



Catalogue no. 81-595-MIE — No. 043

ISSN: 1711-831X

ISBN: 0-662-43446-3

## Research Paper

**Culture, Tourism and the Centre for Education Statistics**

# Educational Outcomes at Age 19 Associated with Reading Ability at Age 15

by Tamara Knighton and Patrick Bussière

Culture, Tourism and the Centre for Education Statistics Division  
Main Building, Room 2001, Ottawa, K1A 0T6

Telephone: 1 800 307-3382 Fax: 1 613 951-9040



Statistics  
Canada  
Human Resources and  
Social Development Canada

Statistique  
Canada  
Ressources humaines et  
Développement social Canada

**Canada**

## How to obtain more information

Specific inquiries about this product and related statistics or services should be directed to: Client Services, Culture, Tourism and the Centre for Education Statistics, Statistics Canada, Ottawa, Ontario, K1A 0T6 (telephone: (613) 951-7608; toll-free at 1 800 307-3382; by fax at (613) 951-9040; or e-mail: [educationstats@statcan.ca](mailto:educationstats@statcan.ca)).

For information on the wide range of data available from Statistics Canada, you can contact us by calling one of our toll-free numbers. You can also contact us by e-mail or by visiting our website at [www.statcan.ca](http://www.statcan.ca).

National inquiries line	1 800 263-1136
National telecommunications device for the hearing impaired	1 800 363-7629
Depository Services Program inquiries	1 800 700-1033
Fax line for Depository Services Program	1 800 889-9734
E-mail inquiries	<a href="mailto:infostats@statcan.ca">infostats@statcan.ca</a>
Website	<a href="http://www.statcan.ca">www.statcan.ca</a>

## Information to access the product

This product, catalogue no. 81-595-MIE, is available for free in electronic format. To obtain a single issue, visit our website at [www.statcan.ca](http://www.statcan.ca) and select Our Products and Services.

## Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner and in the official language of their choice. To this end, the Agency has developed standards of service that its employees observe in serving its clients. To obtain a copy of these service standards, please contact Statistics Canada toll free at 1 800 263-1136. The service standards are also published on [www.statcan.ca](http://www.statcan.ca) under About Statistics Canada > Providing services to Canadians.

# Educational Outcomes at Age 19 Associated with Reading Ability at Age 15

**Tamara Knighton**

*Statistics Canada*

**Patrick Bussière**

*Human Resources and Social Development Canada*

Published by authority of the Minister responsible for Statistics Canada

© Minister of Industry, 2006

All rights reserved. The content of this electronic publication may be reproduced, in whole or in part, and by any means, without further permission from Statistics Canada, subject to the following conditions: that it be done solely for the purposes of private study, research, criticism, review or newspaper summary, and/or for non-commercial purposes; and that Statistics Canada be fully acknowledged as follows: Source (or "Adapted from", if appropriate): Statistics Canada, year of publication, name of product, catalogue number, volume and issue numbers, reference period and page(s). Otherwise, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form, by any means—electronic, mechanical or photocopy—or for any purposes without prior written permission of Licensing Services, Client Services Division, Statistics Canada, Ottawa, Ontario, Canada K1A 0T6.

June 2006

Catalogue no. 81-595-MIE2006043

Frequency: Occasional

ISSN 1711-831X

ISBN 0-662-43446-3

Ottawa

Cette publication est disponible en français (n° 81-595-MIF2006043 au catalogue)

Statistics Canada

Human Resources and Social Development Canada



Youth in Transition Survey

## Acknowledgements

The authors wish to thank all those involved in the development and production of the Youth in Transition Survey at Statistics Canada (STC) and Human Resources and Social Development Canada (HRSDC).

The assistance of many people was invaluable to the production of this research paper. Our thanks go to those in the Centre for Education Statistics and Special Surveys Division, Statistics Canada, and in the policy research group of the Learning Policy Directorate of HRSDC for their contributions, feedback and suggestions. A special thank you is extended to Danielle Baum for her indispensable help in preparing the manuscript for publication.

## Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

## Table of contents

Acknowledgements	4
Introduction	6
1. Reading proficiency at age 15 and subsequent high school status at age 19	8
2. Reading proficiency at age 15 and subsequent postsecondary participation at age 19	14
3. Summary and conclusion	18
Appendix A: Tables	19
Appendix B: What is the Youth in Transition Survey (YITS)?	26
Endnotes	29
Cumulative index	30

## Introduction

The acquisition of knowledge and skills is a vital educational outcome for young people benefiting both individuals and society at large. Such skills have consequences for individual's further study, labour market experiences and, more generally, social well-being. At a societal level, highly skilled human capital supports an increasingly intensive knowledge-based economy and economic growth. Additionally, social implications of literacy have important implications for building strong communities and social institutions.

In the adult population, the relationship between literacy and a wide range of education, employment and social outcomes have been well documented. Achievement in literacy has been linked to a range of labour market outcomes including making a successful transition from school to full-time employment, the type of occupation obtained, and earnings (OECD and Statistics Canada, 2000, 2005). Conversely, persons with lower literacy levels are more likely to be outside the labour force or unemployed, and to experience longer periods of unemployment. (OECD and Statistics Canada 2000, 2005).

Less is known about the relationship between literacy at early ages and education outcomes. These patterns are important to understand as this period of time lays the foundation necessary for full participation in the labour market and the society. An understanding of this relationship can shed light to educators and policy makers alike on several fronts. First, it sheds insight on the functioning of Canada's various education systems. As a foundation skill, literacy is a good predictor of high school graduation. Secondly, as postsecondary participation requires higher levels of knowledge and abilities, one would expect to see a strong relationship between the two and examining the pattern of this relationship provides information into equity issues surrounding postsecondary education access. Lastly, an examination of this relationship provides a rough picture of human capital gain over time as it provides an indication of the proportion of youth who are building on their literacy base and applying this competence by pursuing postsecondary education.

Does ability in reading at age 15 have an impact on subsequent high school completion and postsecondary participation? Are different postsecondary opportunities realized by those with varying reading ability levels? This paper investigates these questions using Canadian data from the Programme for International Student Assessment (PISA) and the Youth in Transition Survey (YITS – see textbox 1). It is not the intent of this paper to explore the complex pathways and processes associated with dropping out of high school or pursuing postsecondary participation. Rather, by examining only the direct pathways between reading literacy at age 15 and education outcomes at 19, this paper will provide a general overview and first glance at the nature of this relationship.

**Textbox 1****What are PISA and YITS**

The Youth in Transition Survey is a Canadian longitudinal survey designed to examine the patterns of, and influences on, major transitions in young people's lives, particularly with respect to education, training and work. YITS was first implemented in 2000 with two cohorts of youth: a group aged 15 and a group aged 18 to 20 and included a student questionnaire as well as a parent interview. Among the objectives of YITS was gaining a better understanding of the determinants of postsecondary participation.

With this in mind, it was decided to attach YITS to a well recognized measure of knowledge and skills: the OECD Programme for International Student Assessment (PISA). It was deemed as the best available instrument to measure youth knowledge and skills in an international context<sup>1</sup>. Evaluating if youth are able to analyse, reason and communicate their ideas effectively were some of the objectives of PISA 2000.

Consequently, linking PISA – an internationally recognised assessment of youth knowledge and skills – with YITS – a longitudinal survey collecting information on key events in youth life – provides Canada with a unique opportunity to better understand major transitions in youth life including participation in postsecondary education.

The first cycle of YITS was collected in 2000. Youth aged 15 also participated in PISA. In 2004, when they participated in YITS for the third time (200, 2002, and 2004), these youth were then aged 19. This report is the first to take advantage of the unique feature of the YITS/PISA study and look at the relationship between PISA reading ability at age 15 and educational outcomes, namely high school completion and postsecondary participation.

