Executive Summary

The growing need for internationally comparable evidence on student performance in compulsory education prompted over 70 governments to invest in the PISA assessment in 2009. In addition, six countries–Australia, Canada, the Czech Republic, Denmark, Switzerland and Uruguay–have chosen to use the PISA assessment as a starting point for a longitudinal survey of youth.

Using the results from longitudinal data provides a dynamic view of learning gains and losses. This report is based on a wealth of data that Canada collected through a PISA assessment of 15-year-olds in the year 2000 (hereafter PISA-15), a longitudinal survey (YITS), and a re-assessment of skills at age 24 (hereafter PISA-24) in 2009. It offers valuable insights on how reading skills are developed, maintained and lost between the ages of 15 and 24.

Reading proficiency among Canadian youth improved substantially between the ages of 15 and 24.

Data obtained from PISA-15 and the follow-up assessment PISA-24 show significant improvements in reading skills across the entire population of young people. On average, Canadian youth gained 57 score points in the PISA reading scale between the ages of 15 and 24 - the equivalent of roughly one school year in Canada - improving from 541 to 598 score points, on average. The variation in reading proficiency narrowed from 92 score points in 2000 to 78 score points in 2009.

As a result, the proportion of young people with a score above proficiency Level 3 in PISA increased from 79% at age 15 to 93% at age 24. Level 3 is a key measure of success in PISA. Individuals proficient at this level are adept at "locating multiple pieces of information, making links between different parts of a text, and relating it to familiar everyday knowledge". Since the odds of enrolling in higher education is highest among individuals at these levels, learning gains between the ages of 15 and 24 increased the pool of students who could succeed at post-secondary education to over 90%.

The number of young people with poor reading proficiency dropped significantly between the ages of 15 and 24, which suggests impressive learning gains, particularly among the lowest performing students. Nevertheless, 7% of Canadian 24-year-olds still fail to attain Level 3, and for these adults general literacy remains a priority. These findings highlight the need for policy makers to continue focusing on reading skills beyond compulsory education and into adulthood.

Widespread gains in reading proficiency resulted in reading skills convergence.

PISA-24 shows that the strongest predictor of reading proficiency at age 24 is, in fact, reading proficiency at age 15. While not surprising, this is an important result. Clearly individual characteristics, such as innate ability, play a role. Beyond these factors, this result provides evidence of the importance of the investments governments make in compulsory education, and the efforts parents and teachers make in helping their children and students learn. It also strengthens the rational for PISA's focus on measuring skills at age 15.

However, reading proficiency at age 15 is negatively related to the rate of improvement in reading proficiency. The nature of PISA-24 is such that those who score exceptionally well in PISA-15 are likely to score lower in PISA-24 than they did in PISA-15. The opposite is true among those who scored exceptionally low in PISA-15; they are likely to score higher

in PISA-24 than they did in PISA-15. Therefore, one needs to be cautious about the actual strength of the relationship between reading skills at age 15 and growth in reading skills between age 15 and 24 as measured by PISA-15 and 24. However, the analysis consistently shows a gradual movement towards skills convergence, rather than a "fanning-out" of the distribution of skills across young people. By age 24, those with lower proficiency scores at age 15 had improved substantially, though they had not completely caught up with those who performed well at 15, who improved more slowly. After leaving compulsory education, the group of young people who had performed poorly when they were 15 were later in learning environments that helped narrow the performance gap between the two groups. These findings relate to reading skills only. In fact, it is possible that students who showed strong reading skills at age 15 have been able to build on this by developing other competencies that are not measured here more effectively than students who struggled with basic reading skills at that age.

However, most reading performance gaps evident at age 15 persisted at age 24.

Young men, Francophones, rural students, and those from more socio-economically disadvantaged backgrounds were able to narrow the gap in reading performance that was evident at age 15. While the actual extent of this catching up is hard to measure, the general trend is evident in the data. Even after relatively faster growth in reading skills, however, there remained large differences in scores related to these characteristics at age 24. Where participants do not converge in reading proficiency, the persistent gaps appear to be partly the consequence of explicit student behaviours between the ages of 15 and 24, for example decisions on whether to continue into further education, rather than demographic characteristics.

In general, greater growth in reading skills was observed among those who had performed poorly when they were 15, but they were not able to fully catch up with their peers. For example, girls outscored boys in PISA-15 by an average of 32 points; by 2009, that gap had narrowed to 18 points. Socio-economically advantaged students outscored their disadvantaged peers by more than 65 score points in PISA-15; by 2009 that gap had narrowed to 50 score points. However, by age 24, the average performance of young people who were considered socio-economically disadvantaged at age 15 (568 score points in PISA-24) remained below the average performance of socio-economically advantaged students nine years earlier (572 score points in PISA-15). These groups therefore merit the continued attention of policy makers.

Those with immigrant backgrounds performed as well as native-born youth at age 24.

Students with an immigrant background, though initially disadvantaged, show that it is possible to completely catch up, even in a country with a high percentage of immigrants, such as Canada. By the age of 24, young people with an immigrant background fully bridged the gap in reading performance that separated them from 15-year-olds born in Canada. Students born outside of Canada scored an average of 524 points in PISA-15, while those born in Canada averaged 545 points. In PISA-24, all participants averaged around 600 points, whether they were born in Canada or not. In addition to highlighting the value of integration, these results demonstrate that the right policies for vulnerable populations can return a large benefit to a country's human capital. Canada provides an example of successful education policies towards foreign-born students after completion of compulsory education, and also before. The performance gap in PISA between domestic and foreign-born students is particularly narrow in Canada both as a result of education and immigration policies.

