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Comparative analysis of young adults
in England in the International Survey
of Adult Skills 2012

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Acronyms

ALL	Adult Literacy and Life Skills Survey
GCSE	General Certificate of Secondary Education
IALS	International Adult Literacy Survey
IDB	International Database (Analyzer)
ISCED	International Standard Classification of Education
OECD	Organisation for Economic Co-operation and Development
PIAAC	Programme for the International Assessment of Adult Competencies
PISA	Programme for International Student Assessment

Executive Summary

The OECD Survey of Adult Skills identified particularly poor literacy and numeracy skills amongst England's young adults compared with young adults (aged 16-24 years old) in other countries. In contrast to most other countries, where young people outperformed the oldest generation, in England young adults' literacy and numeracy skills were similar to those of adults aged 55-65. In literacy, adults aged 16-24 in England performed no better than adults in any other participating country and similarly to young adults in five other participating countries. Indeed, 16-18 year-olds in England were the lowest ranked in literacy. In numeracy, only young adults in the United States performed significantly less well than young adults in England. Young adults' numeracy scores in England were not significantly different from young adults in four participating countries. In problem solving in a technology-rich environment, young adults in England matched the international pattern and outperformed those aged 55-65. However, the performance of young adults in England was again poor compared with other participating countries. They performed no better than adults in any other participating country and similarly to adults in six other participating countries.

Re-examination and further analysis of the data from the England national report and the OECD international report from the Survey of Adult Skills offers some explanation for this relative poor performance.

England had a comparatively high proportion of young adults out of work, born outside the UK and who speak another language at home compared with high performing countries. These factors are all associated with lower scores in literacy and numeracy, on average. However, the young adults in education, born in the UK and who speak English at home also performed significantly lower than their counterparts in high performing countries.

Young adults in England aged 16-18 were significantly less likely to be participating in education or training compared with their counterparts in high performing countries. They were also less likely to use numeracy skills in their daily lives. It can be speculated that the comparatively young age that young adults gain an upper secondary education in England and the narrowing of learning following this means that young adults are less likely to develop their literacy and, particularly, numeracy skills to the same extent as young adults in top performing countries. This is supported by evidence from the OECD PISA survey of 15-year-olds, which measures reading and mathematics skills, as well as skills in science. At the age of 15, the performance of students in England is similar to the OECD average and has been stable since 2006 which does not suggest a significant decline in the quality of education of young people in England compared with other countries. The performance in the Survey of Adult Skills of young adults does suggest that the final stages of compulsory education in England do not develop young adults' ability to perform the types of real-world literacy and numeracy tasks assessed in the Survey of Adult Skills as well as other countries. This suggests that there are particular problems in the development of literacy and numeracy skills post 16 and means, therefore, that young adults are required to develop their skills in literacy and numeracy at a faster rate than adults in other countries when they enter the world of work. This is discussed in the thematic paper on skills gain (published alongside this report).

Finally, there is a particularly strong effect of social background on the proficiency of young people in England, suggesting inequity of education in England. For instance, level of mother's education has a stronger effect on proficiency in the group aged 16-24 compared with adults aged 25-65.

1. Introduction

This report focuses on the performance of young people in England compared with top performing countries in the recent International OECD Survey of Adult Skills (PIAAC). England's overall performance was similar to the OECD average in literacy and below the OECD average in numeracy. However, the performance of young people, aged 16-24 was identified as being of particular concern when comparisons were made internationally.

This paper synthesises the findings on young adults from the England national report (Wheater *et al.*, 2013b) and the OECD Survey of Adult Skills international report (OECD, 2013a). Further analysis of the differences in characteristics between English young adults and young adults in top-ranking countries (Finland, Japan, Korea and the Netherlands) in literacy, numeracy and problem solving in a technology-rich environment (shortened throughout this report to 'problem solving') is also presented. Regression analysis, identifying factors that are associated with low skills for young adults specifically, is also reported. These findings are then synthesised and interpreted to draw conclusions for the differences in performance of England's young adults compared with those of high performing countries.

2. What do we know already?

2.1 Literacy

England's overall literacy performance in the OECD Survey of Adult Skills was similar to the OECD average. However, contrary to international patterns, the oldest age group (aged 55-65) had higher (but not statistically significantly different) average scores than those aged 16-18 (and the same score when the whole age band 16-24 is considered). England's 16-18 year-olds were lowest ranked amongst participating countries in literacy (Wheater *et al.*, 2013b, section 2.5.1). Internationally, the youngest adults had significantly higher proficiency in literacy than the oldest in every country except for England, Northern Ireland and Norway. There was, therefore, particularly poor performance amongst England's youngest adults compared with other participating countries.

