	26
4.1.1 Literacy skills	26
4.1.2 Numeracy skills	26
4.1.3 Problem solving in technology-rich environments (PS-TRE) skills.....	26

4.2 Differences between the skills of the official-language minority and the majority by age and gender	29
4.3 Skills of the official-language minority according to certain linguistic characteristics	32
4.3.1 Skills of francophones outside Quebec	32
4.3.2 Skills of anglophones in Quebec.....	32
4.4 Differences between the skills of the official-language minority and the majority by regional indicators.....	36
4.4.1 Skills of francophones outside Quebec	36
4.4.2 Skills of anglophones in Quebec.....	39
CHAPTER 5: Skills and Socioeconomic Factors	41
5.1 Differences in skills by highest level of education obtained	42
5.1.1 Skills of francophones outside Quebec	42
5.1.2 Skills of anglophones in Quebec.....	42
5.2 Skills and labour force status.....	46
5.2.1 Skills of francophones outside Quebec	46
5.2.2 Skills of anglophones in Quebec.....	46
CHAPTER 6: The Factors that Influence Skills.....	49
6.1 The results of multivariate analyses.....	50
Conclusion	52
APPENDIX I: TABLES	53
APPENDIX II: DEFINITIONS	75
References	79

TABLES AND FIGURES

Table 2.1	Derivation of the first official language spoken with PIAAC data
Table 2.2	Number of observations and population estimates of OLMCs, Canada and oversampled provinces, 2012
Table 3.1	Changes in the proportion of OLMCs in the population (in %)
Table 3.2	Sociodemographic characteristics, by language group, oversampled provinces, 2012
Table 3.3	Distribution of official-language minority population aged 16 to 65, by mother tongue(s), oversampled provinces, 2012
Table 3.4	Distribution of official-language minority population aged 16 to 65, by language spoken most often at home, languages spoken regularly at home, and test language, oversampled provinces, 2012
Table 3.5	Distribution of official-language minority population aged 16 to 65, by language spoken most often at home and test language, oversampled provinces, 2012
Table 3.6	Distribution of official-language minority population aged 16 to 65, by language spoken most often at work and test language, oversampled provinces, 2012
Figure 4.1	Literacy—Averages and proficiency levels of population aged 16 to 65, by language group, oversampled provinces, 2012
Figure 4.2	Numeracy—Averages and proficiency levels of population aged 16 to 65, by language group, Canada and oversampled provinces, 2012
Figure 4.3	Proportion of population aged 16 to 65, by language group and test-administration method, Canada and oversampled provinces, 2012
Figure 4.4	PS-TRE—Distributions of proficiency levels of population aged 16 to 65, by language group, Canada and oversampled provinces, 2012
Figure 4.5	Literacy—Average scores of population aged 16 to 65, by language and age group, oversampled provinces, 2012
Figure 4.6	Numeracy—Average scores of population aged 16 to 65, by language and age group, oversampled provinces, 2012
Figure 4.7	PS-TRE—Distributions of proficiency levels of population aged 16 to 65, by language, age group, and gender, oversampled provinces, 2012
Figure 4.8	Literacy and numeracy—Average scores of population aged 16 to 65, by language group and gender, oversampled provinces, 2012
Figure 4.9	Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by language spoken most often at home, oversampled provinces, 2012
Figure 4.10	PS-TRE—Distribution of proficiency levels of official-language minority population aged 16 to 65, by language spoken most often at home, oversampled provinces, 2012

- Figure 4.11 Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by test language, oversampled provinces, 2012
- Figure 4.12 PS-TRE—Distribution of proficiency levels of official-language minority population aged 16 to 65, by test language, oversampled provinces, 2012
- Figure 4.13 Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by immigrant status, oversampled provinces, 2012
- Figure 4.14 PS-TRE—Distribution of proficiency levels of official-language minority population aged 16 to 65, by immigrant status, oversampled province, 2012
- Figure 4.15 Literacy and numeracy—Average scores of population aged 16 to 65, by language group and region size, oversampled provinces, 2012
- Figure 4.16 PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and region size, oversampled provinces, 2012
- Figure 4.17 Literacy and numeracy—Average scores of population aged 16 to 65, by language group and economic region, oversampled provinces, 2012
- Figure 5.1 Literacy and numeracy—Average scores of population aged 16 to 65, by language group and highest level of education, oversampled provinces, 2012
- Figure 5.2 Literacy and numeracy—Average scores of population aged 16 to 65, by language group, highest level of education and age group, oversampled provinces, 2012
- Figure 5.3 PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and highest level of education, oversampled provinces, 2012
- Figure 5.4 PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group, highest level of education, and age group, oversampled provinces, 2012
- Figure 5.5 Literacy and numeracy—Average scores of population aged 16 to 65, by language group and labour force status, oversampled provinces, 2012
- Figure 5.6 PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and labour force status, oversampled provinces, 2012
- Figure 6.1 Estimated coefficients for OLMCs' indicators, literacy score regressions, population aged 16 to 65, oversampled provinces, 2012

Executive Summary

This report is part of a thematic series on the information-processing skills of the Canadian population, based on data from the Programme for the International Assessment of Adult Competencies (PIAAC), an international assessment led by the Organisation for Economic Co-operation and Development (OECD). It presents a detailed analysis of the skills of official-language minority communities (OLMCs) in literacy, numeracy, and problem solving in technology-rich environments (PS-TRE) in order to compare them with those of their respective linguistic majority. The minority language groups oversampled in PIAAC include francophones in New Brunswick, Ontario, and Manitoba, as well as anglophones in Quebec. The report also attempts to determine whether the literacy skills gaps identified between anglophones and francophones persist when sociodemographic factors are taken into account through multivariate analyses. The main findings of the report are as follows:

- Compared to other linguistic minorities, francophones in New Brunswick are more likely to have an education level below a high-school diploma; their rate of nonparticipation in the labour force is higher; and the majority live in rural areas. Unlike francophones in Manitoba and Ontario, who regularly speak English at home, only 36 percent of francophones in New Brunswick regularly speak English at home. Nearly 90 percent speak French most often at home, while this proportion is much lower among francophones in Manitoba and Ontario (49% and 60%, respectively).
- Overall, only New Brunswick's francophone linguistic minority has lower proficiency levels than the anglophone linguistic majority in each of the three skills. By contrast, a higher proportion of anglophones in Quebec rank higher in numeracy and PS-TRE.
- The differences in skills proficiency (lower results) by age and gender are mainly found among the oldest francophones (aged 45 to 65) in New Brunswick, and as much among men as among women. On the other hand, the anglophone linguistic minority in Quebec between the ages of 45 and 65 stands out in PS-TRE compared with francophones, ranking at the higher levels in higher proportions. The same trend is observed among anglophone men.
- Francophones in New Brunswick who live in rural areas have lower literacy and PS-TRE skills than anglophones, and those who live in a small population centre have lower PS-TRE skills only.
- Minorities in the Moncton–Richibucto area of New Brunswick and in Ottawa, Ontario, have lower levels in literacy and numeracy skills.
- Members of the linguistic minority in New Brunswick who do not have a high-school diploma or who have postsecondary education below the bachelor's level obtained lower literacy scores than anglophones. In Quebec, members of the anglophone minority who have a bachelor's degree or higher had lower literacy scores than francophones. For PS-TRE skills, only francophones in New Brunswick who do not have a high-school diploma have lower skill levels, while a greater proportion of anglophones in Quebec who have postsecondary education below the bachelor's level rank higher in PS-TRE. When examining differences among individuals with the same level of education by age, we find that only New Brunswick francophone respondents aged 45 to 65 have lower scores in all three skills.
- Francophones in New Brunswick who are employed or not in the labour force have lower results than those of anglophones in the same groups in all three skills. By contrast, francophones in Manitoba (regardless of their employment status) have higher literacy scores than the linguistic majority. Similarly, the unemployed linguistic minority in Quebec stands out for higher literacy scores, and the minority not in the labour force in Quebec are notable for their higher proportion at higher levels in PS-TRE.

- When comparing linguistic minorities among themselves according to their language behaviours, we notice some differences. Anglophones in Quebec who speak a non-official language most often at home have lower literacy and numeracy scores and rank in lower proportion at higher levels in PS-TRE, and francophones in New Brunswick who took the test in French have lower average literacy scores than those who took the test in English.
- The results of the multivariate analyses suggest that when controlling for key demographic and socioeconomic factors that may influence respondents' skills, only francophones in New Brunswick have lower average literacy scores than their linguistic majority. Moreover, an examination of linguistic minorities according to the language spoken most often at home reveals that those who speak French most often at home have lower literacy scores than those who speak English. This is the case for francophones in Ontario and New Brunswick, as well as anglophones in Quebec who speak French or a non-official language most often at home. However, Quebec anglophones who speak English most often at home have higher literacy scores.

Note to Reader

What is PIAAC?

An initiative of the Organisation for Economic Co-operation and Development (OECD), the Programme for the International Assessment of Adult Competencies (PIAAC) is a survey of adults aged 16 to 65. Its aims to assess key cognitive and workplace-acquired skills that are essential for successful participation in 21st-century society and in the global economy.

PIAAC provides direct assessment of cognitive skills in literacy, numeracy, and problem solving in technology-rich environments (PS-TRE). Its comprehensive background questionnaire also provides information on a number of other skills and personal characteristics.

In Canada, PIAAC was conducted by Statistics Canada and made possible through the collaboration of provincial and territorial ministers of education, through the Council of Ministers of Education, Canada (CMEC), and the government of Canada through Employment and Social Development Canada (ESDC). For definitions of terms used and background information on PIAAC in Canada, please refer to the pan-Canadian report entitled *Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies (PIAAC)* (Statistics Canada, 2013) or visit <http://www.peicacda.ca/589/HOMEPAGE.html>.

Key skills: literacy, numeracy, and problem solving in technology-rich environments (PS-TRE)

Canada joined PIAAC to enable the measurement of skills in an international context.¹ The program, based on previous international assessments, provides internationally comparable measures of three essential information-processing skills: literacy, numeracy, and PS-TRE. Given the critical importance of written communication and basic mathematics in virtually all aspects of life, as well as the rapid integration of information and communication technologies (ICTs), people must be able to understand, process, and respond to textual and digital information both in printed and digital form to participate fully in society.

Literacy, numeracy, and PS-TRE are considered essential to this ability. Literacy and numeracy skills, regardless of the language in which they are acquired, serve as the basis for learning other, higher-order cognitive skills. Together with PS-TRE, they are prerequisites for accessing and gaining an adequate understanding of specific areas of knowledge. They are also essential in a wide range of contexts at school, at work, and in everyday life.

Main elements of PIAAC in Canada

The PIAAC survey is made up of three main parts: a background questionnaire, a direct assessment of skills, and a module on the use of skills.

Background questionnaire

The PIAAC background questionnaire provides context for the results of the skills assessment by categorizing survey participants according to a range of factors that influence skills development and maintenance. In particular, the questionnaire makes it easy to analyze the distribution of skills in relation to sociodemographic and socioeconomic variables. It also makes it possible to examine which outcomes can be associated with skills. The questionnaire is divided into the following sections:

- demographic characteristics (e.g., Indigenous identity, age, gender, immigrant status);
- education and training (e.g., educational attainment, place and year of graduation, field of study);
- employment status and earnings (e.g., employed or not, type of work, earnings); and
- social and linguistic background (e.g., self-reported health status, language spoken at home).

Direct assessment of skills

The component being directly assessed measures one of the three skills that are essential for information processing. Participants in the assessment respond in the official language of their choice (English or French), so the results depend on their proficiency in that language. Each skill is measured along a continuum and in a context that situates its use. To facilitate the interpretation of the results, the continuum has been divided into different levels of proficiency. These do not represent strict demarcations between abilities, but rather describe a set of skills that individuals possess to a greater or lesser degree. This does not mean that

¹ The OECD refers to PIAAC as the “Survey of Adult Skills.”

individuals scoring at lower levels cannot perform tasks at a higher level but simply that they are less likely to complete them than individuals scoring at the higher level.

PIAAC recognizes that concepts such as literacy, numeracy, and PS-TRE are too complex and diverse to be represented by a single measure. For example, there are multiple forms of literacy, rather than a single one. Therefore, the purpose of assessment is not to redefine or simplify these concepts; rather, it is to evaluate a specific, measurable dimension of them. The skills assessed by PIAAC are defined in terms of three parameters: content, cognitive strategies, and context. Content and cognitive strategies are defined by a specific framework, which describes the element being measured and guides the interpretation of results (OECD, 2013). The context defines the different situations in which each of these skills is used, including work, education, personal life, and society.

Literacy

In PIAAC, 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” (OECD, 2013, p. 59).

The test’s goal is to measure respondents’ ability to engage with written texts (print-based and digital) and thereby participate in society, achieve goals, and develop their knowledge and potential. The process requires accessing, identifying, and processing information from a variety of texts that relate to a range of settings.

PIAAC also includes an assessment of reading components designed to provide information about adults with very low levels of proficiency in reading. Assessment measures skills in print vocabulary (matching words with the picture of an object), sentence processing (deciding whether a sentence makes logical sense), and passage comprehension (selecting words that make the most sense in the given context). The results for the assessment of reading components are not included in the series of thematic reports.

Numeracy

PIAAC defines numeracy 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” (OECD, 2013, p. 59).

Its goal is to measure the respondents’ ability to engage with mathematical information in order to manage the mathematical demands of a range of situations in everyday life. The process requires understanding mathematical content and ideas (e.g., quantities, numbers, dimensions, relationships) and the representation of that content (e.g., objects, pictures, diagrams, graphs).

The PIAAC definition was designed to assess how mathematical concepts are applied in the real world, not to determine whether a person can solve a set of equations in isolation.

Problem Solving in Technology-Rich Environments (PS-TRE)

The goal in assessing PS-TRE is to measure respondents' ability to “use digital technology, communications tools, and networks to acquire and evaluate information, communicate with others, and perform practical tasks” (OECD, 2013, p. 59).

The process requires understanding technology (e.g., hardware, software applications, commands, and functions) and solving problems with it. The measurement of this skill is divided into two distinct but related parameters: (1) familiarity with computers and how to use them and (2) the ability to solve problems commonly encountered in technology-rich environments.

Module on the use of skills

The module on the use of skills collects self-reported information on how a range of skills are used at work and in everyday life, including the frequency and intensity of use. It includes information about the use of the following elements: cognitive skills (such as engagement in reading, numeracy, and ICT); noncognitive skills (such as the capacity to work collaboratively or as a member of a team); organizational skills (such as communication, planning, and influencing skills); and workplace skills (such as autonomy over key aspects of work and what kind of skills are employed at work).

Interpretation of the report data

Like all comparative studies, PIAAC was designed and implemented in such a way that the results are valid, reliable, comparable, and interpretable. It identifies and quantifies possible errors and elements that may hinder or distort interpretation and, in all cases where an error or element of this type occurs, a note under the graphs or tables alerts readers. Under each graph in this report, there is a reference to the corresponding table in the appendix, which contains more information that may be useful to the reader.

The data in this report are based on estimates from representative samples of adults in Canada. There is therefore a risk of sampling error to be taken into account when analyzing the results. Sampling error is inversely proportional to sample size, that is, the probability of error is greater at the level of a province or territory than at the overall level of Canada. This situation is further complicated by the “measurement error,” that is, the difference that may arise from the fact that all respondents are not responding to the same items (they respond only to a sample of items chosen, and their results are then applied by extrapolation to the overall questionnaire). The total degree of uncertainty introduced by the sampling error and measurement error is expressed by a statistical value called standard error.

When comparing the average results of provinces, territories, or population subgroups, researchers must take into account the degree of error associated with each of the results to determine whether the differences in the results are real or only apparent. The standard error is used to make this determination. If the intervals in which the results would fall do not overlap (taking into account the standard error), it is because the differences between these results are statistically significant. The differences highlighted in the text are statistically significant unless otherwise stated. When a value is followed by an asterisk, the differences identified are statistically significant. It does not necessarily follow that the differences have a concrete impact, but only that differences can be observed.

The PIAAC results do not allow readers to deduce a causal relationship between different variables (e.g., education or age) and the corresponding outcome. Although such links may indeed exist, statistical analysis only describes them. Further research on the underlying factors should be conducted to understand why such a particular trend appears to be emerging.

Rounding

In the text and figures of this report, all figures are generally rounded to the nearest whole number. The figures in the tables have been rounded to the nearest number, to one decimal place. However, there may be a lack of consistency in the tables and text with regard to the points of difference between the results. All points of difference between the results mentioned in the text are based on unrounded data. Therefore, if the reader calculates the points of difference between the results from the figures in the tables, the results may be slightly different from those formulated in the text.

Placing results in the proper context

Comparisons between Canadian provinces in this report must take into account the fact that the populations surveyed began their schooling between the early 1950s and the early 2000s—a half century that has been marked by enormous change. As a result, outcomes are affected by a number of factors, which are not the same everywhere. These include:

- the evolution of education and training systems;
- changes in education policies;
- technological advancement;
- the development of regional and national economies;
- patterns of immigration; and
- changes in social norms and expectations.



CHAPTER 1

INTRODUCTION

Census data from 1996 to 2016 indicate that individuals living in official-language minority communities (OLMCs) represented on average between 6 and 7 percent of the Canadian population. In 2016, for example, there were 1,103,480 people with English as their first official language spoken in Quebec and 1,024,195 people with French as their first official language spoken outside Quebec.² These official-language minorities' access to resources and information in English or French, such as education, adult training, and community and public services, is closely related to their economic, social, and cultural development. In this regard, Corbeil (2006) and Bérard-Chagnon and Lepage (2016) noticed some gaps between francophone minorities and their anglophone counterparts in terms of information-processing skills and cultural capital related to writing.

Corbeil's (2006) study, based on an analysis of the Canadian component of the 2003 International Adult Literacy and Skills Survey (IALS) data, found that at equal levels of education and income, francophones were less likely than anglophones to have frequent reading and writing habits in their daily lives, which could result in lower literacy levels among francophones outside Quebec compared to their anglophone counterparts. The study also revealed that the majority of franco-Ontarians and franco-Manitobans preferred to take the survey tests in English despite the fact that they reported having a good or very good ability to read and write in French. More recently, the study by Bérard-Chagnon and Lepage (2016), based on data from the 2012 Program for the International Assessment of Adult Competencies (PIAAC), concluded that the lower literacy scores of New Brunswick francophones are a result of their lower levels of education and cultural capital related to writing, which could be explained, among other things, by the negative net migration (i.e., those with higher education were more likely to leave the province) and by the fact that these communities are concentrated in the north of the province and therefore work more in jobs requiring less complex skills (namely manufacturing or forestry-sector jobs). These results illustrate the challenges that OLMCs may face and the potential implications for their development and the vitality of the minority language. In a context of technological change and, more generally, of higher demand for increasingly complex cognitive skills, it may become more difficult for individuals with lower information-processing skills to acquire or develop other skills and thus actively participate in the economy and society.

² Statistics Canada, "English, French, and Official Language Minorities in Canada," 2016 Census of Population, No. 98-200-X2016011, August 2017, <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016011/98-200-x2016011-eng.cfm>.

In this context, this report presents a detailed analysis of OLMCs' skills in literacy, numeracy, and problem solving in technology-rich environments (PS-TRE) based on these community members' results in the PIAAC 2012 tests.³ Data from this program provide the most recent measures of the skills of adult Canadians (aged 16 to 65) and have the advantage of good coverage of the OLMC population across Canada, thanks to the oversampling of these communities in the four provinces where they are concentrated, namely New Brunswick, Quebec, Ontario, and Manitoba.

OLMCs are defined here on the basis of the first official language spoken (FOLS) rather than by reference to the mother tongue only. This definition follows the approach used notably by Statistics Canada to define official-language minorities using census data, which allows for the inclusion of allophones and those with both English and French as mother tongue and who have chosen to use the minority language at work or at home. This approach is also the one that Bérard-Chagnon and Lepage (2016) used in their analysis of the PIAAC 2012 data and is consistent with the definition used under the Official Languages Act to assess the potential demand for services in either official language.

This report has been prepared with two objectives in mind: first, to determine whether there are differences in the skills of francophones and anglophones in the same province and, second, to identify factors that may influence the skills of OLMCs' members. To this end, it presents a descriptive analysis of the results and skill levels of these communities in the four provinces of interest according to a selected set of language, demographic, and socioeconomic characteristics, and in comparison with those of the linguistic majorities in their respective provinces. It also presents the results of multivariate analyses conducted to identify sociodemographic factors associated with observed skill gaps between minorities and linguistic majorities. Even though the information-processing skills of Canada's official language minorities were assessed in 1994 with the International Adult Literacy Survey (IALS) and in 2003 with the IALSS, this report does not attempt to compare the literacy and numeracy skills of official-language

³ Carried out at the initiative of the OECD, this program is an international study conducted in more than 40 countries and regions, with the aim of collecting comparable measures between countries of the cognitive faculties and skills considered essential for individuals to integrate and develop successfully in our modern societies and in the labour market. For more details on PIAAC (2012), see the PIAAC (2012) web page at: <http://www.oecd.org/skills/piaac/>.

minorities over time.⁴ Instead, the report analyzes the results of the OLMCs' skills assessment in greater detail and from a different, yet complementary, perspective than that of the PIAAC pan-Canadian report (Statistics Canada, 2013).⁵

In essence, the pan-Canadian report noted that official-language minorities have, with a few exceptions, literacy and numeracy proficiency levels that are relatively comparable to those of their respective majorities in Manitoba, Ontario, and Quebec, and relatively lower PS-TRE levels. However, for New Brunswick, the average scores of the francophone minority in the three skills assessed are below those of the anglophone majority in the province. The pan-Canadian report also noted that for all OLMC participants, and despite the variability in results across provinces, skill levels are highest among those aged 16 to 34 and among the most educated, tend to decline with age, and are comparable between men and women (except for numeracy). Skill levels are also higher among employed people than among those unemployed or those out of the labour force, and among native-born Canadians than among immigrants. The national report emphasizes the importance of examining OLMCs' results in connection with these sociodemographic characteristics to understand the differences in results between minorities and linguistic majorities, and to identify the factors that contribute to them, but it did not cover this aspect. The analysis of OLMC results presented here is, to a large extent, conducted from this perspective.

This report is accordingly structured as follows. Chapter 2 presents the details behind the definition of the first official language used to identify OLMC members among PIAAC respondents (2012) and examines its relevance to the analysis of their skills. Chapter 3 then provides an overview of the linguistic context of OLMCs, with a brief

historical perspective on the evolution of this population. Chapter 4 draws a detailed profile of these communities' skills, overall and by selected linguistic characteristics, immigrant status, and regional indicators. Chapter 5 examines the skills of OLMCs by certain sociodemographic factors, including the highest level of education and labour force status. Chapter 6 looks at the results of the multivariate analyses to identify the factors that influence OLMC skills. The last chapter presents the main conclusions drawn from the examination of linguistic minorities' skills. Despite the oversampling of OLMCs, some analyses (particularly at the regional level for some skills) are limited by sample size, and the reader is invited to take this into consideration whenever this is the case.

⁴ Because assessment methods and concepts of literacy and numeracy have evolved over time, the OECD has scaled the results of the three surveys (IALS 1994, IALSS 2003, and PIAAC 2012) to make them comparable. A comparative analysis of the results obtained from the three surveys over time would require a thorough examination of changes in the composition of the population and some socioeconomic and institutional factors that may have had an impact on the results, which would go beyond the objectives of this report. Moreover, the OLMC samples in the various provinces would not be large enough to analyze these changes in a detailed and reliable manner.

⁵ In fact, the analysis of the pan-Canadian report is limited to examining the average results of people whose mother tongue is English or French only and who live in a minority-language situation (thus excluding people whose mother tongue[s] is [are] English and French or a non-official language), and comparing these results with those of their respective linguistic majorities. See the section "Proficiency of official language minority populations" in chapter 3 of the national report at: <http://www.cmec.ca/Publications/Lists/Publications/Attachments/315/Canadian-PIAAC-Report.EN.pdf>.



CHAPTER 2

PIAAC'S DEFINITION OF THE FIRST OFFICIAL LANGUAGE SPOKEN

For the purposes of this study, members of official-language minority communities (OLMCs) are identified among PIAAC (2012) participants on the basis of the first official language they speak and the minority status of that language in their province of residence. More specifically, participants who spoke French as their first official language and who reside outside Quebec are classified as members of the francophone minority, while participants who speak English as their first official language and who reside in Quebec are considered members of the anglophone minority. This definition is consistent with the classification that Statistics Canada uses to study language practices, knowledge, and use of official and non-official languages in Canada, and with the dissemination of language data, collected notably through population censuses.⁶ The census questionnaire does not include a specific question on the first official language spoken by a person, but this is derived from the person's answers to questions on knowledge of both official languages, mother tongue, and the language spoken most often at home.⁷

The PIAAC (2012) questionnaire also does not include a specific question to clearly identify a respondent's first official language spoken (FOLS). Instead, data on the languages learned and used by participants are collected, among other sociodemographic data, through a background questionnaire that participants must complete prior to the assessment of their skills. In fact, this questionnaire does not ask the respondent to indicate their mother tongue or the level of their knowledge of both official languages. Instead, the respondent is asked to indicate the first language they learned at home in childhood and still understand, and to provide their own assessment of their current ability to speak English or French (depending on whether they completed the questionnaire in English or French, respectively).⁸

To be as consistent as possible with Statistics Canada's approach, the answers to these questions, as well as the one about the language spoken most often at home,

and the choice of language to answer the background questionnaire, are used to determine the FOLS of participants. More specifically, the language a participant chooses to answer the background questionnaire and their self-assessment of their current ability to speak French or English are used to derive their "language of conversation." For example, if a person has completed the background questionnaire in English and assesses their ability to speak French as weak or unable to speak it, their language of conversation will be English only. If, however, the same person had assessed their ability to speak French as very good, good, or fair, that person would have had both English and French as languages of conversation. On the other hand, the language indicated by the respondent as the first language learned at home and still understood is taken as his or her mother tongue. The language of conversation and mother tongue assigned to a respondent are then used along with the language they reported speaking most often at home to determine their first official language spoken. Table 2.1 summarizes the different cases encountered with PIAAC respondents and how the FOLS was derived in each of them.⁹

⁶ On this point, see the "Languages Reference Guide, Census of Population, 2016" at <http://www12.statcan.gc.ca/census-recensement/2016/ref/guides/003/98-500-x2016003-eng.cfm>. For an example of the language data dissemination products collected by Statistics Canada, see the "Portrait of Official-Language Minorities in Canada" at <https://www.statcan.gc.ca/eng/sc/video/polmc00>.

