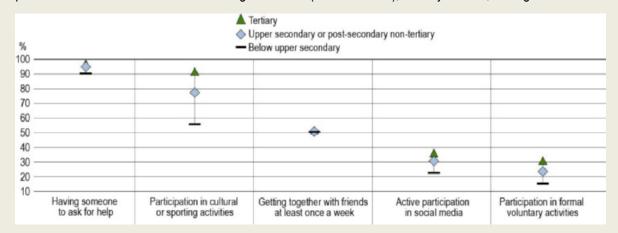
Indicator A6. How are social outcomes related to education?

Highlights

- Higher educational attainment is associated with greater social connectedness. The association is
 particularly striking for participation in cultural or sporting activities where, on average across OECD
 countries participating in the European Union Statistics on Income and Living Conditions (EU-SILC),
 participation for adults with tertiary education is above 90%, compared to less than 60% for those with
 below upper secondary education.
- Work-life balance is an important dimension of well-being. However, in contrast to social connectedness, higher educational attainment does not seem to be associated with a better equilibrium. In about half of countries with data, the difference in work-life balance by educational attainment is not statistically significant.
- Education may be a catalyst that enhances the motivation to read books and conversely frequent reading may raise educational aspirations. On average across OECD countries and economies participating in the Survey of Adult Skills (PIAAC), the percentage of frequent readers increases with each additional educational level of education.

Figure A6.1. Measures of social connections, by educational attainment (2015)

European Union Statistics on Income and Living Conditions (EU-SILC-2015), 25-64 year-olds, average



Note: Refer to the source table and Annex 3 for more information on the questions asked.

Social connection measures are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who responded positively to the question.

Source: OECD (2019), Table A6.1. See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Context

Promoting social cohesion, often reflected in levels of civic and social engagement, is a policy priority in OECD countries. Evidence indicates that in general, levels of civic participation are inadequate, posing a challenge for the maintenance and improvement of our societies. Education may play an important role in ensuring social cohesion by fostering the social and emotional skills that can contribute to enhancing social connections and protecting people from isolation. Adults' social networks comprise their family, friends, colleagues and, more widely, the community they live in. Social interactions are shaped by our social context and our household's socio-economic status, but when they complete further education people expand their social networks, increase their participation in the labour force (see Indicator A3) and ultimately benefit from the advantages of positive social inclusion, such as better health (VicHealth, 2010[1]).

Online social networks have been growing significantly in our societies and an increasing share of our personal interactions take place on line. In 2019, Facebook had 2.38 billion monthly active users representing over 30% of the estimated world population (Statista, 2019_[2]; Worldometers, 2019_[3]). The term "friend" has a different meaning in the virtual world where face-to-face interaction is not a prerequisite for friendship and the digital divide may prevent a share of the population from building this social capital, namely older and less educated adults.

Work-life balance is a highly topical and relevant aspect of social well-being and quality of life. As a contributor to job and family stress, excessive working hours are increasingly recognised as one of the major issues facing many societies today. Work-life balance is a core dimension of OECD's framework for measuring quality of life in the Better Life Index (OECD, 2013[4]), and is part of the framework adopted for measuring education and social outcomes in *Education at a Glance* (OECD, 2017_[5]). It is therefore important to assess how educational attainment is associated with this social outcome which is a key determinant of well-being and life satisfaction.

Other findings

- Social connection measures related to personal ties, such as having someone to ask for help and getting together with friends, show a smaller gap by educational attainment than participation in cultural and sporting activities, social media, and formal volunteering.
- In most countries participating in the Survey of Adult Skills (PIAAC), there is a positive association between the level of educational attainment and the ability to work more flexible hours.
- Reading books infrequently is not always associated with a low literacy level. For example, in Japan the frequency of book reading is low while literacy proficiency is the highest among countries and economies participating in the Survey of Adult Skills (PIAAC).
- Data from the Survey of Adults Skills (PIAAC) show that educational attainment can affect job satisfaction through indirect effects. Even if in some cases educational attainment seems to have no direct effect on job satisfaction, mediating variables such as job complexity, income and autonomy at work may capture these indirect effects.

Note

The differences by educational attainment displayed in this indicator do not account for socio-economic status and other moderating or mediating factors. The educational attainment gradient should therefore not be interpreted as the effect of education on the social outcome measured.

Analysis

Social connections, by educational attainment

Participation in various social activities across OECD countries is higher on average for 25-64 year-olds who attained tertiary education than for their lower-educated peers. However, the advantage in social connectedness for individuals with higher education depends heavily on the type of activity measured. On average across OECD countries participating in EU-SILC, participation in cultural and sporting activities, in social media, and in formal volunteering is highly related to educational attainment. Over 90% of tertiary-educated adults participated in cultural and sporting activities in the 12 months prior to the survey while less than 60% of adults with below upper secondary education did so. This is the largest gap by educational attainment across the different domains of social connection measured (Figure A6.1).

On average across OECD countries taking part in EU-SILC, almost 80% of adults reported participation in sporting or cultural activities in the previous 12 months, with participation increasing with educational attainment in all countries. In contrast, less than one-third of adults reported daily active participation in social media, and one-quarter reported participating in formal voluntary activities in the 12 months prior to the survey. While there is still a clear tendency for more participation in formal volunteering and social media among those with higher levels of educational attainment, the percentage-point differences between attainment levels are smaller, which may be partly explained by the generally lower participation in these activities. In contrast, measures related to personal ties show very little difference by educational attainment; adults of all education levels were almost equally likely to get together with friends on a weekly basis. Similarly, the range across educational levels in the proportion of adults who have someone to ask for help (moral, material or financial) is less than 10 percentage points on average (Figure A6.1 and Table A6.1).