The international report (OECD, 2013a) looks in detail at the 16-24 age group to compare countries whose young adults performed significantly differently in literacy. The results for England and Northern Ireland are presented together, which, due to the weighting by population, mostly comprises England's results. (The results for England only are shown in appendix table A1). England/Northern Ireland's 16-24 year olds are in a group¹ of the poorest performing countries, not significantly different from the Republic of Ireland, Italy, Spain, the United States and Cyprus (see OECD, 2013, figure 2.3a, table A3.2 (L)). England/Northern Ireland are one of only three countries, along with Cyprus and Norway, where the literacy skills of 16-24 year olds was lower than the overall mean score of 16-65 year olds (see OECD, 2013a, figure 2.3a).

When the 16-24 age group is split into 16-18 year olds and 19-24 year olds, in every country except England, Northern Ireland and Norway, the youngest adults (16-18) performed significantly better than the oldest adults (55-65) in literacy. England was the only country where the difference in performance was positively in favour of the older adults. The international average difference was 19.4 score points in favour of the youngest age group (16-18) compared with England's difference of 6.1 in favour of the oldest group (55-65 year olds) (Wheater *et al.*, 2013b, table 2.9).

England's reversed pattern of performance by age might suggest that while adult literacy levels are improving or remaining stable over time in many other countries, England's comparative standing may be deteriorating. An alternative explanation could be that the literacy of young people is improving at a faster rate in other countries. This possibility is supported by the analysis of trends in performance in the OECD Survey of Adult Skills compared with performance in the International Adult Literacy Survey (IALS), conducted in 1996. The analysis of trend indicates that although the mean scores of the youngest age group (16-25 years) appear to have declined slightly in England since IALS, the difference is not statistically significant. Instead, the only age group that has changed significantly is the oldest age group, which has significantly improved. This is shown in table 2.1 below.

¹ Adjusted for literacy non-response, where those unable to complete the assessment were given a score of 85.

Table 2.1 England's literacy scores by age band

Age band	IALS	Survey of Adult Skills
16-24	273 (3.8)	265 (2.4)
25-34	277 (2.8)	280 (2.1)
35-44	277 (2.9)	279 (1.6)
45-54	265 (4.3)	271 (1.8)
55-65*	235 (3.8)	265 (2.0)

Source: Wheeler *et al.* (2013b), table 6.5

The data in this table are weighted

* The differences between IALS and the International Survey of Adult Skills mean scores are statistically significant at the 5 per cent level

() Standard errors appear in parentheses

A smaller gap between the oldest and youngest adults could be due to changes in the quality of initial education, uptake of education (e.g. upper secondary), opportunities during working lives in education and training to increase skills. Both IALS and the Survey of Adult Skills collected information about the education level of participants. In order to compare the skills of adults who have similar qualifications in England with other participating countries, all qualifications were coded to the International Standard Classification of Education (ISCED) (UNESCO, 2012). Since IALS, there has been a reclassification of the level of GCSE level qualifications from ISCED 2 to ISCED 3. This means that education levels between the two surveys are not directly comparable. Adults with three years or fewer of secondary education in IALS include those with GCSEs and equivalent qualifications as their highest level of qualification, whereas adults with GCSE and equivalent qualifications who participated in the Survey of Adult Skills were classified as having a full secondary education. This means that IALS estimates of proficiency for adults with three years or fewer of secondary education and with full secondary education are overestimated compared with the Survey of Adult Skills (Carey *et al.*, 1997, pp. 23–24). Table 2.2 shows the average scores of adults in IALS and the Survey of Adult Skills, but only adults with university or equivalent qualifications are comparable between the two surveys. For all age groups, adults with a university or equivalent education have significantly lower scores in the Survey of Adult Skills compared with IALS.

Table 2.2 England's average scores by education levels and age bands in IALS and the Survey of Adult Skills.