⁷ For a detailed definition of the variable "first official language spoken of person" in the census, see the Dictionary, Census of Population, 2016, at http://www23.statcan.gc.ca/imdb/p3lInstr_e.pl?Function=DEC&Id=34004.

⁸ See questions A_Q03a1ca and A_Q04fca on the background questionnaire at http://www23.statcan.gc.ca/imdb/p3lInstr_f.pl?Function=assembleInstr&lang=en&Item_Id=102838#qb106429.

⁹ Other cases are obviously possible, such as that of a respondent who cannot converse in French or English, but these cases were not found in PIAAC.

Table 2.1. Derivation of the first official language spoken with PIAAC data

Language of conversation	Mother tongue	Language spoken most often at home	FOLS derived with PIAAC
English			English
English and French	English		English
English and French	English and French	English	English
English and French	Other	English	English
French			
English and French	French		French
English and French	English and French	French	French
English and French	Other	French	French
English and French	Other	Other	English and French

Table 2.2 provides details on the number of observations and the weighted proportion of francophone and anglophone OLMCs among the population for the provinces of interest and for Canada. Based on the participants' first official language spoken, 3,430 people were identified as OLMC members among the 27,285 Canadian respondents to PIAAC. These communities represent nearly 13 percent of the sample of adult Canadians who participated in PIAAC (2012), and nearly 6 percent of Canada's population, divided almost equally between anglophones in Quebec and francophones outside Quebec. Their proportion within the provinces is highest in New Brunswick (almost 37%), followed by Quebec (almost 13%), Ontario (4%),¹⁰ and Manitoba (almost 3%). The demographic weight of OLMCs in Canada's population according to PIAAC thus differs slightly from the weight of these communities according to the census, due in part to the sampling pattern of PIAAC and the oversampling of several groups in the Canadian population.

Defining official-language minorities on the basis of first official language spoken rather than mother tongue has several advantages. First, it is a more inclusive definition that encompasses relevant specific cases that are not considered under the mother-tongue criterion. These include allophones who have chosen to use the

minority language at home and/or at work, and people whose mother tongue is English and French and who use the minority language most often at home. By defining official-language minorities on the basis of first official language spoken, these groups of the Canadian population are taken into account and their results in the PIAAC skills assessment can be examined, as well as those of other linguistic minority subgroups. Second, and as mentioned, this definition is consistent with Statistics Canada's approach, and therefore corresponds to the definition used for the provision of services to the public. Finally, it substantially increases the number of observations from the francophone and anglophone minority samples (by more than 8 and 49% respectively), with virtually no loss of observations.¹¹

¹⁰ On June 4, 2009, the Government of Ontario introduced the Inclusive Definition of Francophones to better reflect Ontario's francophone community. Francophones in Ontario were previously defined on the basis of their mother tongue (those who learned French at home as a child and who still understood French at the time of the census). The Inclusive Definition of Francophones broadens the definition of francophone to include those persons whose mother tongue is neither French nor English but who have a particular knowledge of French as an Official Language and use French at home. Learn more at [https://www.ontario.ca/page/profile-francophone-population-ontario-2016#:~:text=Inclusive%20Definition%20of%20Francophones%20\(IDF\)&text=This%20document%20uses%20this%20more%20inclusive%20definition.&text=The%20IDF%20broadens%20the%20definition,and%20use%20French%20at%20home](https://www.ontario.ca/page/profile-francophone-population-ontario-2016#:~:text=Inclusive%20Definition%20of%20Francophones%20(IDF)&text=This%20document%20uses%20this%20more%20inclusive%20definition.&text=The%20IDF%20broadens%20the%20definition,and%20use%20French%20at%20home).

¹¹ Table A1 in Appendix I also presents the number of observations, the sociodemographic composition, and the average literacy and numeracy scores of official language minorities. The results indicate that the choice of the first official language spoken rather than the mother tongue as a criterion for identifying linguistic minorities does not significantly change the composition of these minorities, and does not result in a systematic decrease or increase in their results.

Table 2.2. Number of observations and population estimates of OLMCs, Canada, and oversampled provinces, 2012

Official-Language Minority Community	Number of observations in PIAAC	Population^a	Percentage of the population^a
Anglophones in Quebec	935	677,000	12.6
Francophones in Canada outside Quebec	2,495	683,900	3.0
Francophones in New Brunswick	857	182,500	36.6
Francophones in Ontario	797	364,600	4.0
Francophones in Manitoba	635	24,000	3.1
Minority language communities in Canada	3,430	1,360,900	5.8

Source: PIAAC (2012), authors' calculations.

^a Estimates based on weighted PIAAC data.



CHAPTER 3

LINGUISTIC CONTEXT OF OLMCs

This overview of the linguistic context of official-language minority communities (OLMCs) in the four provinces of interest begins with a brief historical perspective on the evolution of the OLMC population over the past 20 years based on Canadian population census data, and in comparison with PIAAC (2012) data. It then provides a portrait of the sociodemographic characteristics of OLMCs compared to the linguistic majority. Finally, it presents the language behaviours of OLMCs as described by their mother tongue, their use of official languages at work or at home, and the language they chose for the PIAAC assessment.

3.1 Changes in the OLMC population according to censuses

According to the 2016 Census data, OLMCs represent more than 6 percent of Canada's population; the highest proportion is in New Brunswick (32%), followed by Quebec (14%), Ontario (4%), Manitoba, and Prince Edward Island (nearly 3%). Table 3.1 summarizes the change in the proportion of OLMCs in the population of provinces and territories and in the country over the past 20 years, based on data from the last five censuses.¹²

Table 3.1. Changes in the proportion of OLMCs in the population (in %)

Province or territory	1996	2001	2006	2011	2016
Newfoundland and Labrador	0.4	0.4	0.4	0.4	0.5
Prince Edward Island	4.0	4.0	3.9	3.5	3.3
Nova Scotia	3.8	3.8	3.6	3.3	3.2
New Brunswick	33.2	33.1	32.9	31.9	31.8
Quebec	13.2	12.9	13.4	13.5	13.7
Ontario	4.8	4.7	4.4	4.3	4.1
Manitoba	4.1	3.9	3.6	3.5	3.2
Saskatchewan	1.7	1.7	1.6	1.4	1.3
Alberta	2.0	2.0	2.0	2.0	2.0
British Columbia	1.6	1.5	1.4	1.4	1.4
Territories*	2.5	2.4	2.7	2.9	2.8
Francophones in Canada outside Quebec	4.8	4.7	4.4	4.0	3.8
Minority language communities in Canada	6.7	6.4	6.4	6.2	6.1

Source: 1996–2016 censuses, authors' calculations.

* Yukon, Nunavut, and Northwest Territories.

Overall, the proportion of OLMCs in Canada's population has declined slightly over the past two decades (six-tenths of a percentage point between 1996 and 2016), as a result of the decrease of the percentage of francophones outside Quebec (nearly one percentage point between 1996 and 2016), partially offset by a slight increase of the percentage of anglophones in Quebec (half a percentage point between 1996 and 2016). The proportion of francophones in the populations of the English-speaking provinces has declined steadily over the past 20 years in most provinces, with the exception of Alberta, while a slight increase was observed in Newfoundland and Labrador and the Territories.

Compared to the estimates based on 2016 Census data shown in Table 3.1, the proportions of OLMCs based on PIAAC data (see Table 2.2 in the previous

¹² In this and subsequent tables, the data refer to the francophone minority in all provinces and the three territories, except Quebec, where the data refer to the anglophone minority.

chapter) overestimate the proportion of francophones in New Brunswick, but underestimate the proportion of anglophones in Quebec, the proportion of francophones elsewhere (either by province or in all provinces other than Quebec), as well as the proportion of OLMCs in the Canadian population. These discrepancies are a result of the fact that PIAAC (2012) covers only a sample of the Canadian population aged 16 to 65 in 2012, with an oversampling of some groups or regions, whereas the data from the last census cover the entire population of Canada four years later, without age restrictions or oversampling of particular groups.

3.2 Sociodemographic portrait of OLMCs according to PIAAC

Before looking at skill differences between the language majority and minority groups in the provinces of interest, we first present an overview of some of the two groups' sociodemographic characteristics to put their skill proficiency results in context. Table 3.2 presents the distribution of anglophones and francophones in each province by gender, age, education, immigrant status, labour force status, region size, and economic region.¹³

3.2.1 Francophones outside Quebec

For all three provinces where the linguistic minorities are francophones, the difference between the proportion of youngest people in the OLMCs and in the linguistic majority is close to 5 percent. With respect to education for francophones outside Quebec, only the province of New Brunswick shows statistically significant differences between language groups (except for postsecondary education below the bachelor's level). The proportion of francophones with less than a high-school diploma is higher (25 versus 15%) while the proportion of those with a postsecondary education at the bachelor's or higher level is lower (15 versus 21%). Overall, francophones in New Brunswick have a lower level of education than anglophones.

Differences by immigrant status also exist in all three provinces, but these are more significant in Manitoba and Ontario. In fact, 95 percent of francophones in Manitoba were born in Canada, while for anglophones this proportion is 83 percent. In Ontario, the difference is even more pronounced: 89 percent of the province's francophones are Canadian-born compared to 68 percent of its anglophones. The percentage of unemployed is lower for francophones than for

anglophones in Ontario (2.7 versus 5%) and Manitoba (1 versus 3%).

Finally, differences are observed between francophones and anglophones according to the size of the region and the economic region in which they reside. In New Brunswick, the majority of francophones (56%) live in rural areas, while the proportion is 43 percent for anglophones. As a result, few francophones in the province (27%) live in a small or medium population centre. In Ontario, more anglophones (71%) live in a large population centre than francophones (54%). Conversely, more francophones in this province (28%) live in a small or medium population centre than anglophones (15%). In Manitoba, 4 percent of francophones live in a small or medium population centre while 15 percent of anglophones live there. In terms of the economic region, the majority of francophones in New Brunswick are concentrated in the Campbellton–Miramichi and Moncton–Richibucto regions (together at 77%), while only 33 percent of anglophones live in these same regions. The majority of the province's anglophones (59%) are found in the other grouped regions of New Brunswick. In Ontario, 47 percent of francophones live in the Ottawa region compared with 8 percent of anglophones, while the opposite is true for the Toronto region (12% of francophones and 48% of anglophones live there). A significant proportion (40%) of the province's anglophones live in the other regions of Ontario (compared to 16% of francophones) and 25 percent of francophones live in the northeast region (compared to nearly 4% of anglophones).

¹³ The complete table with standard deviations can be found in Appendix I (Table A2).

Table 3.2. Sociodemographic characteristics by language group, oversampled provinces, 2012

	New Brunswick		Ontario			Manitoba		Quebec		
	Anglophone	Francophone	Anglophone	Francophone	Anglophone	Francophone	Anglophone	Francophone		
	%	%	%	%	%	%	%	%	%	
Gender										
Male	48.3	50.3	49.6	50.7	50.2	45.2	48.3	50.4		
Female	51.7	49.7	50.4	49.3	49.8	54.8	51.7	49.6		
Age group										
16 to 24 years old	17.9	13.5 *	17.8	12.7 *	19.1	12.3 *m	19.5	15.7 *		
25 to 34 years old	16.2	18.7	19.6	21.9 m	20.0	20.9 m	18.5	19.7		
35 to 44 years old	19.1	18.3	20.1	19.4	18.8	14.4 m	19.1	18.8		
45 to 54 years old	23.5	22.9	22.8	22.6	22.1	23.8 m	23.0	23.3		
55 to 65 years old	23.4	26.6	19.6	23.4 m	19.9	28.5	19.9	22.4		
Education level										
Less than high school	15.2	24.5 *	13.1	12.8 m	19.2	13.1 m	13.1	17.0 *		
High-school diploma	29.2	24.2 *	26.1	27.2	26.7	27.7 m	24.4	20.7 *		
PSE below bachelor's level	34.2	36.1	32.6	37.3	31.7	28.5	31.0	40.6 *		
PSE—bachelor's level or higher	21.4	15.1 *	28.1	22.7	22.4	30.6 m	31.5	21.7 *		
Immigrant status										
Canadian-born	96.3	99.2 *	67.6	89.2 *	83.3	95.2 *	68.1	91.4 *		
Immigrants	3.7 m	0.8 *u	32.4	10.8 *m	16.7	4.8 *u	31.9	8.6 *		
Labour force status										
Employed	74.5	70.0	75.4	75.8	79.9	83.9	71.4	74.4		
Unemployed	4.8	4.9 m	5.1	2.7 *m	3.1	0.9 *u	6.4 m	4.0 *		
Not in the labour force	20.6	25.1	19.5	21.5	17.0	15.2 m	22.2	21.6		
Region size										
Rural area	43.3	56.3 *	14.0	18.0 m	24.2	29.6 m	7.7 m	20.9 *		
Small and medium population centre	43.9	27.4 *	14.7	27.7 *	15.4 m	3.6 *m	6.0	23.1 *		
Large urban population centre	12.8 m	16.3 m	71.3	54.3 *	60.4	66.8	86.3	56.0 *		
Economic region										
Campbellton—Miramichi	11.9 m	36.7 *								
Moncton—Richibucto	21.0 m	39.8 *								
Edmundston—Woodstock	7.8 u	13.8 m								
Other NB economic regions	59.3	9.8 *m								
Montérégie							19.3	20.4		
Montreal							61.7	17.7 *		
Laval							5.9	4.3		
Outaouais							5.4 m	3.7 m		
Other Quebec economic regions							7.8	53.9 *		
Southeast					12.5 u	18.4 m				
Winnipeg					59.9	67.1				
Other Manitoba economic regions					27.6	14.5 u				
Ottawa			8.3	47.3 *						
Toronto			47.8	12.2 *m						
Northeast			3.9 u	24.5 *m						
Other Ontario economic regions			40.0	16.0 *m						

Table 3.2. Sociodemographic characteristics by language group, oversampled provinces, 2012 (cont'd)

	New Brunswick		Ontario		Manitoba		Quebec	
	Anglophone	Francophone	Anglophone	Francophone	Anglophone	Francophone	Anglophone	Francophone
	%	%	%	%	%	%	%	%

Source: PIAAC (2012).

m There is a high level of error associated with this estimate.

u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

* Represents a significant difference at the 95 percent confidence level.

The other NB economic regions are: Fredericton–Oromocto and Saint John–St. Stephen.

The other Ontario economic regions are: Kingston–Pembroke, Muskoka–Kawartha, Kitchener–Waterloo–Barrie, Hamilton–Niagara Peninsula, London, Windsor–Sarnia, Stratford–Bruce Peninsula, and Northwest.

The other Manitoba economic regions are: South Central, Southwest, North Central, Interlake, and North.

The other Quebec economic regions are: Gaspésie–Îles-de-la-Madeleine, Bas-Saint-Laurent, Capitale-Nationale, Chaudière-Appalaches, Estrie, Centre-du-Québec, Lanaudière, Laurentides, Abitibi–Témiscamingue, Mauricie, Saguenay–Lac-Saint-Jean, Côte-Nord, and Nord-du-Québec.

Small population centre: population between 1,000 and 29,999.

Medium population centre: population between 30,000 and 99,999.

Large urban population centre: population of 100,000 or more.

3.2.2 Anglophones in Quebec

Table 3.2 also compares the situation of the anglophone minority in Quebec with that of the province's francophone majority. The proportion of youth is higher among anglophones (20%) than among francophones (16%), and anglophones generally have a higher level of education than francophones. For example, the proportion of anglophones with less than a high-school diploma is lower (13%) than that of francophones (17%), while the proportion of anglophones with a bachelor's degree or higher is higher (32 versus 22%). A noticeable feature of the linguistic minority in Quebec is that a significant proportion is immigrant (32 versus 9% for the linguistic majority) and there are also more unemployed anglophones (6%) than unemployed francophones (4%). In terms of the region size, very few anglophones live in a rural area (8%) or in a small or medium population centre (6%), while these proportions are higher for francophones (21 and 23%, respectively). The vast majority (86%) of Quebec anglophones live in a large population centre, while this proportion is slightly lower for francophones (56%). Finally, 62 percent of anglophones live in the Montreal region (compared to 18% of francophones), while only 8 percent of anglophones live in the other economic regions of Quebec (compared to 54% of francophones).

3.3 Description of minority-language behaviours according to PIAAC data

3.3.1 Francophones outside Quebec

Table 3.3 shows that, according to PIAAC data (2012), the proportion of francophones outside Quebec with French as their only mother tongue is highest in New Brunswick (88%), followed by Manitoba (85%) and Ontario (76%). However, Ontario has the highest proportion of people with both English and French as mother tongue (15%).

Table 3.4 presents the distribution of linguistic minorities by language spoken at home and by the skill test's language. In terms of the use of French at home, the results vary by province. In New Brunswick, nearly 9 out of 10 francophones (88%) speak French most often at home. In Ontario and Manitoba, however, only about half of francophones use French most often at home (60% and 49%, respectively). As for languages used regularly at home, the table shows that about three out of four people in Ontario and Manitoba, and more than one in three in New Brunswick (36%), use English regularly at home. Finally, with respect to the language chosen to take the PIAAC proficiency assessment test, Table 3.4 shows that in Manitoba and Ontario, more than 8 out of 10 people chose to take the test in English, while in New Brunswick, just under one out of two people chose English for their skills assessment.

Table 3.5 shows the composition of linguistic minorities according to language most often spoken at home and by the language chosen for the PIAAC test. At the provincial level, 53 percent of New Brunswick francophones speak French most often at home and took the test in French, while this proportion is only 17 percent in Ontario and 12 percent in Manitoba. A significant proportion of francophones in these provinces speak French most often at home but chose to take the test in English instead: 35 percent in New Brunswick, 44 percent in Ontario, and 37 percent in Manitoba. Finally, in Manitoba and Ontario, a high proportion of linguistic minorities speak English most often at home and took the test in the same language (39 and 49% respectively). This proportion is only 11 percent in New Brunswick.

The choice of test language is also strongly associated with the language most often used at work (see Table 3.6). For example, 43 percent of francophones in New Brunswick speak French most often at work and took the test in that language. These proportions are quite lower in Ontario and Manitoba, at 11 percent and 7 percent respectively. Similarly, a significant proportion

of francophones who speak English most often at work also took the test in English. In New Brunswick, it is 23 percent, but this proportion increases to 51 percent in Ontario and 63 percent in Manitoba. On the other hand, there are a few instances where francophone minorities speak French most often at work but have chosen to take the test in English. This is notably the case for 18 percent of francophones in New Brunswick, and for 13 percent and 20 percent of francophones in Ontario and Manitoba, respectively. For francophone minorities who speak English most often at work but took the test in French, the proportions are lower, ranging between 5 and 7 percent.

Table 3.3. Distribution of official-language minority population aged 16 to 65, by mother tongue(s), oversampled provinces, 2012

Province	Mother tongue(s)	Percentage	(SE)
New Brunswick	French	87.6	1.8
	English and French	11.2	1.7
	English and a non-official language		
	French and a non-official language	x	x
	Non-official language	x	x
Ontario	French	75.5	3.3
	English and French	14.6	2.6 ^m
	English and a non-official language		
	French and a non-official language	x	x
	Non-official language	x	x
Manitoba	French	84.9	3.4
	English and French	10.8	2.8 ^m
	English and a non-official language		
	French and a non-official language	x	x
	Non-official language	x	x
Quebec	English	54.5	1.7
	English and French	7.5	1.2
	English and a non-official language	6.9	1.0
	French and a non-official language		
	Non-official language	31.0	1.7

Source: (PIAAC), 2012, authors' calculations.

x This estimate has been suppressed to meet confidentiality requirements.

^m There is a high level of error associated with this estimate.

SE Standard error.

Table 3.4. Distribution of official-language minority population aged 16 to 65, by language spoken most often at home, languages spoken regularly at home, and test language, oversampled provinces, 2012

Province	Languages	Language spoken most often at home		Languages regularly spoken at home		Test language	
		%	(SE)	%	(SE)	%	(SE)
New Brunswick ^a	English	11.7	1.8	35.9	2.3	45.9	3.2
	French	88.3	1.8	92.8	1.3	54.1	3.2
Ontario ^a	English	39.7	3.2	73.9	2.9	82.2	2.7
	French	60.3	3.2	77.8	2.8	17.8	2.7
Manitoba ^a	English	50.6	5.8	81.0	4.4	86.0	1.9
	French	49.4	5.8	73.8	4.6	14.0	1.9
Quebec	English	78.1	1.6	86.5	1.2	86.2	1.4
	French	8.4	1.0	32.6	1.7	13.8	1.4
	Non-official language	13.6	1.5				

Source: PIAAC (2012), authors' calculations.

^a The "non-official language" category is not included for this province because of the low proportion of people in this category.

SE Standard error.

Note: The sum of the proportions of each province for languages spoken regularly at home is not 100 percent.

Table 3.5. Distribution of official-language minority population aged 16 to 65, by language spoken most often at home and test language, oversampled provinces, 2012

Province	Language spoken most often at home	Test language	Percentage	(SE)
New Brunswick	English	English	10.6	1.7
		French	1.1	0.5 ^u
	French	English	35.2	3.1
		French	53.0	3.2
Ontario	English	English	38.7	3.2
		French	1.0	0.4 ^u
	French	English	43.5	3.6
		French	16.8	2.6
Manitoba	English	English	48.7	5.9
		French	1.9	0.4 ^m
	French	English	37.2	5.2
		French	12.2	1.7
Quebec	English	English	81.9	1.6
		French	8.4	1.4
	French	English	2.9	0.5 ^m
		French	6.8	1.0

Source: PIAAC (2012); authors' calculations.

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

Table 3.6. Distribution of official-language minority population aged 16 to 65, by language spoken most often at work and test language, oversampled provinces, 2012

Province	Language spoken most often at work	Test language	Percentage	(SE)
New Brunswick	English	English	23.3	2.5
		French	7.4	1.3 ^m
	French	English	18.3	2.3
		French	42.3	3.0
	English and French	English	5.4	1.5 ^m
		French	3.1	0.7 ^m
Ontario	English	English	51.1	4.1
		French	4.9	1.1 ^m
	French	English	13.4	3.2 ^m
		French	10.9	2.9 ^m
	English and French	English	17.7	3.1 ^m
		French	2.0	0.5 ^m
Manitoba	English	English	63.1	4.8
		French	5.8	1.2 ^m
	French	English	19.5	4.7 ^m
		French	7.3	1.3 ^m
	English and French	English	3.8	1.4 ^u
		French	0.6	0.3 ^u
Quebec	English	English	54.3	2.4
		French	2.7	0.8 ^m
	French	English	18.1	1.7
		French	10.3	1.4
	English and French	English	13.3	1.2
		French	1.3	0.5 ^u

Source: PIAAC (2012), authors' calculations.

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

3.3.2 Anglophones in Quebec

The data in the previous tables indicate that just over half of Quebec anglophones have English only as their mother tongue, and almost one-third have a non-official language as their mother tongue.¹⁴ For the others, English is also the mother tongue, along with another language: French in 8 percent of cases, or a non-official language in nearly 7 percent of cases. English is also the language most often spoken at home for almost four out of five people. Among the languages spoken regularly at home, English is regularly spoken by nearly 90 percent of Quebec anglophones. As with francophones outside Quebec, the vast majority of anglophones in Quebec (more than 86%) chose to take the PIAAC skill-assessment test in English. Those who speak English most often at home and who took the test in English represent nearly 82 percent of the minority, while those who reported speaking English most often at work and who took the test in English represent 54 percent of Quebec anglophones. A relatively similar fraction of the anglophone minority is made up of those who speak French most often at work and took the test in English or French and those who speak English and French at work and who took the test in English (between 10% and 18%).

¹⁴ In the latter group, nearly 7 out of 10 people are immigrants.



CHAPTER 4

SKILLS PROFILE OF OLMCs

This chapter examines the skills of official-language minorities relative to those of the linguistic majority in their respective provinces, as well as by demographic characteristics such as age, gender, language spoken most often at home, language chosen for PIAAC assessment, immigrant status, and region size.

4.1 Skills of linguistic minorities

4.1.1 Literacy skills

In terms of literacy skills, the official-language minority communities' results in the PIAAC tests, summarized in Figure 4.1, do not show any statistically significant differences from those of the linguistic majority in their respective provinces, except for francophones in New Brunswick. Indeed, the average literacy score of this linguistic community is lower than that of the anglophone majority (259 versus 273), and the proportion of individuals with literacy proficiency at Level 1 or below is higher among francophones (nearly 24%) than among anglophones (nearly 16%). Similarly, the proportion of individuals with literacy proficiency at Level 3 or above is significantly lower among francophones (almost 39%) than among anglophones in this province (51%).

4.1.2 Numeracy skills

Overall, the results of the numeracy test are very similar to those of the literacy test, that is, there is a gap (10 points) in favour of anglophones in New Brunswick, while there are no statistically significant differences in Ontario, Manitoba, and Quebec. However, in Quebec, although the average numeracy scores of francophones and anglophones are very similar (close to 266 points), the distribution of participants across proficiency levels is significantly different between these two groups, with higher proportions of anglophones than francophones at Level 1 and below (25% versus 21%), and at Level 4 or 5 (16% versus 10%).