## 1. Reading proficiency at age 15 and subsequent high school status at age 19

Completing high school has widely been considered as a minimal educational requirement for access to the labour market and lifelong learning. However, research coming out of projects like the School Leavers Survey (SLS)<sup>2</sup> and its follow-up clearly signalled the additional importance of postsecondary education by suggesting that “high school may not be enough”<sup>3</sup>. Completing high school is considered a key step in moving forward to postsecondary education. Conversely, there is a greater likelihood that youth without such a diploma will experience difficulties participating in lifelong learning (HRDC and STC, 2001<sup>4</sup>) and finding stable and well-paying employment (Rumberger, 1987<sup>5</sup>). Among high school dropouts, links between low literacy levels and economic outcomes have also been documented by Finney et al. who found that literacy and numeracy skills of dropouts had significant effects on being employed and on hours and weeks of work<sup>6</sup>. Understanding the link between reading literacy and high school completion is therefore essential.

Youth who had dropped out of high school by the age of 19 had lower reading scores at age 15.

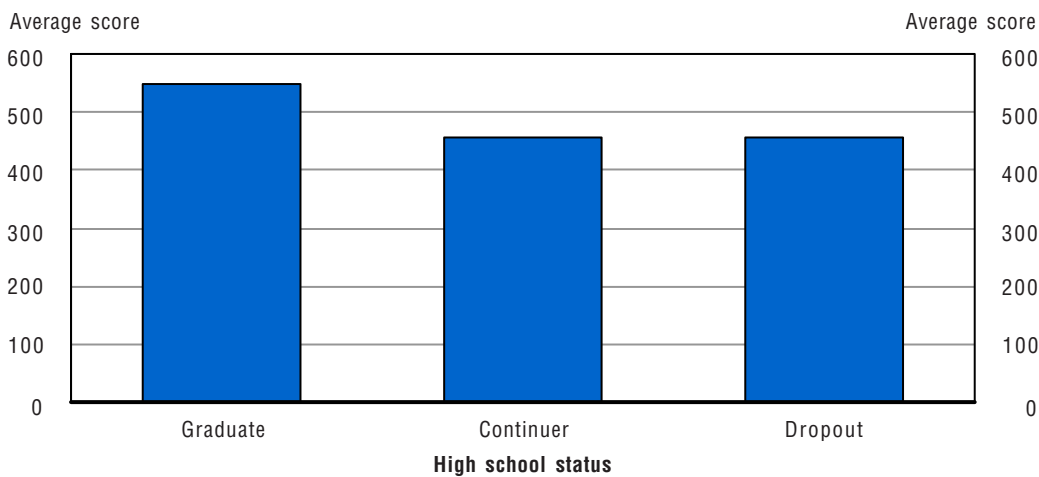
A total of 87% of Canadian youth who were 15-years old in 2000 had graduated from high school four years later, by the age of 19. Another 5% were still enrolled in high school and 7% had left high school before completion.

As shown in Figure 1, youths’ reading ability at age 15 affects their subsequent high school status at age 19. Youth who had dropped out of high school by the age of 19 had an average reading score of 457 at age 15 compared with 547 for those who had graduated. This means that, on average, high school dropouts were performing more than a full proficiency level below graduates. A difference of one proficiency level can be considered comparatively large, and indicates a substantive difference in the nature of reading tasks that students can perform (see textbox 2). These students may lack the higher order skills for further education.

This finding is consistent with previous indications from Bushnik, Barr-Telford and Bussière (2004)<sup>7</sup> which showed that high school dropouts aged 17 had a significantly lower PISA reading score than high school graduates.

When examined by province (Appendix table A2), high school dropouts had significantly lower average reading scores than graduates in all provinces except Alberta and British Columbia. In these two provinces the difference in the average scores of dropouts and graduates was not statistically different. This may be a reflection of a variety of factors including high sampling error associated with these estimates and labour market opportunities available to youth in these two provinces.



**Figure 1****High school completion status at age 19, by average PISA reading score at age 15****Textbox 2****How reading achievement is measured in PISA**

Reading literacy is defined in PISA as “the ability to understand, use and reflect on written texts, in order to achieve one’s goals, to develop one’s knowledge and potential, and to participate in society.” (OECD 2000, p. 21). The PISA reading measure moves beyond curriculum to measure the knowledge and skills of youth that is relevant to everyday life.

Reading literacy was assessed through a two-hour written test completed at school. Students’ responses to test items were used to construct a reading score expressed on a scale with an average of 500 points for the OECD countries and about two-thirds of the students scoring between 400 and 600 (i.e. a standard deviation of 100).

Reading achievement was also divided into five levels of proficiency corresponding to tasks of varying difficulty. Students at a particular level not only demonstrate the knowledge and skills at that level but also the proficiencies required at lower levels. Thus all students proficient at Level 3 are also proficient at Level 1 and Level 2. To help in interpretation, these levels were linked to specific score ranges on the original scale. Detail on these proficiency levels is available through the OECD PISA Assessment Framework<sup>8</sup>

A difference of 73 points between two average scores can be thought of as representing about one proficiency level in reading literacy. A difference of one proficiency level can be considered a comparatively large difference in student performance in substantive terms. For example, Level 3 distinguishes students who can typically integrate several parts of a text, understand a relationship or construe the meaning of a word or phrase, and can compare, contrast and categorize competing information according to a range of criteria. At Level 2, students can be expected only to identify the main idea in a text, to understand relationships, make and apply simple categories, and construe meaning within a limited part of a text where information is not prominent but only low-level inferences are required.

The reading ability of high school continuers more resembled that of dropouts than graduates.

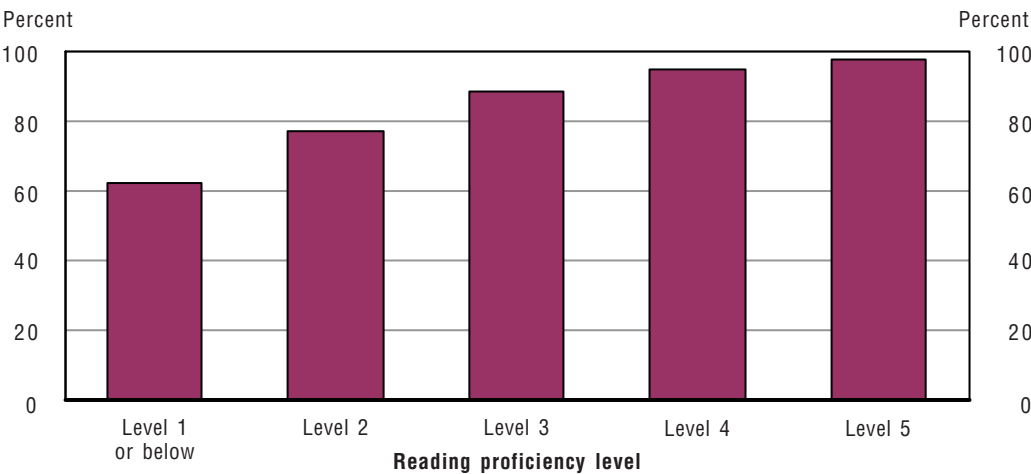
The percentage of youth who completed high school by age 19 increased with reading literacy level.

A previous study comparing PISA reading scores and high school status at age 17 showed that high school dropouts had reading scores significantly lower than continuers (467 for dropouts versus 537 for continuers, Bushnik, Barr-Telford and Bussière (2004)<sup>9</sup>). However, by the age of 19, the reading proficiency levels of high school continuers were more similar to high school dropouts than to graduates. Although a small (5%) percentage of youth were still in high school at the age of 19, their average PISA reading score (455) was not statistically different from that of high school dropouts (457). On the other hand, high school continuers had a significantly lower average reading score compared to graduates (547)<sup>10</sup>.