Education level	Age bands											
		16-24		25-34		35-44		45-54		55-65		Total
Three years or fewer of secondary education	IALS	263	(4.7)	258	(4.2)	258	(3.9)	247	(5.3)	223	(4.7)	249 (2.6)
	PIAAC	213*	(8.6)	224*	(7.2)	218*	(6.4)	230*	(5.5)	228	(4.0)	224* (2.6)
Full secondary education	IALS	284	(6.8)	290	(5.5)	280	(5.0)	287	(6.4)	257	(6.3)	282 (3.2)
	PIAAC	268*	(2.5)	273*	(3.1)	270	(2.4)	265*	(2.4)	267	(2.5)	268* (1.3)
University or equivalent	IALS	301	(7.5)	312	(3.8)	316	(3.3)	306	(4.4)	288	(4.5)	308 (2.0)
	PIAAC	284*	(4.1)	296*	(2.8)	301*	(1.9)	294*	(2.9)	289	(3.2)	294* (1.5)

Source: Adapted from Wheeler *et al.* (2013b): tables 6.8 and 6.9

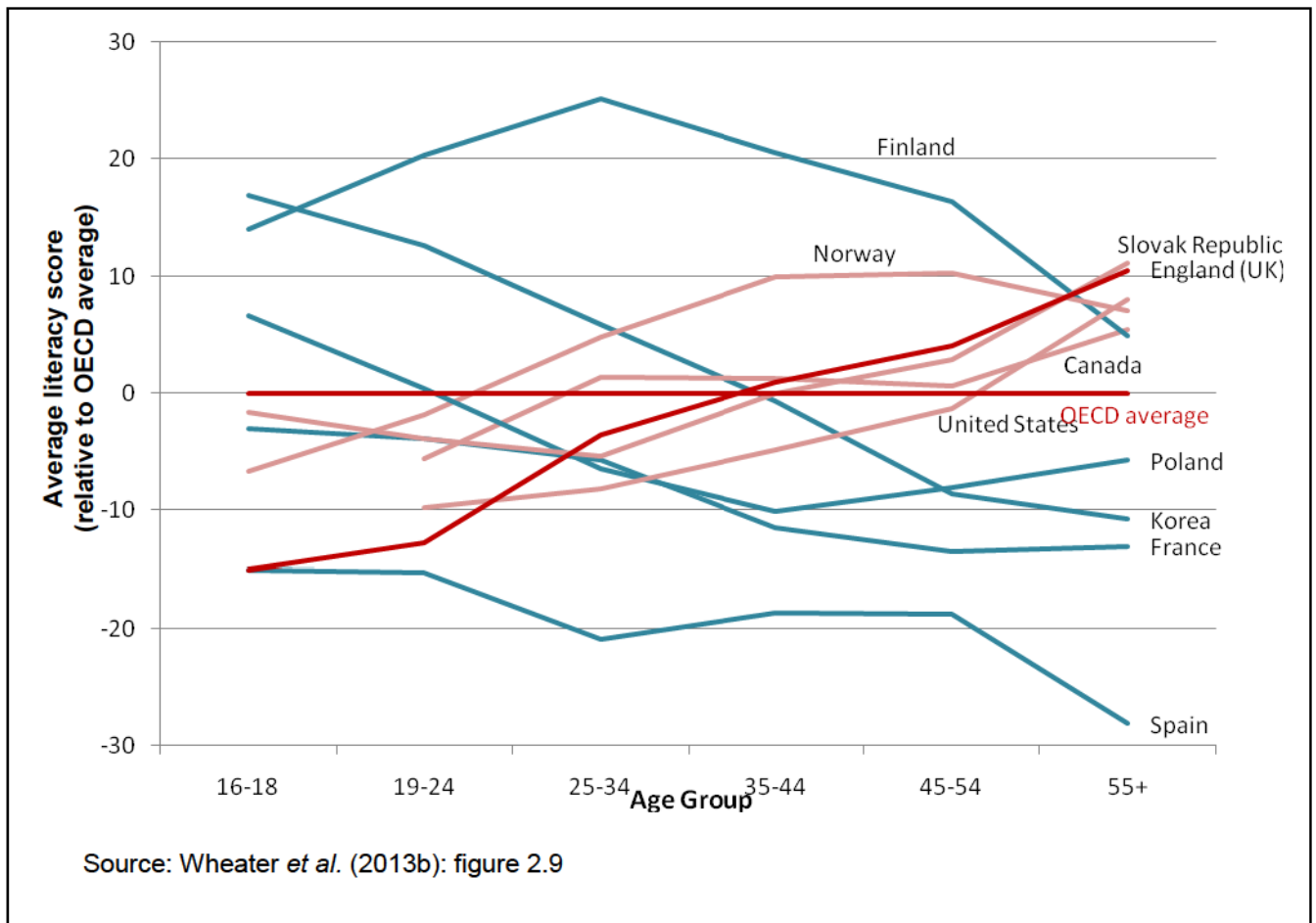
The data in this table are weighted

* The differences between IALS and the OECD Survey of Adult Skills mean scores are statistically significant at the 5 per cent level

() Standard errors appear in parentheses

Note: the classification of GCSE or equivalent qualifications changed from *three years or fewer of secondary education* in IALS to *full secondary education* in the Survey of Adult Skills.