Participation in any sporting or cultural activities in the last 12 months, by educational attainment

The pattern emerging from OECD countries participating in EU-SILC is that tertiary-educated 25-64 year-olds are more likely to engage in sporting or cultural activities than their peers with lower educational attainment. On average, roughly 90% of those with a tertiary education participated in at least one sporting or cultural activity in the previous 12 months prior to the survey; the highest shares (98% and over) can be found in Finland, Iceland, Norway and Switzerland. In contrast, less than 80% of tertiary-educated adults in Greece and Italy participated in such activities. The participation rates of tertiary-educated adults in Greece and Italy are the same as or lower than participation rates for adults with below upper secondary education in Denmark, Iceland, Netherlands, Norway and Sweden. The gap in sporting or cultural engagement between those with a tertiary education and those with an upper secondary or post-secondary non-tertiary education tends to widen when fewer tertiary-educated adults participated in such activities. The difference reaches 36 percentage points in Poland, 33 in Hungary and 29 in Lithuania. Those without an upper secondary qualification are even less likely to participate, with rates ranging from 89% in Iceland to 21% in Hungary. Iceland has the least variation in participation by educational attainment, where the difference in participation between those with below upper secondary education and those with tertiary education is only 9 percentage points, compared to a gap of 36 percentage points on average (Figure A6.2).

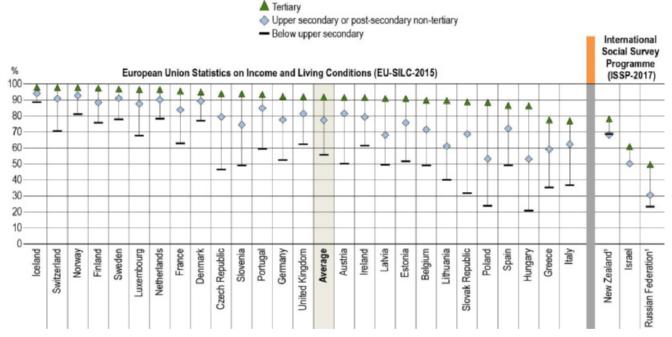
Getting together with friends at least once a week, by educational attainment

On average across OECD countries participating in EU-SILC, 25-64 year-olds with a tertiary education are more likely to meet friends on a weekly basis than adults with a lower educational attainment, but the average difference compared with those with an upper secondary or post-secondary non-tertiary education is only around 1 percentage point. The gap between tertiary-educated adults and those who have not completed upper secondary education is similar. The Netherlands and the Slovak Republic were the two countries where tertiary-educated adults were more likely to get together with friends at least once a week than those with an upper secondary or post-secondary non-tertiary education, both with a difference of about 7 percentage points.

Elsewhere, the gap was below 5 percentage points except in Finland where the situation is reversed: 65% of adults with upper secondary or post-secondary non-tertiary education reported getting together with friends at least once a week compared to only 55% of tertiary-educated adults (Table A6.1).

Figure A6.2. Participation in cultural or sporting activities in the last 12 months, by educational attainment (2015 or 2017)

European Union Statistics on Income and Living Conditions (EU-SILC-2015) and International Social Survey Programme (ISSP-2017), 25-64 year-olds



Note: Refer to the source table and Annex 3 for more information on the questions asked in the two surveys.

Countries are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who participated in any cultural or sporting activities at least once in the last 12 months.

Source: OECD (2019), Table A6.1. See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977372

Participation in formal voluntary activities, by educational attainment

Greater educational attainment is generally associated with participation in volunteering activities. Across OECD countries participating in EU-SILC, however, participation in formal voluntary activities varies widely even for people with the same educational level. The shares of tertiary-educated adults who volunteer span from 13% in Hungary and Latvia to 59% in Norway. Shares fall a little among adults with an upper secondary or post-secondary non-tertiary education, ranging from 5% in Hungary to 53% in Norway, while among adults without upper secondary education the shares range from 3% in Hungary to 33% in Denmark and the Netherlands. Volunteering thus appears more widespread in some countries than in others, but the percentagepoint difference between the tertiary-educated and upper secondary-educated adults averaged 7 percentage points across OECD countries, similar to the 9 percentage-point gap on average between 25-64 year-olds who completed upper secondary education and those who did not (Table A6.1).

The countries showing the largest participation gap between tertiary-educated adults and adults with upper secondary or post-secondary non-tertiary qualification are Lithuania and the United Kingdom (15 percentage

^{1.} The distribution of educational attainment varies by 10-15 percentage points compared to data published in Indicator A1.

points). In comparison, the difference between adults with upper secondary or post-secondary non-tertiary and those without upper secondary education is over 15 percentage points in Austria, Luxembourg, Norway and Switzerland (Table A6.1).

Having someone to ask for help, by educational attainment

This measure shows the least variation across educational levels. Regardless of their attainment, the great majority of people in the countries surveyed can rely on a social network of some kind, as they mostly have someone to ask for help. On average among OECD countries participating in EU-SILC, 97% of tertiary-educated adults reported having someone to ask for help, falling to 95% among adults with upper secondary or post-secondary non-tertiary education and to 90% among those who did not complete upper secondary education. Generally, countries with a large percentage of tertiary-educated adults who have someone to ask for help are also those where the shares for less highly educated adults are also relatively high. In the Czech Republic, Finland, Norway and the Slovak Republic almost all tertiary-educated adults have someone to ask for help and the difference for adults with upper secondary or post-secondary non-tertiary education amounts to just 1 percentage point (Table A6.1).

The largest variation in access to someone to ask for help is found between those who have an upper secondary or post-secondary non-tertiary education and those who do not. The difference amounts to at least 8 percentage points in Belgium, Luxembourg, the Netherlands and Switzerland (Table A6.1).