Another way of exploring the relationship between high school status and reading performance is to look at high school completion rates by reading proficiency levels (see textbox 2). This typology is useful as it demonstrates the knowledge and skills associated with a particular proficiency level and considers the kinds of skills students need to acquire to move from one level to the next.

As shown in figure 2, the percentage of youth who completed high school increased with their proficiency level as measured at age 15. While, 87% had completed high school by the age of 19, this percentage was significantly lower for those at proficiency Level 1 or below (62%) and proficiency Level 2 (77%). Almost all youth who were at proficiency Level 4 and proficiency Level 5 had completed high school by the age of 19.

**Figure 2**  
**Percentage of youth who had completed high school by age 19 by their reading proficiency level at age 15**



The process of completing high school, as well as the process of dropping out is complex and associated with a variety of school, family and individual characteristics. While it is not the purpose of this report to examine these complex processes, it is important to take these characteristics into account when examining the relationship between reading literacy and high school completion.

Reading literacy at age 15 remains associated with high school graduation after controlling for other factors.

A logistic regression analysis was conducted (see textbox 3) in order to examine the effect of PISA reading proficiency at age 15 on subsequent high school completion while controlling for other factors associated with high school graduation. As shown by the odds ratios in table 1, youths' reading proficiency levels continue to have an effect on high school graduation even after taking account the effects of gender, mother tongue, parental education, family income, location of residence, and academic and social engagement.

**Table 1**

**Odds ratios of high school graduation associated with reading proficiency at 15, school engagement, gender, mother tongue, place of residence, parental education and family income**

Characteristics	Estimate	Standard error	Odds ratio
Intercept	3.17	0.743	23.73*
Academic engagement <sup>11</sup> – high	G	G	G
Academic engagement – low	-1.35	0.656	0.26*
Academic engagement – average	-0.79	0.555	0.45
Social engagement – high	G	G	G
Social engagement – low	-0.43	0.566	1.35
Social engagement – average	-0.13	0.487	1.97
Male	G	G	G
Female	0.24	0.26	1.27
Mother tongue – other	G	G	G
Mother tongue – English or French	0.72	0.513	2.06
Parent education – university	G	G	G
Parent education – high school education or less	-0.90	0.367	0.41*
Parent education – college	-0.27	0.270	0.77
Place of residence at 15 – rural location	G	G	G
Place of residence at 15 – urban location	0.29	0.316	1.34
Income quartile – highest	G	G	G
Income quartile – second highest	-0.11	0.43	0.9
Income quartile – second lowest	-0.64	0.377	0.53
Income quartile – lowest	-0.75	0.396	0.47*
Reading proficiency level 5	G	G	G
Reading proficiency level 1	-2.86	0.65	0.06*
Reading proficiency level 2	-2.29	0.66	0.10*
Reading proficiency level 3	-1.55	0.663	0.21*
Reading proficiency level 4	-0.85	0.701	0.43

G reference group

\* significant at P ≤ .05

Textbox 3

Logistic regression

When an outcome variable is dichotomous, such as whether a youth attended postsecondary Education or a youth dropped out of high school, a variant of multiple regression called logistic regression is appropriate. In this instance, we are interested in the *probability* or *likelihood* of youth having experienced a particular educational event at a particular time, and how various individual-level characteristics, such as sex, parental education, urban/rural location or family income, affect that probability. The regression coefficients from a logistic regression can be easily transformed to *odds ratios*, which can then be interpreted for policy purposes.

The *odds* of an event occurring is the likelihood of the event *occurring* divided by the likelihood of the event *not occurring*. For example, if an event has a 75 per cent chance of occurring, then the odds of it occurring are  $[0.75/(1-0.75)]$ , which is 3.0. An event with an odds ratio of 1.0 has an equal chance of occurring or not occurring. An odds ratio is simply the ratio of the odds for two different sets of circumstances. For example, one could assess the odds of an event occurring for girls and for boys, and calculate the ratio of the odds. Odds ratios are interpreted in a fashion similar to multiple regression coefficients: they denote the ratio of the odds of an event occurring after a one-unit change in the independent variable, compared to what it was previously, given all other independent variables in the model are held constant.

Youth at the lowest two levels of reading proficiency are less likely to graduate from high school.

In order make comparisons among the five reading proficiency levels, 5 different logistic regression models were produced using a different reading proficiency level as the reference group in each model (Table 2). Only significant differences are presented in the table. The odds of completing high school did not vary between those at Level 4 and Level 5 whereas those at Level 1 and below and those at Level 2 had lower odds of completing high school relative to those at Levels 3, 4 and 5. These results suggest a threshold effect, with those at Level 2 and below being at particular risk of not completing high school by age 19.

Table 2  
Odds-ratios of completing high school by reading proficiency levels

Odds ratio relative to reference group	Reading literacy level used as reference group in logistic model				
	Model 1: reference group Level 1 and below	Model 2: reference group Level 2	Model 3: reference group Level 3	Model 4: reference group Level 4	Model 5: reference group Level 5
Level 1 and below	...	B	0.27	0.1	0.06
Level 2	B	...	B	0.2	0.1
Level 3	3.7	2.1	...	B	0.2
Level 4	7.4	4.2	B	...	B
Level 5	17.5	9.9	4.7	B	...
... not applicable					
B not statistically significant					

The observed relationship between reading literacy at age 15 and high school completion at age 19 signals that students with the appropriate reading levels are graduating from high school by the age of 19. On the other hand, students with lower levels of reading at age 15 face challenges in graduating from high school by age 19: they are more likely to drop out of high school or to remain in high school at age 19, even after controlling for other factors.

However, the relationship between reading ability at age 15 and high school completion by age 19 is not necessarily deterministic. Over half of students at reading proficiency Level 1 or below and Level 2 graduated from high school. Further analysis, using the YITS data could be undertaken in order to understand the processes through which youth in these groups complete high school and how they compare to their counterparts with similar reading ability levels at age 15, but who did not complete high school.

At the other end, a notable proportion of students with higher levels of reading ability had not graduated high school by age 19. In particular, 11% of those at Level 3, 5% of those at level 4 and 2% of those at Level 5 had not yet graduated. Again, further analysis using the YITS data could explore this issue in more detail.

A high school education serves as a foundation for further learning and training opportunities and for the most part, those with higher levels of reading ability graduate from high school. In the next section, the relationship between reading ability and postsecondary participation will be explored.

## 2. Reading proficiency at age 15 and subsequent postsecondary participation at age 19

Today, Canada has the highest proportion of the population that has attained postsecondary education among member countries of the Organisation for Economic Co-operation and Development (OECD)<sup>12</sup>. More than half of individuals aged 25 to 34 have attained such a high level of education compared to an average of 29 percent among the OECD countries.

The literature on factors related to participation in postsecondary education is growing and points to individual, family and community characteristics. However, one element still missing in the understanding of postsecondary access is the impact of an individual's reading proficiency level on participation in higher education. Although grades tend to be used as a proxy for reading ability they are subject to self-reporting errors and are not standardized across jurisdictions<sup>13</sup>.

Over and above individual and family factors, does reading ability at age 15 affect youths' pursuit of postsecondary education?

Youth who pursued postsecondary education by the age of 19 had had higher average reading scores at age 15 than those who had not pursued postsecondary education.

Youths' ability in reading at the age of 15 was related to their subsequent pursuit of postsecondary education by the age of 19. In total 65% of youth who participated in PISA 2000, and who were not still enrolled in high school, had enrolled in some form of postsecondary education by the age of 19. Youth who had not pursued postsecondary education had an average reading score of 492 at age 15 compared with 566 for those who had pursued postsecondary education (Appendix table A5). This means that, on average, youth who had not pursued postsecondary education by the age of 19 were performing more than a full proficiency level below those who had pursued postsecondary education.

In all provinces (Appendix table A5), youth who had not pursued postsecondary education had significantly lower average scores than youth who had pursued postsecondary education.

Postsecondary participation rates increased with reading proficiency levels at age 15.