4.1.3 Problem solving in technology-rich environments (PS-TRE) skills

The PS-TRE skills were assessed only for PIAAC participants who took the computer-based assessment (CBA). The pan-Canadian report indicates that, among Canadians aged 16 to 65 who participated in PIAAC, 83 percent of respondents took the computer-based test and were therefore assessed on PS-TRE. The remaining 17 percent of respondents who took the paper-based skill test and were not assessed on PS-TRE were almost equally made up of those with no computer experience (5%), those who failed the assessment of their basic

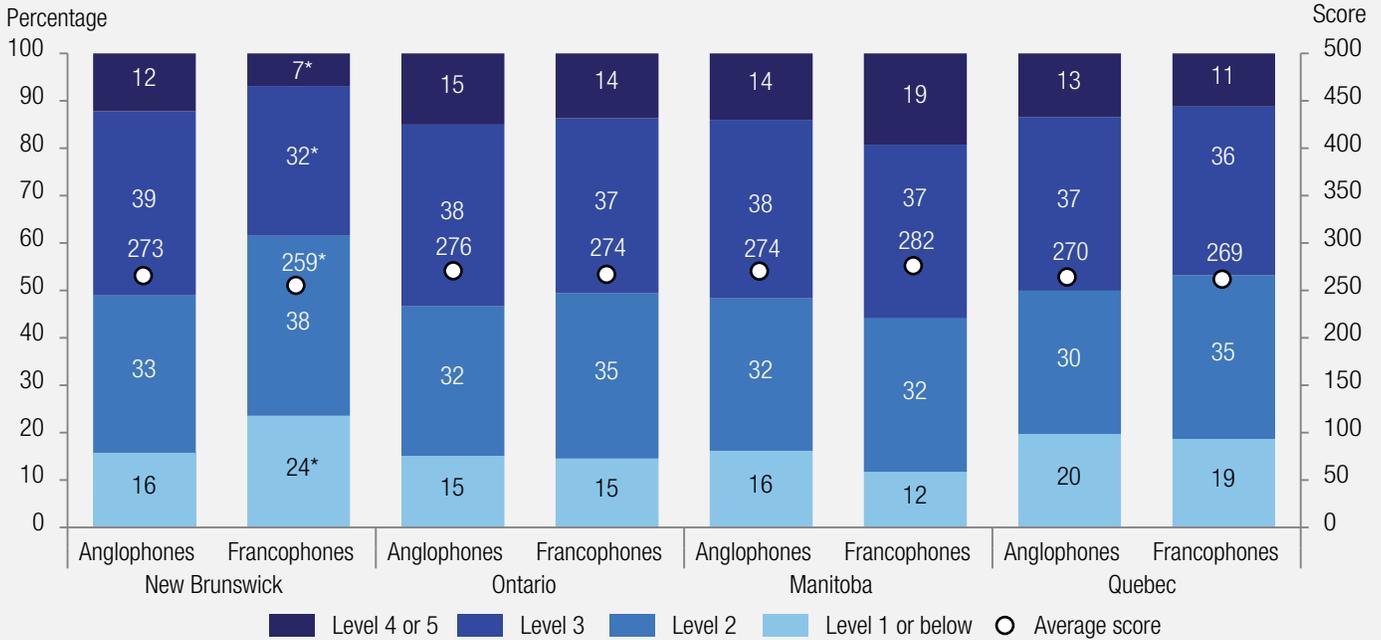
computer skills (called “essential tasks in information and communication technologies”) (6%), and those who preferred to take the paper-and-pencil test and thus opted out of the CBA (6%).¹⁵

At the provincial level, Figure 4.3 shows that in Manitoba, the proportion of francophones assessed on PS-TRE is higher (87%) than that of anglophones (77%), while it is lower for francophones in New Brunswick (73%) compared to their anglophone peers (81%). In Manitoba, 12 percent of francophones have no computer experience, while this proportion is three times lower for anglophones. Finally, the proportion of people without computer experience is lower among the minority-language group than among the majority group in Quebec and Manitoba.

In terms of PS-TRE assessment results (see Figure 4.4), fewer francophones in Manitoba than anglophones (almost 14 versus 23%) did not complete the PS-TRE assessment. In Quebec, the proportion of anglophones at Levels 2 or 3 is significantly higher than that of francophones (38 versus 32%). Finally, in New Brunswick, there are many more francophones who did not respond to the PS-TRE assessment (27%) than anglophones (19%). Indeed, fewer francophones (23%) ranked at proficiency Level 2 or 3, compared to 35 percent of anglophones in the same province.

¹⁵ These results exclude the PIAAC nonrespondent group from the calculation. See the PIAAC national report for more information.

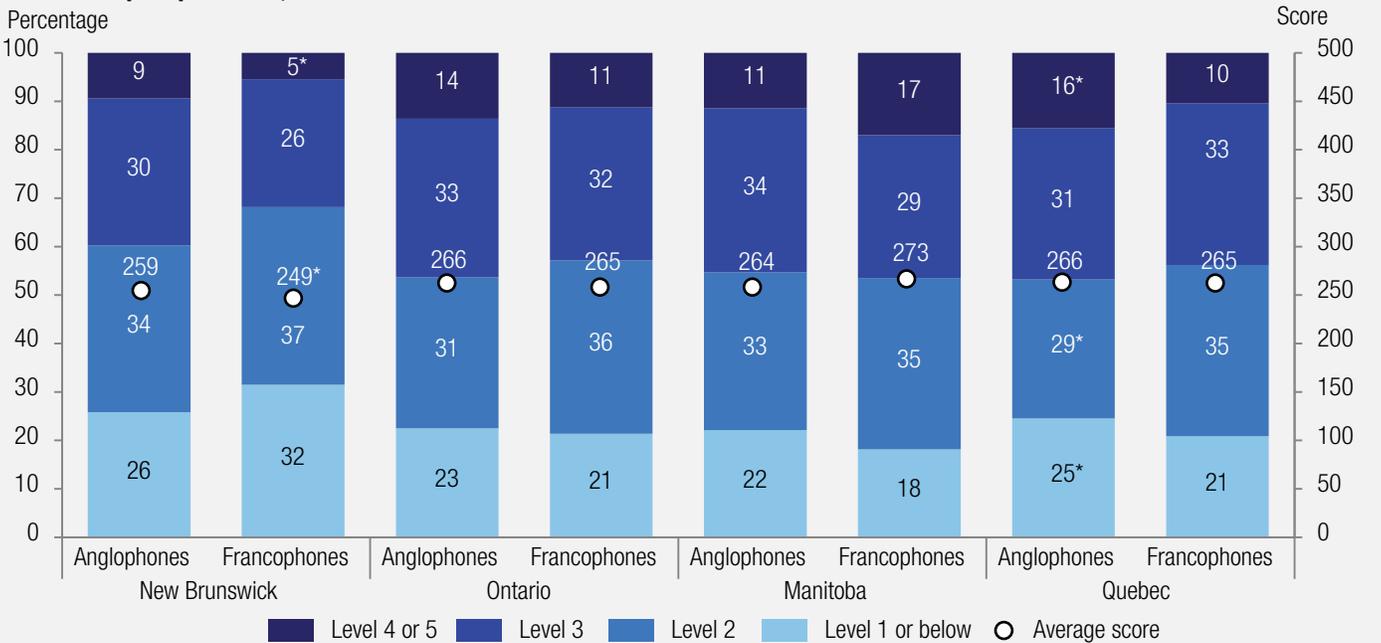
Figure 4.1. Literacy—Averages and proficiency levels of population aged 16 to 65, by language group, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

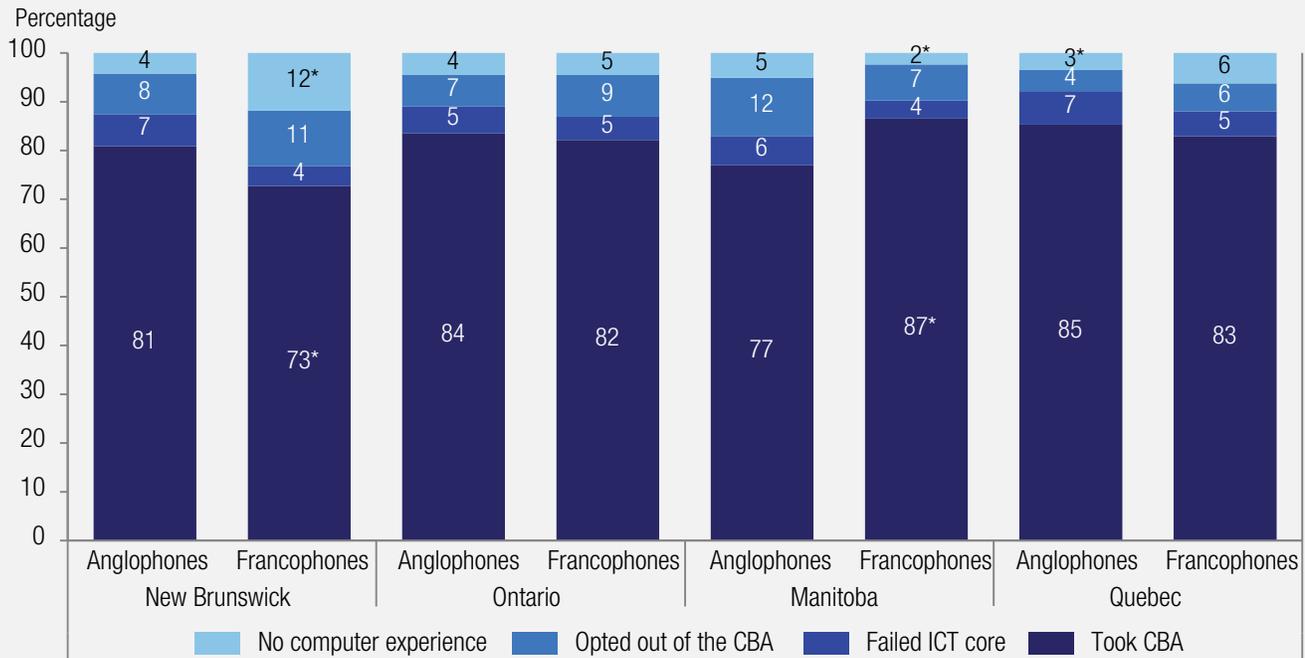
Figure 4.2. Numeracy—Averages and proficiency levels of population aged 16 to 65, by language group, Canada and oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

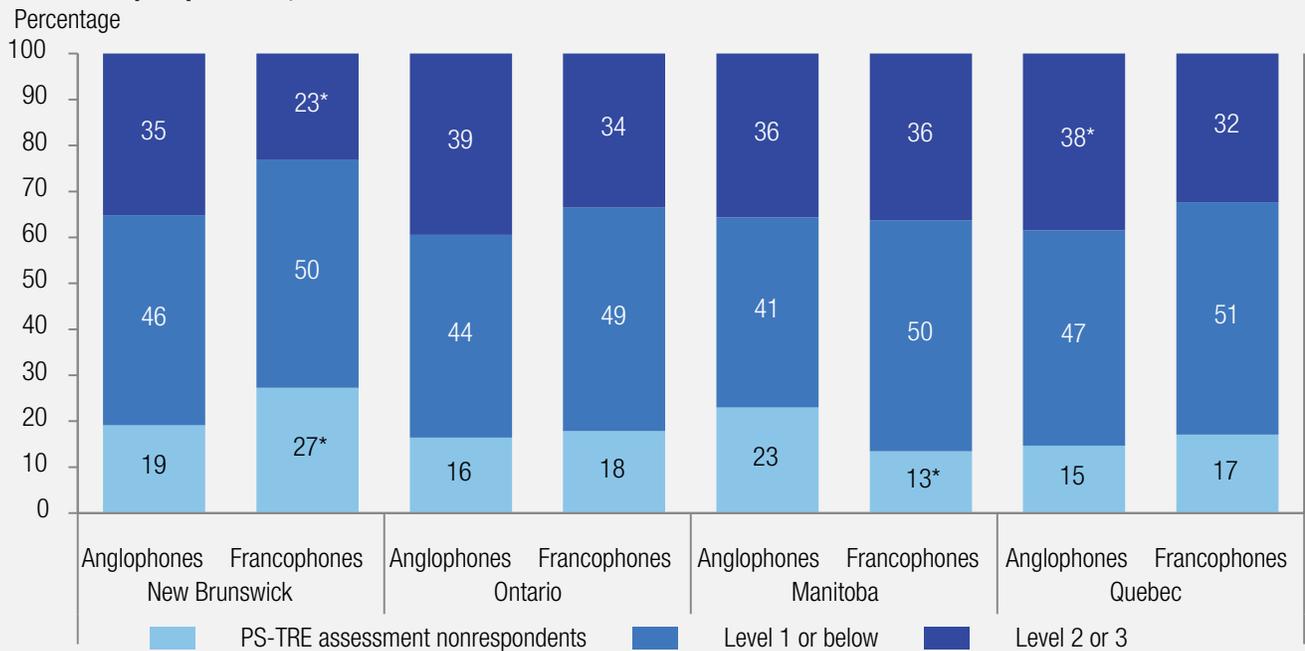
Figure 4.3. Proportion of population aged 16 to 65, by language group and test-administration method, Canada and oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level

Figure 4.4. PS-TRE — Distribution of proficiency levels of population aged 16 to 65, by language group, Canada and oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level

4.2 Differences between the skills of the official-language minority and the majority by age and gender

Overall, there are little or no gender differences in skills.¹⁶ However, individuals' skill levels generally decline with age, even after controlling for factors such as parental education and the individual's year of birth (cohort effect).¹⁷

The exception in the results for francophones in New Brunswick noted earlier can also be seen when examining the results of OLMCs by age group in the PIAAC literacy test (see Figure 4.5). In New Brunswick, differences of 21 to 26 points in favour of anglophones are observed for individuals aged 45 to 65. Among individuals aged 16 to 44, only Manitoba anglophones aged 25 to 34 have an average score significantly below that of francophones (almost 24 points lower).

Overall, the results by age group for numeracy (see Figure 4.6) are also very similar to those for literacy. The significant differences are found only in New Brunswick for individuals aged 45 to 65, with a difference in average scores between 19 and 27 points in favour of anglophones.

For PS-TRE skills by age group, a review of the results (Figure 4.7) reveals that Manitoba francophones aged 16 to 44 are less likely (8%) to have not taken the PS-TRE assessment compared to their anglophone peers (17%). This pattern is also seen among individuals aged 45 to 65 in this province, with 18 percent of francophones in Manitoba not having completed the assessment compared to 32 percent of anglophones in this age group. Other significant differences are found among those aged 45 to 65 in New Brunswick and Quebec. In Quebec, 25 percent of anglophones in this age group rank at proficiency Levels 2 or 3, while only 16 percent of francophones in this group rank at these levels. In New Brunswick, 44 percent of francophones aged 45 to 65 years have not taken the PS-TRE assessment (compared to 30% for anglophones) and only 10 percent are at proficiency Levels 2 or 3 (versus 23% for anglophones).

Looking at gender differences, we see that the results for literacy and numeracy skills are very similar between anglophones and francophones (see Figure 4.8). The gap between francophones and anglophones of the

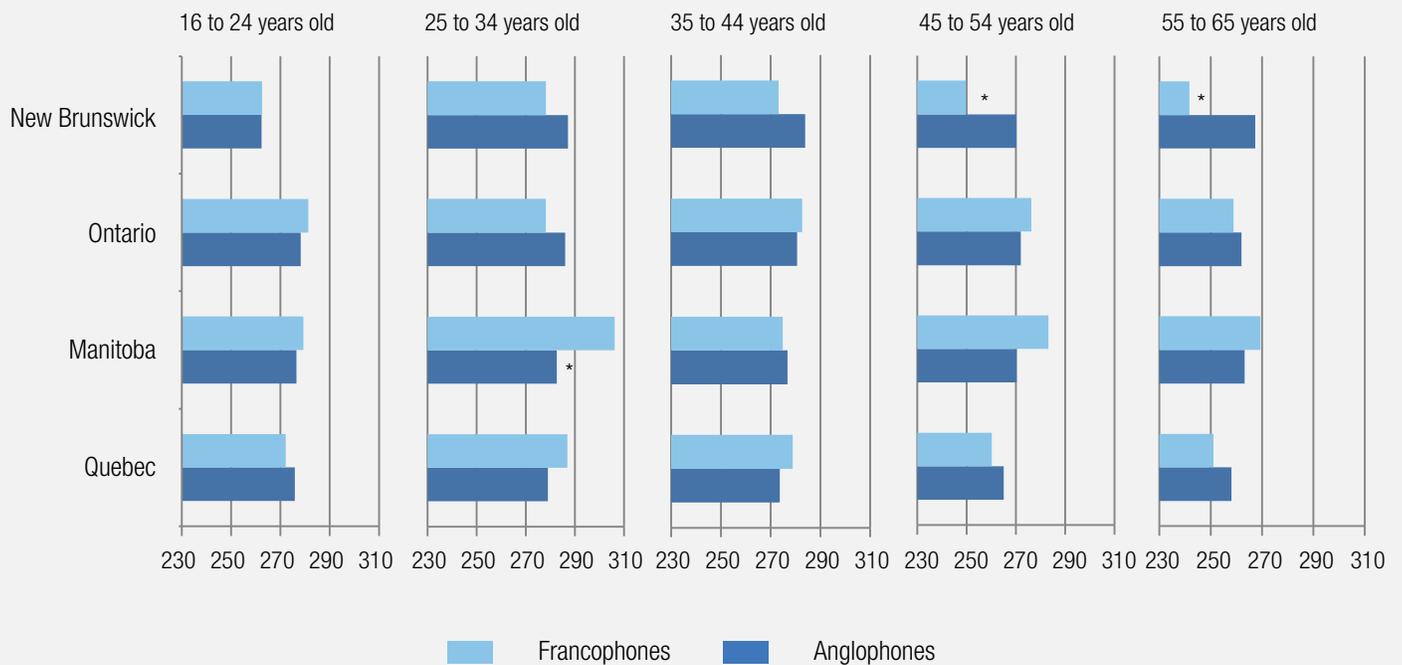
same gender is not significant in most cases except for New Brunswick. In this province, francophone men and women have an average literacy and numeracy score that is respectively about 15 points lower and 11 points lower than anglophone men and women.

For PS-TRE skills by gender, Figure 4.7 shows that in Quebec, 40 percent of anglophone men rank at proficiency Levels 2 or 3, while 33 percent of francophone men in the same province rank at these levels. In New Brunswick, 24 percent of francophone men and 22 percent of francophone women rank at Levels 2 or 3, while for the linguistic majority, 35 percent of both men and women rank at the same levels. Francophones in this province also have a higher proportion of nonrespondents to PS-TRE assessment: 28 percent of francophone men and 27 percent of francophone women did not participate in the PS-TRE assessment, compared to 21 and 17 percent of anglophone men and women, respectively.

¹⁶ See the pan-Canadian report at <http://www.cmec.ca/Publications/Lists/Publications/Attachments/315/Canadian-PIAAC-Report.EN.pdf>.

¹⁷ See Barrett and Riddell (2016) who suggest that skills decline from the ages of 45 to 54.

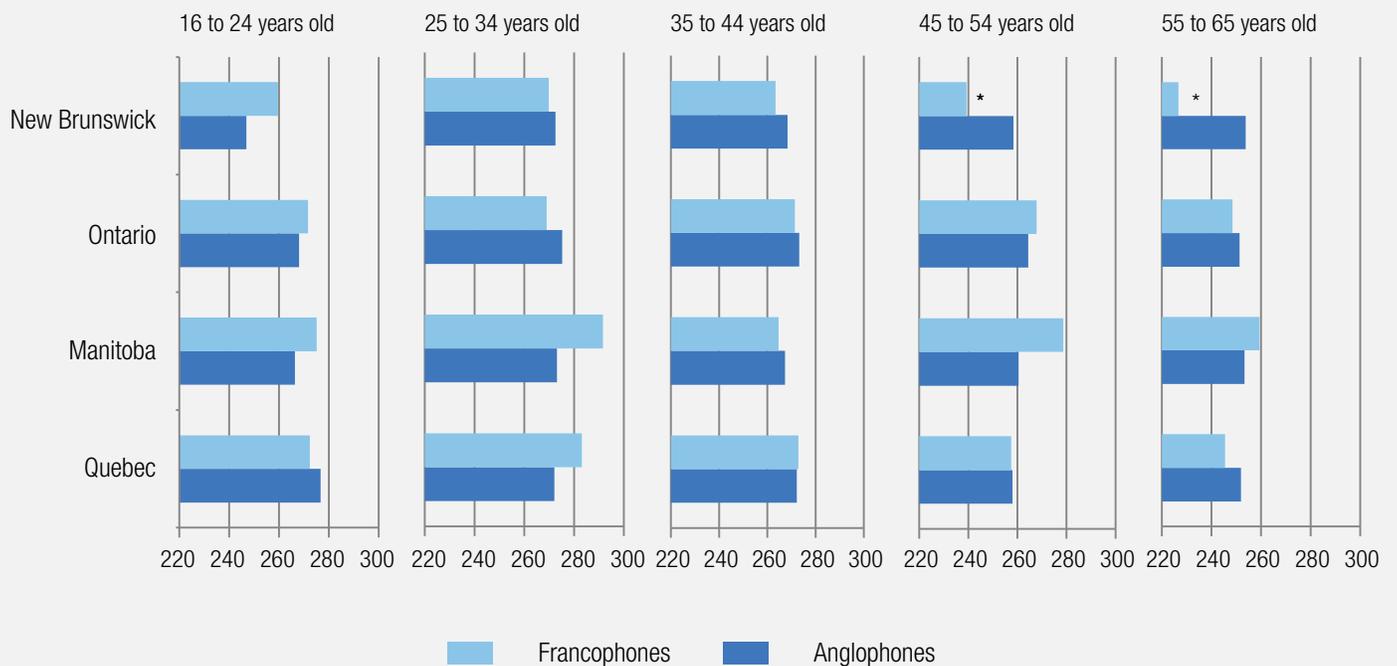
Figure 4.5. Literacy—Average scores of population aged 16 to 65, by language and age group, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

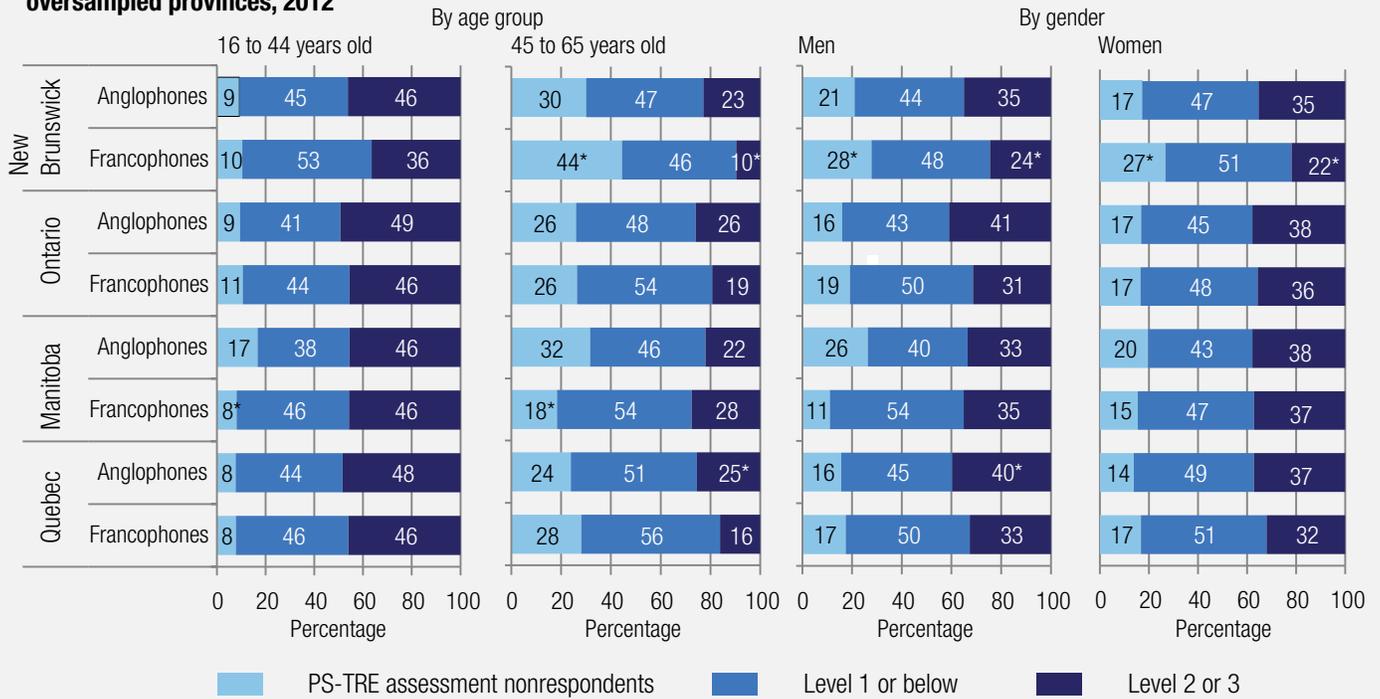
Figure 4.6. Numeracy—Average scores of population aged 16 to 65, by language and age group, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

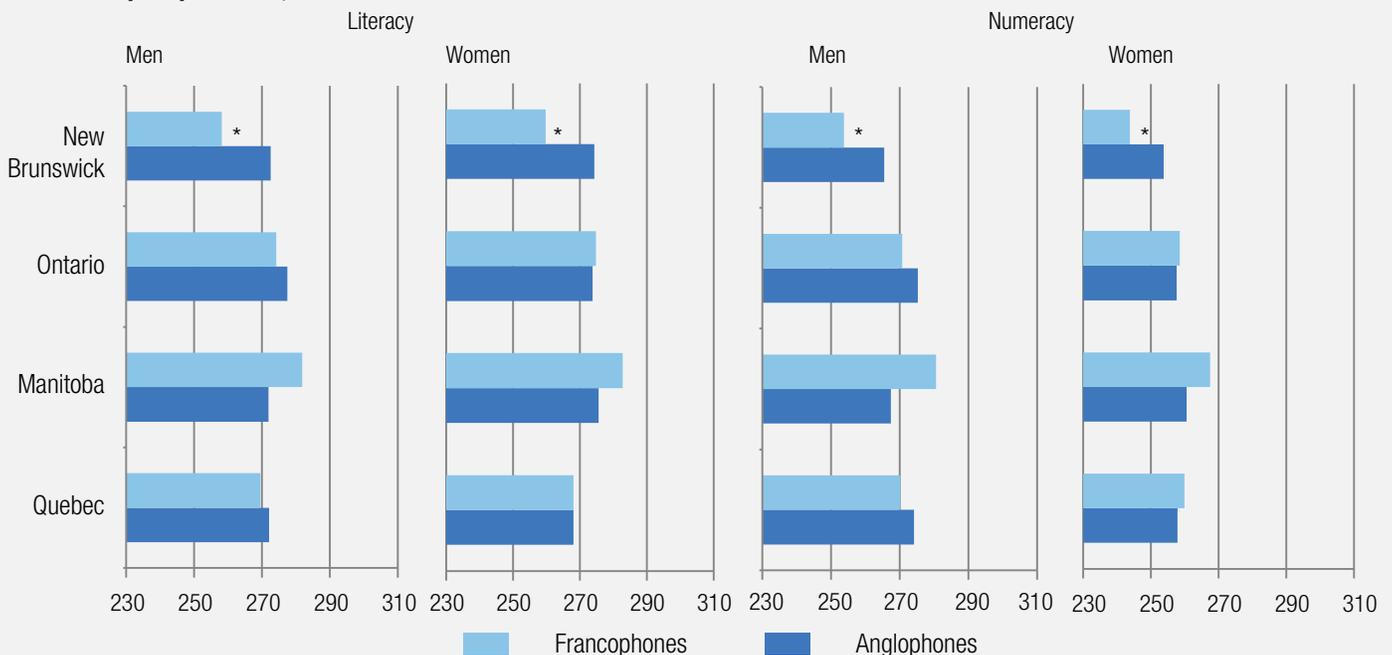
Figure 4.7. PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language, age group, and gender, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

Figure 4.8. Literacy and numeracy—Average scores of population aged 16 to 65, by language group and gender, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

4.3 Skills of the official-language minority according to certain linguistic characteristics

Here we focus on the skills of official-language minorities according to their language habits (language spoken most often at home), the language chosen for the PIAAC skill test, and their immigrant status. The review of the results is voluntarily limited to comparisons within linguistic minorities, rather than with the majority results.