Participation in social media, by educational attainment

On average across OECD countries participating in EU-SILC, 23% of adults with below upper secondary education reported actively using social media on a daily basis. The share rises to 31% among adults with upper secondary or post-secondary non-tertiary education and to 36% among tertiary-educated adults. The greatest gap between adults with below upper secondary education and adults with tertiary education is seen in the Slovak Republic where 8% of adults with below upper secondary education reported daily active participation in social media, rising to 47% among tertiary-educated adults. A similar pattern is observed in Greece where the gap is also over 30 percentage points. In contrast, in Norway there is almost no difference by educational attainment, with 48% of adults with below upper secondary education reporting they actively participate in social media on a daily basis. This is the highest share for this level of educational attainment across OECD countries participating in EU-SILC and it is almost the same as the share among tertiary-educated adults in Norway (49%) (Table A6.1).

Work-life balance, by educational attainment

Existing data and research suggest a possible negative association between educational attainment and work-life balance, one that is moderated to a significant extent by other work-related, family-related or individual characteristics (Statistics Canada, 2016_[6]; Konishi and Dufour, 2016_[7]; Tausig and Fenwick, 2001_[8]). Work-life balance is not traditionally included in school curricula which could explain why higher educational attainment is not positively associated with this important social outcome. Higher educational attainment leads to higher employment rates and higher earnings and is often associated with better health. It is also associated with greater social connections, but there does not seem to be a strong link between educational attainment and the ability to find a better equilibrium between their working life and their family life.

This section uses data from the European Quality of Life Survey (EQLS) and the International Social Survey Programme (ISSP) to assess the difference by educational attainment in the level to which people report that their work negatively interferes with their family life, and vice versa. It uses data from the Survey of Adult Skills (PIAAC) to assess job flexibility and the mean number of hours worked per week in relation to educational attainment. These two elements are not direct measures of people's satisfaction with their work-life balance, but they are important indicators to measure work intensity and how much time people have available outside work.

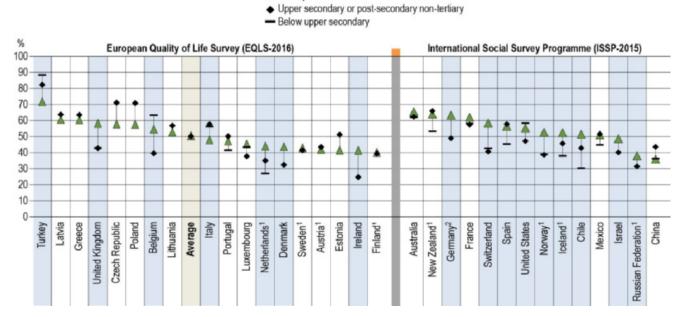
Work interferes with family life, by educational attainment

The results from the EQLS and ISSP show that the relationship between educational attainment and the impact of work on family life goes in different directions in different OECD member and partner countries. In Chile, Iceland and the Netherlands, the percentage of adults who report that their job negatively affects their family life rises with each level of educational attainment. In contrast, in Turkey higher educational attainment is associated with a smaller share of adults reporting a negative impact of work on family life. Furthermore, in about half of the countries with data, there is no statistically significant difference between any level of educational attainment measured. On average across the OECD countries that participated in the EQLS, 50% of adults with upper secondary or post-secondary non-tertiary education reported that over the 12 months preceding the survey it has been difficult for them to fulfil their family responsibilities because of the amount of time they spend at work, compared with 51% of those with tertiary education (Figure A6.3).

Figure A6.3. Job has a negative impact on family life, by educational attainment (2015 or 2016)

▲ Tertiary

European Quality of Life Survey (EQLS-2016) and International Social Survey Programme (ISSP-2015), percentage of employed 25-64 year-olds who reported that their job negatively impacted their family life in the last 12 months



Note: Refer to the source table and Annex 3 for more information on the questions asked in the two surveys. Blue zone denotes statistically significant differences between some or all educational attainment levels.

- 1. The distribution of educational attainment varies by 10-15 percentage points compared to data published in Indicator A1.
- 2. Year of reference 2016.

Countries are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who reported that their job negatively impacted their family life in the last 12 months.

Source: OECD (2019), Table A6.2a. See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977391

As Figure A6.3 shows, the variation between countries for the same level of educational attainment are generally more significant than the variation between levels of attainment within countries. This shows that, regardless of educational attainment, there is a wide variation across OECD member and partner countries in the share of adults who report that their job negatively affects their family life. For example, in Turkey, 88% of adults with below upper secondary education reported that it has been difficult for them to fulfil their family responsibilities

because of the amount of time they spend at work while the share for similarly educated adults in the Netherlands is 27%. By comparison, the largest difference by educational attainment within one country is in Belgium where the gap reaches 23 percentage points between adults with below upper secondary education and adults with upper secondary or post-secondary non-tertiary education (Figure A6.3).

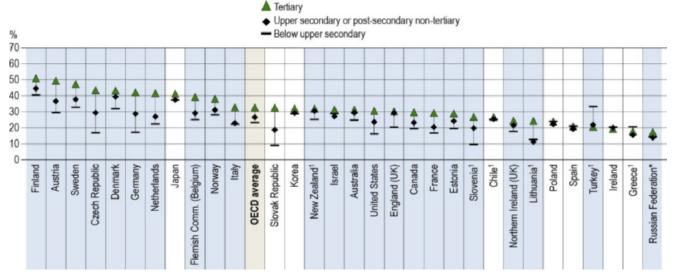
Family life interferes with work, by educational attainment

Adults were less likely to report that their family life negatively affected their job than the other way around. Less than half of adults reported that their family life interfered with their job in all OECD member and partner countries, with a few notable exceptions. For example, in Turkey, 82% of adults with below upper secondary education reported that, during the 12 months preceding the survey, they had several times experienced difficulty in concentrating at work because of their family responsibilities. The share is lower among those who had completed tertiary education (63%) but still higher than the share in any other OECD member or partner countries that participated in the EQLS or ISSP (Table A6.2a).

