



6

The Effect of Education and Work Pathways on Reading Proficiency

This chapter discusses the paths young people choose towards entering further education or the labour force and their relation to skills and skills gains. Those who completed university education tended to have high PISA scores when they were 15 and they continued to have a considerable advantage at age 24 over those who did not follow this pathway. However, young people whose highest educational attainment was high school still acquired reading skills after the age of 15 – and these skills were acquired at similar or faster rates than those acquired by university-educated young adults. Meanwhile, work experience appears to play only a minor role in learning gains after the age of 15. Other life transitions, like moving out of the parental home and marriage, are also examined. The role of active self-determination appears to be a critical factor for explaining differences in skills gains across these life transitions.



LIFE CHOICES AND THE ACQUISITION OF SKILLS

The development of reading skills between the ages of 15 and 24 takes place in the context of individual life choices. After Canadian youth completed compulsory education, they were faced with the choice of attending a university or college, or attempting to enter the labour market. They also made decisions about where to live and with whom. These decisions affected their acquisition of skills during the period.

Analysis in Chapter 3 shows that there were large differences in skills at age 15 and persistent differences at age 24 for youth who followed different educational pathways. Chapter 3 also alludes to variations in the rates of skills acquisition across various education and labour-market pathways. The analysis in this chapter builds on the findings described in previous chapters and focuses on the relationship between educational and labour-market pathways and skills growth. It also provides a context for analysing skills growth more generally, by providing information on other important life decisions young people make during the transition into adulthood.

Most of the young people surveyed chose to pursue further education rather than enter the labour force immediately after compulsory education. By 2009, many of these young people had attended some kind of post-secondary education. In fact, 41% of PISA-24 respondents had completed a non-university level programme, and 29% had earned a university degree. The skills acquired by the age of 15 help shape these decisions. Previous research using the Youth in Transition Survey (YITS) has shown that PISA scores are strong predictors of participation in post-secondary education (OECD, 2010a), a finding that is strongly reflected in the PISA-24 data as well.

During this crucial transition period, there is a lot more happening in the lives of young people than acquiring skills and participating in education or work. Young men and women are also deciding where and with whom they will live. Often, these choices become the context, whether positive or negative, in which skills acquisition and further education takes place. In other cases, these choices are the consequences of other decisions made about skills acquisition and education.

This chapter examines how some key educational and demographic choices affect skills acquisition. It discusses how learning gains vary by educational attainment and by years spent in formal education; differences in skills growth based on the specific pathways chosen, for instance, by those who took a “gap year”; and how the acquisition of skills varies depending on work experience, geographic mobility, relationships or level of independence.

IMPROVEMENTS IN READING PROFICIENCY, EDUCATIONAL ATTAINMENT AND PATHWAYS

Educational attainment and growth in reading skills

Previous analysis of the YITS and PISA-15 data has shown that educational attainment and education pathway choices are influenced by individuals’ reading proficiencies at age 15. In other words, reading proficiency at age 15, as measured by PISA-15, is a strong predictor of eventual educational attainment (OECD, 2010a). The PISA scores in reading for 15- and 24-year-olds, according to various educational attainment levels by age 24, are illustrated in Figure 6.1.¹

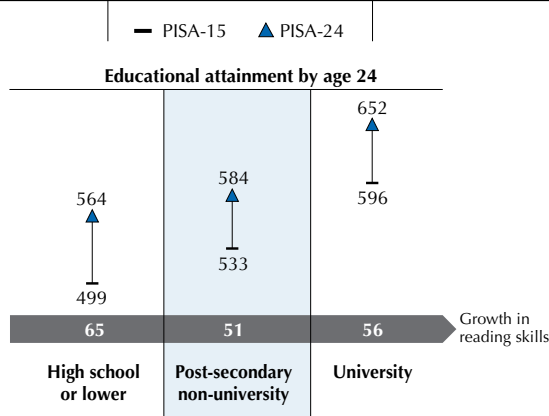
On average, growth in reading skills between the ages of 15 and 24 for university graduates was not as large as the improvement in scores was for youth whose highest educational attainment was high school (56 compared to 65 points). However, growth in reading skills among university graduates was larger than that observed among graduates from non-university post-secondary programmes (51 points). Furthermore, the large initial advantage in reading proficiency among university graduates persisted. In fact, university graduates averaged higher reading scores at age 15 than did other youth at age 24. At 24 years old, young people with only high school attainment had an average score of 564 points, non-university post-secondary graduates had an average score of 584 points, and university graduates had an average score of 652 points (Table 6.1).