4.3.1 Skills of francophones outside Quebec

4.3.1.1 Skills by language spoken most often at home

As Figure 4.9 indicates, there are no statistically significant differences in average scores in literacy and numeracy by language spoken most often at home for francophones outside Quebec. In terms of PS-TRE skills (see Figure 4.10), only the gap for Ontario's nonrespondents is statistically significant, with 21 percent of francophones who speak French most often at home not completing the assessment compared to only 12 percent of francophones who speak English most often at home.

4.3.1.2 Skills by test language

At the provincial level, francophones in New Brunswick who opted for a skill assessment in French had lower average scores in literacy (almost 11 points) than francophones who took the skill test in English (see Figure 4.11).¹⁸ It should be noted that the fact that a smaller proportion of francophones in Ontario and Manitoba did the assessment in French may explain the nonsignificance of the differences between the two groups of the francophone minority in these two provinces, unlike what is observed in New Brunswick. In terms of PS-TRE proficiency, the results in Figure 4.12 indicate that among New Brunswick francophones, there were more nonrespondents to this assessment among those who took the test in French (32%) than among those who took the test in English (22%).

4.3.1.3 Skills by immigrant status

According to PIAAC data, immigrants account for nearly 9 percent of francophones in a language-minority situation in Canada. These francophone immigrants' results in the PIAAC tests are presented in Figures 4.13 and 4.14. The results by province for francophones

¹⁸ We also examined the skills by language spoken most often at home and the language of the test, but there were no significant results.

are omitted from the latter figure because of the small proportion of francophone immigrants in the OLMC population in provinces other than Quebec. The results show that immigrant francophones in Ontario have lower average literacy and numeracy scores than Canadian-born francophones (35 points and 41 points, respectively).¹⁹

4.3.2 Skills of anglophones in Quebec

4.3.2.1 Skills by language spoken most often at home

The results for Quebec anglophones in Figure 4.9 show that there is a significant gap of 47 points in literacy and 43 points in numeracy between those who speak English most often at home and those who speak a non-official language at home. The latter group also has almost four times as many participants who were not assessed in PS-TRE, and almost half as many at Levels 2 or 3, compared to anglophones who speak English most often at home (see Figure 4.10). In addition, there are more anglophones who speak French most often at home in low proficiency levels (64%) than there are anglophones who speak English most often at home (47%).

4.3.2.2 Skills by test language

Figures 4.11 and 4.12 do not show any real differences in proficiency levels by test language for anglophones in Quebec.

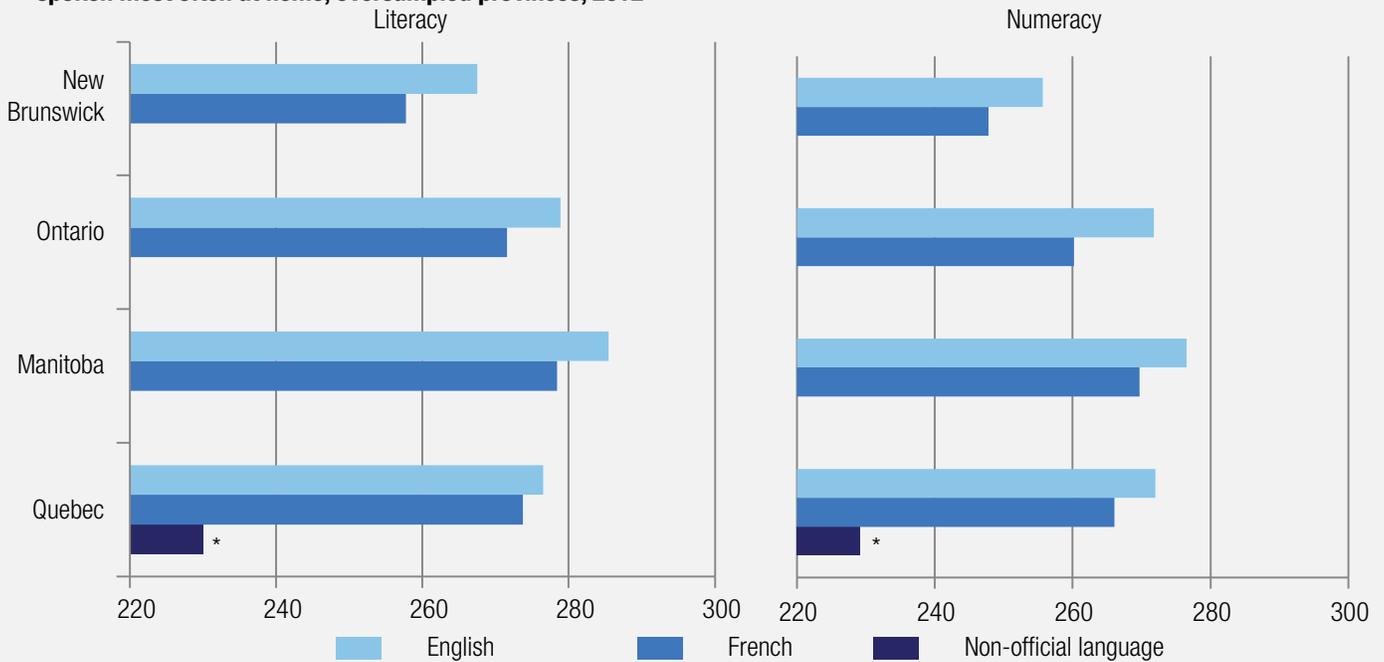
4.3.2.3 Skills by immigrant status

PIAAC data indicate that immigrants account for nearly 32 percent of Quebec's anglophone population, or nearly one out of three individuals. The data in Figure 4.13 indicate that their average scores are significantly lower than those of Canadian-born anglophones, by 32 points in literacy and 28 points in numeracy. In addition, Figure 4.14 shows that immigrant anglophones who were not assessed in PS-TRE outnumber Canadian-born anglophones by almost three to one, and that immigrant anglophones are less likely to rank at proficiency Levels 2 or 3 (26 versus 44%).²⁰

¹⁹ These gaps could be the result of lower educational attainment, immigrant class (recent, established, refugee, etc.), or lack of knowledge of an official language.

²⁰ Once again, these gaps could be the result of lower educational attainment, immigrant class (recent, established, refugee, etc.), or lack of knowledge of an official language.

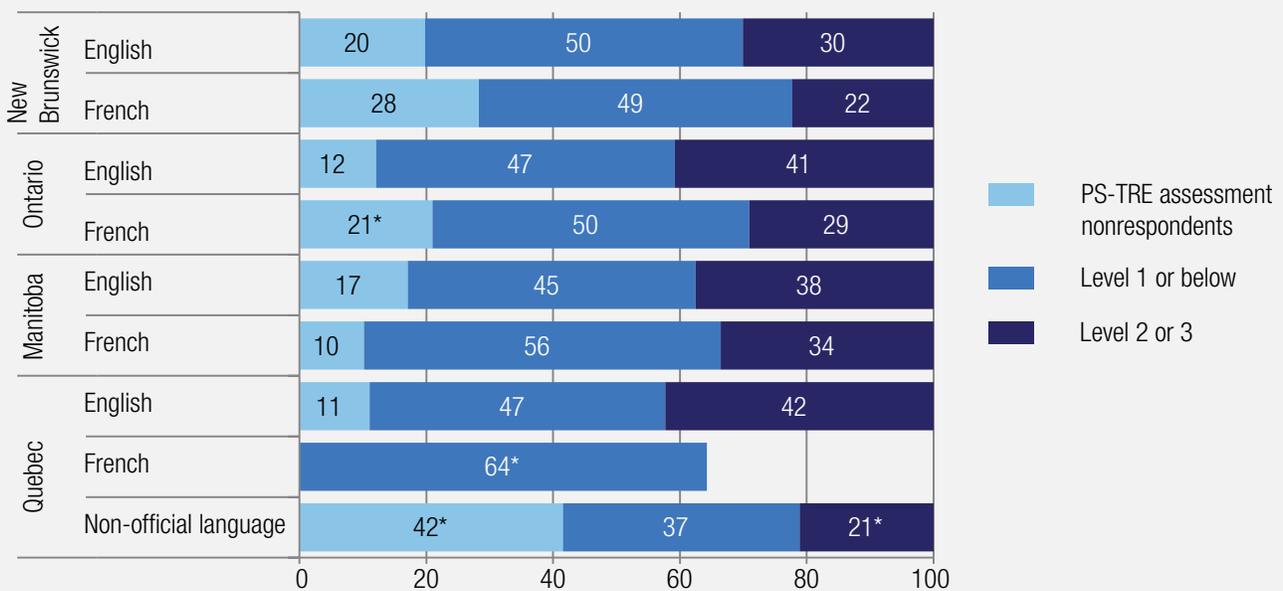
Figure 4.9. Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by language spoken most often at home, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

Figure 4.10. PS-TRE—Distribution of proficiency levels of official-language minority population aged 16 to 65, by language spoken most often at home, oversampled provinces, 2012

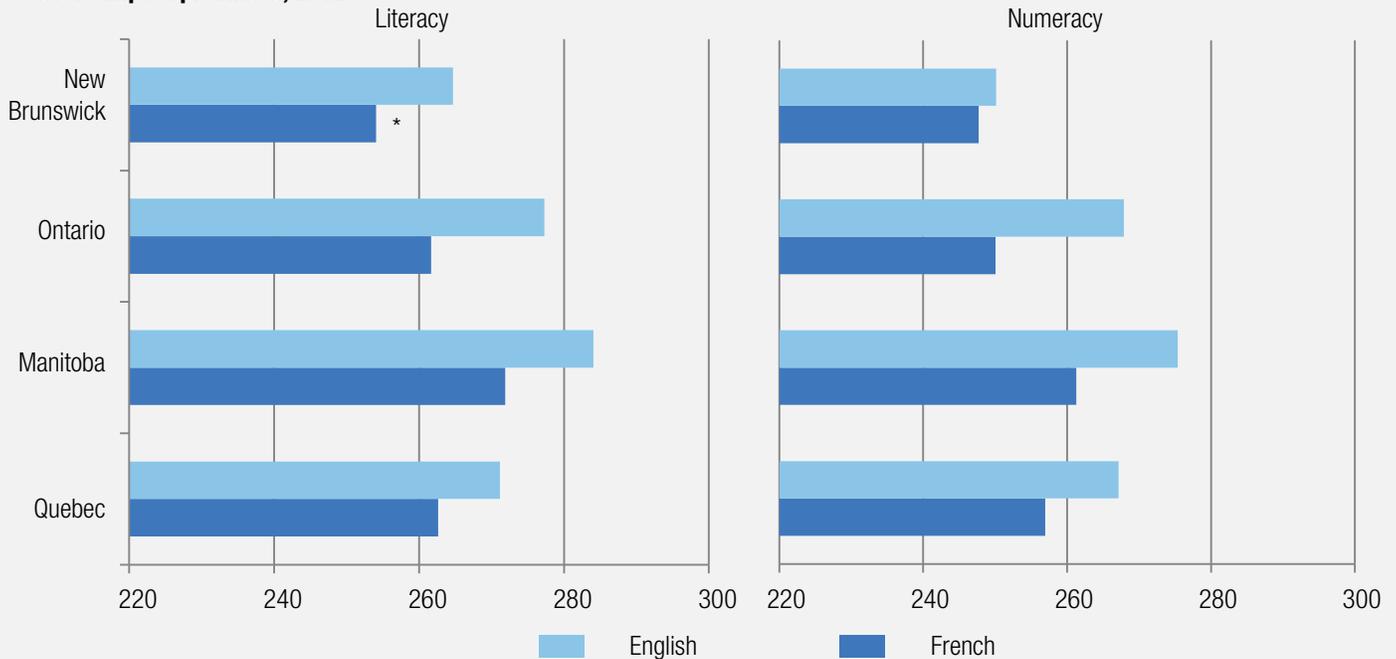


Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

Note: For Quebec French, estimates for PS-TRE nonrespondents and Level 2 or 3 estimates have been suppressed to meet confidentiality requirements.

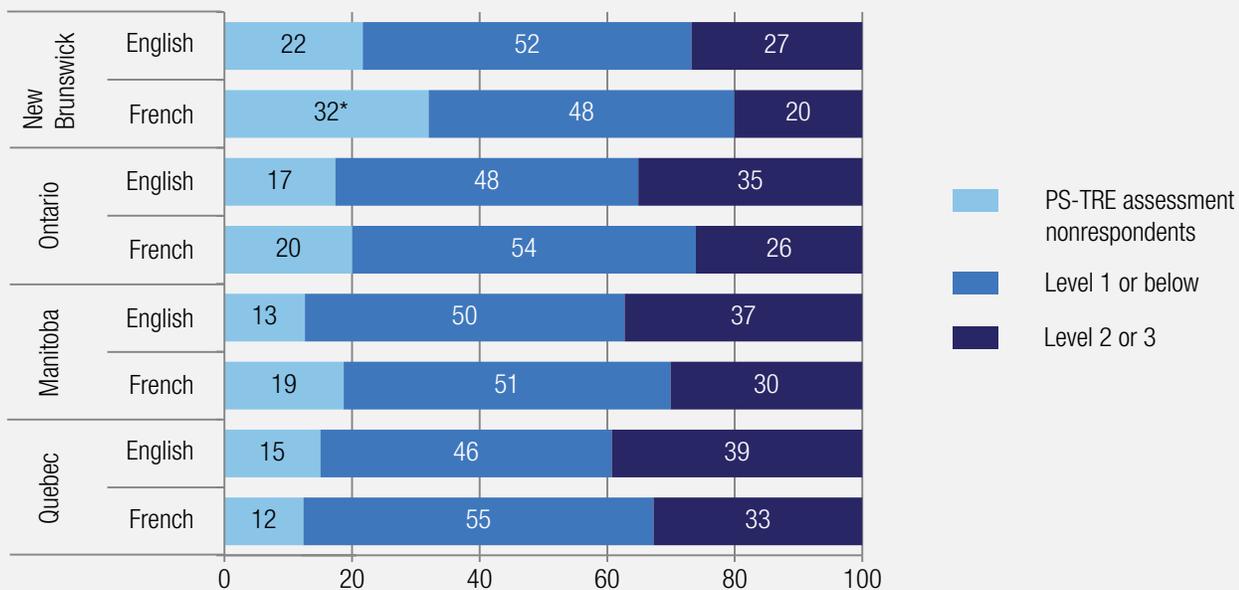
Figure 4.11. Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by test language, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

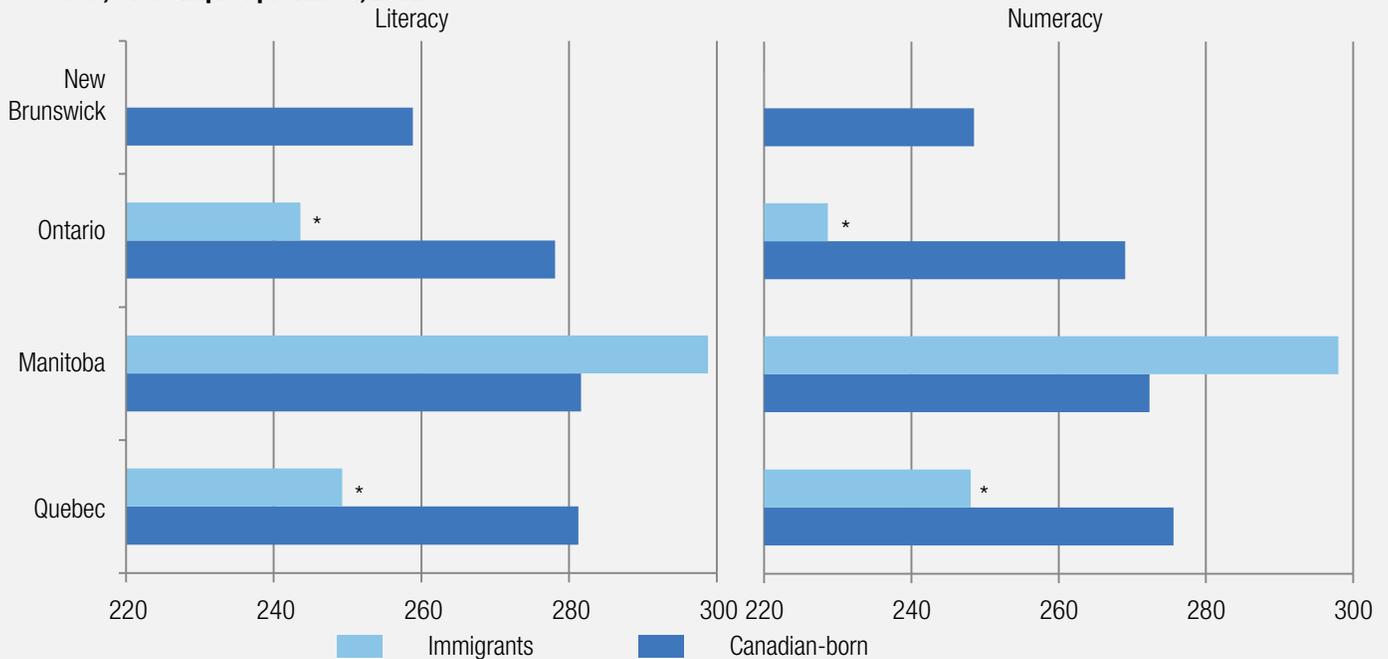
Figure 4.12. PS-TRE—Distribution of proficiency levels of official-language minority population aged 16 to 65, by test language, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

Figure 4.13. Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by immigrant status, oversampled provinces, 2012

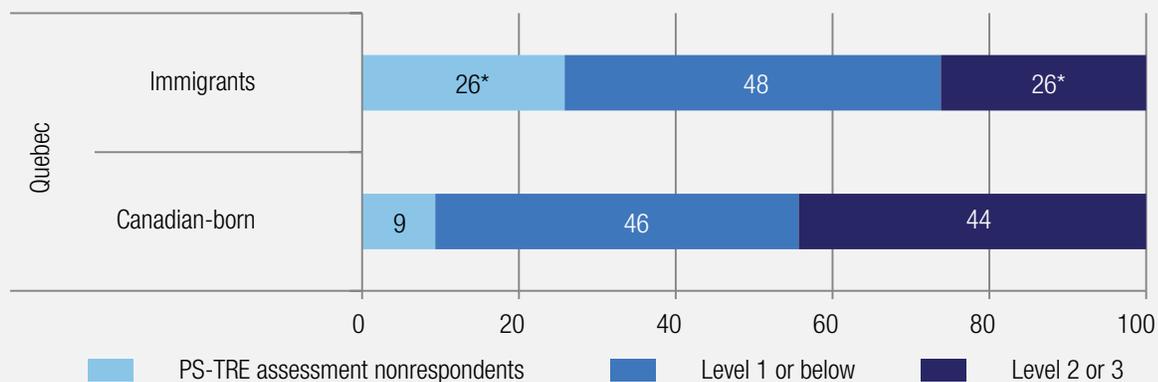


Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

Note: Results for immigrants to New Brunswick have been suppressed to meet confidentiality requirements.

Figure 4.14. PS-TRE—Distribution of proficiency levels of official-language minority population aged 16 to 65, by immigrant status, oversampled province, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

Note: Results for the francophone-minority provinces are not presented due to the small proportion of the population that is immigrant and the limitations of the sample size.

4.4 Differences between the skills of the official-language minority and the majority by regional indicators

We focus now on the skills of OLMCs according to certain regional indicators, such as the size of their region of residence and the economic region in which they live. The results of minorities are contrasted with those of the linguistic majorities in their respective provinces.

Areas of residence are commonly classified into rural or urban, depending on the size of the population residing there. Since the 2011 Census, Statistics Canada has replaced the notion of “urban area” with that of “population centre” to better reflect the existence of a continuum between urban and rural areas.²¹ According to the new convention, population centres are classified—still according to the size of their population—into three groups (small, medium, and large). All areas outside these centres are classified as rural.

As for economic regions, Statistics Canada defines them as standardized geographic units (made up of groups of census divisions) that are used for the analysis of regional economic activity.²² They are the smallest geographical units available in PIAAC. Thanks to oversampling in the four provinces of interest, the samples for some economic regions have enough observations to allow comparison of average literacy and numeracy scores between francophones and anglophones by region.

4.4.1 Skills of francophones outside Quebec

4.4.1.1 Skills by size of region of residence

Figures 4.15 and 4.16 present the results of OLMCs and their respective linguistic majorities in the PIAAC skills assessment. Because of the small proportion of the minority population who live in some population centres and limitations in terms of sample size, results for PS-TRE skill levels are presented for only some population centres and rural areas at the provincial level.

Figure 4.15 shows that only New Brunswick francophones from rural areas have lower average scores than anglophones who live in the same region (15-point difference), but in literacy only. For PS-

TRE skills, Figure 4.16 shows that New Brunswick francophones living in rural areas or in small population centres rank in lower proportions at proficiency Levels 2 or 3 (19% compared to 28% and 33% for anglophones in the same centres, respectively). In addition, in this province, francophones living in a small population centre are almost twice as likely not to have completed the PS-TRE assessment compared with anglophones. Finally, francophones in Manitoba who live in a large population centre are less likely (12%) than anglophones (20%) to have not completed the PS-TRE assessment.

4.4.1.2 Skills by economic region

The results of the OLMC skills assessment by economic region are presented in Figure 4.17. These results are limited to literacy and numeracy skills. The small size of the samples of respondents by economic region does not allow for comparisons of PS-TRE skill levels at this level. This table also includes an “other economic regions” category for each province, which groups together the regions within the province with too few observations in the PIAAC sample to be analyzed individually.

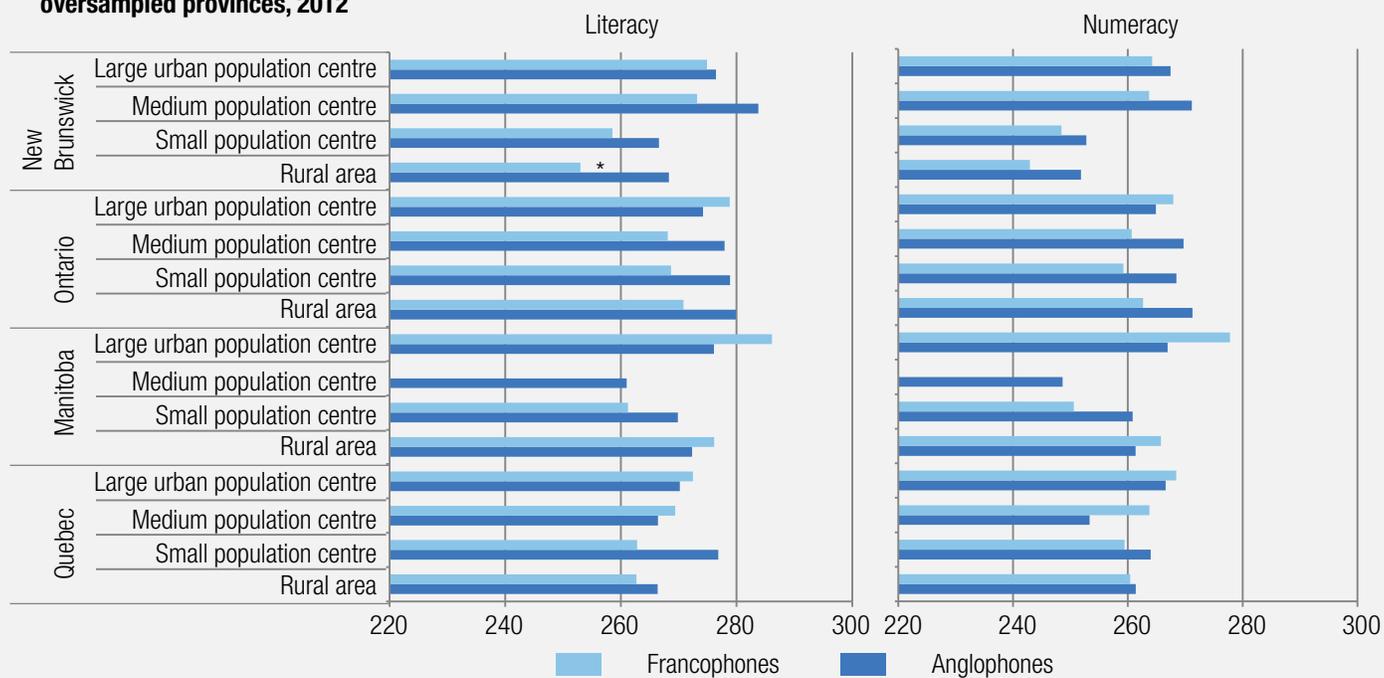
The economic regions that have not been grouped together are those where the proportion of the linguistic minority among the population is the highest (more than 10% of the region’s population for most of them). The other regions were grouped together to allow comparison of francophones’ and anglophones’ literacy and numeracy skills. In general, the proportions of linguistic minorities in the grouped regions’ population are quite similar in magnitude. However, other important differences may well exist between these regions, particularly in terms of the size of the regions and their main economic drivers.

Figure 4.17 shows that there are only two regions where the average literacy and numeracy scores of francophones are considerably lower than those of anglophones: Moncton–Richibucto, New Brunswick, and Ottawa, Ontario. In these regions, the results for francophones are 12 to 13 points lower and 14 to 17 points lower, respectively.

²¹ See definitions at <https://www12.statcan.gc.ca/census-recensement/2011/ref/dict/geo049a-eng.cfm>.

²² See definitions at <https://www150.statcan.gc.ca/n1/pub/92-195-x/2011001/geo/er-re/er-re-eng.htm>.