The relationship between educational attainment and the share of adults reporting that their family life negatively affects their job also goes in different directions across both OECD member and partner countries. The gap by educational attainment is generally low; in more than half of the OECD countries with available data, the gap between any level of educational attainment is 8 percentage points or less (Table A6.2a).

Figure A6.4. Job flexibility, by educational attainment (2012 or 2015)

Survey of Adult Skills (PIAAC), percentage of 25-64 year-olds who reported having a high or very high degree of flexibility over working hours in their main job



Note: Blue zone denotes statistically significant differences between some or all educational attainment levels.

Countries and economies are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who reported having a high or very high degree of flexibility over working hours in their main job.

Source: OECD (2019), Table A6.2b. See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

^{1.} Reference year is 2015; for all other countries and economies the reference year is 2012.

^{*} See note on data for the Russian Federation in the Source section.

Job flexibility and intensity, by educational attainment

One area related to work-life balance where educational attainment seems to have a greater impact and in a more consistent direction, is job flexibility. Data from the Survey of Adult Skills (PIAAC) show that on average across OECD countries and economies, 23% of adults with below upper secondary education reported that they have a high or very high degree of flexibility over working hours in their main job. The proportion rises to 27% for those with upper secondary or post-secondary non-tertiary and 33% for those with tertiary education. The gap is particularly large in Austria, the Czech Republic, Germany, the Netherlands, the Slovak Republic and Slovenia where the difference across the different levels of educational attainment is over 15 percentage points (Figure A6.4).

Job intensity is another area that is related to work-life balance. This variable is also covered by the Survey of Adult Skills (PIAAC) which asks adults to report the number of hours per week they usually work in their main job. The average across OECD countries and economies ranges from 38 hours among adults with below upper secondary education to 39 hours among adults with upper secondary or post-secondary non-tertiary education and among adults with tertiary education, but this again masks results going in opposite directions. For example, in Greece those with a tertiary qualification reported working 40 hours per week while those who did not complete upper secondary education reported working 44 hours per week. In contrast, in Austria and Germany, those with a tertiary qualification reported working 40 hours per week and those who did not complete upper secondary education reported working 35 hours per week or less (Table A6.2b).

Box A6.1. Frequency of reading books and educational attainment (2012 or 2015)

There is a robust body of evidence that activities requiring focused attention, such as reading books, are declining, while activities that encourage on multitasking, such as instant messaging, are increasing (Levine, Waite and Bowman, 2007[9]). Poor academic performance can be predicted by higher levels of smartphone use (Beland and Murphy, 2016[10]), media multitasking (Junco, 2012[11]; Levine, Waite and Bowman, 2007[9]), social media networking (Junco, 2012[12]) and general electronic media usage (Jacobsen and Forste, 2011[13]; Junco and Cotten, 2012[14]). On the other hand, the evidence indicates a strong relationship between regularly reading books and higher literacy skills (OECD, 2010[15]).

Reading is an important gateway to personal development, and to social, economic and civic life (Holden, 2004[16]). The main outcomes of "reading for pleasure or empowerment" reported by adults are enjoyment, relaxation, empathy, knowledge, relatedness, community cohesion and increasing social capital (The Reading Agency, 2015[17]).

Although the association between levels of education and reading books in everyday life is less established, especially in international comparisons, the data collected by the Survey of Adult Skills (PIAAC) show its existence and the strength of this association.

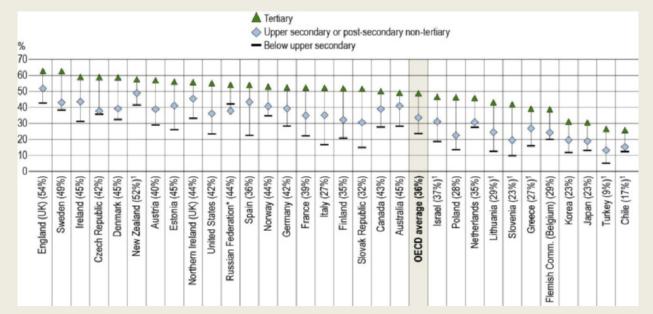
On average across participating OECD countries and economies, the percentage of frequent readers increases with each additional educational level of education. Chile, the Czech Republic, the Netherlands, Sweden and the Russian Federation are the only countries where no statistically significant differences were found in the percentage of frequent readers between adults with below upper secondary education and adults with upper secondary or post-secondary non-tertiary education. The difference between adults with upper secondary or post-secondary non-tertiary education and adults with tertiary education is generally larger and it is statistically significant in all participating countries and economies (Figure A6.a).

In most countries and economies, the relationship between frequency of reading and educational attainment also remains strong in the employed population. Gender, age and literacy proficiency are among the important factors associated with frequency of reading. Women read more than men in all countries and economies and across all attainment levels. The relationship between age and frequency of reading differs across countries

and economies but the general trend shows a higher share of frequent readers among 45-64 year-olds than among 25-44 year-olds (Table A6.a, available on line).

Figure A6.a. Adults who read books at least once a week, by educational attainment (2012 or 2015)

Survey of Adult Skills (PIAAC), 25-64 year-old non-students



Note: The value in parentheses represents the total percentage of adults who read books at least once a week, regardless of educational attainment. All countries and economies have statistically significant differences between some or all educational attainment levels.

Countries and economies are ranked in descending order of the percentage of adults with tertiary education who read books in everyday life at least once a week

Source: OECD (2019), Table A6.a, available on line. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977429

Figure A6.b shows that the largest difference in literacy proficiency is between those who do not read books in everyday life and those who do (at any frequency). On average across OECD countries and economies, adults who reported never reading books in everyday life have a mean literacy score of 243. This score rises to 269 for those who reported a frequency of less than once a month, 273 for those who reported a frequency of less than once a week but at least once a month, and 277 for those who reported reading books in everyday life at least once a week (Figure A6.b).