Educational pathways and growth in reading skills

Beyond educational attainment, PISA-24 provides evidence of how specific educational pathways can affect growth in reading skills. Not all individuals follow a linear pathway through education, progressing from one level to the next without any interruption until the completion of a particular degree. Many individuals decide to take a break from their studies and pursue other interests or enterprises. These individuals follow a non-linear educational pathway, defined by a break in studies of at least one “gap” year.



■ Figure 6.1 ■
Growth in reading skills between the ages of 15 and 24, by educational attainment at age 24

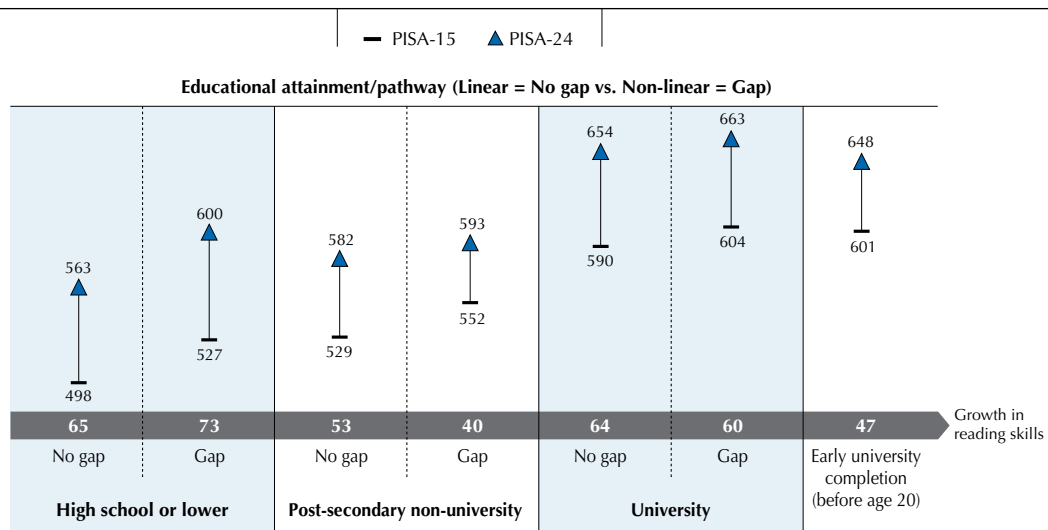


Source: Table 6.1; YITS cycle 5.5: Reading Skills Reassessment.
 StatLink <http://dx.doi.org/10.1787/888932576852>

Figure 6.2 illustrates the skills growth for young people at each level of educational attainment. Individuals are divided into those who went directly through their post-secondary education without interruption, and those who took a gap year during which they did not pursue formal education. In this study, a gap is defined as at least one year during which young people were not enrolled as full-time students, and after which they returned to full-time studies before completing their education.

For university and non-university post-secondary graduates, students who followed a more linear pathway showed greater improvements in skills between the ages of 15 and 24. Those university graduates who did not take a gap year improved by 64 score points, while those who took a gap year improved by 60 points. Non-university post-secondary graduates who did not take a gap year improved by 53 score points, while those who did take a gap year improved by 40 score points. But a gap year appears to have been beneficial for those individuals whose highest level of educational attainment was high school. Those who did not take a break from education saw a 65 score point improvement in their reading skills, while those who did take a gap year improved by 73 points.