When comparing changes in performance that are associated with age, it is useful to compare performance of different age groups with the OECD average. Figure 2.1 below compares the performance of different age bands with the OECD average for that age band. The OECD average and England's performance are shown as a bright red. Countries whose older adults perform relatively better than their younger adults compared with the OECD average are shown in a pale red, and countries whose older adults perform less well than their younger adults are shown in blue.

Figure 2.1 Literacy performance by age, relative to the OECD average

Korea's 16-18 year olds have the highest score above the OECD average for that age band. In each progressive age band, the scores of Korean adults move closer to and then lower than the OECD average. It appears that this is due to a real improvement in performance in young Koreans, due to advances in education and opportunities for younger Koreans, rather than because Koreans show a particularly strong decline in performance with age. This pattern also occurs in Poland. Conversely, England's 16-18 year olds have the lowest score relative to the OECD average of all participating countries. In each progressive age band, scores move closer to and then higher than the OECD average. This pattern is also apparent in the Slovak Republic, Canada and the United States and to a lesser extent in Norway, which had a significantly higher mean literacy score than England. In Finland, France and Spain the youngest adults perform better than the oldest compared with the OECD average for those groups but, whilst in Finland all age groups are consistently above the OECD mean, in France and Spain they are all consistently below it. This data cannot tell us whether the pattern of performance observed in England, and other countries identified by a pale red line, is due to a decline in actual performance of adults aged 16-18 over time, or because adults in these countries show a different pattern of improvement into their 30s and a slower decline into their 50s and 60s.

2.2 Numeracy

England's adults performed significantly below the OECD average in the Survey of Adult Skills. As with literacy, the oldest age group performed better than the youngest (16-18). In England, the youngest adults scored an average of 6 score points less than the oldest (aged 55-65) but the difference was not statistically significant. The international average was 12.6 score points in favour of the youngest age group (16-18).

As for literacy, the international report (OECD, 2013a) looks in detail at the 16-24 age group to compare countries whose young adults performed significantly differently. (The results for England only are shown in appendix table A2). England/Northern Ireland's 16-24 year olds were not significantly different from the Republic of Ireland, Italy and Spain. Only young adults in the United States performed significantly worse. The mean score for 16-24 year-olds is higher than the average score for 16-65 year-olds for 16 out of 23 countries. England is one of the countries with the greatest youth disadvantage (-6 points), with a similar deficit in the numeracy performance of young people observed in Norway, Denmark, Japan and the United States (see OECD, 2013a, pp.81-83).

Internationally, the youngest adults (16-18) performed significantly better than the oldest for numeracy in most countries. The differences in mean scores between youngest and oldest were not significant in the Czech Republic, Denmark, Japan, Norway, Sweden, England, Northern Ireland and the United States. All other countries showed a significant difference in score in favour of the younger age group. Most of these significant differences were of 15 score points or more. The widest difference in numeracy scores between the youngest and oldest age bands was again found in Korea (47 score points). The smallest difference between the numeracy scores of the oldest (55-65 years) and youngest (16-24 years) groups was found in Japan (2 score points), in favour of the youngest age group. This difference was not significant (Wheater *et al.* 2013b, table 2.10).

It is not possible to compare numeracy performance of adults in England in the Survey of Adult Skills with performance in previous international surveys. While it is possible to compare performance in literacy with IALS, this is not possible for numeracy: the domain of quantitative literacy in IALS – which measured numeracy in a different form – is very different from the definition of numeracy in the International Survey of Adults Skills. Quantitative literacy in IALS related to applying arithmetic operations; the emphasis on application makes direct comparisons with the International Survey of Adult Skills difficult as the emphasis here is on managing mathematical information and ideas in real life contexts. (See OECD, 2013b, for further details.) Despite, this lack of comparability with IALS, IALS revealed relatively low levels of adult quantitative literacy in Great Britain in comparison with other OECD countries (Carey *et al.*, 1997). Numeracy in the Survey of Adult Skills can be compared between the International Survey of Adult Skills and the Adult Literacy and Lifeskills Survey (ALL), but England did not take part in ALL.

2.3 Problem solving in technology-rich environments

This report focuses on performance of young adults in literacy and numeracy. This is because it was in literacy and numeracy that young adults in England performed particularly poorly internationally. Young adults in England performed better than the oldest age group in problem solving, matching the international trend. Similarly to literacy and numeracy, young adults in England performed below the OECD average in problem

solving for their age group whereas the oldest adults in England performed above the OECD average for their age group (Wheater *et al.*, 2013b). (The results for adults aged 16-24 in England compared with other participating countries are shown in appendix table A3.). Adults aged 16-18 in England had an average score in problem solving that was 21.5 score points more than the oldest (aged 55-65).