The evidence shows different associations in different countries and economies between frequency of reading books and literacy proficiency. For example, in Chile and Turkey both variables are low. However, in Japan, the frequency of book reading is low while literacy proficiency is the highest among participating countries and economies. In contrast, England (United Kingdom) and New Zealand have the highest frequency of book reading but literacy proficiency scores below that of Japan (Figure A6.a and Figure A6.b). Some countries have policies to promote reading, for example, England (United Kingdom) and New Zealand have active organisations that promote reading. Because of both low frequency of reading and low literacy proficiency, Chile recently implemented a national programme to promote reading from the start of primary education (I Read First programme).

^{1.} Reference year is 2015; for all other countries and economies the reference year is 2012.

^{*} See note on data for the Russian Federation in the Source section.

Survey of Adult Skills (PIAAC), 25-64 year-old non-students At least once a week O Less than once a week but at least once a month Less than once a month Mean score - Never 320 -310 300 ٠ 290 280 270 260 250 240 230 220 210 200 190 180 170 Australia Austria Poland OECD average United States taly Slovak Republic Comm. (Belgium) Netherlands Czech Republic Zealand¹ Northern Ireland (UK) Russian Federation* England (UK) urkey New

Figure A6.b. Mean literacy proficiency score, by frequency of reading books (2012 or 2015)

Note: The difference between the mean literacy proficiency score for adults who report never reading books and those who report reading books less than once a month is statistically significant in all countries and economies, except in the Russian Federation.

Flemish

Countries and economies are ranked in descending order of the mean literacy score of those who reported that the frequency of reading books in everyday life is "Never".

Source: OECD (2019). Table A6.b, available on line. See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977448

To conclude, those who are more educated tend to read frequently but this does not imply a causal relationship between educational attainment and frequent reading in everyday life. However, what can be assumed is a mutually reinforcing relationship between reading performance and the frequency of reading (OECD, 2010_[15]) and consequently a mutually reinforcing relationship between frequency of reading and education. Reading books in everyday life for pleasure or empowerment is a matter of choice, and education may be a catalyst that enhances the motivation to read while, conversely, frequent reading may raise educational aspirations.

^{1.} Reference year is 2015; for all other countries and economies the reference year is 2012

^{*} See note on data for the Russian Federation in the Source section.

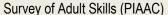
Box A6.2. Job satisfaction and structural equation modelling, by educational attainment (2012 or 2015)

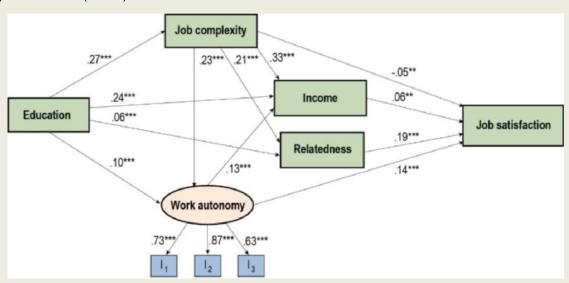
Analysing the indirect impact of education

The causal effect of education on social outcomes is often analysed using regression analyses where education is a predictor and the coefficient represents its impact on an outcome. This approach may not take into account that education can also affect outcomes through mediating factors. With regards to job satisfaction for instance, where previous research on the direct effects of education has provided inconclusive results, estimating indirect effects may provide additional insight (Fabra and Camisón, 2009[18]).

The possible relevance of indirect relations between education and job satisfaction can be illustrated through the development of a structural equation model, using data from the Survey of Adult Skills (PIAAC). In this model, it is assumed that there is no direct effect of educational attainment on job satisfaction, but education may have an indirect effect by affecting working and employment conditions, which in turn are related to job satisfaction. Variables representing these conditions are job complexity, income, the frequency of exchanges between colleagues (relatedness) and work autonomy. It is also assumed that single predictors of job satisfaction are inter-related. Figure A6.c shows the resulting path diagram of the indirect effects of education on job satisfaction, using New Zealand as an example. Arrows represent the effects of each variable. The arrow numbers specify the standardised coefficients of these effects (Figure A6.c).

Figure A6.c. Model with indirect effects of education on job satisfaction for New Zealand (2015)





Note: For work autonomy three indicators were available, thus it was measured as a latent variable indicated by the freedom to determine the sequence of task (I1), of the way it can be done (I2) and the freedom to determine the speed (I3). Education was measured by ISCED levels, job complexity by frequency of complex problems at work, relatedness by frequency of learning exchange between staff, and income by percentile ranks. The effects are standardised. *** indicates p=0.001, ** indicates p=0.05.

Source: OECD calculations using data from the Survey of Adult Skills (PIAAC). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Although there is no arrow from education to job satisfaction (no direct effect), it can be seen that there are various indirect paths from education to job satisfaction via different variables. Among these variables, different paths from education to job satisfaction are possible, with effects of different magnitude (Figure A6.c).

The consideration of indirect effects helps to better understand the pathways through which a variety of working and employment conditions can influence job satisfaction. For example, in the model for New Zealand, education has a greater influence on job complexity than on work autonomy, but work autonomy in turn has a positive direct effect on job satisfaction, while job complexity does not. However, the analysis of indirect effects in the model shows that in fact job complexity does have an indirect effect on work satisfaction through its effect on income, work autonomy and relatedness (Figure A6.c).