■ Figure 6.2 ■
Growth in reading skills between the ages of 15 and 24, by educational pathway



Note: A gap refers to a break of at least a year, when these individual did not pursue formal education.

Source: Table 6.1; YITS cycle 5.5: Reading Skills Reassessment.

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For low-achievers, taking a break from education may be a deliberate choice to try to improve their learning environment or to postpone further education until they are better prepared to take advantage of it. In contrast, a break in education might not be beneficial for high-achieving students, as it may remove them from a beneficial environment.

The group of students who completed university education prior to age 20 represents an extreme example. Reading scores at age 15 were also very high (at 601 points, among the highest in Figure 6.2). These students entered university immediately after completing their compulsory education. However, after the age of 15, they did not acquire skills any faster than other university graduates. As a result, their initial advantage shrunk or, in some cases, disappeared and their reading skills were surpassed by other university students who had taken more time to complete their education.

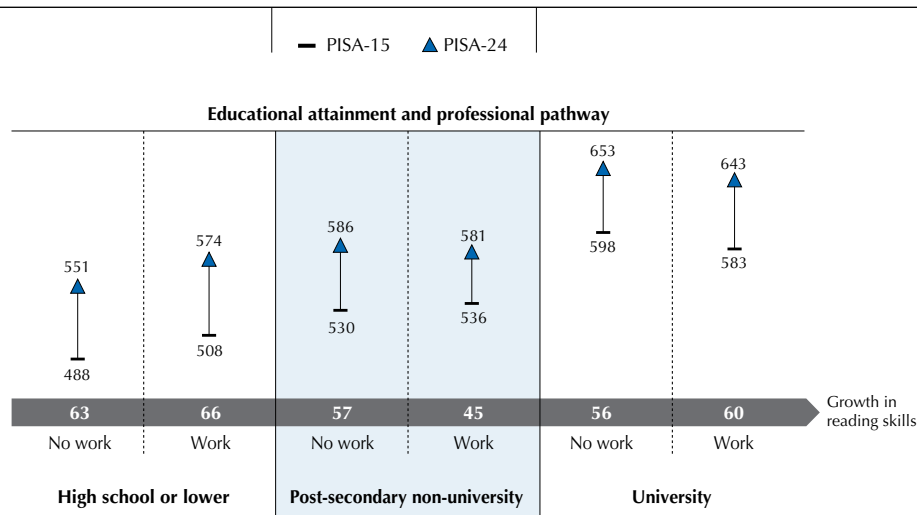
Table 6.1 in Annex B includes all these statistics and shows the proportion of individuals by attainment and pathways in the PISA-24 sample.

EDUCATIONAL ATTAINMENT, WORK EXPERIENCE, AND IMPROVEMENTS IN READING PROFICIENCY

In contrast to educational attainment, work experience appears to play only a minor role in the growth of reading skills after age 15.

Figure 6.3 shows findings related to skills acquisition among youth with substantial work experience, defined as more than two years of experience, and those without substantial work experience, defined as two years or less. To account for any differences related to educational pathways, the analysis was conducted taking into account educational attainment at age 24.

■ Figure 6.3 ■
**Growth in reading skills between the ages of 15 and 24,
by educational attainment and professional pathways at age 24**



Note: Work refers to 3 years or more of professional work experience.

Source: Table 6.1; YITS cycle 5.5: Reading Skills Reassessment.

StatLink <http://dx.doi.org/10.1787/888932576852>

Among university graduates and high school-only graduates there is little to no advantage in terms of growth in reading skills for those with substantial work experience. In contrast, the rate of acquiring reading skills among non-university post-secondary graduates was somewhat higher for those without substantial work experience (57-point increase) than for those with substantial work experience (45-point increase). The faster rate of acquiring reading skills meant that while those without work experience started with slightly lower scores at age 15 (530 versus 536 score points), they ended up with slightly higher scores at age 24 (586 versus 581 score points) than those with work experience.