Comparison of problem solving scores with other participating countries is complicated by the proportion of adults who were able to take the computer based assessment of problem solving in the Survey of Adult Skills. Unlike literacy and numeracy, problem solving was only assessed via computer. In England, around 15 per cent of adults did not participate in the computer based assessment and therefore have no problem solving score. This compares with the OECD average of 24 per cent. It is likely that those adults who did not take the computer based assessment would have had low proficiency in the problem solving assessment. (See Wheeler *et al.*, 2013b, sections 2.1 and 2.2.3) for further discussion on the problem solving results for England.)

2.4 Demographic variables that influence literacy and numeracy scores

Internationally, adults who were born outside the country of testing and adults who speak another language at home have, on average, lower literacy and numeracy skills than adults born in the country of testing and adults who speak the language of testing at home. The proportions of these groups of adults are very variable between countries, and therefore impact differentially on each country's performance. Recent immigrants and adults who speak another language can also be harder to reach with policies that impact on adult literacy and numeracy. For instance, these adults may not have been educated in the country of testing. Fifteen per cent of adults in England (equivalent to around five million adults aged 16-65) were born outside the UK and, of those, five per cent have lived in the UK for less than five years. This is the sixth highest proportion of the population of all participating countries and is similar to Sweden (18 per cent), Austria (16 per cent), the United States (14 per cent), Germany (14 per cent), Spain (13 per cent) and Norway (13 per cent). England has the third highest proportion of foreign-born adults who have lived in the country for less than five years. Only Ireland and Canada have larger proportions of recent immigrants (Wheater *et al.*, 2013b, Appendix B; B22).

When comparing the performance of the youngest adults in England/Northern Ireland by parents' level of education (socio-economic gradient), young adults whose parents had a lower than upper secondary education performed poorly and similarly to those in the US. Those whose parents had an upper secondary education were similar to Canada and those whose parents had a tertiary education performed better than these two countries. There is, therefore, a particularly strong relationship between level of parental education and performance of 16-65 year olds in England/Northern Ireland (OECD, 2013a, figure 3.8a(L)). Those countries with the weakest relationship included Japan, Korea and the Netherlands – three of the high performing comparator countries discussed in Chapter 3. England/Northern Ireland was one of five countries (with Czech Republic, Denmark, Estonia, Slovak Republic) where the socio-economic gradient was steeper among those aged 16-24 than the 16-65 population as a whole. Further analysis of the Survey of Adult Skills data by Green *et al.* (2014) also found that there is greater inequality of skills in literacy and numeracy in England than in almost all participating countries, particularly

amongst those aged 16-24, and that the impact of social background (i.e. parental education level) is especially strong in England.

The international report shows that the adjusted² and unadjusted relationship between literacy proficiency and age is very similar for England/Northern Ireland, whereas for many other countries, the adjusted data shows a fairly steady level of proficiency until around 30 years of age and then a decline with age (OECD, 2013a, figures 5.2b (L) and 5.2c (L)). This suggests that post-compulsory learning is particularly important or that there has been a dramatic decline in the quality of schooling. It should be noted that 16-year-olds are more likely to have secondary school qualifications in England than other countries, where secondary assessment tends to be later than 16 and therefore adjusting for educational attainment does not have the same effect on young people's performance for England. In addition, results from the OECD Programme for International Student Assessment (PISA) survey of 15-year-olds in reading, mathematics and science do not support a dramatic decline in the quality of schooling in England. England's results have remained stable since PISA 2006 (Wheater *et al.*, 2013a). (Results from earlier rounds cannot be compared as England's data did not meet sampling requirements.) This therefore suggests that the final years of schooling do not prepare young adults in England for the types of challenges in the OECD Survey of Adult Skills assessment as effectively as other countries' education systems.

The national report examined the characteristics of adults with low proficiency (level 1 or below in literacy and numeracy) using a logistic regression analysis. Interestingly, when other factors were controlled, low proficiency was not significantly related with age in England for literacy or numeracy.

2.5 Everyday practices that are linked to performance in literacy and numeracy

The England national report investigated the relationship between reading frequency and age to explore effects on literacy scores. At each age band there were similar patterns of performance; that is, literacy scores generally increased as frequency of reading increased. Both in England, and across the OECD as a whole, the steepest improvements in literacy scores occurred between those who never read any of the text types (all zero response) and those who fell into the lowest to 20 per cent category of reading frequency. This was the case for all age bands, with the youngest group (16-24 years) showing the least marked improvement (Wheater *et al.*, 2013b, Appendix C, table C2 and figure 4.2).