The structural equation model allows the total effects to be calculated by considering all the direct and indirect effects. Education and job satisfaction can therefore be related by taking into account the indirect effects. Table A6.c displays the resulting total effects of the model variables in Korea, New Zealand and the Slovak Republic. For these countries, education indirectly affects job satisfaction. However, the interrelations of the variables can differ in different countries, highlighting the importance of taking country contexts into account when producing or reviewing evidence for making policy (Table A6.c).

Table A6.c. Total effects of variables on job satisfaction (2012 or 2015)

Survey of Adult Skills (PIAAC)

Variables	Slovak Republic	Korea	New Zealand
Income	0.07***	0.11***	0.06**
Job complexity	0.09***	0.07***	0.04**
Relatedness	0.15***	0.11***	0.19***
Work autonomy	0.21***	0.15***	0.15***
Education	0.11***	0.10***	0.05***

Note: There is no variance homogeneity of variables over countries. Thus standardised effects are not directly comparable over countries. *** indicates p=0.001, ** indicates p=0.05.

Source: OECD calculations using data from the Survey of Adult Skills (PIAAC). See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

The results in Table A6.c show that education has a positive total effect on job satisfaction overall in the countries examined. Considering indirect effects allows more options for modelling the relationships between variables and can lead to different results than when only direct effects are analysed. The results show it is important to determine precisely the impact of variables and consider indirect effects when developing related policy measures, to avoid drawing incorrect conclusions about causal inter-relations.

Definitions

Age groups: Adults refer to 25-64 year-olds.

Educational attainment refers to the highest level of education reached by a person.

Levels of education: See the Reader's Guide at the beginning of this publication for a presentation of all ISCED 2011 levels.

The previous classification, ISCED-97, is used for the analyses based on the Survey of Adult Skills (PIAAC): Below upper secondary corresponds to ISCED-97 levels 0, 1, 2 and 3C short programmes; upper secondary **or post-secondary non-tertiary** corresponds to ISCED-97 levels 3A, 3B, 3C long programmes, and level 4; and **tertiary** corresponds to ISCED-97 levels 5A, 5B and 6.

Methodology

For the 2016 European Quality of Life Survey (EQLS) and the 2015 and 2017 International Social Survey Programme (ISSP), percentages of adults for each educational attainment level were compared at a country level with their respective percentages in Indicator A1. Following consultations with countries, data on educational attainment were recoded to improve compatibility with the levels in Indicator A1 for the following surveys and countries:

- ISSP 2017: Israel and the Russian Federation.
- ISSP 2015: Chile, France, Israel, the Russian Federation and the United States.

See Annex 3 (https://doi.org/10.1787/f8d7880d-en) for more information on the discrepancies in the survey sample distribution.

Source

Data from the EU-SILC 2015 module on social and cultural participation and material deprivation provided evidence on social connections for European OECD member countries.

Data from ISSP 2017 provided evidence on social connections for non-European OECD member and partner countries (ISSP Research Group, 2019[19]).

Data from EQLS provided evidence on work-life balance for European OECD member countries (Eurofound, 2018_[20]).

Data from ISSP 2015 provided evidence on work-life balance for European OECD member countries and non-European OECD member and partner countries (ISSP Research Group, 2017_[21]).

Data from the OECD Programme for the International Assessment of Adult Competencies (the Survey of Adult Skills [PIAAC]) provided evidence on job intensity and flexibility, frequency of book reading by educational attainment, and job satisfaction by educational attainment.

Note regarding data from the Russian Federation in the Survey of Adult Skills (PIAAC)

The sample for the Russian Federation does not include the population of the Moscow municipal area. The data published, therefore, do not represent the entire resident population aged 16-65 in the Russian Federation but rather the population of the Russian Federation excluding the population residing in the Moscow municipal area. More detailed information regarding the data from the Russian Federation as well as that of other countries can be found in the *Technical Report of the Survey of Adult Skills*, Second Edition (OECD, 2016_[22]).

Note regarding data from Israel

The statistical data for Israel are supplied by and are under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

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Indicator A6 Tables

Table A6.1	Social connections, by educational attainment (2015 or 2017)
Table A6.2a	Work-life balance, by educational attainment (2015 or 2016)
Table A6.2b	Job intensity and flexibility, by educational attainment (2012 or 2015)
WEB Table A6.a	Adults who read books at least once a week, by labour-force status, gender, age and educational attainment (2012 or 2015)
WEB Table A6.b	Mean literacy proficiency score, by educational attainment and frequency of reading books (2012 or 2015)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

Table A6.1. Social connections, by educational attainment (2015 or 2017)

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Note: Additional columns showing data not disaggregated by level of educational attainment are available for consultation on line along with standard errors for data from the International Social Survey Programme (ISSP-2017) (see StatLink below).

Source: OECD (2019). See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

^{1.} The distribution of educational attainment varies by 10-15 percentage points compared to data published in Indicator A1.

Table A6.2a. Work-life balance, by educational attainment (2015 or 2016)

European Quality of Life Survey (EQLS-2016) and International Social Survey Programme (ISSP-2015), employed 25-64 year-olds