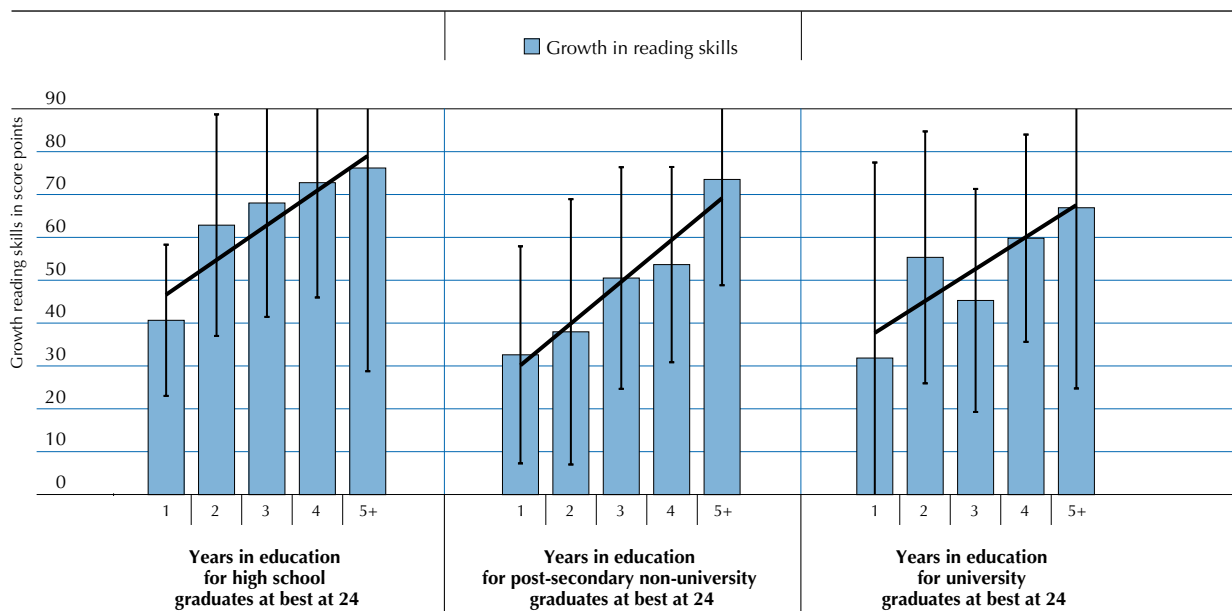
The types of reading-related tasks performed on the job vary across occupations, industries and fields of work. These differences are likely to be an important factor in explaining varying levels of skills acquisition. However, this and other workplace factors could not be rigorously analysed using this data because the number of observations would be too small to draw any meaningful conclusions.

EDUCATIONAL ATTAINMENT, TIME SPENT IN EDUCATION AND THE ACQUISITION OF SKILLS


The rate of improvement in reading proficiency is strongly related to the time spent in formal education. In fact, the length of time spent in formal education appears to be equally important for skills growth across all levels of educational attainment. Figure 6.4 shows the improvement in reading proficiency (displayed as bars) by the amount of time spent in formal education across different levels of educational attainment. The vertical lines at the end of each bar represent an estimate of the precision (the confidence intervals) with which each of these growth rates is measured. Table 6.2 in Annex B provides the detailed results.

For all levels of attainment, the more time spent in formal education, the greater the improvements in reading proficiency. Despite the imprecision with which each of these statistics is measured, a consistent pattern emerges. In Figure 6.4, the solid lines at the bars show the linear relationship between years spent in formal education and skills growth for each level of attainment. The effect size is similar across groups, ranging from 7.5 score points per year in education among university graduates to 9.8 score points per year in education among non-university post-secondary graduates. In other words, the size of the improvement associated with each additional year is approximately the same, regardless of the eventual level of attainment.

■ Figure 6.4 ■
Improvements in reading proficiency, by educational attainment and years spent in formal education



Source: Table 6.2; YITS cycle 5.5: Reading Skills Reassessment.