Figure 4.15. Literacy and numeracy—Average scores of population aged 16 to 65, by language group and region size, oversampled provinces, 2012



Source: Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

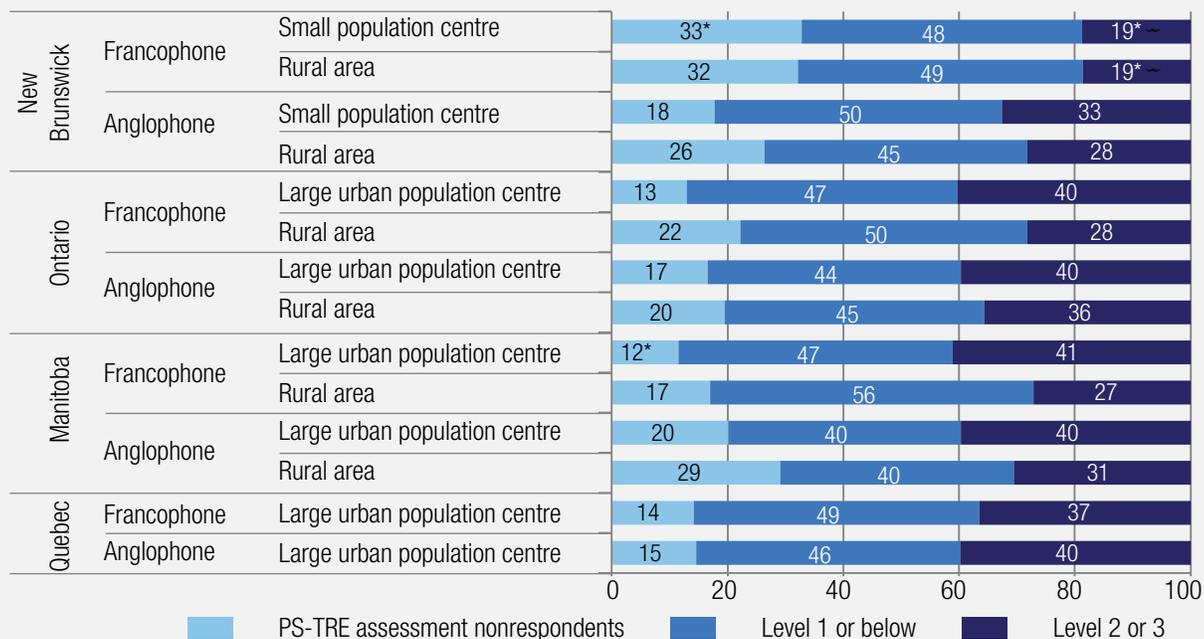
Note: Estimates of francophones living in a medium population centre in Manitoba have been suppressed to meet confidentiality requirements.

Small population centre: population between 1,000 and 29,999.

Medium population centre: population between 30,000 and 99,999.

Large urban population centre: population of 100,000 or more.

Figure 4.16. PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and region size, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

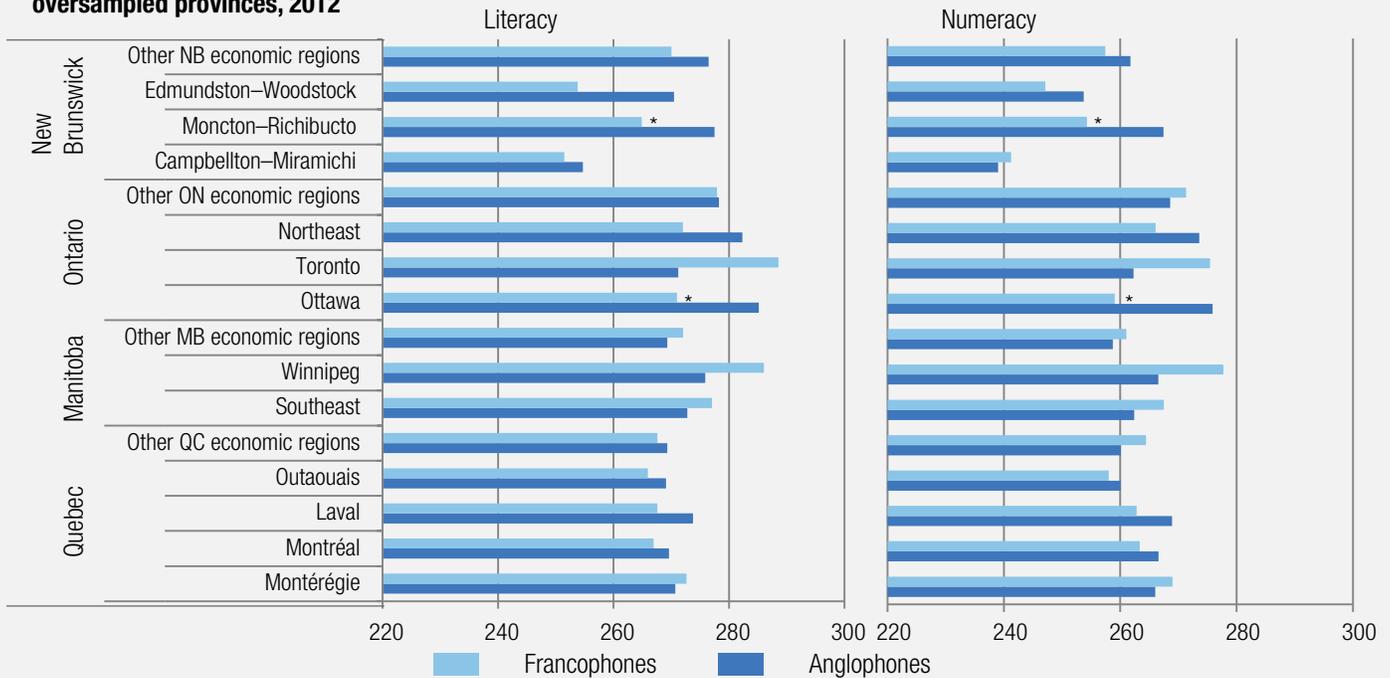
Note: Estimates of francophones living in a medium population centre in Manitoba have been suppressed to meet confidentiality requirements.

Small population centre: population between 1,000 and 29,999.

Medium population centre: population between 30,000 and 99,999.

Large urban population centre: population of 100,000 or more.

Figure 4.17. Literacy and numeracy—Average scores of population aged 16 to 65, by language group and economic region, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

The other NB economic regions are: Fredericton–Oromocto and Saint John–St. Stephen.

The other Ontario economic regions are: Kingston–Pembroke, Muskoka–Kawartha, Kitchener–Waterloo–Barrie, Hamilton–Niagara Peninsula, London, Windsor–Sarnia, Stratford–Bruce Peninsula, and Northwest.

The other Manitoba economic regions are: South Central, Southwest, North Central, Interlake, and North.

The other Quebec economic regions are: Gaspésie–Îles-de-la-Madeleine, Bas-Saint-Laurent, Capitale-Nationale, Chaudière-Appalaches, Estrie, Centre-du-Québec, Lanaudière, Laurentides, Abitibi–Témiscamingue, Mauricie, Saguenay–Lac-Saint-Jean, Côte-Nord, and Nord-du-Québec.

4.4.2 Skills of anglophones in Quebec

4.4.2.1 Skills by size of region of residence

As Figures 4.15 and 4.16 show, there do not appear to be any notable differences between anglophones' and francophones' skills in Quebec.

4.4.2.2. Skills by economic region

Figure 4.17 shows that the literacy and numeracy skill levels of Quebec anglophones are similar to those of francophones living in the same economic region.



CHAPTER 5

SKILLS AND SOCIOECONOMIC FACTORS

In this chapter we examine the skills of official-language minority communities (OLMCs) according to certain socioeconomic factors, in particular the highest level of education attained and labour market status. The results of official-language minorities on the PIAAC skills tests are compared to those of the linguistic majorities in their respective provinces.

5.1 Differences in skills by highest level of education obtained

What follows is a fairly detailed comparison of the skills of anglophones and francophones for the four levels of education selected, as well as by age group (16 to 44 years and 45 to 65 years) and by grouping of educational levels (high school or less and postsecondary education).

5.1.1 Skills of francophones outside Quebec

The results of the official-language minorities and those of the linguistic majority in their respective provinces in the PIAAC skills test, by highest level of education attained, are summarized in Figures 5.1 to 5.4.

Figure 5.1 shows that in New Brunswick, the average literacy scores of francophones are lower than those of anglophones for those without a high-school diploma (by 13 points) and for those with postsecondary education below the bachelor's level (by 10 points). Analysis of the results by age group (see Figure 5.2) indicates that significant differences are observed for the oldest individuals (aged 45 to 65) in the two linguistic groups in New Brunswick, in both literacy and numeracy, with average score gaps between 17 and 20 points in favour of anglophones.

In terms of the PS-TRE skills-assessment results (Figure 5.3), francophones in Manitoba who have a bachelor's degree or higher were less likely (4%) than anglophones (13%) to have not taken the PS-TRE assessment. In New Brunswick, the differences are found only among those with less than a high-school diploma, where francophones who have not been assessed on PS-TRE number almost twice as many as their anglophone peers (58% versus 29%). Francophones in this group are also three times less likely than anglophones (6% versus 18%) to rank at skill Levels 2 or 3, and are nearly 17 percentage points less likely to be at skill Level 1 or below. The results by age group (see Figure 5.4) also indicate that the differences are mainly observed among the oldest (45 to 65 years) in New Brunswick. In fact, 64 percent of francophones aged 45 to 65 with a high-school diploma or less did not take the PS-TRE

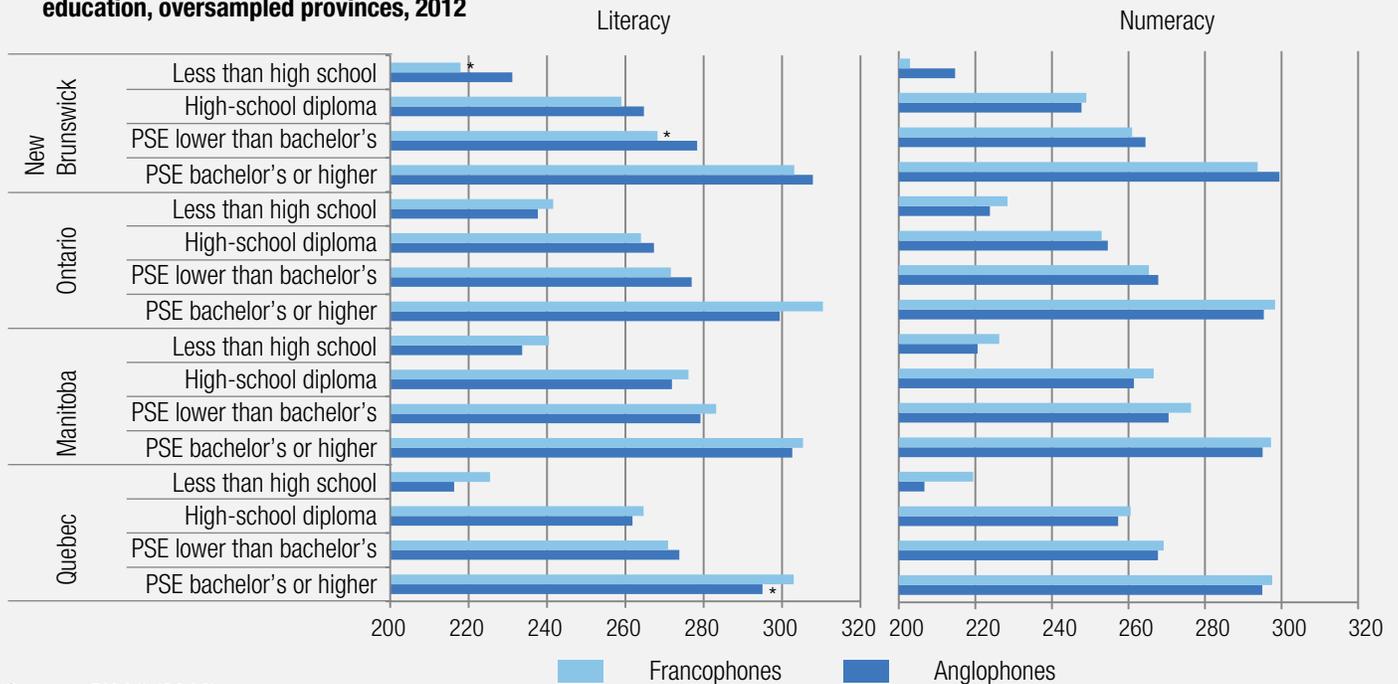
assessment, compared to 46 percent of anglophones in the same age group. Moreover, among francophones aged 45 to 65 with postsecondary education, nearly 18 percent rank at skill Levels 2 or 3, while for their anglophone peers, this proportion is nearly double.

5.1.2 Skills of anglophones in Quebec

As Figure 5.1 shows, anglophones with postsecondary education at the bachelor's level or higher have an average score in literacy slightly lower than francophones (by 8 points). The results by age group in Figure 5.2 do not show statistically significant differences.

With respect to PS-TRE skills, the results in Figure 5.3 show that anglophones with postsecondary education below the bachelor's level are more likely (42%) to rank at Levels 2 or 3 than francophones (32%). By age group, Figure 5.4 shows that gaps are found among those aged 45 to 65 with postsecondary education. Indeed, fewer anglophones in this group rank at proficiency Level 1 or below (49% compared to 61% for francophones) and more rank at competency Level 2 or 3 (33% compared to 23% for their francophone peers). Anglophones aged 45 to 65 with a high-school diploma or less are less likely (34%) than francophones in the same group (46%) to have not taken the PS-TRE assessment. Finally, anglophones aged 16 to 44 with postsecondary education did not complete the PS-TRE assessment in only 3 percent of cases, while this proportion is up to 7 percent for francophones.

Figure 5.1. Literacy and numeracy—Average scores of population aged 16 to 65, by language group and highest level of education, oversampled provinces, 2012

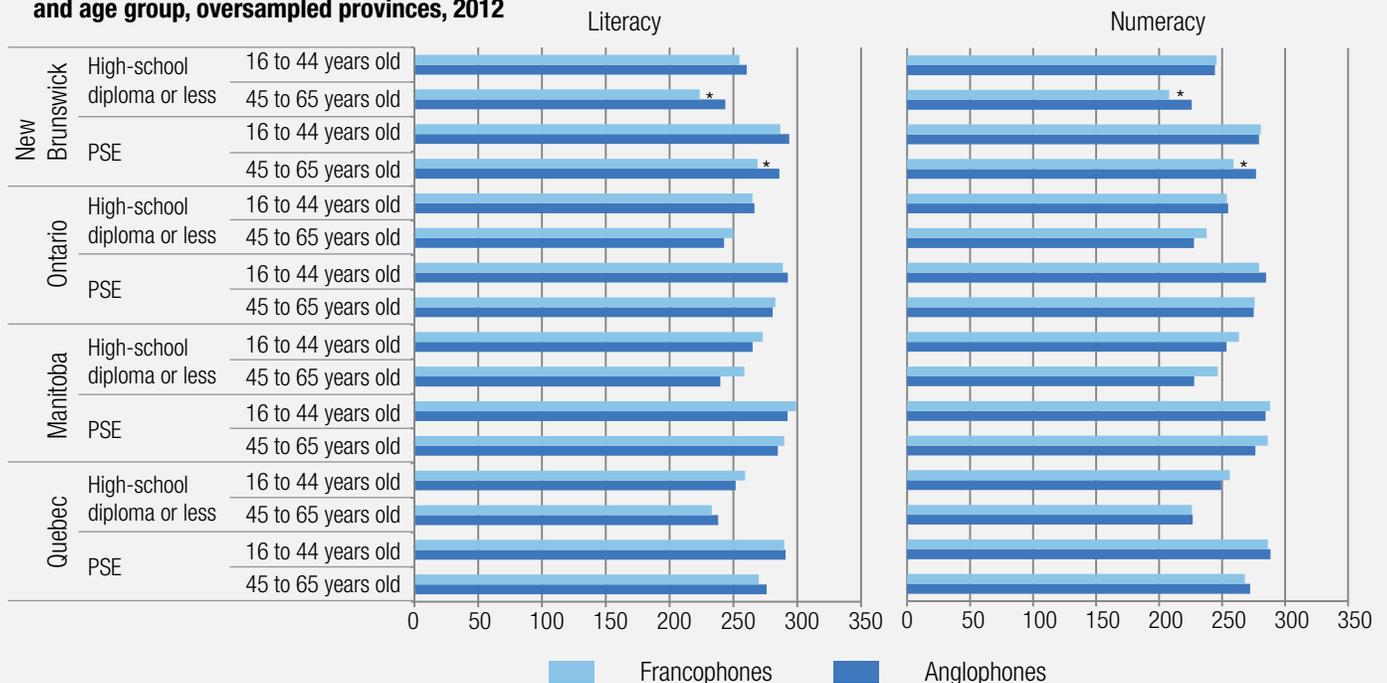


Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

PSE Postsecondary education.

Figure 5.2. Literacy and numeracy—Average scores of population aged 16 to 65, by language group, highest level of education and age group, oversampled provinces, 2012

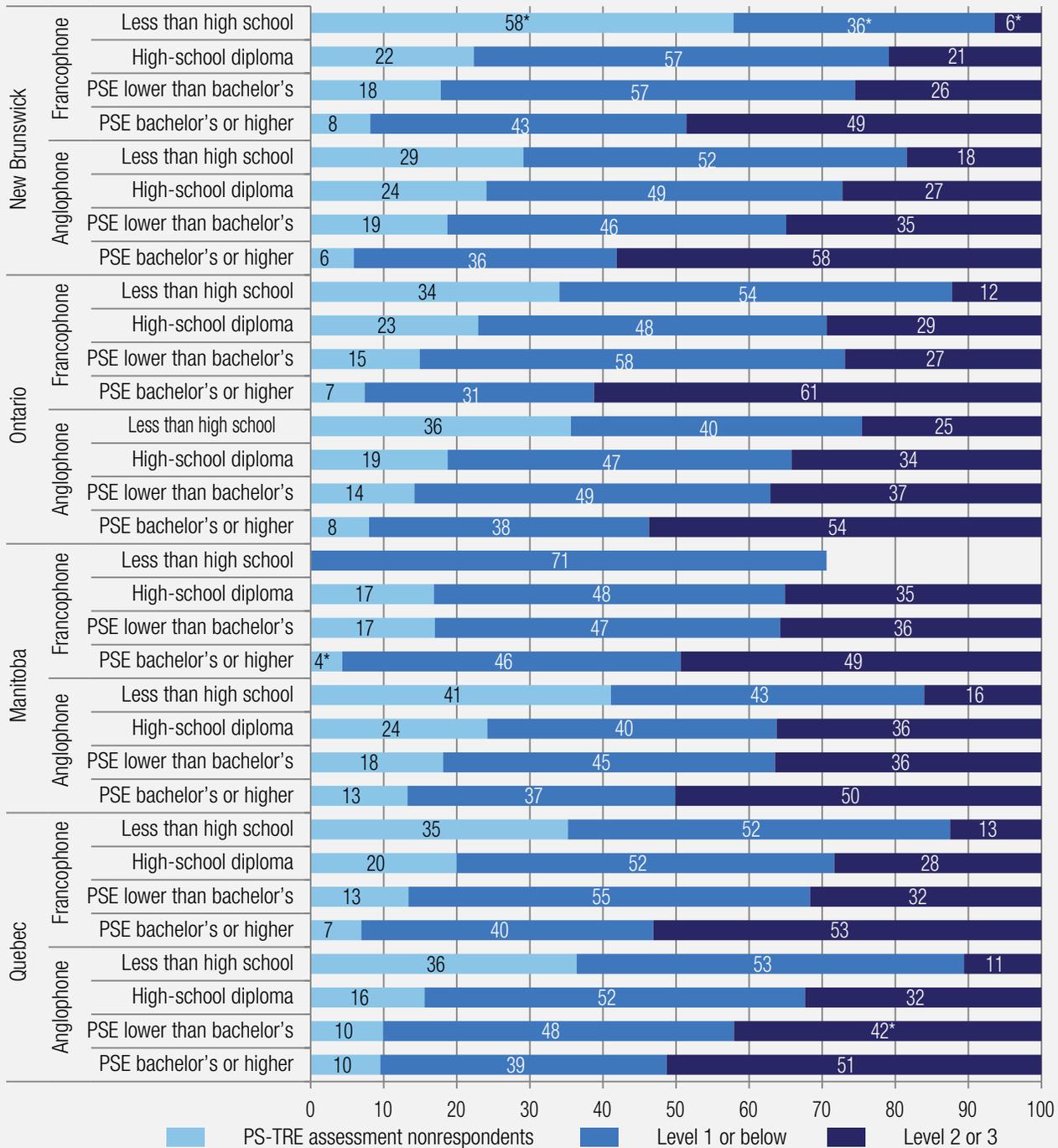


Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

PSE Postsecondary education.

Figure 5.3. PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and highest level of education, oversampled provinces, 2012



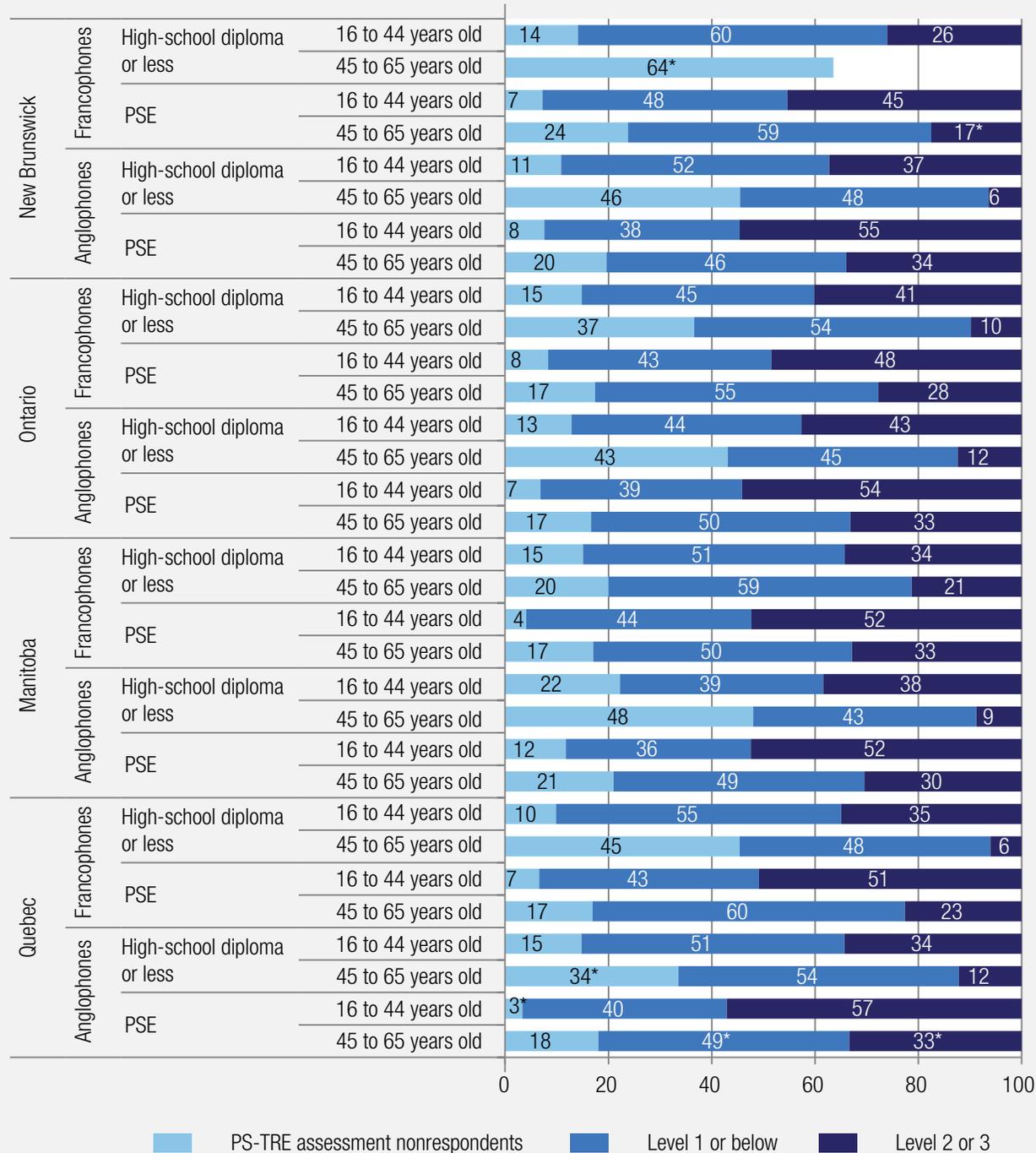
Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

PSE Postsecondary education.

Note: Estimates for Manitoba francophone nonrespondents and Level 2–3 respondents have been suppressed to meet confidentiality requirements.

Figure 5.4. PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group, highest level of education, and age group, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

PSE Postsecondary education.

Note: Estimates for francophone respondents aged 45 to 65 years in New Brunswick with a high-school diploma or less, Level 1 or less, or Level 2 or 3, have been suppressed to meet confidentiality requirements.

5.2 Skills and labour force status

In this subsection we focus on the skills of OLMCs according to the individuals' labour force status. Three situations are considered: employed, unemployed, and not in the labour force.

Figures 5.5 and 5.6 present participants' results in the PIAAC skills test by labour force status. Because of the small sample sizes of linguistic minorities, and the particularly low proportion of unemployed participants, the literacy and numeracy results of this group of individuals must be interpreted with caution. The results of the PS-TRE skills for this group are statistically unreliable for the same reasons, and are therefore omitted.

5.2.1 Skills of francophones outside Quebec

The results in Figure 5.5 indicate that francophones in only New Brunswick have lower average literacy and numeracy scores than anglophones. The data in Figure 5.5 also indicate that these differences in average outcome scores are highest among those out of the labour force (16 to 18 points), followed by the employed group (9 to 13 points). In Manitoba, although no difference was found between the average literacy and numeracy scores of the two language groups (see chapter 4), employed francophones in that province have significantly higher average literacy scores than their anglophone peers (by 11 points). There is also a substantial gap (31 points) between the average literacy scores of unemployed anglophones and francophones in this province, in favour of francophones. However, the estimates for this category of participants are too unreliable to draw conclusions on the literacy skill levels of unemployed people in both language groups.