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Countries			40		40	(0.4)	40	10.41				40.70		40.00		
lustria ¹	¢	C	43	(3.4)	42	(3.4)	43	(2.4)	C	¢	22	(2.7)	22	(2.6)	22	(1.
elgium	63	(7.4)	40	(4.2)	55	(4.3)	50	(2.8)	30	(6.9)	23	(3.6)	28	(3.6)	26	(2.
zech Republic	С	С	71	(2.8)	58	(6.6)	68	(2.7)	C	C	45	(3.3)	39	(6.5)	44	(2.
enmark	c	С	32	(3.4)	44	(3.7)	39	(2.5)	c	c	25	(3.3)	24	(3.4)	24	(2.
tonia	C	C	51	(3.5)	42	(4.3)	49	(2.7)	C	C	26	(3.1)	25	(3.8)	26	(2.
nland ¹	С	С	39	(5.2)	40	(3.6)	39	(2.8)	С	C	22	(4.4)	26	(3.3)	25	(2.
eece	С	C	64	(3.6)	60	(4.9)	64	(2.7)	C	C	41	(3.6)	42	(5.0)	44	(2
land	c	c	25	(4.1)	41	(4.1)	35	(2.8)	c	c	17	(3.3)	31	(4.1)	26	(2.
ly	56	(4.3)	58	(2.7)	48	(3.8)	55	(2.0)	35	(4.2)	36	(2.6)	25	(3.1)	33	(1)
tvia	C	(4.0)	64	(4.1)	61	(4.8)	62	(3.0)	C	C	43	(4.4)	38	(4.8)	42	(3.
nuania	C	C	57	(5.0)	53	(4.4)	55	(3.2)	C	C	36	(5.0)	35	(4.2)	35	(3.
cembourg	43	(5.1)	38	(4.0)	45	(3.7)	43	(2.4)	26	(4.9)	21	(3.3)	20	(3.0)	22	(2.
	27		35	(4.0)	44		39		13		16		20		18	
herlands ¹		(5.7)				(3.4)		(2.4)		(4.3)		(3.3)		(2.7)		(1.
and	0	C (4.2)	71	(3.3)	58	(6.0)	67	(2.9)	0	C (4.4)	48	(3.6)	43	(6.1)	47	(3.
tugal	41	(4.3)	50	(4.6)	47	(5.0)	46	(2.6)	29	(4.1)	37	(4.5)	36	(4.8)	34	(2.
eden¹	С	С	41	(3.9)	43	(3.1)	42	(2.4)	C	C	21	(3.3)	23	(2.6)	22	(2.
key	88	(2.8)	82	(3.3)	72	(4.3)	81	(2.0)	82	(3.7)	78	(3.5)	63	(4.9)	75	(2.
ed Kingdom	43	(5.0)	43	(3.9)	58	(3.7)	49	(2.4)	34	(4.9)	26	(3.5)	30	(3.5)	29	(2.
age	m	m	50	(0.9)	51	(1.0)	51	(0.6)	m	m	32	(0.9)	32	(1.0)	33	(0.
						Interna	tional So	cial Surve	y Progra	mme (ISS	P-2015)					
	Ad			eling that t amily life (a				fere	Adults	who rep	orted feelin	ng that the eir job (alw			mily life ir	nterfere
		upper	Upper so or post-s	econdary				otal		upper	Upper se or post-s	econdary			7.	otal
	%	ndary S.E.	%	ertiary S.E.	%	S.E.	%	S.E.	%	ndary S.E.	%	ertiary S.E.	%	S.E.	%	S.E
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(10
ountries	(1)	(2)	(0)	(4)	19)	(0)	177	(0)	(3)	(10)	(11)	(12)	(10)	(1.7)	(10)	111
stralia	62	(6.6)	62	(4.4)	66	(3.1)	63	(2.6)	26	(6.3)	36	(4.4)	39	(3.2)	35	(2.
ile	30	(5.4)	43	(4.9)	51	(5.8)	43	(3.1)	18	(3.7)	23	(3.6)	38	(5.9)	27	(2.
ince	58	(4.8)	57	(3.7)	62	(2.8)	60	(2.1)	18	(4.2)	25	(3.2)	28	(2.6)	25	(1)
rmany ²	C		49	(2.2)	63	(2.7)	54	(1.7)	C		24	(1.9)	31	(2.6)	27	(1.5
	38	(5.1)			52		48			C (4.3)			43		36	
land1		(5.1)	46	(3.7)		(2.6)		(1.9)	22	(4.3)	29	(3.4)		(2.6)		(1.9
ael	C	(2.0)	40	(3.2)	49	(2.6)	44	(1.9)	C	(2.0)	35	(3.1)	43	(2.6)	39	(1.
xico	45	(3.0)	51	(4.3)	51	(5.1)	48	(2.2)	35	(2.8)	36	(4.1)	32	(4.8)	35	(2.
w Zealand¹	53	(6.6)	66	(4.9)	64	(4.0)	60	(2.5)	30	(6.6)	32	(5.0)	44	(4.2)	38	(2.
	39	(3.7)	39	(3.4)	53	(2.1)	47	(1.6)	16	(2.9)	19	(2.9)	28	(1.9)	24	(1,
rway¹		(2.8)	58	(3.7)	56	(3.0)	52	(1.8)	22	(2.3)	32	(3.5)	34	(2.9)	29	(1.
rway¹	45	(6.0)			E.O.	12 45	47	(1.9)	31	(4.8)	36	(2.6)	42	/2 41	38	(1.
orway¹ pain	45 43	(5.2)	41	(2.6)	58	(3.1)	401	(1.0)	31	(4.0)	00	(2.0)	-42.	(3.1)	30	112
orway¹ oain vitzerland			41 47	(2.6)	55	(2.9)	52	(2.0)	41	(7.3)	34	(2.7)	35	(2.7)	35	
orway¹ pain witzerland nited States	43	(5.2)														(1.9

^{1.} The distribution of educational attainment varies by 10-15 percentage points compared to data published in Indicator A1.

Source: OECD (2019). See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en). Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

^{2.} Year of reference 2016.