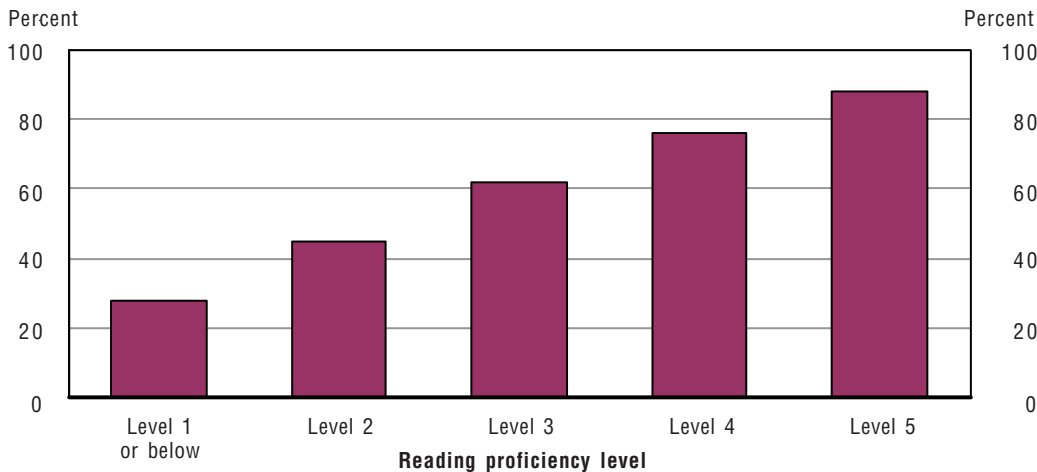
Exploring the relationship between reading proficiency levels at the age of 15 and subsequent postsecondary status provides additional insights into the relationship between reading skills and postsecondary education.

As shown in Figure 3, postsecondary participation rates increased significantly with reading proficiency levels at the age of 15 years. Around one-quarter (28%) of youth in the lowest reading proficiency levels (level 1 and below) had pursued some form of postsecondary education. The participation rates increased to 45% for those at level 2, 65% for those at level 3, 76% for those at level 4 and 88% for those at level 5. It should be noted that since postsecondary

education is being looked at as a whole, differences between the types of postsecondary studies (for example, apprenticeship programs, college, university) by the various levels of reading proficiency are not explored in this paper.

**Figure 3**

**Postsecondary participation rates by reading proficiency level at age 15**



Appendix table A6 shows the postsecondary participation rates by reading proficiency level among the provinces. The same pattern observed at the national level is also observed within each province. Postsecondary participation rates are higher for those with higher levels of reading proficiency.

Provincial postsecondary participation rates within each level of proficiency do not differ significantly from the postsecondary participation rates observed at the national level with two exceptions: a significantly lower percentage of youth in Manitoba and Alberta who were at the lower level of proficiency (level 1 and below) had pursued postsecondary education compared to those at the lowest level of proficiency at the national level.

Youths' reading proficiency levels continue to have a very strong effect on postsecondary participation after controlling for other factors known to be related to postsecondary participation (for descriptive statistics on the bivariate relationships between postsecondary participation and gender, mother tongue, place of residence, parental education and family income, please refer to Appendix table A3).

As shown in table 3, the results of a logistic regression (see textbox 3) reveal that gender, parental education, household income and mother tongue were also significantly related to postsecondary education while location of residence was not.

Reading literacy at age 15 remains strongly related to postsecondary participation when controlling for other factors.

**Table 3**

**Odds ratios of postsecondary participation associated with reading proficiency at 15, school engagement, gender, mother tongue, place of residence, parental education and family income**

Characteristics	Estimate	Standard error	Odds ratio
Intercept	0.85	0.44	2.3
Male	G	G	G
Female	0.46	0.159	1.58*
Mother tongue – other	G	G	G
Mother tongue – English or French	0.93	0.337	2.52*
Highest level of parental education – university	G	G	G
Highest level of parental education – college	-0.51	0.136	0.60*
Highest level of parental education – high school or less	-1.12	0.318	0.33*
Place of residence at 15 – urban location	G	G	G
Place of residence at 15 – rural location	0.03	0.218	1.03
Family income – highest quartile	G	G	G
Family income – second highest quartile	-0.23	0.222	0.79
Family income – second lowest quartile	-0.42	0.224	0.66
family income – lowest quartile	-0.6	0.246	0.55*
Reading proficiency level 1	G	G	G
Reading proficiency level 2	0.69	0.375	2.16
Reading proficiency level 3	1.29	0.353	4.14*
Reading proficiency level 4	1.92	0.362	8.04*
Reading proficiency level 5	2.65	0.416	16.77*

G reference group

\* significant at  $P \leq 0.05$

Table 4 shows the odd-ratios produced by logistic regression modelling the odds of postsecondary participation and reading literacy level. In order to make comparisons across reading literacy levels, 5 different logistic regression models were run with a different reading proficiency level as the reference group in each model. The results reveal that postsecondary participation rates increase progressively with reading proficiency Level and that significant differences in participation rates exist among all reading proficiency levels.

**Table 4**

**Odds-ratios of postsecondary participation by reading proficiency levels**

Odds ratio relative to reference group	Reading literacy level used as reference group in logistic model				
	Model 1: reference group Level 1 and below	Model 2: reference group Level 2	Model 3: reference group Level 3	Model 4: reference group Level 4	Model 5: reference group Level 5
Level 1 and below	...	0.53	.24	0.12	0.06
Level 2	2.16	...	.52	0.27	0.13
Level 3	4.14	2.15	...	0.52	0.25
Level 4	8.04	4.57	1.94	...	0.48
Level 5	16.77	11.19	4.05	2.09	...

... not applicable



The observed relationship between reading literacy at age 15 and postsecondary participation reveals that for the most part, those with higher reading proficiency are more likely to pursue postsecondary education. However, as was also the case with high school completion, the relationship between reading literacy at age 15 and postsecondary participation by age 19 is not necessarily deterministic. More than one-quarter of youth who were at the lowest level of reading proficiency had pursued postsecondary education by age 19. This may reflect a variety of factors including skill gain between age 15 and 19 or the availability of postsecondary opportunities suited to the reading proficiency levels of youth. Further analysis could be undertaken in order identify the types of postsecondary education pursued by youth of different reading levels and how their profiles, processes and circumstances differ from their counterparts who did not pursue postsecondary education.

At the other end, twelve percent of youth with the highest level of reading proficiency had not yet pursued postsecondary education by age 19. Further analysis should be undertaken on this group to understand whether they chose not to pursue postsecondary education or whether they faced barriers that prevented them from furthering their studies. The next cycle of YITS should also provide more information to see if these youth undertook any further education.

### 3. Summary and conclusion

This paper provides an initial look at the relationship between reading literacy at age 15 and educational outcomes at age 19. It is well known that graduation from high school and the decision to pursue postsecondary education are complicated processes affected by a combination of social, family, school and individual characteristics. While it is not the intent of this paper to examine these complex processes nor disentangle the relative importance of various characteristics, this paper has shown that reading literacy proficiency at age 15 plays a role in both high school graduation and postsecondary participation.

Youth with higher levels of reading competency which PISA measures were more likely to graduate from high school while youth with lower levels of reading literacy were more likely to drop out or still be in high school at age 19. In particular, youth in the lowest two levels of reading literacy (level 1 and below, and level 2) were more likely to drop out of high school. The apparent struggle to graduate from high school among those with low literacy levels underscores a group of vulnerable youth who may benefit from strategies aimed at keeping them in school and improving their skill levels.

Similarly, postsecondary participation rates increased progressively with higher levels of reading literacy. This pattern remained strong even after controlling for other important factors which are related to postsecondary participation. While the majority of youth with the knowledge and skills to pursue postsecondary education do so, there is a small proportion of youth with very high reading proficiency levels who do not pursue postsecondary education.