Skills development into early adulthood is shaped by frequent practice and use of skills.

Recent research shows that a key factor in the dynamic process of learning is the use of reading in daily life. Overall, the patterns of improvements in reading proficiency are related to the regular use of reading skills. While improvements in proficiency were widespread between the ages of 15 and 24, the results analysed here suggest that reading proficiency among young adults may already be in decline. For example, PISA-15 and PISA-24 show that approximately 59 score points were gained annually while students remained in formal education, but that the level of reading proficiency at age 24 was lower than that estimated for students at the completion of grade 12. This suggests that the acquisition of skills may not continue at the same annual rate as measured in 2000 when students were 15 and still in compulsory education.

Research, and to some extent the evidence in this report, confirms the importance of reading activities to maintain and ensure high levels of proficiency into adulthood, and supports earlier evidence from the International Adult Literacy Survey that showed that a decline in skills may begin quite early in adult life.

Substantial growth in reading skills is apparent in each of the main dimensions considered in the PISA reading framework (context, text structure and reading process), but the rate of change in proficiency is not uniform across these key dimensions. For example, larger gains were made on reading questions related to personal, rather than educational, contexts, as most people between the ages of 15 and 24 would continue reading more in the former context.

Educational attainment is strongly related to improvements in reading proficiency.

Participation in some form of formal post-secondary education is consistently and substantially related to growth in reading skills between the ages of 15 and 24. For example, educational attainment is closely related to reading skills at age 15 and 24. University graduates at age 24 had an average score of 652 points in PISA-24. In contrast, those with only high school attainment scored, on average, nearly 100 points lower, at 564 points. When those with university-level attainment were 15, they averaged 596 points on PISA, substantially above the scores attained nine years later by those whose highest educational attainment was high school. This underscores the importance of ensuring high reading proficiency by the end of compulsory education.

Completing a post-secondary degree by the age of 24 is also strongly related to skills growth even after accounting for skills at age 15, socio-economic background and other individual characteristics. Those with only a high school diploma at age 24 or those with substantial work experience (more than three years) by age 24 tended to attain lower scores at age 24 than those with higher educational attainment or less substantial work experience. Differences in skills development in a broad sense will ultimately depend on the kinds of skills used and practiced in each field or industry, a topic worth further analysis.

A sense of ownership is key for proficiency improvements, particularly among low-achievers.

Continued improvement in reading proficiency after age 15 is not necessarily associated with the same factors that were associated with reading proficiency at age 15. The degree of control one feels one has over one's life, an individual's sense of mastery, is one of the strongest factors related to improvements in reading skills after the age of 15. In contrast, the sense of mastery was negatively related to skills at age 15. From childhood to age 15, the strongest influences on reading proficiency are from parents and the home learning environment, and from teachers and the school learning environment. As individuals transition into adulthood, however, the emphasis shifts to the choices young people make about post-secondary education and the extent to which they practice their reading skills in employment and leisure.

Greater autonomy and capacity to make individual life choices is generally related to greater improvements in reading performance, particularly when combined with participation in post-secondary education. Those individuals who entered the labour market soon after compulsory education tended to be poor-performing students at age 15 and their reading proficiency at age 24 remained poor; in fact, the rate of their skills growth was relatively modest.

But not all life transitions were associated with improvements in reading skills. Young people who had the advantage of supportive learning environments up to the age of 15 showed relatively slower improvements in reading proficiency as they made the transition to independence. In contrast, those youth who did not thrive in their early learning environments made greater improvements if they changed those environments in some way, for example, if they moved out of their parents' home.

Independence and self-efficacy allow individuals who may be disadvantaged during their younger years to find environments that foster greater reading proficiency later on. For example, young people who performed poorly at age 15, as measured by reading marks in school, showed greater improvements between the ages of 15 and 24 if they made a change in their life circumstances, such as changing the status of a relationship (e.g. from single to married) or moving out of their parents' home.

Second-chance programmes and system flexibility can help young people who have not had the advantages of supportive learning environments earlier in their lives.

While it is unlikely that low-achievers will be able to completely make up for initial disadvantage, this study has identified several mechanisms that mitigate such disadvantage.

Across all levels of educational attainment, improvement in reading proficiency is strongly related to time spent in the education system. For instance, young people who never completed a programme above high school, but who spent

four or more years in school (e.g. on incomplete degrees or diplomas at the post-secondary level) between the ages of 15 and 24, showed improvements in skills that were similar to or greater than (70 score points or more) those observed among young people who spent four or more years in education after high school and completed a university degree (60 score points or more).

High proficiency at early ages prepares young people for further education and creates opportunities for additional studies that may not be as readily available to low-achievers. While the most common and direct path through secondary and university-level education appears to maximise improvements in reading proficiency, not everyone takes that route. The evidence in this report shows that given the opportunity, many low-achievers found ways to improve their proficiency in the years following compulsory education. While not all of them catch up with the top performers, the skills they acquire later help them to fully participate in society.