2.6 Comparisons with performance in the OECD Programme for International Student Assessment (PISA)

PISA assesses the reading, mathematics and science skills of pupils aged 15. Pupils are assessed on their competence to address real life challenges involving each of these subjects, rather than their mastery of the curriculum. Although PISA reading and mathematics is not the same as literacy and numeracy assessed in the Survey of Adult

² Adjusted for educational attainment and language background, foreign-born adults excluded from adjusted and unadjusted results.

Skills, there is some overlap. (See OECD, 2013b, pp. 86–91 for further details on the relationship between the two surveys.)

The OECD international report analyses the performance of young people in PISA with their counterparts in the equivalent cohort in the Survey of Adult Skills to look at the relationship between performance in PISA and performance of equivalent adults later in the Survey of Adult Skills (OECD, 2013a, pp.205–207). In chapter 3 of this report, the performance of England's young adults in the Survey of Adult Skills is compared with the performance of young adults in four top ranking countries: Finland, Korea, Japan and the Netherlands. These countries have all performed well in PISA since the first survey in 2000. In reading and mathematics, Finland, Korea and the Netherlands have performed significantly above the OECD average in each cycle in which they have participated between 2000 and 2012 (the Netherlands did not participate in 2000). Japan has performed significantly above the OECD average in mathematics in each cycle and above average in reading in 2000, 2009 and 2012 (similar to the average in 2003 and 2006).

England's performance in reading and mathematics has been consistently similar to the OECD average since PISA 2006. As mentioned in section 2.4 above, comparisons cannot be made with England's results in PISA 2000 and 2003. However, it is interesting to see that some other countries show differential performance amongst their young adults in the OECD Survey of Adult Skills and PISA. For instance, Canada is a consistently high performer in PISA, but did not show similar high achievement in literacy and numeracy in the 16-24 year age group in the Survey of Adult Skills.

2.7 The world of work

The international report compares the use of generic skills at work used by young adults (16-24) and older workers (55-65) with workers aged 25-54 (OECD 2013a: pp152-154). There are no particularly striking patterns for England's young adults compared with other participating countries. However, there are some differences between responses by young adults in England/Northern Ireland compared with many other participating countries relating to level of education and skill required for work.

Of all adults, a large proportion of respondents in England/Northern Ireland said that the qualifications required for their job were primary education or less (23 per cent, the second largest proportion of all participating countries). The proportion who said a tertiary education or more was required was low compared with many countries; only six had a lower proportion (OECD, 2013a, figure 4.24). England/Northern Ireland had the second highest proportion of respondents who said that the qualification they had was higher than that required for their job (OECD, 2013a, figure 4.25a). Young adults in England/Northern Ireland (16-24) were more likely to say that they were overqualified for their job than those aged 25-44, but this difference was not significant (OECD, 2013a, figure 4.28a).

The international report found that young adults in England/Northern Ireland are relatively unusual compared with their counterparts in other countries in that they are significantly less likely than adults aged 25-44 to say they are over-skilled for their job, i.e. that they have higher levels of skills than those required for their job. This pattern was also seen in Belgium (Flanders), Norway (a similar size association but not significant) and the Slovak Republic (a smaller association and not significant). They are also no more likely than their peers aged 24-44 to say that they are underqualified for their job, whereas in the majority

of other participating countries, young adults were less likely than adults aged 25-44 to say that they were underqualified for their job (OECD, 2013a, figure 4.29).

To summarise, young adults in England report that they are overqualified for their job, but do not report being over-skilled for their job. This suggests that young adults recognise they have high levels of qualifications, but that these qualifications are not necessarily what are required for their work, in terms of skill sets.

2.8 Summary

Compared with other countries, younger people in England perform relatively less well in literacy than their peers in other countries, while older people perform well. A similar pattern is observed for numeracy, but older people are not ranked so highly. The comparison with other countries by age groups suggests that there are other countries that are improving the literacy and numeracy skills of younger people at a faster rate than in England. Korea is a particularly good example of a country with generally similar overall performance to England, but a very different profile of skills by age groups. Whereas in England, on average, our younger adults are performing less well compared with other countries, in Korea, the opposite is true – their older adults are less skilled compared with other participating countries, but their younger adults have very good skills compared with other participating countries.