It should be noted that the transition from high school to postsecondary education is a process and does not necessarily follow a traditional linear trajectory. Consequently, youth who are not currently participating may still do so later on. Data from further cycles of the Youth in Transition Survey will enable a more thorough examination of the process of transition.

Effective literacy skills and education credentials do not guarantee success in later life, but without them, there are greater risks of facing barriers to employment, reduced financial security and poorer social outcomes. The observed differences in postsecondary participation rates among youth with varying ability levels raise questions. A notable percentage of those with low literacy levels still pursue some form of postsecondary education. How will their labour market outcomes compare to those at the same level of reading proficiency who did not participated in postsecondary education? In contrast, a sizable percentage of those with the highest reading levels had not yet pursued postsecondary education. How will their labour market outcomes compare with those who completed postsecondary education? Subsequent cycles of YITS data will provide insights into these questions and thus help to shed light on the relationship between credentials and competencies, and labour market outcomes.

## Appendix A: Tables

**Table A1**

**High school status at age 19, by various characteristics at age 15**

	High school graduate				High school continuer				High school dropout			
	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit
<b>Gender</b>												
Female	91	(1.6)	88	94	4	(1.0)	2	6	6	(1.2)	3	8
Male	84	(2.1)	80	88	6	(1.3)	4	9	9	(1.6)	6	13
<b>Mother tongue</b>												
French or English	92	(4.0)	84	99	5	(2.7)	0	10	4	(2.3)	0	8
Other language	87	(1.5)	84	90	5	(0.9)	3	7	8	(1.2)	6	10
<b>Highest level of parental education</b>												
High school or less	70	(5.6)	59	81	10	(3.8)	3	18	20	(4.9)	10	30
College	85	(2.6)	80	89	6	(1.7)	3	9	10	(2.1)	6	14
University	91	(1.4)	88	94	4	(0.9)	2	6	5	(1.1)	3	7
<b>Location of residence</b>												
Urban area	86	(2.5)	81	91	5	(1.7)	2	9	9	(2.2)	4	13
Rural area	88	(1.7)	85	91	5	(1.0)	3	7	7	(1.2)	5	9
<b>Family income</b>												
Highest quartile	93	(2.0)	89	97	3	(1.4)	1	6	3	(1.3)	1	6
Second highest quartile	91	(1.9)	88	95	3	(1.1)	1	5	5	(1.5)	2	8
Second lowest quartile	85	(2.5)	80	90	6	(1.8)	2	9	9	(2.1)	5	14
Lowest quartile	80	(3.1)	74	86	8	(2.2)	4	12	12	(2.4)	7	17
<b>High school engagement – social</b>												
Above average	95	(2.1)	90	99	3	(1.4)	0	5	3	(1.7)	0	6
Average	89	(1.5)	86	91	5	(0.9)	3	6	7	(1.2)	4	9
Below average	75	(4.0)	67	83	10	(2.8)	4	15	15	(3.3)	8	21
<b>High school engagement – academic</b>												
Above average	96	(1.8)	92	100	2	(1.4)	0	5	2	(1.2)	0	5
Average	89	(1.4)	86	92	5	(0.9)	3	7	7	(1.1)	4	9
Below average	72	(4.4)	63	80	10	(3.1)	(4.2)	16	18	(3.4)	11	25

**Table A2**  
**Average PISA reading scores by high school status, Canada and the provinces**

Canada/Province	High school status	Average score	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit
<b>Canada</b>	Graduate	547	(5.2)	537	557
	Continuer	455	(20.3)	415	495
	Dropout	457	(12.3)	433	481
<b>Newfoundland and Labrador</b>	Graduate	528	(9.1)	510	545
	Continuer	421	(51.5)	320	522
	Dropout	430	(32.7)	366	494
<b>Prince Edward Island</b>	Graduate	529	(9.2)	511	546
	Continuer	435	(47.1)	342	527
	Dropout	430	(41.0)	350	511
<b>Nova Scotia</b>	Graduate	537	(9.5)	518	555
	Continuer	428	(25.4)	378	477
	Dropout	448	(32.9)	384	512
<b>New Brunswick</b>	Graduate	514	(7.5)	499	529
	Continuer	410	(31.4)	349	472
	Dropout	427	(34.7)	359	495
<b>Quebec</b>	Graduate	560	(8.6)	543	577
	Continuer	442	(30.8)	382	503
	Dropout	443	(18.4)	407	479
<b>Ontario</b>	Graduate	541	(10.9)	520	563
	Continuer	461	(45.4)	372	550
	Dropout	464	(27.5)	410	518
<b>Manitoba</b>	Graduate	544	(10.3)	524	564
	Continuer	469	(37.9)	394	543
	Dropout	451	(24.9)	402	499
<b>Saskatchewan</b>	Graduate	540	(8.5)	523	556
	Continuer	455	(49.8)	357	552
	Dropout	465	(27.6)	411	519
<b>Alberta</b>	Graduate	563	(10.6)	542	584
	Continuer	489	(39.3)	412	566
	Dropout	486	(29.9)	428	545
<b>British Columbia</b>	Graduate	546	(12.2)	522	570
	Continuer	470	(46.2)	379	560
	Dropout	465	(38.6)	390	541

Table A3

## High school status by PISA reading proficiency level, Canada and the provinces

	Completed high school				Still in high school				Dropped out of high school			
	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit
<b>Canada</b>												
Level 1 or below	62	(6.2)	50	75	15	(4.5)	7	24	22	(5.1)	12	32
Level 2	77	(3.8)	70	84	9	(2.6)	4	14	14	(3.2)	7	20
Level 3	89	(2.2)	84	93	5	(1.6)	2	8	7	(1.7)	3	10
Level 4	95	(1.3)	92	97	2	(0.1)	0	4	3	(1.1)	1	5
Level 5	98	(1.4)	95	100	1	(1.1)	0	3	1	(.9)	0	3
<b>Newfoundland and Labrador</b>												
Level 1 or below	69	(12.3)	45	93	x	x	x	x	20	(10.0)	0	39
Level 2	87	(7.4)	72	100	x	x	x	x	10	(6.8)	0	23
Level 3	93	(4.7)	84	100	x	x	x	x	x	x	x	x
Level 4	97	(3.5)	90	100	x	x	x	x	x	x	x	x
Level 5	99	(1.7)	95	100	x	x	x	x	x	x	x	x
<b>Prince Edward Island</b>												
Level 1 or below	76	(13.4)	50	100	x	x	x	x	x	x	x	x
Level 2	88	(7.2)	74	100	x	x	x	x	x	x	x	x
Level 3	94	(5.2)	84	100	x	x	x	x	x	x	x	x
Level 4	98	(2.5)	93	100	x	x	x	x	x	x	x	x
Level 5	100	(.0)	100	100	x	x	x	x	x	x	x	x
<b>Nova Scotia</b>												
Level 1 or below	57	(13.1)	31	83	26	(12.9)	0	51	18	(9.9)	0	37
Level 2	79	(9.3)	60	97	10	(6.6)	0	23	11	(6.6)	0	24
Level 3	88	(5.4)	78	99	x	x	x	x	7	(4.5)	0	15
Level 4	97	(3.0)	91	100	x	x	x	x	x	x	x	x
Level 5	99	(2.0)	95	100	x	x	x	x	x	x	x	x
<b>New Brunswick</b>												
Level 1 or below	72	(10.6)	51	92	14	(8.1)	0	30	14	(8.6)	0	31
Level 2	86	(6.3)	74	99	x	x	x	x	x	x	x	x
Level 3	95	(3.5)	88	100	x	x	x	x	x	x	x	x
Level 4	97	(3.2)	91	100	x	x	x	x	x	x	x	x
Level 5	99	(2.4)	94	100	x	x	x	x	x	x	x	x
<b>Quebec</b>												
Level 1 or below	30	(11.7)	7	53	27	(13.7)	0	54	43	(12.4)	19	67
Level 2	60	(10.0)	40	79	16	(5.7)	5	27	25	(9.1)	7	42
Level 3	85	(4.7)	76	94	6	(3.2)	0	13	9	(3.7)	2	16
Level 4	96	(2.6)	91	100	x	x	x	x	x	x	x	x
Level 5	100	(1.0)	98	100	x	x	x	x	x	x	x	x
<b>Ontario</b>												
Level 1 or below	71	(10.7)	51	92	13	(8.4)	0	30	15	(8.3)	0	32
Level 2	82	(7.0)	68	95	9	(5.1)	0	19	9	(5.7)	0	21
Level 3	90	(4.6)	81	99	4	(3.4)	0	11	5	(3.7)	0	12
Level 4	94	(2.8)	89	100	x	x	x	x	x	x	x	x
Level 5	98	(3.6)	90	100	x	x	x	x	x	x	x	x
<b>Manitoba</b>												
Level 1 or below	60	(15.8)	29	91	x	x	x	x	28	(14.2)	1	56
Level 2	78	(10.7)	57	99	x	x	x	x	15	(9.7)	0	34
Level 3	88	(5.7)	77	100	x	x	x	x	8	(4.6)	0	17
Level 4	95	(4.2)	86	100	x	x	x	x	x	x	x	x
Level 5	99	(2.7)	93	100	x	x	x	x	x	x	x	x