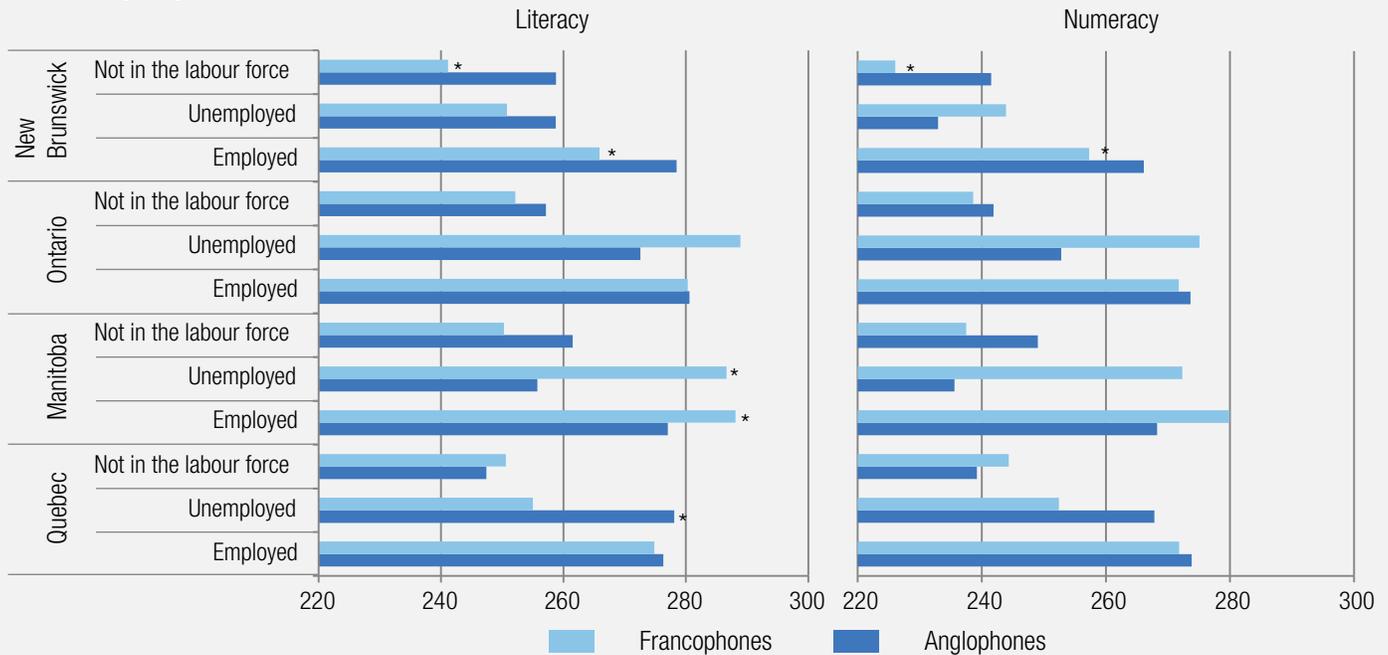
In terms of PS-TRE skills, the results in Figure 5.6 indicate that in New Brunswick, almost half of francophones out of the labour force were not assessed, which is almost twice as many as for the anglophone majority in the province, while 10 percent rank at proficiency Levels 2 or 3 compared to 26 percent of anglophones. Among those employed, 28 percent of francophones ranked at proficiency Levels 2 or 3 compared to 38 percent of anglophones. By contrast, in Manitoba, employed francophones were half as likely not to be assessed in PS-TRE compared to employed anglophones (11% versus 22%). Finally, in Ontario, 55 percent of francophones not in the labour force ranked at Level 1 or below while 41 percent of out-of-the-labour-force anglophones ranked at this level.

5.2.2 Skills of anglophones in Quebec

As Figure 5.5 shows, the only significant difference between the average literacy and numeracy scores of Quebec anglophones and francophones is in literacy, and for unemployed individuals only. Indeed, the result of the anglophone minority in this category is 23 points higher than that of the francophone majority.

In terms of PS-TRE assessment, the data in Figure 5.6 indicate that 29 percent of anglophones not in the labour force rank at skill Levels 2 or 3, while only 19 percent of francophones rank at these levels.

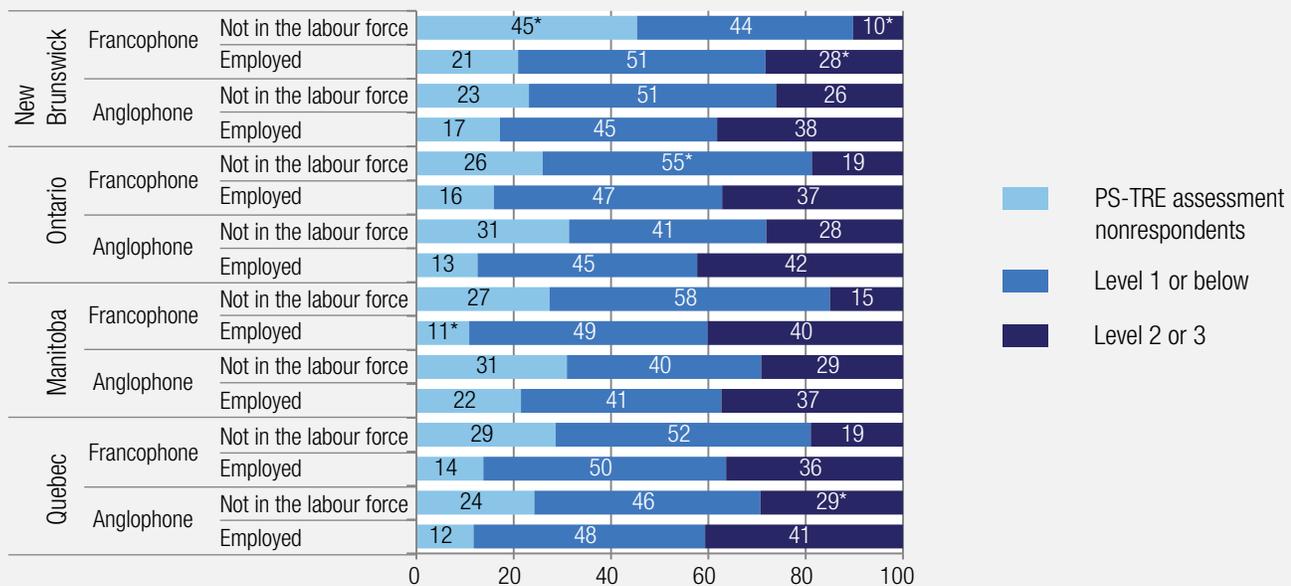
Figure 5.5. Literacy and numeracy—Average scores of population aged 16 to 65, by language group and labour force status, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

Figure 5.6. PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and labour force status, oversampled provinces, 2012



Source: PIAAC (2012).

* Represents a statistically significant difference at the 5% level.

Note: Results for the unemployed category are not presented by province due to the low proportion of the population in this category and limitations in sample size.



CHAPTER 6

THE FACTORS THAT INFLUENCE SKILLS

In this chapter we analyze the results of multivariate regressions conducted to determine whether being a member of an official-language minority significantly affects an individual's literacy score, when the impact of other factors (considered determinants of this level) is taken into account. These results are summarized in Figure 6.1, and correspond to estimates of the effects for linguistic minorities from regressions run separately for each of the four oversampled provinces. In all these regressions, the dependent variable is the literacy score obtained by the PIAAC participant, explained by the following control variables: age, gender, education level, immigrant status (except in New Brunswick), economic region, type of population centre, and employment status, as well as an indicator for the official-language minority status.²³ This variable is specified in two different ways. In the first specification (column 1 of Tables A9.1 and A9.2 in Appendix I), it is defined as a dummy variable with a value of 1 if the participant is a member of the official-language minority in the province, and 0 otherwise. In the second specification (column 2 of the tables), we define the linguistic-minority status in a similar way, and further distinguish between minorities who speak the minority language most often at home and those who speak the majority language instead.

6.1 The results of multivariate analyses

The descriptive analysis of average literacy scores in chapter 4 showed that New Brunswick is the only province where average literacy scores are significantly different between francophones and anglophones, with a gap of almost 15 points (Figure 4.1) in favour of anglophones. This finding is confirmed by the estimates reported in Figure 6.1, which also indicate that, once the effects of the control variables on the literacy score of participants are taken into account, the average literacy score of the francophone minority remains significantly lower than that of the majority, but the gap is smaller, at just over six points (see Figure 6.1). For the other three provinces, the finding is similar to that of the descriptive analysis, in that the differences in average literacy scores between the linguistic minority and the majority remain nonsignificant, even after controlling for factors such as age, gender, education, economic region, population centre, labour force status, and immigrant status.

When members of the linguistic minority are distinguished according to the language most often spoken at home, the average literacy gap in New Brunswick compared with the anglophone majority is significant only for francophones who speak French most often at home, and is just over seven points. In Ontario, the francophone minority who speak French most often at home also has an average literacy score significantly lower than the province's anglophones by nearly 10 points. In Manitoba, however, being francophone and speaking French most often at home is not associated with a literacy score significantly different from that of anglophones.

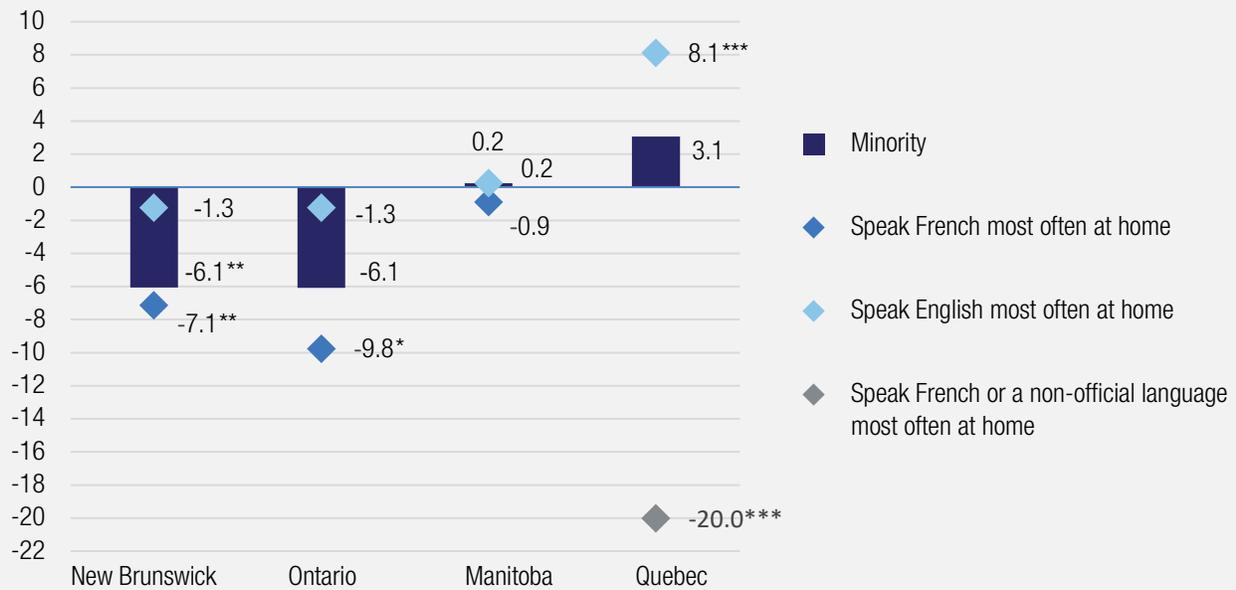
For Quebec, the results in Figure 6.1 indicate that while being a member of the anglophone minority is not associated with a lower literacy score, this is not the case when anglophone-minority members are distinguished according to the language most often spoken at home. Indeed, anglophones who speak English most often at home have a higher average literacy score than francophones of the province, with a statistically significant difference of more than eight points. On the other hand, anglophones who speak French or a non-official language most often at home have an average literacy score significantly below that of the province's francophone majority by 20 points.

With respect to the effects of the other factors considered (gender, age, level of education, immigrant status, population centre, economic region, and labour force status), the estimation results do not reveal any significant difference between the average results for men and women, except for Quebec, where this difference is slightly below four points.²⁴ However, there are notable differences between age groups and especially between different levels of education. Overall, the literacy scores for participants in the PIAAC skills assessment decline with age and increase with the level of education. While the population centre does not appear to have an impact on an individual's literacy score, some economic regions do show a statistically significant difference. Finally, being an immigrant has a negative impact on literacy scores, while employed individuals have better literacy scores in all four provinces.

²³ This choice of variables is standard and consistent with what is done in the literature, notably the *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, Corbeil (2000, 2006), and Bérard-Chagnon and Lepage (2016). However, unlike the last three studies, we did not include general reading and writing habits because the inverse causal relationship of this variable could bias the results.

²⁴ See Tables A9.1 and A9.2 in Appendix I.

Figure 6.1. Estimated coefficients of OLMCs' indicators, literacy score regressions, population aged 16 to 65, oversampled provinces, 2012



Source: Source: PIAAC (2012).

***Significant at 1%; ** Significant at 5%; * Significant at 10%

Note: The control variables are gender, age, education, immigrant status (except for New Brunswick), population centre, economic region, and employment status.

Conclusion

The economic, social, and cultural contexts in which official-language minorities live are undoubtedly different from one province to another. Given these differences and the institutional specificities of each province, it is important to examine the skills of these linguistic minorities separately. Thanks to the oversampling of linguistic minorities in the four provinces of interest in PIAAC, the assessment data collected through this program make it possible to examine official-language minority communities' (OLMCs) skills by province, by region, as well as according to several sociodemographic criteria and characteristics.

This report presents a synthesis of the analyses conducted, essentially from the perspective of comparison with the linguistic majority's results. Overall, these results indicate that significant differences between the literacy, numeracy, and PS-TRE skills of francophone minorities and those of the anglophone majority are observed almost exclusively in New Brunswick. Some individual characteristics such as age and level of education are also found to be associated with larger differences in proficiency level between francophones and anglophones. In New Brunswick, for example, older francophones and those with a low level of education have lower skills than their anglophone counterparts. In general, however, there are no significant differences between the average proficiency levels of the two language groups in Ontario and Manitoba.

For anglophones in Quebec, the results show that, overall, their proficiency levels are comparable to those of the francophone majority, except for some subgroups of anglophones who perform better.

Analyses of the PIAAC skills-assessment results also indicate that many participants among the francophone minority chose to have their skills assessed in English, that is, in the language of the majority. The average results obtained by participants who chose to be assessed in English were higher than those of francophone participants who chose to be assessed in French. This finding is observed in New Brunswick, and in literacy only. Finally, when other factors that may affect skills (through multivariate analysis) are taken into account, the results indicate that members of francophone minorities in New Brunswick and Ontario who speak French most often at home have significantly lower scores than the linguistic majority in their province, while anglophones in Quebec have higher scores than the francophone majority if they speak English most often at home and lower if they speak French or a non-official language most often at home.

It should be noted that PIAAC's data, thanks to oversampling of particular population groups and the richness of its contextual information, make it possible to highlight the gaps in skills between certain linguistic minorities and their respective majorities, as well as some factors associated with them. However, these data are cross-sectional in nature and therefore do not allow a causal relationship to be established between these factors and the differences observed. Accordingly, the results of this report should be viewed as essentially descriptive.



APPENDIX I

TABLES

Table A1**Differences between linguistic minority samples defined by mother tongue and FOLS**

	Francophones outside Quebec		Anglophones in Quebec	
	Mother tongue	FOLS	Mother tongue	FOLS
Number of observations	2,304	2,495	626	935
Gain in observations (%)		+8.3		+49.4
Distribution by mother tongue (%)				
English only	-	-	90.6	60.4
French only	96.3	87.1	-	0.1
English and French	-	9.0	-	7.5
English and Other	-	-	9.4	6.3
French and Other	3.7	3.2	-	-
Other(s)	-	0.7	-0	25.7
Distribution by age group (%)				
15 to 34 years old	29.0	33.5	38.9	38.0
35 to 65 years old	71.0	66.5	61.1	62.0
Distribution by level of education (%)				
Less than high school	18.0	16.8	13.1	13.1
High-school diploma	26.1	25.3	26.6	24.4
Postsecondary education, below bachelor's degree	33.3	35.6	30.7	31.0
Postsecondary education, bachelor's degree, or higher	22.6	22.2	29.5	31.5
Distribution by language spoken most often at home (%)				
English	42.0	34.7	81.0	78.2
French	53.7	63.2	14.1	8.4
Distribution by test language (%)				
English	72.7	73.2	86.1	86.2
French	27.3	26.8	13.9	13.8

Source: PIAAC (2012); authors' calculations.

Table A2

Sociodemographic characteristics by language group, oversampled provinces, 2012

	New Brunswick				Ontario				Manitoba				Quebec								
	Anglophone		Francophone		Anglophone		Francophone		Anglophone		Francophone		Anglophone		Francophone						
	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)					
Gender																					
Male	48.3	(1.0)	50.3	(1.8)	49.6	(0.2)	50.7	(3.7)	50.2	(0.3)	45.2	(5.7)	48.3	(1.6)	50.4	(0.3)					
Female	51.7	(1.0)	49.7	(1.8)	50.4	(0.2)	49.3	(3.7)	49.8	(0.3)	54.8	(5.7)	51.7	(1.6)	49.6	(0.3)					
Age group																					
16 to 24 years old	17.9	(0.9)	13.5	(1.6)	*	17.8	(0.1)	12.7	(2.0)	*	19.1	(0.2)	12.3	(2.7)	*m	19.5	(1.8)	15.7	(0.3)	*	
25 to 34 years old	16.2	(0.9)	18.7	(1.5)		19.6	(0.2)	21.9	(3.9)	m	20.0	(0.3)	20.9	(4.3)	m	18.5	(1.5)	19.7	(0.3)		
35 to 44 years old	19.1	(0.9)	18.3	(1.4)		20.1	(0.2)	19.4	(2.5)		18.8	(0.3)	14.4	(3.5)	m	19.1	(1.2)	18.8	(0.3)		
45 to 54 years old	23.5	(0.8)	22.9	(1.4)		22.8	(0.2)	22.6	(2.9)		22.1	(0.4)	23.8	(4.2)	m	23.0	(1.5)	23.3	(0.3)		
55 to 65 years old	23.4	(1.1)	26.6	(1.8)		19.6	(0.2)	23.4	(4.0)	m	19.9	(0.2)	28.5	(4.5)		19.9	(1.7)	22.4	(0.3)		
Education level																					
Less than high school	15.2	(0.9)	24.5	(1.6)	*	13.1	(0.2)	12.8	(2.3)	m	19.2	(0.3)	13.1	(4.2)	m	13.1	(1.3)	17.0	(0.2)	*	
High-school diploma	29.2	(0.9)	24.2	(1.5)	*	26.1	(0.2)	27.2	(2.5)		26.7	(0.3)	27.7	(5.5)	m	24.4	(1.6)	20.7	(0.3)	*	
PSE lower than bachelor's	34.2	(1.0)	36.1	(1.8)		32.6	(0.2)	37.3	(3.8)		31.7	(0.2)	28.5	(4.3)		31.0	(1.7)	40.6	(0.3)	*	
PSE—bachelor's or higher	21.4	(0.8)	15.1	(1.3)	*	28.1	(0.2)	22.7	(3.3)		22.4	(0.2)	30.6	(5.5)	m	31.5	(1.7)	21.7	(0.3)	*	
Immigrant status																					
Canadian-born	96.3	(0.7)	99.2	(0.4)	*	67.6	(0.2)	89.2	(2.5)	*	83.3	(1.4)	95.2	(2.5)	*	68.1	(1.8)	91.4	(0.3)	*	
Immigrants	3.7	(0.7)	m	0.8	(0.4)	*u	32.4	(0.2)	10.8	(2.5)	*m	16.7	(1.4)	4.8	(2.5)	*u	31.9	(1.8)	8.6	(0.3)	*
Labour Force Status																					
Employed	74.5	(1.9)	70.0	(2.1)		75.4	(0.8)	75.8	(2.1)		79.9	(1.3)	83.9	(3.6)		71.4	(1.6)	74.4	(0.7)		
Unemployed	4.8	(1.2)	4.9	(0.8)	m	5.1	(0.5)	2.7	(0.8)	*m	3.1	(0.5)	0.9	(0.3)	*u	6.4	(1.1)	m	4.0	(0.3)	*
Not in the labour force	20.6	(1.5)	25.1	(1.9)		19.5	(0.8)	21.5	(2.0)		17.0	(1.3)	15.2	(3.6)	m	22.2	(1.5)	21.6	(0.6)		
Region size																					
Rural area	43.3	(3.5)	56.3	(3.1)	*	14.0	(1.3)	18.0	(3.2)	m	24.2	(2.6)	29.6	(7.1)	m	7.7	(1.8)	m	20.9	(1.4)	*
Small and medium population centre (population between 1,000 and 99,999)	43.9	(4.0)	27.4	(2.3)	*	14.7	(1.0)	27.7	(4.1)	*	15.4	(2.6)	m	3.6	(1.0)	*m	6.0	(0.7)	23.1	(1.5)	*
Large urban population centre (population of 100,000 or more)	12.8	(3.4)	m	16.3	(2.9)	m	71.3	(1.6)	54.3	(5.4)	*	60.4	(0.8)	66.8	(7.8)		86.3	(2.1)	56.0	(1.7)	*
Economic Region																					
Campbellton—Miramichi	11.9	(3.6)	m	36.7	(5.6)	*															
Moncton—Richibucto	21.0	(4.9)	m	39.8	(5.3)	*															
Edmundston—Woodstock	7.8	(4.4)	u	13.8	(4.0)	m															
Other NB economic regions	59.3	(6.4)		9.8	(2.1)	*m															
Montréal													19.3	(2.4)		20.4	(1.7)				
Laval													61.7	(2.3)		17.7	(0.5)	*			
Outaouais													5.9	(1.0)		4.3	(0.3)				
Other QC economic regions													5.4	(1.7)	m	3.7	(1.2)	m			
													7.8	(1.2)		53.9	(2.0)	*			

Table A2 (cont'd)

Sociodemographic characteristics by language group, oversampled provinces, 2012

	New Brunswick				Ontario				Manitoba				Quebec			
	Anglophone		Francophone		Anglophone		Francophone		Anglophone		Francophone		Anglophone		Francophone	
	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)
Economic Region (cont'd)																
Southeast									12.5	(4.5)	u	18.4	(4.2)	m		
Winnipeg									59.9	(0.8)		67.1	(7.8)			
Other MB economic regions									27.6	(4.6)		14.5	(6.1)	u		
Ottawa					8.3	(1.2)	47.3	(5.3)	*							
Toronto					47.8	(1.1)	12.2	(3.1)	*m							
Northeast					3.9	(1.4)	u	24.5	(6.5)	*m						
Other ON economic regions					40.0	(2.2)	16.0	(2.9)	*m							

Source: PIAAC (2012).

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

The other NB economic regions are: Fredericton–Oromocto and Saint John–St. Stephen.

The other Ontario economic regions are: Kingston–Pembroke, Muskoka–Kawarthas, Kitchener–Waterloo–Barrie, Hamilton–Niagara Peninsula, London, Windsor–Sarnia, Stratford–Bruce Peninsula, and Northwest.

The other Manitoba economic regions are: South Central, Southwest, North Central, Interlake, and North.

The other Quebec economic regions are: Gaspésie–Îles-de-la-Madeleine, Bas-Saint-Laurent, Capitale-Nationale, Chaudière-Appalaches, Estrie, Centre-du-Québec, Lanaudière, Laurentides, Abitibi–Témiscamingue, Mauricie, Saguenay–Lac-Saint-Jean, Côte-Nord, and Nord-du-Québec.

Table A3.1

Literacy—Averages and proficiency levels of population aged 16 to 65, by language group, oversampled provinces, 2012

Province	Language Group	Average Score			Level 1 or Below			Level 2			Level 3			Level 4 or 5		
		Average Score	(SE)		%	(SE)		%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	273.5	(2.0)		15.8	(1.7)		33.2	(2.0)		38.8	(2.1)		12.2	(1.4)	
	Francophones	258.9	(2.3)	*	23.6	(2.2)	*	38.0	(2.2)		31.6	(2.4)	*	6.9	(1.2)	*m
Ontario	Anglophones	275.6	(1.0)		15.1	(0.9)		31.6	(1.4)		38.3	(1.4)		15.0	(0.9)	
	Francophones	274.5	(3.9)		14.5	(3.2)	m	34.9	(4.6)		37.0	(3.9)		13.6	(3.0)	m
Manitoba	Anglophones	273.8	(2.0)		16.2	(1.4)		32.2	(2.2)		37.7	(2.2)		14.0	(1.7)	
	Francophones	282.3	(5.2)		11.7	(4.0)	u	32.4	(5.7)	m	36.7	(5.0)		19.2	(5.0)	m
Quebec	Anglophones	270.0	(2.6)		19.7	(1.9)		30.2	(2.2)		36.6	(2.3)		13.4	(1.6)	
	Francophones	268.8	(0.9)		18.7	(0.8)		34.6	(1.0)		35.6	(0.9)		11.2	(0.6)	

Source: PIAAC (2012).

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A3.2

Numeracy—Averages and proficiency levels of population aged 16 to 65, by language group, oversampled provinces, 2012

Province	Language Group	Average Score			Level 1 or Below			Level 2			Level 3			Level 4 or 5		
		Average Score	(SE)		%	(SE)		%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	259.4	(2.2)		25.8	(2.1)		34.4	(2.5)		30.3	(2.1)		9.4	(1.4)	
	Francophones	248.8	(2.4)	*	31.5	(2.1)		36.7	(2.1)		26.4	(1.9)		5.4	(1.4)	*m
Ontario	Anglophones	266.4	(1.2)		22.5	(0.9)		31.2	(1.1)		32.8	(1.3)		13.6	(0.9)	
	Francophones	264.7	(4.2)		21.4	(3.7)	m	35.8	(4.0)		31.6	(3.7)		11.3	(2.8)	m
Manitoba	Anglophones	264.0	(2.6)		22.1	(1.7)		32.6	(2.0)		33.9	(2.6)		11.4	(1.8)	
	Francophones	273.4	(6.4)		18.2	(4.7)	m	35.4	(5.8)		29.5	(4.8)		17.0	(4.6)	m
Quebec	Anglophones	265.7	(2.5)		24.5	(1.7)	*	28.7	(2.2)	*	31.2	(2.4)		15.6	(2.1)	*
	Francophones	265.1	(0.8)		20.9	(0.8)		35.4	(0.9)		33.4	(0.8)		10.4	(0.5)	

Source: PIAAC (2012).

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A3.3

Proportion of population aged 16 to 65, by language group and test administration method, oversampled provinces, 2012

Province	Language Group	No Computer Experience			Failed ICT Core			Opted out of the CBA			Took CBA		
		%	(SE)		%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	4.2	(0.7)		6.5	(1.1)	m	8.3	(1.2)		80.9	(1.5)	
	Francophones	11.8	(1.1)	*	4.1	(0.7)	m	11.3	(1.4)		72.7	(1.8)	*
Ontario	Anglophones	4.4	(0.3)		5.4	(0.4)		6.6	(0.6)		83.6	(0.8)	
	Francophones	4.5	(1.4)	m	4.8	(1.3)	m	8.6	(1.5)	m	82.2	(2.3)	
Manitoba	Anglophones	5.1	(0.8)		5.9	(0.9)		11.9	(1.4)		77.0	(1.7)	
	Francophones	2.4	(0.7)	*m	3.7	(2.0)	u	7.4	(2.0)	m	86.5	(2.7)	*
Quebec	Anglophones	3.5	(0.6)	*m	6.9	(1.0)		4.3	(0.7)		85.3	(1.3)	
	Francophones	6.3	(0.4)		5.1	(0.3)		5.7	(0.4)		82.9	(0.6)	

Source: PIAAC (2012).