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This general pattern is similar to the consistent effect of grade progression on skills growth discussed earlier. While there is no reason to expect that learning gains in each year of formal education would be the same, a plausible explanation for the linearity is that the amount of textual material to which students are exposed does not vary relative to their capacity. Regardless of the programme of study, curricula are designed to match the learning material given to students to their capacity to consume and absorb it. Given that initial status varies across these educational pathways, these findings present an optimistic counterpoint to the prevailing hypothesis of inexorable skills decline. They suggest that continuous lifelong learning may be more advantageous to the development of skills than programme-based study.



Beyond these estimates, obtaining a post-secondary degree or spending more time in education is strongly related to faster skills acquisition. The estimated effects of an extra year of education or obtaining a post-secondary degree are both robust and large. Even when compared with other variables, and even after accounting for other factors, such as gender, socio-economic background at age 15 or skills at age 15, staying in post-secondary education longer and obtaining a degree have impacts on skills gains similar to the estimated effects of a whole standard deviation in socio-economic background and close to half a standard deviation in skills levels at age 15. In fact, these are the only two variables related to education- and work-related pathways that seem to have an effect beyond age 15. In contrast, other factors, such as reading enjoyment at age 15, are not related to skills gains after comparing individuals who are similar in all other respects included in these combined models. Table 6.3 provides more detailed results.

LEARNING GAINS AND DEMOGRAPHIC TRANSITIONS

During this crucial transition period between the ages of 15 and 24, there is a lot more happening in the lives of young people than acquiring skills and participating in education or work. Young men and women are also making choices about where they live and their relationships.

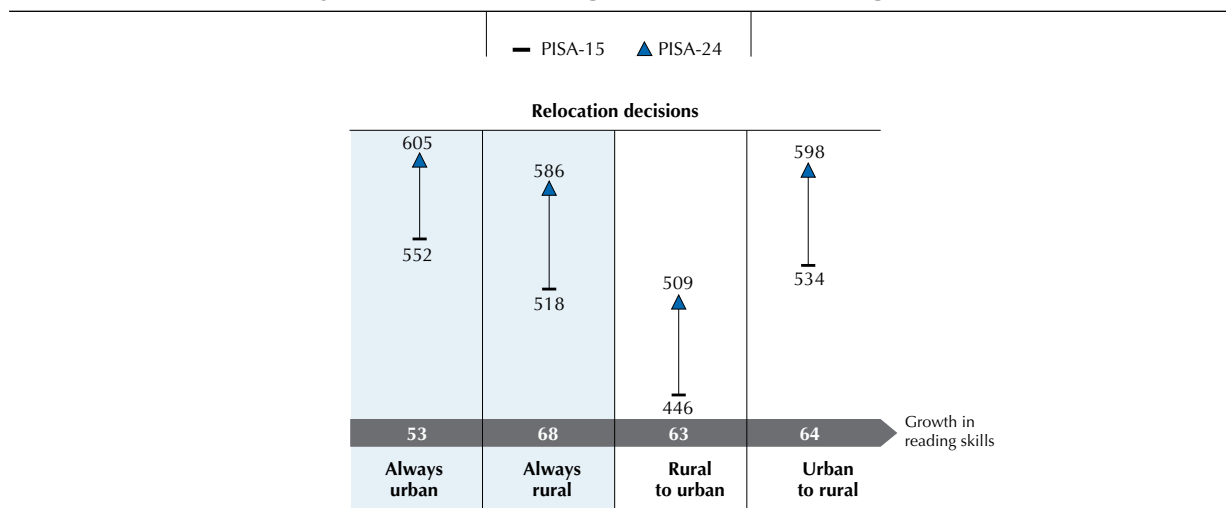
Geographic mobility and growth in reading skills

One of the significant results of the PISA study in Canada is the persistent gap in reading proficiency between rural and urban students. An analysis of the PISA results found that reading skills are not used as much in rural communities as in urban communities, which, in turn, discourages formation of literacy skills in young students living in rural areas (Cartwright and Allen, 2002).