**Table A3 – concluded****High school status by PISA reading proficiency level, Canada and the provinces**

	Completed high school				Still in high school				Dropped out of high school			
	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit
<b>Saskatchewan</b>												
Level 1 or below	72	(13.8)	44	99	x	x	x	x	18	(9.6)	0	37
Level 2	81	(7.9)	66	97	x	x	x	x	13	(6.5)	0	26
Level 3	92	(4.4)	83	100	x	x	x	x	5	(3.6)	0	12
Level 4	95	(3.7)	88	100	x	x	x	x	x	x	x	x
Level 5	98	(3.1)	92	100	x	x	x	x	x	x	x	x
<b>Alberta</b>												
Level 1 or below	58	(14.7)	30	87	x	x	x	x	29	(15.4)	0	59
Level 2	77	(10.)	58	97	x	x	x	x	16	(8.4)	0	32
Level 3	86	(6.0)	74	98	x	x	x	x	9	(4.8)	0	19
Level 4	92	(4.2)	84	100	x	x	x	x	x	x	x	x
Level 5	95	(3.6)	88	100	x	x	x	x	x	x	x	x
<b>British Columbia</b>												
Level 1 or below	78	(13.4)	52	100	x	x	x	x	x	x	x	x
Level 2	87	(7.5)	72	100	x	x	x	x	x	x	x	x
Level 3	91	(4.8)	81	100	x	x	x	x	x	x	x	x
Level 4	96	(2.8)	90	100	x	x	x	x	x	x	x	x
Level 5	98	(2.2)	94	100	x	x	x	x	x	x	x	x

x suppressed to meet confidentiality requirements of the *Statistics Act***Table A4****Postsecondary participation rate at age 19, by various characteristics at age 15**

	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit
<b>Gender</b>				
Female	72	(2.5)	67	76
Male	58	(2.7)	52	63
<b>Mother tongue</b>				
French or English	75	(5.8)	64	86
Other language	63	(2.1)	59	67
<b>Highest level of parental education</b>				
High school or less	37	(6.1)	26	49
College	55	(3.6)	48	62
University	72	(2.3)	67	76
<b>Location of residence</b>				
Urban area	66	(2.5)	62	71
Rural area	59	(3.6)	52	66
<b>Family income</b>				
Highest quartile	76	(3.0)	70	82
Second highest quartile	68	(3.2)	62	74
Second lowest quartile	61	(3.2)	54	67
Lowest quartile	54	(3.9)	46	61

**Table A5****Average PISA reading scores by postsecondary participation status, Canada and the provinces**

Canada/Province	Participated in post- secondary?	Average score	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit
<b>Canada</b>	Yes	566	(5.3)	555	576
	No	492	(7.4)	477	506
<b>Newfoundland and Labrador</b>	Yes	552	(10.4)	531	572
	No	471	(14.6)	442	499
<b>Prince Edward Island</b>	Yes	549	(10.4)	529	570
	No	470	(14.6)	441	499
<b>Nova Scotia</b>	Yes	552	(9.4)	534	571
	No	476	(17.5)	442	510
<b>New Brunswick</b>	Yes	537	(8.0)	522	553
	No	456	(13.0)	430	481
<b>Quebec</b>	Yes	572	(9.4)	554	591
	No	483	(14.8)	454	512
<b>Ontario</b>	Yes	559	(10.4)	538	579
	No	486	(17.4)	452	520
<b>Manitoba</b>	Yes	570	(11.4)	548	593
	No	492	(13.0)	467	517
<b>Saskatchewan</b>	Yes	565	(9.9)	546	585
	No	499	(11.2)	477	521
<b>Alberta</b>	Yes	591	(12.3)	567	615
	No	521	(13.6)	494	547
<b>British Columbia</b>	Yes	572	(12.2)	548	596
	No	498	(14.9)	468	527

**Table A6****Postsecondary status by PISA reading proficiency level, Canada and the provinces**

	Postsecondary participation				No postsecondary participation			
	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit
<b>Canada</b>								
Level 1 or below	28	(6.4)	15	41	72	(6.4)	59	85
Level 2	45	(4.7)	35	54	56	(4.7)	46	65
Level 3	62	(3.4)	55	68	38	(3.4)	32	45
Level 4	76	(2.8)	70	82	24	(2.8)	18	30
Level 5	88	(2.9)	82	93	12	(2.9)	7	18
<b>Newfoundland and Labrador</b>								
Level 1 or below	24	(11.2)	3	46	76	(11.2)	54	97
Level 2	47	(11.5)	25	70	53	(11.5)	30	75
Level 3	61	(8.7)	43	78	39	(8.7)	22	57
Level 4	79	(8.2)	63	95	21	(8.2)	5	37
Level 5	88	(7.9)	72	100	13	(7.9)	0	28
<b>Prince Edward Island</b>								
Level 1 or below	33	(15.5)	3	63	67	(15.5)	37	97
Level 2	53	(11.1)	32	75	47	(11.1)	25	68
Level 3	68	(9.6)	50	87	32	(9.6)	13	50
Level 4	84	(7.4)	69	98	16	(7.4)	2	31
Level 5	92	(6.4)	80	100	x	x	x	x
<b>Nova Scotia</b>								
Level 1 or below	40	(17.1)	6	73	60	(17.1)	27	94
Level 2	52	(10.9)	30	73	48	(10.9)	27	70
Level 3	70	(7.6)	56	85	30	(7.6)	15	44
Level 4	85	(6.3)	72	97	15	(6.3)	3	28
Level 5	93	(4.3)	85	100	x	x	x	x
<b>New Brunswick</b>								
Level 1 or below	30	(10.3)	10	51	70	(10.3)	49	90
Level 2	50	(9.6)	31	69	50	(9.6)	31	69
Level 3	70	(6.8)	57	83	30	(6.8)	17	43
Level 4	84	(6.7)	71	97	16	(6.7)	3	29
Level 5	89	(7.4)	74	100	x	x	x	x
<b>Quebec</b>								
Level 1 or below	20	(13.2)	0	46	80	(13.2)	54	106
Level 2	41	(11.8)	18	64	59	(11.8)	36	82
Level 3	64	(7.2)	50	78	36	(7.2)	22	50
Level 4	84	(5.2)	74	94	16	(5.2)	6	26
Level 5	96	(3.2)	90	100	x	x	x	x
<b>Ontario</b>								
Level 1 or below	35	(13.1)	9	61	65	(13.1)	39	91
Level 2	53	(9.0)	36	71	47	(9.0)	29	64
Level 3	69	(7.1)	55	83	31	(7.1)	17	45
Level 4	79	(5.0)	69	89	21	(5.0)	11	31
Level 5	90	(5.7)	79	100	10	(5.7)	0	21
<b>Manitoba</b>								
Level 1 or below	x	x	x	x	88	(10.6)	67	108
Level 2	34	(12.1)	11	58	66	(12.1)	42	89
Level 3	54	(9.2)	36	72	46	(9.2)	28	64
Level 4	70	(9.0)	53	88	30	(9.0)	12	47
Level 5	82	(9.0)	64	99	19	(9.0)	1	36