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A3.4

PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group, oversampled provinces, 2012

Province	Language Group	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
		%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	45.7	(2.7)		35.1	(2.7)		19.1	(1.5)	
	Francophones	49.5	(2.3)		23.2	(2.2)	*	27.3	(1.8)	*
Ontario	Anglophones	44.1	(1.2)		39.4	(1.3)		16.4	(0.8)	
	Francophones	48.6	(4.2)		33.5	(4.4)		17.8	(2.3)	
Manitoba	Anglophones	41.4	(2.3)		35.6	(2.3)		23.0	(1.7)	
	Francophones	50.3	(5.9)		36.3	(5.8)		13.5	(2.7)	*m
Quebec	Anglophones	46.9	(2.4)		38.4	(2.4)	*	14.7	(1.3)	
	Francophones	50.6	(0.9)		32.4	(0.8)		17.1	(0.6)	

Source: PIAAC (2012).

^m There is a high level of error associated with this estimate.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A4.1

Literacy and numeracy—Average scores of population aged 16 to 65, by language group and age group, oversampled provinces, 2012

Province	Age group	Literacy				Numeracy			
		Anglophones		Francophones		Anglophones		Francophones	
		Average score	(SE)						
New Brunswick	16 to 24 years old	262.3	(6.3)	262.5	(5.7)	246.9	(7.2)	259.6	(6.7)
	25 to 34 years old	287.1	(5.1)	278.2	(5.0)	272.5	(5.7)	269.8	(5.3)
	35 to 44 years old	283.8	(4.7)	273.2	(4.7)	268.4	(5.1)	263.4	(4.7)
	45 to 54 years old	270.2	(4.1)	249.7	(4.6)	258.4	(4.8)	239.3	(5.0)
	55 to 65 years old	267.4	(3.5)	241.7	(3.2)	253.8	(3.7)	226.7	(3.7)
Ontario	16 to 24 years old	278.2	(2.4)	281.3	(9.7)	268.1	(2.9)	271.7	(10.6)
	25 to 34 years old	286.0	(2.5)	278.2	11.0)	275.2	(3.0)	269.0	(11.2)
	35 to 44 years old	280.6	(2.4)	282.7	9.4)	273.2	(2.6)	271.4	(10.2)
	45 to 54 years old	272.0	(2.4)	276.3	6.4)	264.4	(2.6)	267.8	(6.8)
	55 to 65 years old	262.0	(2.3)	258.9	4.3)	251.4	(2.5)	248.5	(4.7)
Manitoba	16 to 24 years old	276.5	(4.1)	279.3	9.2)	266.4	(4.4)	275.1	(11.1)
	25 to 34 years old	282.6	(4.4)	306.2	10.6)	273.1	(4.9)	291.6	(14.6)
	35 to 44 years old	276.7	(4.6)	274.9	14.9)	267.3	(5.4)	264.6	(15.4)
	45 to 54 years old	270.3	(4.7)	283.2	10.3)	260.5	(5.6)	278.7	(15.1)
	55 to 65 years old	263.2	(3.4)	269.3	11.9)	253.3	(4.2)	259.4	(12.9)
Quebec	16 to 24 years old	275.8	(5.8)	272.1	2.2)	276.7	(6.7)	272.3	(2.1)
	25 to 34 years old	279.0	(5.5)	286.9	1.9)	272.1	(5.4)	283.1	(1.8)
	35 to 44 years old	273.7	(4.5)	278.9	2.2)	272.2	(4.7)	272.9	(1.9)
	45 to 54 years old	265.1	(4.3)	260.2	2.0)	258.0	(4.9)	257.5	(1.7)
	55 to 65 years old	258.1	(4.3)	251.1	1.7)	251.9	(5.5)	245.5	(1.7)

Source: The Programme for the International Assessment of Adult Competencies, 2012.

SE Standard Error.

*Represents a significant difference at the 95% confidence level.

Table A4.2

PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and age group, oversampled provinces, 2012

Province	Language Group	Age Group	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
			%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	16 to 44	44.5	(3.5)		46.2	(3.8)		9.3	(1.9)	m
		45 to 65	47.1	(3.2)		22.8	(3.0)		30.1	(2.7)	
	Francophones	16 to 44	53.2	(3.6)		36.5	(3.6)		10.4	(1.9)	m
		45 to 65	45.9	(3.1)		9.7	(2.4)	*m	44.4	(2.6)	*
Ontario	Anglophones	16 to 44	41.3	(1.7)		49.3	(1.7)		9.4	(0.8)	
		45 to 65	48.1	(1.6)		25.9	(1.7)		26.0	(1.4)	
	Francophones	16 to 44	43.9	(6.4)		45.5	(6.2)		10.6	(2.9)	m
		45 to 65	54.3	(5.2)		19.3	(5.3)	m	26.4	(3.1)	
Manitoba	Anglophones	16 to 44	37.7	(3.2)		45.6	(3.3)		16.7	(2.0)	
		45 to 65	46.4	(2.7)		21.9	(2.6)		31.6	(2.6)	
	Francophones	16 to 44	46.2	(7.6)		45.7	(7.6)	m	8.1	(3.8)	*u
		45 to 65	54.0	(9.0)	m	27.6	(9.0)	m	18.4	(3.9)	*m
Quebec	Anglophones	16 to 44	43.9	(3.5)		48.4	(3.4)		7.7	(1.3)	m
		45 to 65	50.7	(3.1)		25.4	(2.9)	*	23.9	(2.3)	
	Francophones	16 to 44	46.2	(1.3)		46.0	(1.4)		7.8	(0.6)	
		45 to 65	55.8	(1.2)		16.1	(1.0)		28.1	(1.1)	

Source: PIAAC (2012).

^m There is a high level of error associated with this estimate.^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A4.3

Literacy and numeracy—Average scores of population aged 16 to 65, by language group and gender, oversampled provinces, 2012

Province	Gender	Literacy						Numeracy					
		Anglophones			Francophones			Anglophones			Francophones		
		Average Score	(SE)		Average Score	(SE)		Average Score	(SE)		Average Score	(SE)	
New Brunswick	Male	272.6	(3.4)		258.2	(3.1)	*	265.5	(3.6)		253.8	(3.4)	*
	Female	274.3	(2.7)		259.7	(2.9)	*	253.8	(3.1)		243.8	(3.3)	*
Ontario	Male	277.5	(1.6)		274.2	(5.3)		275.3	(1.8)		270.7	(6.1)	
	Female	273.8	(1.4)		274.8	(5.6)		257.7	(1.6)		258.6	(5.6)	
Manitoba	Male	271.9	(2.9)		281.8	(8.6)		267.4	(3.4)		280.6	(10.0)	
	Female	275.6	(2.8)		282.8	(5.9)		260.6	(3.5)		267.5	(7.0)	
Quebec	Male	272.1	(3.4)		269.6	(1.3)		274.2	(3.5)		270.2	(1.3)	
	Female	268.1	(3.6)		268.1	(1.1)		257.9	(4.0)		259.9	(1.1)	

Source: PIAAC (2012).

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A4.4

PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and gender, oversampled provinces, 2012

Province	Language Group	Gender	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
			%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	Male	44.0	(3.8)		34.9	(3.5)		21.1	(2.4)	
		Female	47.4	(3.3)		35.3	(3.5)		17.3	(2.4)	
	Francophones	Male	47.7	(3.0)		24.5	(3.0)	*	27.9	(2.2)	*
		Female	51.4	(3.3)		21.8	(2.9)	*	26.7	(2.6)	*
Ontario	Anglophones	Male	43.0	(1.7)		41.0	(1.8)		16.1	(1.1)	
		Female	45.3	(1.6)		37.9	(1.7)		16.8	(0.9)	
	Francophones	Male	49.5	(6.3)		31.4	(6.2)	m	19.1	(3.4)	m
		Female	47.7	(4.6)		35.7	(5.1)		16.6	(2.6)	
Manitoba	Anglophones	Male	40.2	(2.9)		33.5	(2.7)		26.3	(2.3)	
		Female	42.5	(3.0)		37.9	(2.9)		19.6	(2.0)	
	Francophones	Male	53.9	(8.7)		35.1	(8.6)	m	11.1	(2.4)	*m
		Female	47.4	(7.7)		37.2	(7.5)	m	15.4	(4.4)	m
Quebec	Anglophones	Male	44.6	(3.3)		39.8	(3.1)	*	15.7	(2.1)	
		Female	49.0	(3.5)		37.2	(3.6)		13.8	(2.0)	
	Francophones	Male	49.9	(1.3)		32.6	(1.2)		17.4	(0.9)	
		Female	51.2	(1.2)		32.1	(1.1)		16.7	(0.8)	

Source: PIAAC (2012).

^m There is a high level of error associated with this estimate.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A5.1

Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by language spoken most often at home, oversampled provinces, 2012

Province	Language Spoken Most Often at Home	Literacy			Numeracy		
		Average Score	(SE)		Average Score	(SE)	
New Brunswick	English	267.5	(6.5)		255.7	(7.2)	
	French	257.8	(2.4)		247.8	(2.6)	
Ontario	English	278.9	(5.0)		271.8	(6.3)	
	French	271.6	(5.7)		260.2	(5.7)	
Manitoba	English	285.5	(7.0)		276.5	(8.7)	
	French	278.4	(8.4)		269.7	(9.5)	
Quebec	English	276.5	(2.8)		272.0	(2.7)	
	French	273.7	(7.0)		266.1	(7.9)	
	Non-official language	230.0	(8.0)		229.3	(8.7)	*

Source: PIAAC (2012).

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A5.2

PS-TRE—Distribution of proficiency levels of official-language minority population aged 16 to 65, by language spoken most often at home, oversampled provinces, 2012

Province	Language Spoken Most Often at Home	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
		%	(SE)		%	(SE)		%	(SE)	
New Brunswick	English	50.2	(6.6)		30.0	(6.2)	m	19.8	(5.0)	m
	French	49.5	(2.5)		22.2	(2.3)		28.3	(2.0)	
Ontario	English	47.1	(7.1)		40.8	(7.2)	m	12.1	(3.2)	m
	French	50.0	(5.6)		29.0	(6.0)	m	21.0	(3.1)	*
Manitoba	English	45.4	(8.2)	m	37.5	(8.7)	m	17.1	(4.6)	m
	French	56.3	(7.8)		33.5	(7.7)	m	10.1	(2.3)	m
Quebec	English	46.7	(2.9)		42.3	(3.1)		11.0	(1.3)	
	French	64.2	(8.4)	*	x	x		x	x	
	Non-official language	37.3	(6.2)		21.1	(5.4)	*	41.6	(5.4)	*

Source: PIAAC (2012).

* This estimate is suppressed to meet confidentiality requirements.

^m There is a high level of error associated with this estimate.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A5.3

Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by test language, oversampled provinces, 2012

Province	Test Language	Literacy			Numeracy		
		Average Score	(SE)		Average Score	(SE)	
New Brunswick	English	264.7	(3.5)		250.1	(4.0)	
	French	254.1	(3.0)	*	247.7	(3.4)	
Ontario	English	277.3	(4.0)		267.9	(4.3)	
	French	261.6	(10.4)		250.1	(10.0)	
Manitoba	English	284.1	(6.0)		275.4	(7.4)	
	French	271.9	(6.1)		261.3	(5.6)	
Quebec	English	271.2	(2.9)		267.2	(2.9)	
	French	262.7	(6.1)		256.9	(7.6)	

Source: PIAAC 2012.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A5.4

PS-TRE—Distribution of official-language minority population aged 16 to 65, by test language, oversampled provinces, 2012

Province	Test Language	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
		%	(SE)		%	(SE)		%	(SE)	
New Brunswick	English	51.5	(3.7)		26.8	(3.7)		21.7	(2.6)	
	French	47.9	(3.2)		20.1	(3.1)		32.0	(2.2)	*
Ontario	English	47.5	(4.7)		35.1	(4.9)		17.4	(2.7)	
	French	53.9	(9.1)	m	26.1	(7.0)	m	20.0	(4.8)	m
Manitoba	English	50.1	(6.8)		37.3	(6.6)	m	12.6	(3.1)	m
	French	51.2	(6.3)		30.1	(6.1)	m	18.7	(4.1)	m
Quebec	English	45.7	(2.9)		39.3	(2.9)		15.0	(1.6)	
	French	54.9	(6.5)		32.7	(6.7)	m	12.4	(3.6)	m

Source: PIAAC (2012).

^m There is a high level of error associated with this estimate.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A5.5

Literacy and numeracy—Average scores of official-language minority population aged 16 to 65, by immigrant status, oversampled provinces, 2012

Province	Immigrant Status	Literacy			Numeracy		
		Average Score	(SE)		Average Score	(SE)	
New Brunswick	Canadian-born	258.9	(2.3)		248.5	(2.4)	
	Immigrants	x	x		x	x	
Ontario	Canadian-born	278.1	(3.9)		269.0	(4.1)	
	Immigrants	243.6	(13.8)	*	228.6	(13.9)	*
Manitoba	Canadian-born	281.6	(5.2)		272.3	(6.4)	
	Immigrants	298.8	(40.4)	u	298.0	(52.5)	u
Quebec	Canadian-born	281.3	(2.8)		275.6	(2.9)	
	Immigrants	249.3	(4.6)	*	248.1	(5.2)	*

Source: PIAAC (2012).

^x This estimate has been suppressed to meet confidentiality requirements.

^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A5.6

PS-TRE—Distribution of proficiency levels of official-language minority population aged 16 to 65, by immigrant status, oversampled provinces, 2012

Province	Immigrant Status	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
		%	(SE)		%	(SE)		%	(SE)	
Quebec	Canadian-born	46.3	(3.2)		44.3	(3.4)		9.4	(1.2)	
	Immigrants	48.0	(4.8)		26.2	(4.2)	*	25.9	(3.4)	*

Source: PIAAC (2012).

Note: Results for the francophone minority provinces are not presented due to the small proportion of the population that is immigrant and the limitations of the sample size.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A6.1

Literacy and numeracy—Average scores of population aged 16 to 65, by language group and region size, oversampled provinces, 2012

Province	Region Size	Literacy						Numeracy					
		Anglophones			Francophones			Anglophones			Francophones		
		Average Score	(SE)		Average Score	(SE)		Average Score	(SE)		Average Score	(SE)	
New Brunswick	Rural area	268.3	(3.4)		253.0	(3.0)	*	251.8	(3.4)		243.0	(3.1)	
	Small population centre	266.6	(5.1)		258.5	(4.4)		252.8	(5.6)		248.4	(5.1)	
	Medium population centre	283.8	(3.6)		273.2	(10.1)		271.1	(4.0)		263.7	(11.9)	
	Large urban population centre	276.4	(5.3)		274.9	(5.9)		267.5	(7.0)		264.2	(6.5)	
Ontario	Rural area	279.9	(3.3)		270.8	(10.1)		271.3	(3.3)		262.6	(11.1)	
	Small population centre	278.9	(4.8)		268.7	(7.0)		268.5	(5.5)		259.2	(9.1)	
	Medium population centre	277.9	(4.5)		268.1	(6.3)		269.7	(5.8)		260.7	(7.4)	
	Large urban population centre	274.2	(1.3)		278.8	(5.6)		264.9	(1.4)		267.9	(5.9)	
Manitoba	Rural area	272.3	(4.0)		276.1	(8.2)		261.4	(4.5)		265.8	(8.2)	
	Small population centre	269.8	(10.0)		261.2	(11.2)		260.8	(12.5)		250.6	(13.7)	
	Medium population centre	261.0	(7.9)	u	x	x		248.6	(9.6)	u	x	x	
	Large urban population centre	276.1	(2.4)		286.1	(7.5)		266.9	(3.0)		277.8	(8.7)	
Quebec	Rural area	266.4	(7.6)		262.7	(2.1)		261.4	(9.7)		260.4	(2.1)	
	Small population centre	276.8	(11.4)		262.8	(2.7)		264.0	(13.0)		259.4	(2.8)	
	Medium population centre	266.4	(10.6)		269.4	(3.0)		253.3	(11.7)		263.8	(2.9)	
	Large urban population centre	270.2	(2.7)		272.4	(1.2)		266.6	(2.7)		268.4	(1.1)	

Source: PIAAC (2012).

* This estimate is suppressed to meet confidentiality requirements.

^u This estimate does not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Small population centre: population between 1,000 and 29,999.

Medium population centre: population between 30,000 and 99,999.

Large urban population centre: population of 100,000 or more.

Table A6.2

PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and region size, oversampled provinces, 2012

Province	Language Group	Region Size	Level 1 or Below		Level 2 or 3			PS-TRE Assessment Nonrespondents	
			%	(SE)	%	(SE)		%	(SE)
New Brunswick	Anglophones	Rural area	45.4	(3.9)	28.2	(3.5)		26.4	(2.4)
		Small population centre	49.7	(5.0)	32.5	(4.5)		17.8	(3.5) m
	Francophones	Rural area	49.1	(3.0)	18.7	(2.4)	*	32.2	(2.5)
		Small population centre	48.5	(4.7)	18.7	(4.6)	*m	32.8	(4.0) *
Ontario	Anglophones	Rural area	44.9	(3.0)	35.6	(3.3)		19.5	(2.5)
		Large urban population centre	43.8	(1.3)	39.7	(1.4)		16.6	(1.0)
	Francophones	Rural area	49.5	(7.7)	28.2	(7.8)	m	22.3	(6.0) m
		Large urban population centre	46.9	(6.1)	40.2	(6.0)		13.0	(3.1) m
Manitoba	Anglophones	Rural area	40.3	(4.0)	30.5	(4.6)		29.1	(4.4)
		Large urban population centre	40.2	(2.4)	39.7	(2.5)		20.1	(1.7)
	Francophones	Rural area	55.9	(9.3)	27.1	(8.7)	m	17.0	(5.6) m
		Large urban population centre	47.4	(8.3) m	41.1	(8.1) m	m	11.5	(3.3) *m
Quebec	Anglophones	Large urban population centre	45.5	(2.6)	39.8	(2.6)		14.6	(1.5)
	Francophones	Large urban population centre	49.3	(1.2)	36.5	(1.1)		14.2	(0.7)

Source: PIAAC (2012).

Note: Results for some regions are not presented due to the low proportion of the minority population living in these regions and limitations in sample size.

^m There is a high level of error associated with this estimate.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Small population centre: population between 1,000 and 29,999.

Large urban population centre: population of 100,000 or more.

Table A6.3

Literacy and numeracy—Average scores of population aged 16 to 65, by language group and economic region, oversampled provinces, 2012

Province	Economic Region	Proportion (%) of the Population with a Minority Language as FOLS	Literacy					Numeracy				
			Anglophones		Francophones			Anglophones		Francophones		
			Average Score	(SE)	Average Score	(SE)		Average Score	(SE)	Average Score	(SE)	
New Brunswick	Campbellton–Miramichi	62.5	254.7	(4.7)	251.5	(3.4)		239.0	(4.9)	241.2	(3.8)	
	Moncton–Richibucto	41.6	277.5	(4.3)	264.9	(3.7)	*	267.4	(5.0)	254.3	(3.8)	
	Edmundston–Woodstock	50.4	270.5	(11.9)	253.8	(7.1)		253.7	(10.2)	247.1	(6.9)	
	Other NB Economic Regions	Less than 7.0	276.5	(2.8)	270.0	(7.5)		261.7	(2.9)	257.4	(8.4)	
Ontario	Ottawa	18.5	285.2	(3.5)	271.0	(5.7)	*	275.9	(3.6)	259.1	(6.6)	
	Toronto	1.7	271.2	(1.5)	288.6	(11.5)		262.3	(1.7)	275.4	(11.6)	
	Northeast	21.9	282.3	(4.5)	272.0	(5.0)		273.6	(6.3)	266.1	(6.1)	
	Other ON economic regions	Less than 4.0	278.3	(2.0)	277.9	(11.8)		268.6	(2.3)	271.3	(11.7)	
Manitoba	Southeast	8.5	272.8	(6.1)	277.1	(9.3)		262.4	(6.5)	267.5	(11.1)	
	Winnipeg	3.6	275.9	(2.4)	286.0	(7.5)		266.6	(3.0)	277.7	(8.7)	
	Other MB economic regions	Less than 5.0	269.3	(3.6)	272.1	(11.9)		258.7	(4.6)	261.0	(8.9)	
Quebec	Montréal	11.2	270.7	(4.5)	272.6	(1.9)		266.0	(5.4)	269.0	(1.7)	
	Montréal	32.8	269.6	(3.3)	266.9	(2.0)		266.6	(3.3)	263.3	(2.3)	
	Laval	20.6	273.8	(7.1)	267.6	(4.4)		268.9	(8.8)	262.8	(4.6)	
	Outaouais	18.2	269.1	(6.5)	265.9	(5.0)		260.1	(7.0)	258.0	(4.3)	
	Other QC economic regions	Less than 11.0	269.3	(6.8)	267.6	(1.3)		260.1	(6.5)	264.4	(1.3)	

Source: PIAAC (2012).

SE Standard error.

* Represents a statistically significant difference at the 5% level.

The other NB economic regions are: Fredericton–Oromocto and Saint John–St. Stephen.

The other Ontario economic regions are: Kingston–Pembroke, Muskoka–Kawartha, Kitchener–Waterloo–Barrie, Hamilton–Niagara Peninsula, London, Windsor–Sarnia, Stratford–Bruce Peninsula, and Northwest.

The other Manitoba economic regions are: South Central, Southwest, North Central, Interlake, and North.

The other Quebec economic regions are: Gaspésie–Îles-de-la-Madeleine, Bas-Saint-Laurent, Capitale-Nationale, Chaudière-Appalaches, Estrie, Centre-du-Québec, Lanaudière, Laurentides, Abitibi-Témiscamingue, Mauricie, Saguenay–Lac-Saint-Jean, Côte-Nord, and Nord-du-Québec.

Table A7.1

Literacy and numeracy—Average scores of population aged 16 to 65, by language group and highest level of education, oversampled provinces, 2012

Province	Highest Level of Education	Literacy				Numeracy				
		Anglophones		Francophones		Anglophones		Francophones		
		Average Score	(SE)	Average Score	(SE)	Average Score	(SE)	Average Score	(SE)	
New Brunswick	Less than high school	231.1	(5.6)	217.9	(3.7)	*	214.7	(6.5)	202.9	(3.9)
	High-school diploma	264.7	(3.7)	259	(3.2)		247.7	(4.0)	249	(3.8)
	PSE below bachelor's degree	278.3	(2.8)	268.2	(3.4)	*	264.4	(2.9)	260.9	(3.8)
	PSE—bachelor's degree or higher	307.9	(3.6)	303.1	(3.3)		299.4	(3.3)	293.7	(4.1)
Ontario	Less than high school	237.7	(3.3)	241.6	(7.3)		223.8	(3.9)	228.4	(8.0)
	High-school diploma	267.3	(1.9)	264	(6.2)		254.6	(2.1)	253	(6.3)
	PSE below bachelor's degree	276.9	(2.1)	271.6	(4.8)		267.8	(2.5)	265.4	(5.0)
	PSE—bachelor's degree or higher	299.4	(1.8)	310.4	(11.6)		295.4	(1.8)	298.3	(12.8)
Manitoba	Less than high school	233.7	(5.2)	240.5	(15.5)		220.6	(6.0)	226.3	(13.7)
	High-school diploma	271.9	(3.6)	276.1	(8.1)		261.4	(3.9)	266.6	(8.0)
	PSE below bachelor's degree	279.2	(3.2)	283.1	(6.9)		270.5	(3.9)	276.3	(8.9)
	PSE—bachelor's degree or higher	302.6	(3.3)	305.3	(9.3)		295	(4.3)	297.2	(11.7)
Quebec	Less than high school	216.3	(6.5)	225.5	(2.4)		206.7	(7.1)	219.5	(2.7)
	High-school diploma	261.8	(4.8)	264.7	(1.7)		257.3	(5.0)	260.6	(1.8)
	PSE below bachelor's degree	273.8	(3.7)	270.9	(1.3)		267.7	(3.6)	269.2	(1.2)
	PSE—bachelor's degree or higher	295	(3.4)	*	302.9	(1.6)		295	(3.8)	297.6

Source: PIAAC (2012).

SE Standard error.

* Represents a statistically significant difference at the 5% level.

PSE Postsecondary education.

Table A7.2

Literacy and numeracy—Average scores of population aged 16 to 65, by language group, highest level of education and age group, oversampled provinces, 2012

Province	Highest Level of Education	Age Group	Literacy					Numeracy				
			Anglophones		Francophones			Anglophones		Francophones		
			Average Score	(SE)	Average Score	(SE)		Average Score	(SE)	Average Score	(SE)	
New Brunswick	High-school diploma	16 to 44	260.4	(4.5)	254.8	(3.9)		244.3	(5.3)	245.7	(4.1)	
		45 to 65	243.6	(3.7)	223.6	(3.6)	*	225.9	(3.9)	208.0	(3.7)	*
	Postsecondary education	16 to 44	293.7	(3.7)	286.8	(3.5)		279.3	(4.0)	280.7	(4.0)	
		45 to 65	286.1	(2.9)	268.9	(4.0)	*	276.9	(3.2)	259.0	(4.4)	*
Ontario	High-school diploma	16 to 44	266.5	(2.2)	264.9	(5.9)		254.8	(2.5)	253.7	(7.4)	
		45 to 65	242.7	(2.8)	249.8	(6.8)		227.6	(3.3)	237.7	(7.1)	
	Postsecondary education	16 to 44	292.6	(1.8)	288.7	(8.4)		284.8	(2.1)	279.2	(8.4)	
		45 to 65	280.7	(2.0)	282.8	(4.9)		275.1	(2.3)	275.8	(5.6)	
Manitoba	High-school diploma	16 to 44	265.0	(3.9)	273.1	(13.9)		253.5	(4.4)	263.4	(14.4)	
		45 to 65	239.7	(4.9)	258.5	(12.8)		227.7	(5.4)	246.5	(14.2)	
	Postsecondary education	16 to 44	292.4	(3.3)	299.1	(7.5)		284.5	(4.1)	288.1	(10.1)	
		45 to 65	284.8	(3.4)	289.8	(10.2)		276.4	(4.5)	286.2	(12.4)	
Quebec	High-school diploma	16 to 44	251.8	(5.7)	259.2	(1.9)		249.3	(6.2)	256.0	(1.9)	
		45 to 65	238.1	(5.0)	233.1	(2.1)		226.6	(5.6)	226.0	(2.3)	
	Postsecondary education	16 to 44	290.8	(3.4)	289.8	(1.4)		288.4	(3.6)	286.4	(1.2)	
		45 to 65	276.0	(3.3)	269.9	(1.5)		272.3	(3.8)	268.1	(1.4)	

Source: PIAAC (2012).