There is a particularly strong effect of social background on the proficiency of young people in England, suggesting inequity of education in England. Comparisons with performance of 15-year-old pupils in the OECD PISA survey in reading and mathematics, where the performance of England's young adults matches the average, suggest that there are particular problems in the development of literacy and numeracy skills post 16. Related to this, young adults tended to report that although they were more than qualified for the world of work, they did not necessarily have the skills required for work.

3. Differences in characteristics between English young adults and young adults in top-ranking countries

3.1 Introduction

This chapter summarises the differences in demographics between young adults in England compared with young adults in four top performing countries. Finland, Japan, Korea and the Netherlands were selected as comparator countries as their 16-24 year olds were the top performers in literacy and numeracy (see OECD, 2013a, tables A2.3 and A2.7).

The characteristics which are compared are adults' education levels, parental education levels, employment status, skills use at home, country of birth and language spoken at home. The tables comparing the distribution by each of these demographics by age group and country can be found in Appendix B, along with the mean scores for each group.

3.2 Education characteristics

When levels of education are grouped into three categories (less than high school, high school and above high school), young adults aged 16-18 in England are much more likely to have high school qualifications than their counterparts in Finland, Japan or the Netherlands. In England, 85 per cent of adults aged 16-18 with literacy or numeracy scores have a high school level of education compared with 19 per cent in the Netherlands, 16 per cent in Korea and Japan, and only three per cent in Finland (see appendix table B1). The GCSEs (or equivalents) taken by young people in England are counted as high school qualifications in the International Standard Classification of Education (ISCED), whereas it is unusual for young people in other countries to complete this level of education by the same age.

Amongst the high performing countries, there were different patterns in the highest level of education of mothers and fathers (see appendix tables B2 and B3). Mothers and fathers of young adults (16-24) in the Netherlands were significantly more likely to have high school level qualifications or below than their counterparts in England and so, therefore, a greater proportion was less well educated. However, in Japan, young adults were much more likely to have a mother with a degree level qualification (between 42 and 48 per cent of young adults with literacy and numeracy scores) than their counterparts in England (between 26 and 34 per cent). In Korea, the proportion of mothers with each level of education was similar to that in England, although fathers were more likely to be educated to degree level (between 38 and 46 per cent of adults with literacy and numeracy scores) than fathers in England (between 28 and 30 per cent of young adults).

Higher levels of education of young adults and of their parents are associated with higher scores in each domain. However, when the scores of young adults in each group are compared, young adults in England tend to have much lower scores than their counterparts in other countries. For instance, while the proportions of adults, grouped by their mothers' levels of education, are similar in England and Korea, looking specifically at adults whose mothers have secondary level qualifications, adults in Korea performed significantly better than their counterparts in England. However, young adults with a mother with a degree level qualification performed similarly.

3.3 Employment status

In all comparator countries, adults aged 16-18 were significantly more likely to be continuing their education as a student or in work programmes than young adults in England (between 88 and 94 per cent of adults aged 16-18 with literacy and numeracy scores compared with 77 per cent in England; see appendix table B4). However, those young adults aged 16-18 who were in education or training in England had significantly lower scores than their counterparts in all comparator countries. There are, therefore, two issues specific to England: the proportion of young adults who continue education and the level of skills of young adults in education or training.

Adults aged 19-24 in England were significantly more likely to be looking for work and not working (approximately 15 per cent of adults aged 19-24) compared with 19-24 year olds in high-performing comparator countries (approximately four per cent in the Netherlands and Korea, seven per cent in Japan, and nine per cent in the Netherlands). The 19-24 year olds in England also had significantly lower skills in all domains compared with their counterparts in the Netherlands, Finland, Korea and Japan, (except for problem solving skills compared with the Netherlands). Therefore, not only are young adults in England more likely to be unemployed, they also have lower skills than similar young adults in high-performing countries.

3.4 Country of birth and language spoken at home

In England, 11 per cent of adults aged 16-18 with literacy and numeracy scores and 14 per cent of those aged 19-24 were born outside of the country (UK) (see appendix table B5). This is a significantly larger proportion compared with the equivalent percentages in the comparator countries, except for 16-18 year olds in the Netherlands (eight per cent with literacy and numeracy scores). Japan and Korea have almost no young adults who were born outside the country of testing. Adults born outside of the country of testing performed less well than their counterparts and so having a greater proportion of young adults born in another country will impact on the average score for that group. However, the scores of young adults born in England were significantly below the scores of young adults born in all comparator countries (except for problem solving in the Netherlands), but the scores of young adults born outside of England were not significantly different from their counterparts in the Netherlands and Finland for literacy, numeracy and problem solving.