**Table A6 – concluded****Postsecondary status by PISA reading proficiency level, Canada and the provinces**

	Postsecondary participation				No postsecondary participation			
	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit	%	Standard error	Confidence interval – 95% lower limit	Confidence interval – 95% upper limit
<b>Saskatchewan</b>								
Level 1 or below	24	(13.5)	0	50	76	(13.5)	50	103
Level 2	32	(9.5)	14	51	68	(9.5)	49	86
Level 3	48	(7.8)	33	63	52	(7.8)	37	67
Level 4	66	(7.1)	52	79	34	(7.1)	21	48
Level 5	82	(8.6)	65	99	18	(8.6)	1	35
<b>Alberta</b>								
Level 1 or below	x	x	x	x	84	(11.9)	61	107
Level 2	28	(10.8)	7	49	72	(10.8)	51	93
Level 3	40	(8.6)	23	57	60	(8.6)	43	77
Level 4	57	(8.3)	41	74	43	(8.3)	26	59
Level 5	75	(8.2)	59	91	25	(8.2)	9	41
<b>British Columbia</b>								
Level 1 or below	26	(12.6)	1	50	74	(12.6)	50	99
Level 2	38	(10.1)	18	58	62	(10.1)	42	82
Level 3	55	(8.8)	38	73	45	(8.8)	27	62
Level 4	68	(8.0)	53	84	32	(8.0)	16	47
Level 5	84	(7.6)	69	99	16	(7.6)	1	31

x suppressed to meet confidentiality requirements of the *Statistics Act*

## Appendix B: What is the Youth in Transition Survey (YITS)?

The Youth in Transition Survey is a Canadian longitudinal survey designed to examine the patterns of, and influences on, major transitions in young people's lives, particularly with respect to education, training and work.

Following a major consultation process with key stakeholders across Canada, ten broad objectives were developed for YITS. They are as follows:

1. to examine key transitions in the lives of youth, such as the transition from high school to postsecondary schooling and the initial transition from schooling to the labour market;
2. to better understand educational and labour market pathways and the factors influencing these pathways;
3. to identify educational and occupational pathways that provide a smoother transition to the labour market;
4. to examine the incidence, characteristics, factors and effects of leaving school;
5. to understand the impact of school effects on educational and occupational outcomes;
6. to examine the contribution of work experience programs, part-time jobs, and volunteer activities to skill development and transition to the labour market;
7. to study the attitudes, behaviours, and skills of young people entering the labour market;
8. to gain a better understanding of the determinants of postsecondary entry and postsecondary retention, including education financing;
9. to better understand the role of educational and labour market aspirations and expectations in investment in further education and career choice; and,
10. to explore the educational and occupational pathways of various subgroups, particularly youth "at risk".

In order to address these objectives in a timely fashion, it was decided to collect data from two age groups of youth in the first cycle of the survey in 2000. One began its participation at age 15 and the other at ages 18 to 20. Both cohorts were asked to provide a range of information on their education and employment experiences as well as information on their personal characteristics including, for example, their educational aspirations. The younger group also participated in the Programme for International Student Assessment (PISA), an internationally recognized test to evaluate the knowledge and skills of 15-year-olds in reading, mathematics, and science. Furthermore, an interview was conducted with their parents and a questionnaire was administered to their school principals.

In total, almost 30,000 youth aged 15, and more than 22,000 youth aged 18 to 20 from the ten provinces participated in the first cycle of YITS in 2000. Analysis for both cohorts was presented in different publications available to download for free through the Internet at [www.statcan.ca](http://www.statcan.ca).

The first follow-up interview with the YITS participants took place in early 2002 with over 40,000 youth interviewed for a second time. At that time, the two cohorts were aged 17 and 20 to 22, respectively. The second follow-up interview took place two years later and over 37,000 respondents provided information on their activities at school and at work. Respondents were aged 19 and 22 to 24 at that time.

## YITS Methodology

### Target population

YITS has two target populations: a cohort of individuals who were 18 to 20 years old on December 31, 1999 and a cohort of students who were 15 years-old on December 31, 1999. This section deals more specifically with the younger cohort, which constitute the subject of this report.

### Sample design: 15 year-old cohort

The 15 year-old cohort also participated in the 2000 Programme for International Student Assessment (PISA). Consequently, the sample design prescribed for PISA was used to select the 15 year-old cohort. The sample design entailed two-stage probability sampling, with a stratified probability proportional to size (PPS) sample of 1,242 school selected in the first stage and a systematic equal-probability sample of students selected at the second stage. Up-to-date student lists were obtained from all participating schools selected in stage one. From this list, students were randomly selected to participate. Students with a cognitive or functional disability who could not participate under the PISA assessment environment were excluded as were those who had a non-official language barrier. In total, 29,330 15-year-olds participated in cycle 1 of PISA and formed cycle sample for YITS.

In cycle 2, the response rate was 90.5% or 26,544 youth who answered interviewers' questions. In cycle 3, the response rate was 84.4% or 22,403 respondents and formed the cycle 4 sample.

### Data collection

While separate data collection strategies were employed for each of the cohorts in cycle 1, the same data collection strategy was used for both cohorts in cycle 2. Data collection occurred between mid-February and mid-June 2002 using computer assisted telephone interviewing. The cycle 3 data collection was conducted between mid-February and mid-June 2004. The following table shows the response rates by province and cycle.

**Table B1****Response rates, cycles 1, 2 and 3 for the 15-year-old cohort**

Province	Response rate (%) Cycle 1	Response rate (%) Cycle 2	Response rate (%) Cycle 3
Newfoundland and Labrador	89.7	94.8	83.7
Prince Edward Island	88.5	91.1	84.6
Nova Scotia	88.3	89.2	83.7
New Brunswick	89.8	85.0	84.1
Quebec	89.5	91.8	84.1
Ontario	78.2	90.0	84.4
Manitoba	88.0	93.5	82.3
Saskatchewan	91.4	93.3	90.8
Alberta	87.4	90.8	88.9
British Columbia	84.1	87.3	77.5
<b>Canada</b>	<b>86.6</b>	<b>90.5</b>	<b>84.4</b>