While this may be true for proficiency improvements up to age 15, there appears to be little or no additional impact of the setting of a school – rural or urban – on reading proficiency after the age of 15 (Table 6.4). On the contrary, as Figure 6.5 shows, students in rural areas catch up to their urban counterparts to some extent. Rural youth who migrated to an urban setting and rural youth who stayed in a rural setting improved their reading scores by 63 points and 68 points, respectively, between the ages of 15 and 24. In contrast, young people who were in an urban setting at both ages improved in reading by an average of 53 points. Moreover, urban students who migrated to rural areas improved by 64 points, which contradicts the notion that rural settings are less likely to foster skills development than urban settings.

However, two important points must be considered when interpreting this data. First, urban youth who migrated to rural areas had substantially lower scores than their peers. Second, despite the higher rate of improvement among rural youth after the age of 15, the final scores of 24-year-olds from rural settings still lag behind those of 24-year-olds from urban areas.

■ Figure 6.5 ■
**Growth in reading skills between the ages of 15 and 24,
 by school location at age 15 and location at age 24**



Source: Table 6.4; YITS cycle 5.5: Reading Skills Reassessment.

StatLink <http://dx.doi.org/10.1787/888932576852>



Relationship choices and growth in reading skills

A common transition associated with young adulthood is the transition from dependence on parents to independence and relationships with a life partner. In order to meet the challenges associated with this transition, many young adults make short-term economic decisions, such as accepting a low-paying job to pay for monthly expenses rather than apply their income to an activity that might pay off later on, such as post-secondary education or training. The consequences of these trade-offs may not be universal; what is beneficial to some young adults may be detrimental (or at least less advantageous) to others.

The transition from single status to married or common-law (labeled “other relationship” in Table 6.5) is associated with different patterns of development of reading proficiency. For students who were highly proficient at 15, remaining single is associated with greater proficiency gains after age 15; the reverse is true among low-achievers. A tempting explanation for this pattern is that higher-achieving students may delay lifestyle decisions until they have completed their higher education. However, this does not explain the pattern among low-achievers, which shows greater improvements in reading proficiency among those who have changed their marital status.

There may be several mechanisms producing these relationships. Students with high reading proficiency at age 15 will likely have more opportunities to develop their skills by continuing their formal education. Students with low reading proficiency will likely have had limited post-secondary education options, but may have found more supportive learning environments different than those in which their initial reading scores were attained. Regardless, the principle remains the same: if early reading proficiency is a product of context, then remaining in a nurturing context is likely to sustain improvement, while shifting out of a nurturing context into greater self-determination is likely to impede it. Conversely, greater self-determination appears to be beneficial to those who had initially low scores as a result of their early learning environment.

The association between relationship choices and educational pathways is shown in Table 6.6. There is no systematic difference in the reading proficiency of 15-year-olds entering different educational pathways when compared across each of the transition groups. The average PISA score differences between young people whose highest educational attainment is high school, those who graduated from non-university post-secondary programmes, and university graduates, are about the same, regardless of the relationship choice. Furthermore, the absolute levels of reading proficiency at age 15 are also comparable across demographic groups, indicating there is little to no selection bias in the different transition groups.

The effects of these transitions become evident when looking at improvements in reading skills between the ages of 15 and 24 (see Table 6.6). There is a clear pattern showing that improvement in reading proficiency among young people with post-secondary educational attainment is higher for individuals who are single or live with their parents than for individuals who have changed their relationship or independence status. Conversely, individuals whose highest level of educational attainment is high school and who have changed their relationship status or are living independently from their parents tend to show greater improvements in proficiency.

This evidence confirms the notion that independence and self-determination primarily benefit those individuals who may be disadvantaged during their earlier development. In contrast, assuming that students who pursue higher education had more supportive learning environments when they were young, the smaller improvements in proficiency after the age of 15 imply that removing these individuals from those environments may slow the rate with which they acquire skills.