Table A6.2b. Job intensity and flexibility, by educational attainment (2012 or 2015) Survey of Adult Skills (PIAAC), employed 25-64 year-olds

	M	lean num	ber of hou en	rs worked p nployed 25			Percentage of employed 25-64 year-olds who report having a high or very high flexibility of working hours in their main job									
		upper	Upper secondary or post-secondary non-tertiary		Tertiary		Total		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		To	otal
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Countries	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Countries	20	10.5	20	10.45	20	10.00	20	10.00	ne.	/4 Th	200	14.0%	24	44.00	20	/0.7
Australia	36	(0.5)	39	(0.4)	38	(0.3)	38	(0.2)	25	(1.7)	29	(1.6)	31	(1.2)	29	(0.7
Austria	35 40	(0.6)	38 38	(0.3)	40	(0.4)	38 39	(0.2)	30 19	(2.7)	37	(1.3)	49	(1.7)	38 27	(1.0
Canada Chile ¹		(0.6)		(0.2)	39	(0.2)	_	(0.1)		(1.7)	23	(1.1)	30	(0.9)		(0.7
	39	(0.8)	39	(0.7)	39	(0.6)	39	(0.4)	25	(2.5)	26	(2.4)	27	(2.1)	26	(1.4
Czech Republic	40	(0.9)	43	(0.3)	43	(0.4)	43	(0.2)	17	(4.5)	29	(1.6)	43	(3.6)	32	(1.4
Denmark	35	(0.5)	38	(0.3)	38	(0.2)	37	(0.2)	32	(2.5)	39	(1.3)	43	(1.2)	40	(0.7
Estonia	40	(0.5)	40	(0.2)	39	(0.2)	40	(0.1)	20	(1.9)	24	(0.9)	29	(1.1)	26	(0.6
Finland	39	(0.5)	38	(0.3)	38	(0.2)	38	(0.2)	41	(2.9)	45	(1.6)	51	(1.2)	47	8.0)
France	35	(0.3)	37	(0.2)	38	(0.2)	37	(0.2)	17	(1.2)	20	(0.7)	29	(1.1)	23	(0.5
Germany	33	(1.3)	36	(0.3)	40	(0.4)	37	(0.2)	17	(3.0)	29	(1.2)	42	(1.3)	33	(0.9
Greece ¹	44	(0.9)	43	(0.5)	40	(0.5)	42	(0.3)	21	(2.6)	16	(1.3)	18	(1.8)	18	(1.1
Ireland	34	(0.7)	36	(0.4)	37	(0.3)	36	(0.3)	21	(1.9)	20	(1.4)	19	(1.1)	20	(0.8
Israel ¹	40	(0.9)	41	(0.5)	41	(0.4)	41	(0.2)	29	(2.9)	27	(1.5)	31	(1.3)	30	(1.0
Italy	39	(0.5)	39	(0.4)	37	(0.6)	39	(0.3)	22	(1.8)	23	(1.3)	33	(2.0)	24	(1.1
Japan	40	(0.8)	40	(0.4)	42	(0.3)	41	(0.2)	37	(3.3)	38	(1.4)	41	(1.2)	39	8.0)
Korea	44	(0.7)	44	(0.5)	43	(0.3)	43	(0.3)	29	(2.1)	29	(1.3)	32	(1.1)	30	(0.8
Lithuania ¹	40	(0.9)	40	(0.2)	38	(0.3)	40	(0.2)	13	(4.1)	11	(0.9)	24	(1.5)	16	(0.8
Netherlands	32	(0.4)	34	(0.3)	35	(0.3)	34	(0.2)	22	(1.6)	27	(1.2)	42	(1.4)	32	(0.9
New Zealand ¹	38	(0.6)	38	(0.5)	38	(0.3)	38	(0.2)	25	(1.7)	30	(1.7)	32	(1.1)	30	(0.8
Norway	35	(0.5)	36	(0.3)	38	(0.2)	37	(0.2)	28	(2.1)	31	(1.3)	38	(1.1)	34	(0.6
Poland	41	(0.9)	42	(0.3)	39	(0.3)	41	(0.2)	24	(3.8)	22	(1.2)	24	(1.5)	23	(1.0
Slovak Republic	39	(0.7)	42	(0.2)	42	(0.4)	42	(0.2)	9	(1.8)	19	(1.2)	33	(1.8)	22	(0.9
Slovenia ¹	41	(0.6)	42	(0.2)	42	(0.2)	42	(0.2)	10	(1.7)	20	(1.1)	27	(1.5)	21	(0.9
Spain	40	(0.4)	38	(0.6)	38	(0.3)	38	(0.2)	21	(1.4)	19	(1.8)	21	(1.2)	21	(0.8
Sweden	37	(0.6)	39	(0.3)	40	(0.3)	39	(0.2)	33	(2.5)	38	(1.3)	47	(1.3)	41	(0.9
Turkey ¹	45	(0.6)	45	(0.7)	43	(0.4)	45	(0.4)	33	(2.3)	22	(2.4)	21	(1.8)	28	(1.6
United States	39	(0.9)	39	(0.3)	42	(0.4)	40	(0.2)	16	(2.8)	24	(1.2)	31	(1.1)	26	(0.8
Economies																
Flemish Comm. (Belgium)	37	(0.8)	38	(0.3)	39	(0.3)	39	(0.2)	25	(2.5)	29	(1.1)	39	(1.4)	33	(0.9
England (UK)	35	(0.0)	37	(0.4)	37	(0.3)	37	(0.2)	20	(2.0)	29	(1.6)	30	(1.5)	28	(0.9
Northern Ireland (UK)	35	(0.6)	36	(0.4)	37	(0.4)	36	(0.2)	18	(2.2)	22	(1.8)	24	(1.7)	22	(1.2
OECD average	38	(0.0)	39	(0.1)	39	(0.4)	39	(0.0)	23	(0.5)	27	(0.3)	33	(0.3)	29	(0.2
Russian Federation*	40	(2.2)	42	(0.6)	41	(0.3)	41	(0.2)	14	(5.4)	14	(1.2)	17	(1.4)	16	(1.0

^{1.} Reference year is 2015; for all other countries and economies the reference year is 2012.

* See note on data for the Russian Federation in the *Source* section. **Source**: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en). Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.



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