## Endnotes

1. OECD 2002, *PISA 2000 Technical Report*, Paris, OECD, 2002.
2. Gilbert, Sid et al., *Leaving School: Results from a national survey comparing school leavers and high school graduates 18 to 20 years of age*, Government of Canada, 1993.
3. Frank, Jeff et al., *High School May Not be Enough: An Analysis of Results from the School Leavers Follow-up Survey, 1995*, Human Resources Development Canada and Statistics Canada, 1998.
4. Human Resources Development Canada and Statistics Canada. 2001. *A Report on Adult Education and Training in Canada: Learning a Living*. Ottawa: Human Resources Development Canada and Statistics Canada, 81-586-XBE.
5. Rumberger, Russell W. 1987. "High School Dropouts: A Review of Issues and Evidence." *Review of Educational Research* 57(2): 101-121.
6. Finney, Ross and Meng, Ronald. The Importance of Functional Literacy: Reading and Math Skills and Labour Market Outcomes of High School Drop-outs. 2006 Statistics Canada, catalogue number 11F0019MIE2006275.
7. Bushnik, Tracey, Lynn Barr-Telford and Patrick Bussière, *In and out of High School: First results from the second cycle of the Youth in Transition Survey, 2002*, Statistics Canada and Human Resources and Skills Development Canada, Ottawa, 2004.
8. OECD, (2003). The PISA 2003 Assessment Framework- Mathematics, Reading, Science and Problem Solving Knowledge and Skills, OECD, Paris.
9. Bushnik, Tracey, Lynn Barr-Telford and Patrick Bussière, *In and out of High School: First results from the second cycle of the Youth in Transition Survey, 2002*, Statistics Canada and Human Resources and Skills Development Canada, Ottawa, 2004.
10. Due to the small sample sizes, it is not possible make the comparison between continuers and graduates at the provincial level.
11. High levels of academic and social engagement were defined as those scores that fell 1 deviation above the mean. Low levels of academic and social engagement were defined as those scores that fell 1 standard deviation below the mean. Average levels of academic and social engagement were defined as those scores that fell between 1 standard deviation below and above the mean.
12. OECD (2005), *Education at a Glance, OECD Indicators 2005*, Organisation for Economic Co-operation and Development, Paris, 2005.
13. For a description on the relationship between self-reported grades and PISA reading scores, please refer to Bushnik, Tracey, Lynn Barr-Telford and Patrick Bussière, *In and out of High School: First results from the second cycle of the Youth in Transition Survey, 2002*, Statistics Canada and Human Resources and Skills Development Canada, Ottawa, 2004.

# Culture, Tourism and the Centre for Education Statistics Research Papers Cumulative index

Statistics Canada's **Division of Culture, Tourism and the Centre for Education Statistics** develops surveys, provides statistics and conducts research and analysis relevant to current issues in its three areas of responsibility.

The **Culture Statistics Program** creates and disseminates timely and comprehensive information on the culture sector in Canada. The program manages a dozen regular census surveys and databanks to produce data that support policy decision and program management requirements. Issues include the economic impact of culture, the consumption of culture goods and services, government, personal and corporate spending on culture, the culture labour market, and international trade of culture goods and services. Analysis is also published in *Focus on Culture* (87-004-XIE, \$8, <http://www.statcan.ca:8096/bsolc/english/bsolc?catno=87-004-X>).

The **Tourism Statistics Program** provides information on domestic and international tourism. The program covers the Canadian Travel Survey and the International Travel Survey. Together, these surveys shed light on the volume and characteristics of trips and travellers to, from and within Canada. Analysis is also published in *Travel-log* (87-003-XIE, \$5, <http://www.statcan.ca:8096/bsolc/english/bsolc?catno=87-003-X>).

The **Centre for Education Statistics** develops and delivers a comprehensive program of pan-Canadian education statistics and analysis in order to support policy decisions and program management, and to ensure that accurate and relevant information concerning education is available to the Canadian public and to other educational stakeholders. The Centre conducts fifteen institutional and over ten household education surveys. Analysis is also published in *Education Matters* (81-004-XIE, free, <http://www.statcan.ca:8096/bsolc/english/bsolc?catno=81-004-X>), and in the *Analytical Studies Branch research paper series* (11F0019MIE, free, <http://www.statcan.ca:8096/bsolc/english/bsolc?catno=11F0019M>).

**Following is a cumulative index of Culture, Tourism and the Centre for Education  
Statistics research papers published to date**

**Research papers**

81-595-MIE2002001	Understanding the rural-urban reading gap
81-595-MIE2003002	Canadian education and training services abroad: the role of contracts funded by international financial institution
81-595-MIE2003003	Finding their way: a profile of young Canadian graduates
81-595-MIE2003004	Learning, earning and leaving – The relationship between working while in high school and dropping out
81-595-MIE2003005	Linking provincial student assessments with national and international assessments
81-595-MIE2003006	Who goes to post-secondary education and when: Pathways chosen by 20 year-olds
81-595-MIE2003007	Access, persistence and financing: First results from the Postsecondary Education Participation Survey (PEPS)
81-595-MIE2003008	The labour market impacts of adult education and training in Canada
81-595-MIE2003009	Issues in the design of Canada's Adult Education and Training Survey
81-595-MIE2003010	Planning and preparation: First results from the Survey of Approaches to Educational Planning (SAEP) 2002
81-595-MIE2003011	A new understanding of postsecondary education in Canada: A discussion paper
81-595-MIE2004012	Variation in literacy skills among Canadian provinces: Findings from the OECD PISA
81-595-MIE2004013	Salaries and salary scales of full-time teaching staff at Canadian universities, 2001-2002: final report
81-595-MIE2004014	In and out of high school: First results from the second cycle of the Youth in Transition Survey, 2002
81-595-MIE2004015	Working and Training: First Results of the 2003 Adult Education and Training Survey
81-595-MIE2004016	Class of 2000: Profile of Postsecondary Graduates and Student Debt
81-595-MIE2004017	Connectivity and ICT integration in Canadian elementary and secondary schools: First results from the Information and Communications Technologies in Schools Survey, 2003-2004

---

**Following is a cumulative index of Culture, Tourism and the Centre for Education Statistics research papers published to date**


---

**Research papers**

81-595-MIE2004018	Education and labour market pathways of young Canadians between age 20 and 22: an Overview
81-595-MIE2004019	Salaries and salary scales of full-time teaching staff at Canadian universities, 2003-2004
81-595-MIE2004020	Culture Goods Trade Estimates: Methodology and Technical Notes
81-595-MIE2004021	Canadian Framework for Culture Statistics
81-595-MIE2004022	Summary public school indicators for the provinces and territories, 1996-1997 to 2002-2003
81-595-MIE2004023	Economic Contribution of Culture in Canada
81-595-MIE2004024	Economic Contributions of the Culture Sector in Ontario
81-595-MIE2004025	Economic Contribution of the Culture Sector in Canada – A Provincial Perspective
81-595-MIE2004026	Who pursues postsecondary education, who leaves and why: Results from the Youth in Transition Survey
81-595-MIE2005027	Salaries and salary scales of full-time teaching staff at Canadian universities, 2002-2003: final report
81-595-MIE2005028	Canadian School Libraries and Teacher-Librarians: Results from the 2003/04 Information and Communications Technologies in Schools Survey
81-595-MIE2005029	Manitoba postsecondary graduates from the Class of 2000 : how did they fare?
81-595-MIE2005030	Salaries and salary scales of full-time teaching staff at Canadian universities, 2004-2005: preliminary report
81-595-MIE2005031	Salaries and salary scales of full-time teaching staff at Canadian universities, 2003-2004: final report
81-595-MIE2005032	Survey of Earned Doctorates: A Profile of Doctoral Degree Recipients
81-595-MIE2005033	The Education Services Industry in Canada
81-595-MIE2005034	Connectivity and ICT Integration in First Nations Schools: Results from the Information and Communications Technologies in Schools Survey, 2003/04
81-595-MIE2005035	Registered Apprentices: A Class Ten Years Later



---

**Following is a cumulative index of Culture, Tourism and the Centre for Education Statistics research papers published to date**

---

**Research papers**

81-595-MIE2005036	Participation in Postsecondary Education: Evidence from the Survey of Labour Income Dynamics
81-595-MIE2006037	Economic Contribution of the Culture sector to Canada's Provinces
81-595-MIE2006038	Profile of Selected Culture Industries in Ontario
81-595-MIE2006039	Factors Affecting the Repayment of Student Loans
81-595-MIE2006040	Culture Goods Trade Data User Guide
81-595-MIE2006041	Health Human Resources and Education: Outlining Information Needs
81-595-MIE2006042	How Students Fund Their Postsecondary Education: Findings from the Postsecondary Education Participation Survey
81-595-MIE2006043	Educational Outcomes at Age 19 Associated with Reading Ability at Age 15