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A7.3

PS-TRE—Distribution of proficiency levels of population aged 16 to 65 by language group and highest level of education, oversampled provinces, 2012

Province	Language Group	Highest Level of Education	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
			%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	Less than high school	52.4	(6.1)		18.4	(4.8)	m	29.1	(4.6)	
		High-school diploma	48.7	(4.1)		27.2	(4.1)		24.0	(3.1)	
		PSE lower than bachelor's degree	46.3	(4.0)		34.9	(4.1)		18.7	(2.4)	
		PSE—bachelor's degree or higher	36.0	(6.4)	m	58.1	(6.4)		5.9	(1.9)	m
	Francophones	Less than high school	35.7	(4.3)	*	6.4	(2.7)	*u	57.9	(4.0)	*
		High-school diploma	56.8	(4.8)		20.9	(4.5)	m	22.3	(3.0)	
		PSE lower than bachelor's degree	56.7	(4.1)		25.5	(3.9)		17.8	(2.6)	
		PSE—bachelor's degree or higher	43.3	(6.1)		48.6	(6.4)		8.2	(2.6)	u
Ontario	Anglophones	Less than high school	39.8	(3.2)		24.5	(3.2)		35.6	(2.5)	
		High-school diploma	47.1	(2.2)		34.2	(2.0)		18.7	(1.5)	
		PSE lower than bachelor's degree	48.7	(2.2)		37.1	(2.2)		14.2	(1.3)	
		PSE—bachelor's degree or higher	38.3	(2.0)		53.7	(2.0)		8.0	(1.0)	
	Francophones	Less than high school	53.7	(9.3)	m	12.2	(6.5)	u	34.1	(7.9)	m
		High-school diploma	47.7	(6.3)		29.4	(7.1)	m	22.9	(4.9)	m
		PSE lower than bachelor's degree	58.2	(7.1)		26.9	(6.8)	m	14.9	(3.1)	m
		PSE—bachelor's degree or higher	31.4	(8.7)	m	61.2	(8.7)		7.4	(3.6)	u
Manitoba	Anglophones	Less than high school	42.9	(5.1)		16.1	(3.6)	m	41.1	(4.7)	
		High-school diploma	39.6	(4.0)		36.2	(4.4)		24.2	(2.9)	
		PSE lower than bachelor's degree	45.4	(3.5)		36.4	(3.6)		18.1	(2.4)	
		PSE—bachelor's degree or higher	36.6	(3.9)		50.1	(4.2)		13.3	(2.6)	m
	Francophones	Less than high school	70.6	(14.5)	m	x	x		x	x	
		High-school diploma	48.0	(7.0)		35.1	(6.9)	m	16.9	(6.9)	u
		PSE lower than bachelor's degree	47.2	(9.1)	m	35.7	(8.9)	m	17.0	(7.1)	u
		PSE—bachelor's degree or higher	46.3	(13.6)	m	49.4	(13.5)	m	4.3	(2.2)	*u
Quebec	Anglophones	Less than high school	53.0	(6.1)		10.6	(4.6)	u	36.4	(4.9)	
		High-school diploma	52.1	(4.9)		32.4	(5.1)		15.6	(2.8)	m
		PSE lower than bachelor's degree	48.0	(4.4)		42.1	(4.6)	*	9.9	(1.8)	m
		PSE—bachelor's degree or higher	39.2	(3.7)		51.3	(3.9)		9.5	(2.0)	m
	Francophones	Less than high school	52.3	(2.3)		12.5	(1.6)		35.2	(1.8)	
		High-school diploma	51.7	(2.3)		28.3	(2.0)		20.0	(1.5)	
		PSE lower than bachelor's degree	54.9	(1.4)		31.7	(1.4)		13.4	(0.9)	
		PSE—bachelor's degree or higher	40.0	(1.8)		53.1	(1.8)		7.0	(0.8)	

Source: PIAAC (2012).

^x This estimate has been suppressed to meet confidentiality requirements.

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

PSE Postsecondary education.

* Represents a statistically significant difference at the 5% level.

Table A7.4

PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group, highest level of education and age group, oversampled provinces, 2012

Province	Language Group	Highest Level of Education	Age Group	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
				%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	High-school diploma	16 to 44	51.9	(4.4)		37.3	(4.5)		10.9	(2.9)	m
			45 to 65	48.1	(4.3)		6.4	(2.6)	u	45.5	(4.0)	
	Francophones	Postsecondary education	16 to 44	37.9	(5.7)		54.5	(6.1)		7.6	(2.5)	m
			45 to 65	46.5	(4.4)		33.9	(4.4)		19.6	(2.8)	
		High-school diploma	16 to 44	59.9	(5.1)		26.0	(4.8)	m	14.1	(2.5)	m
			45 to 65	x	x		x	x		63.6	(3.4)	*
Postsecondary education	16 to 44	47.5	(5.1)		45.3	(5.4)		7.2	(2.2)	m		
45 to 65	58.7	(4.6)		17.5	(3.9)	*m	23.8	(3.4)				
Ontario	Anglophones	High-school diploma	16 to 44	44.4	(2.5)		42.6	(2.5)		12.9	(1.4)	
			45 to 65	44.5	(2.7)		12.4	(2.1)	m	43.1	(2.5)	
	Francophones	Postsecondary education	16 to 44	39.1	(2.0)		54.1	(2.0)		6.8	(0.9)	
			45 to 65	50.2	(2.1)		33.1	(2.1)		16.7	(1.5)	
		High-school diploma	16 to 44	45.0	(8.7)	m	40.2	(8.6)	m	14.8	(4.2)	m
			45 to 65	53.6	(6.1)		9.8	(5.4)	u	36.6	(5.4)	
Postsecondary education	16 to 44	43.2	(8.5)	m	48.4	(8.4)	m	8.4	(3.5)	u		
45 to 65	54.9	(7.9)		27.7	(7.5)	m	17.4	(3.5)	m			
Manitoba	Anglophones	High-school diploma	16 to 44	39.3	(4.5)		38.4	(4.7)		22.3	(3.3)	
			45 to 65	43.2	(3.6)		8.8	(2.4)	m	48.0	(3.8)	
	Francophone	Postsecondary education	16 to 44	35.8	(3.8)		52.4	(4.1)		11.8	(2.0)	m
			45 to 65	48.5	(3.8)		30.5	(4.0)		21.0	(2.9)	
		High-school diploma	16 to 44	50.7	(12.3)	m	34.2	(10.6)	m	15.1	(9.3)	u
			45 to 65	58.7	(12.0)	m	21.3	(11.6)	u	20.0	(5.5)	m
Postsecondary education	16 to 44	43.6	(10.2)	m	52.3	(10.1)	m	4.1	(2.2)	u		
45 to 65	50.1	(12.2)	m	32.8	(12.8)	u	17.1	(5.8)	u			
Quebec	Anglophones	High-school diploma	16 to 44	50.9	(6.6)		34.3	(6.4)	m	14.8	(2.7)	m
			45 to 65	54.3	(4.6)		12.1	(3.2)	m	33.6	(4.4)	*
	Francophones	Postsecondary education	16 to 44	39.6	(4.0)		57.1	(4.1)		3.3	(1.0)	*m
			45 to 65	48.6	(4.1)	*	33.3	(3.9)	*	18.1	(2.7)	
		High-school diploma	16 to 44	55.2	(2.3)		34.9	(2.2)		9.9	(1.1)	
			45 to 65	48.5	(2.0)		6.0	(1.2)	m	45.5	(1.9)	
Postsecondary education	16 to 44	42.6	(1.5)		50.8	(1.5)		6.6	(0.7)			
45 to 65	60.5	(1.6)		22.6	(1.5)		16.9	(1.0)				

Source: PIAAC (2012).

^x This estimate has been suppressed to meet confidentiality requirements.

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A8.1

Literacy and numeracy—Average scores of population aged 16 to 65, by language group and labour force status, oversampled provinces, 2012

Province	Labour Force Status	Literacy						Numeracy					
		Anglophones			Francophones			Anglophones			Francophones		
		Average Score	(SE)		Average Score	(SE)		Average Score	(SE)		Average Score	(SE)	
New Brunswick	Employed	278.5	(2.4)		265.9	(2.7)	*	266.1	(2.6)		257.3	(2.8)	*
	Unemployed	258.8	(8.8)		250.8	(7.6)		233.0	(9.2)		243.9	(9.1)	
	Not in the labour force	258.8	(4.3)		241.1	(3.7)	*	241.5	(4.7)		226.1	(4.4)	*
Ontario	Employed	280.6	(1.1)		280.3	(4.8)		273.7	(1.3)		271.8	(4.9)	
	Unemployed	272.6	(4.8)		288.9	(18.8)		252.8	(5.2)		275.1	(15.5)	
	Not in the labour force	257.2	(3.1)		252.1	(5.8)		241.9	(3.1)		238.6	(6.9)	
Manitoba	Employed	277.1	(2.2)		288.1	(5.1)	*	268.3	(2.9)		279.9	(6.7)	
	Unemployed	255.7	(12.4)		286.7	(9.6)	*u	235.6	(14.6)		272.3	(14.0)	u
	Not in the labour force	261.5	(4.7)		250.3	(14.0)		249.0	(4.8)		237.5	(13.6)	
Quebec	Employed	276.3	(2.8)		274.8	(1.1)		273.8	(2.6)		271.8	(0.9)	
	Unemployed	278.1	(7.0)		255.0	(4.6)	*	267.8	(9.9)		252.4	(5.3)	
	Not in the labour force	247.4	(5.2)		250.6	(1.8)		239.2	(5.5)		244.4	(1.9)	

Source: PIAAC (2012).

^u This estimate does not meet Statistics Canada's standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A8.2

PS-TRE—Distribution of proficiency levels of population aged 16 to 65, by language group and labour force status, oversampled provinces, 2012

Province	Language Group	Labour Force Status	Level 1 or Below			Level 2 or 3			PS-TRE Assessment Nonrespondents		
			%	(SE)		%	(SE)		%	(SE)	
New Brunswick	Anglophones	Employed	44.6	(3.2)		38.2	(3.0)		17.2	(1.4)	
		Not in the labour force	50.7	(4.7)		26.1	(4.8)	m	23.2	(3.5)	
	Francophones	Employed	50.9	(2.9)		28.2	(3.0)	*	20.9	(2.3)	
		Not in the labour force	44.4	(4.8)		10.2	(3.8)	*u	45.3	(3.8)	*
Ontario	Anglophones	Employed	45.1	(1.5)		42.2	(1.4)		12.6	(0.8)	
		Not in the labour force	40.5	(2.7)		28.1	(2.6)		31.4	(2.1)	
	Francophones	Employed	46.9	(5.0)		37.2	(5.4)		15.9	(2.7)	m
		Not in the labour force	55.3	(6.8)	*	18.7	(6.8)	u	26.0	(4.1)	
Manitoba	Anglophones	Employed	41.2	(2.5)		37.3	(2.6)		21.5	(1.8)	
		Not in the labour force	39.9	(4.9)		29.1	(4.3)		30.9	(3.7)	
	Francophones	Employed	49.0	(6.4)		40.1	(6.5)		10.9	(2.5)	*m
		Not in the labour force	57.7	(15.8)	m	15.0	(7.1)	u	27.4	(13.7)	u
Quebec	Anglophones	Employed	47.5	(2.5)		40.7	(2.6)		11.8	(1.4)	
		Not in the labour force	46.5	(4.8)		29.3	(4.7)	*	24.3	(3.1)	
	Francophones	Employed	49.9	(1.1)		36.3	(1.1)		13.8	(0.7)	
		Not in the labour force	52.4	(1.7)		18.9	(1.5)		28.6	(1.5)	

Source: PIAAC (2012).

Note: Results from the unemployed category are not presented by province due to the low proportion of the population in this category and limitations in sample size.

^m There is a high level of error associated with this estimate.

^u This estimate does not meet Statistics Canada's standards. Conclusions based on these data will be unreliable and may be invalid.

SE Standard error.

* Represents a statistically significant difference at the 5% level.

Table A9.1

Literacy score regressions, different specifications, New Brunswick, Ontario, and Manitoba, 2012

Specification	New Brunswick				Ontario				Manitoba			
	(1)		(2)		(1)		(2)		(1)		(2)	
Variables	Coef.		Coef.		Coef.		Coef.		Coef.		Coef.	
Constant	256.0		256.2		264.5		264.4		264.5		264.5	
Francophone minority	-6.1	**			-6.1				0.2			
who speak French most often at home			-7.1	**			-9.8	*			-0.9	
who speak English most often at home			-1.3				-1.3				0.2	
Women	0.5		0.4		-3.0		-3.1		1.8		1.8	
16–24 years	6.3		6.5		17.1	***	17.2	***	18.3	***	18.3	***
25–34 years	4.3		4.6		4.3		4.3		7.3		7.3	
45–54 years	-10.3	***	-10.2	***	-4.2		-4.3		-5.0		-5.0	
55–65 years	-10.4	***	-10.6	***	-8.7	***	-8.8	***	-6.2		-6.2	
Less than high school	-33.9	***	-33.8	***	-28.6	***	-28.6	***	-37.8	***	-37.8	***
PSE lower than bachelor's	13.2	***	13.3	***	12.8	***	12.8	***	12.6	***	12.6	***
PSE—bachelor's or higher	43.8	***	43.9	***	40.3	***	40.3	***	38.5	***	38.5	***
Immigrants					-28.2	***	-28.0	***	-32.9	***	-32.9	***
Rural area	-0.3		-0.1		0.2		0.4		2.2		2.2	
Small and medium population centre	-1.7		-1.6		-0.9		-0.7		-3.2		-3.2	
Moncton–Richibucto	10.3	***	10.2	***								
Edmundston–Woodstock	4.1		3.9									
Other NB regions	9.2	***	8.6	**								
Northeast					5.4		5.3					
Ottawa					4.7		5.0					
Other ON regions					4.9	*	4.8	*				
Southeast									2.4		2.4	
Other MB regions									-2.8		-2.8	
Employed	6.0	*	6.2	*	8.1	***	8.1	***	7.5	*	7.5	*

Source: PIAAC (2012).

*** Significant at 1%; ** 5%; * 10%.

Reference group: English-speaking population; men; age group 35 to 44 years; high-school diploma, Canadian-born (for Ontario and Manitoba); large population centre; Campbellton–Miramichi for NB, Toronto for Ontario, Winnipeg for Manitoba; unemployed.

Table A9.2**Literacy score regression, different specifications, Quebec, 2012**

Specification Variable	(1)		(2)	
	Coefficient		Coefficient	
Constant	260.9		249.1	
Anglophone minority	3.1			
who speak English most often at home			8.1	***
who speak French or a non-official language most often at home			-20.0	***
Women	-3.7	***	-3.8	***
16–24 years	13.0	***	17.0	***
25–34 years	7.4	***	9.0	***
45–54 years	-12.7	***	-10.8	***
55–65 years	-15.4	***	-13.3	***
Immigrants	-28.5	***		
Less than high school	-37.3	***	-37.2	***
PSE lower than bachelor's	7.7	***	7.6	***
PSE—bachelor's or higher	41.1	***	39.1	***
Rural area	-3.8		-2.7	
Small and medium population centre	-2.4		-0.9	
Montréal	9.8	***	16.1	***
Laval	3.1		4.1	
Outaouais	-0.8		6.2	*
Other QC regions	4.0		12.3	***
Employed	8.8	***	9.6	***

Source: PIAAC (2012).

*** Significant at 1%; ** 5%; * 10%.

Reference group: French-speaking population; men; age group 35 to 44 years; high-school diploma, Canadian-born (specification 1); large population centre; Montreal; unemployed.



APPENDIX II

DEFINITIONS

Foundational skills: definitions and descriptions of proficiency levels in PIAAC

The skills assessed by PIAAC are defined in terms of three parameters: content, cognitive strategies, and context. The context defines the different situations in which each of these skills is used, including professional, educational, personal, and societal. The content and cognitive strategies—summarized in the following tables for each skill and each proficiency level—are defined by a specific framework that describes what is being measured and guides the interpretation of results (OECD, 2012).

Literacy

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” (OECD, 2012, p. 19).

The population of adults aged 16 to 65 was assessed over a continuum of ability in literacy using a measurement scale ranging from 0 to 500. Proficiency levels are used to help interpret the findings. OECD has divided reporting scales for literacy into five proficiency levels (with an additional category, “below Level 1”), defined by a particular score-point range, where each level corresponds to a description of what adults with particular scores can do in concrete terms.

Table AI.1 Description of literacy proficiency levels

Level	Score range	Descriptors of the characteristics of literacy tasks
5	376–500	At this level, tasks may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidenced-based arguments. Application and evaluation of logical and conceptual models of ideas may be required to accomplish tasks. Evaluating reliability of evidentiary sources and selecting key information are frequently key requirements. Tasks often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialized background knowledge.
4	326–375	Tasks at this level often require respondents to perform multiple-step operations to integrate, interpret, or synthesize information from complex or lengthy continuous, non-continuous, mixed, or multiple type texts. Complex inferences and application of background knowledge may be needed to perform successfully. Many tasks require identifying and understanding one or more specific, non-central ideas in the text in order to interpret or evaluate subtle evidence-claim or persuasive discourse relationships. Conditional information is frequently present in tasks at this level and must be taken into consideration by the respondent. Competing information is present and sometimes seemingly as prominent as correct information.
3	276–325	Texts at this level are often dense or lengthy, and include continuous, non-continuous, mixed, or multiple pages of text. Understanding text and rhetorical structures becomes central to successfully completing tasks, especially navigating complex digital texts. Tasks require the respondent to identify, interpret, or evaluate one or more pieces of information, and often require varying levels of inference. Many tasks require the respondent to construct meaning across larger chunks of text or to perform multi-step operations in order to identify and formulate responses. Often tasks also demand that the respondent disregard irrelevant or inappropriate content to answer accurately. Competing information is often present, but it is not more prominent than the correct information.
2	226–275	At this level, the medium of texts may be digital or printed and texts may include continuous, non-continuous, or mixed types. Tasks at this level require respondents to make matches between the text and information and may require paraphrasing or low-level inferences. Some competing pieces of information may be present. Some tasks require the respondent to: <ul style="list-style-type: none"> ▪ cycle through or integrate two or more pieces of information based on criteria; ▪ compare and contrast or reason about information requested in the question; and/or ▪ navigate within digital texts to access and identify information from various parts of a document.
1	176–225	Most of the tasks at this level require the respondent to read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. Some tasks, such as those involving non-continuous texts, may require the respondent to enter personal information onto a document. Little, if any, competing information is present. Some tasks may require simple cycling through more than one piece of information. Knowledge and skill in recognizing basic vocabulary, determining the meaning of sentences, and reading paragraphs of text is expected.
Below 1	0–175	The tasks at this level require the respondent to read brief texts on familiar topics to locate a single piece of specific information. There is seldom any competing information in the text, and the requested information is identical in form to information in the question or directive. The respondent may be required to locate information in short continuous texts. However, in this case, the information can be located as if the text were non-continuous in format. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or to make use of other text features. Tasks below Level 1 do not make use of any features specific to digital texts.

Numeracy

PIAAC defines numeracy 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” (OECD, 2012, p. 33).

The population of adults aged 16 to 65 was assessed over a continuum of ability in numeracy using a measurement scale ranging from 0 to 500. As is the case for literacy, the results for numeracy are presented either as an average score or as a distribution across proficiency levels.

Table AI.2. Description of numeracy proficiency levels

Level	Score range	Descriptors of the characteristics of numeracy tasks
5	376–500	Tasks at this level require the respondent to understand complex representations and abstract and formal mathematical and statistical ideas, possibly embedded in complex texts. Respondents may have to integrate multiple types of mathematical information where considerable translation or interpretation is required; draw inferences; develop or work with mathematical arguments or models; and justify, evaluate, and critically reflect upon solutions or choices.
4	326–375	Tasks at this level require the respondent to understand a broad range of mathematical information that may be complex, abstract, or embedded in unfamiliar contexts. These tasks involve undertaking multiple steps and choosing relevant problem-solving strategies and processes. Tasks tend to require analysis and more complex reasoning about quantities and data; statistics and chance; spatial relationships; and change, proportions, and formulas. Tasks at this level may also require understanding arguments or communicating well-reasoned explanations for answers or choices.
3	276–325	Tasks at this level require the respondent to understand mathematical information that may be less explicit, embedded in contexts that are not always familiar, and represented in more complex ways. Tasks require several steps and may involve the choice of problem-solving strategies and relevant processes. Tasks tend to require the application of number sense and spatial sense; recognizing and working with mathematical relationships, patterns, and proportions expressed in verbal or numerical form; and interpretation and basic analysis of data and statistics in texts, tables, and graphs.
2	226–275	Tasks at this level require the respondent to identify and act on mathematical information and ideas embedded in a range of common contexts where the mathematical content is fairly explicit or visual with relatively few distractors. Tasks tend to require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents, and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables, and graphs.
1	176–225	Tasks at this level require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit, with little text and minimal distractors. Tasks usually require one-step or simple processes involving counting; sorting; performing basic arithmetic operations; understanding simple percents such as 50 percent; or locating, identifying, and using elements of simple or common graphical or spatial representations.
Below 1	0–175	Tasks at this level require the respondents to carry out simple processes such as counting, sorting, performing basic arithmetic operations with whole numbers or money, or recognizing common spatial representations in concrete, familiar contexts where the mathematical content is explicit, with little or no text or distractors.

PS-TRE

For the PS-TRE domain, respondents are measured for their ability to use “digital technology, communications tools, and networks to acquire and evaluate information, communicate with others, and perform practical tasks” (OECD, 2012, p. 47). The PS-TRE proficiency scale was divided into four levels.

Table AI.3. Description of PS-TRE proficiency levels

Level	The types of tasks completed successfully at each level of proficiency
3	At this level, tasks typically require the use of both generic and more specific technology applications. Some navigation across pages and applications is required to solve the problem. The use of tools (e.g., a sort function) is needed to make progress toward the solution. The task may involve multiple steps and operators. The respondent may have to define the problem's goal, and the criteria to be met may or may not be explicit. There are typically high monitoring demands. Unexpected outcomes and impasses are likely to occur. The task may require evaluating the relevance and reliability of information to discard distractors. Integration and inferential reasoning may be needed to a large extent.
2	At this level, tasks typically require the use of both generic and specific technology applications. For instance, respondents may have to make use of a novel on-line form. Some navigation across pages and applications is required to solve the problem. The use of tools (e.g., a sort function) can facilitate the problem's resolution. The task may involve multiple steps and operators. The goal of the problem may have to be defined by the respondent, though the criteria to be met are explicit. There are higher monitoring demands. Some unexpected outcomes or impasses may appear. The task may require evaluating the relevance of a set of items to discard distractors. Some integration and inferential reasoning may be needed.
1	At this level, tasks typically require the use of widely available and familiar technology applications, such as e-mail software or a Web browser. There is little or no navigation required to access the information or commands required to solve the problem. The problem may be solved regardless of the respondent's awareness and use of specific tools and functions (e.g., a sort function). The tasks involve few steps and a minimal number of operators. At the cognitive level, the respondent can readily infer the goal from the task statement; problem resolution requires the respondent to apply explicit criteria; and there are few monitoring demands (e.g., the respondent does not have to check whether he or she has used the appropriate procedure or made progress toward the solution). Identifying contents and operators can be done through a simple match. Only simple forms of reasoning, such as assigning items to categories, are required; there is no need to contrast or integrate information.
Below 1	Tasks are based on well-defined problems involving the use of only one function within a generic interface to meet one explicit criterion, without any categorical, inferential reasoning or transforming of information. Few steps are required and no sub-goal has to be generated.
Non-respondents	This category includes those individuals who did not report previous computer experience, did not pass the information and communications technology core test, or opted not to be assessed by a computer-based test.

References

- Barret, Garry, and W. Craig Riddell. (2016). *Ageing and Literacy Skills: Evidence from IALS, ALL and PIAAC*, Paris, OECD Publishing. Retrieved from https://read.oecd-ilibrary.org/education/ageing-and-literacy-skills_5jlpd2twps1-en#page1.
- Bérard-Chagnon, Julien, and Jean-François Lepage. (2016). *The Literacy Skills of New Brunswick Francophones: Demographic and Socioeconomic Issues*, Catalogue no. 89-657-X2016001, Ottawa: Statistics Canada. Retrieved from <https://www150.statcan.gc.ca/n1/en/pub/89-657-x/89-657-x2016001-eng.pdf?st=ht7LH4Wg>.
- Corbeil, Jean-Pierre. (2000). *Literacy in Canada: Disparity Between Francophones and Anglophones*, Catalogue no. 89-573-XIE, Ottawa: Statistics Canada. Retrieved from <http://www.publications.gc.ca/Collection/Statcan/89-573-X/89-573-XIE1994.pdf>.
- Corbeil, Jean-Pierre. (2006). *The Canadian Component of the 2003 International Adult Literacy and Skills Survey (IALSS): The Situation of Official Language Minorities*, catalogue no. 89-552-MIE. Ottawa: Statistics Canada. Retrieved from <https://www150.statcan.gc.ca/n1/en/pub/89-552-m/89-552-m2006015-eng.pdf?st=qXjlssfp>.
- Government of Canada and Council of Ministers of Education, Canada [CMEC]. (2017). *The Health and Social Dimensions of Adult Skills in Canada—Findings from the Programme for the International Assessment of Adult Competencies (PIAAC)*, Toronto, Council of Ministers of Education, Canada. Retrieved from http://www.peicacda.ca/docs/PIAAC2018/PIAAC%202012_Health%20and%20Social%20Dimensions_Canada%20EN.pdf
- Organisation for Economic Co-operation and Development [OECD]. (2012). *Literacy, Numeracy and Problem Solving in Technology-Rich Environments: Framework for the OECD Survey of Adult Skills*. Paris: OECD Publishing. Retrieved from <http://dx.doi.org/10.1787/9789264128859-en>.
- Organisation for Economic Co-operation and Development [OECD]. (2013). *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*. Paris: OECD Publishing. Retrieved from <https://www.oecd-ilibrary.org/docserver/9789264204256-en.pdf?expires=1564698492&id=id&accname=guest&checksum=8DAEC32153055F2F835BB3CAEEFF38D6>.
- Statistics Canada. (2013). *Skills in Canada: First Results from the Programme for the International Assessment of Adult Competencies (PIAAC)*. Catalogue no. 89-555-X. Ottawa: Statistics Canada. Retrieved from <https://www150.statcan.gc.ca/n1/pub/89-555-x/89-555-x2013001-eng.pdf>.
- Statistics Canada. (2016). *English, French and Official Language Minorities in Canada, Census of Population, 2016*. Catalogue no. 98-200-X2016011. Ottawa: Statistics Canada. Retrieved from <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016011/98-200-x2016011-eng.pdf>.