CHAPTER SUMMARY AND CONCLUSIONS

Research from YITS has already established a link between skills levels at age 15 and participation in post-secondary education, most notably at the university level (OECD, 2010a). Data on proficiency at age 24 show that the initial skills advantage for youth who go on to university persists, even though there is a general move towards skills convergence among all young people by the age of 24.

Despite the persistent performance advantage among university graduates, PISA-24 suggests that what is most important for maintaining and improving reading proficiency is participation in formal education of any type.

Furthermore, work experience is not a substitute for formal education. Spending more time in education is associated with faster rates of acquiring skills; focusing on work for longer periods of time is not. In fact, young people who went directly from compulsory education into the labour market and stayed there for much of the period between PISA-15 and PISA-24 started with lower levels of skills at age 15 and ended up with lower levels of skills at age 24. Their reading performance showed smaller improvements during this period.



This chapter has also shown that the context in which education takes place is also related to skills growth. A change can be beneficial to those who were low-achievers until the age of 15. For those who had greater proficiency, a move away from parents and into other relationships was not beneficial for skills growth. Though early skills disadvantages are persistent, these findings show that changes to the learning environment can have a strong and positive effect on skills acquisition among disadvantaged students.

Second-chance programmes and system flexibility can help young people who did not have the advantages of supportive learning environments in their school years. Educators must find a way to improve the reading proficiencies of those who do not complete compulsory education or graduate with low reading proficiency. While it is unlikely that low-achievers will be able to completely make up for initial disadvantage, this study has identified several mechanisms that could mitigate such disadvantage.

The ideal policy would be to prevent dropping out. Because of the true costs of dropping out of school, efforts to prevent it are more cost-effective than applying corrective policy later. Results show that formal education continues to be the most effective way to improve skills. Another alternative would be to provide second-chance and flexible programmes tailored to students' needs.

Across all levels of educational attainment, improvement in 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 (70 score points or more) that were similar to or greater than 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).

Life choices affect reading proficiency and the rate of learning gains. Continued improvement in reading proficiency after age 15 is not necessarily associated with the same factors that were associated with reading proficiency by age 15. Once young people leave compulsory education, personal factors and choices affect the rate at which they acquire skills, underlining the importance of inculcating learning strategies, mastery and self-regulated learning during school.

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

Independence and self-determination allow individuals who may be disadvantaged during their younger years to find environments that foster greater 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.

Formal education and higher education are key factors affecting reading performance. Participation in some form of post-secondary education is consistently, robustly and substantially related to skills growth between the ages of 15 and 24. For example, differences in reading skills at 15 and 24 are most dramatic between those young people who spent significant time in formal education and those who did not. 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 good reading proficiency by the end of compulsory education.

Completing a post-secondary degree by age 24 is also strongly related with 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.

The choice of pathway to higher education and work had impacts on improvements in reading proficiency. However, greater 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. The lowest PISA scores at age 24 were associated with

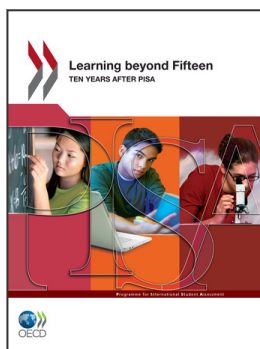


young people who had spent the least amount of time in the education system, and who had spent the most amount of time working. Therefore, compulsory education should equip all students with the reading skills necessary for further learning.

While the most common and direct path through secondary and university-level education appears to maximise reading proficiency gains, not everyone can take that route. System flexibility and second-chance programmes are important mechanisms for increasing learning gains among many youth. 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.

Note

1. This classification is based on highest attainment at age 24. Therefore, some of the individuals classified as those whose highest level of educational attainment is high school will undoubtedly end up with a higher degree; they might even be enrolled in a university or any other post-secondary education programme, but have not completed their degree by the age of 24.



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