Very low proportions of young adults in Finland, Korea and Japan spoke a language different from the language of testing at home, significantly lower than in England (see appendix table B6). In England, four per cent of adults aged 16-18 with literacy and numeracy scores and nine per cent aged 19-24 spoke another language, not significantly

different from the Netherlands, where six per cent of adults aged 16-24 spoke another language at home.

3.5 Skills use at home

The skills use at home of young adults in reading, writing, numeracy and ICT were compared. This is useful because comparing skills related to work depend on the young adults being part of the workforce and so exclude those out of work and in education or training (see appendix table B7). The largest differences in skills use between young adults in England and those in the comparator countries were in numeracy skills, particularly with Finland and Korea. In England, young adults aged 16-18 were less likely to use numeracy skills with a high frequency compared with young adults in the comparator countries (34 per cent in England, compared with between 45 and 69 per cent in comparator countries).

3.6 Summary

The young age at which adults gain a secondary school qualification in England (with GCSEs or equivalent) means that young adults aged 16-18 were much more likely to have secondary school qualifications than their counterparts in high performing comparator countries. However, young adults in England with secondary level qualifications perform similarly or less well than their counterparts in comparator countries with below secondary level education. It may be that the narrowing of subjects at 16 in preparation for A Level and equivalent qualifications impacts upon the development of young adult's literacy and numeracy skills as, in addition, these young adults in England were less likely to use numeracy skills at home than young adults in comparator countries.

Adults aged 16-18 in all four comparator countries were significantly more likely to be continuing their education as a student or in work programmes than young adults in England (at least 10 per cent more in all comparator countries). In addition, those young adults aged 16-18 who were in education or training in England had significantly lower scores than their counterparts in all comparator countries.

Approximately 15 per cent of adults aged 19-24 in England were looking for work and not working, a significantly greater proportion compared with 19-24 year olds in high-performing comparator countries. Again, adults in England tended to have lower skills than their counterparts in the Netherlands, Finland, Korea and Japan.

There are significant differences in the demographics of young adults in England compared with high performing countries. For instance, young adults in England were more likely to be unemployed than those in high performing countries, were more likely to be born in another country and were more likely to speak another language at home.

4. Factors associated with low skills for adults aged 16-24

4.1 Introduction

Chapter 5 of the International Survey of Adult Skills national report for England (Wheater *et al.*, 2013b) explored the factors that were associated with low proficiency in literacy, numeracy and problem solving in a technology-rich environment. Low proficiency was defined as level 1 or below for literacy and numeracy and below level 1 for problem solving. The results showed that the main predictors of low proficiency were:

Table 4.1 Significant predictors of low proficiency of adults in England in the Survey of Adult Skills

Literacy	Numeracy	Problem solving
Lower levels of education	Lower levels of education	Lower levels of education
Ethnicity (Black)	Ethnicity (Black, Asian or Mixed)	Ethnicity (Black)
Not having 'very good' general health	Having less than 'very good' general health	Having 'poor' general health
Lower parental level of education	Lower parental level of education	Lower parental level of education
No computer experience in everyday life	No computer experience in everyday life	No computer experience in everyday life
Occupation (services and shop and market sales)	Occupation (services and shop and market sales)	Occupation (services and shop and market sales)
Job industry (human health and social work)		Job industry (human health and social work)
	Employment status (not employed or looking for work)	Employment status (employed or self-employed)
	Having children or not	Having children or not
	English as an additional language	
	Being female	
	Ethnicity*EAL (Mixed)	
	Not born in the UK	
		Age (being 45-65 years old)

Source: Wheeler *et al.*, 2013b, table 5.4

The strongest relationship in the analysis was the one between a lower level of education and a higher probability of low proficiency. The overall probability of low proficiency in literacy predicted by the model for an individual with a secondary school education and other common characteristics³ was 16%; whereas it was:

- 9% for those with above secondary school education; and
- 33% for those with less than secondary education.

For numeracy (and problem solving), the probabilities were 11% (15%) for those with above secondary school education, 19% (25%) for adults with secondary school education and 37% (40%) for those with less than secondary school education. Interestingly, when other factors were taken into account, age was not significantly related to low proficiency.

In order to explore factors associated with low proficiency in the 16-24 age group, the logistic regression was run with just individuals aged 16-24. Due to the size of the sample, it was not possible to divide the group into 16-18 and 19-24 year olds. For a detailed explanation of the regression and the results for 16-65 year olds, see the England national report (Wheater *et al.*, 2013b, chapter 5). It should be noted that this analysis for adults aged 16-24 is based on 691 young adults who participated in the survey. Therefore, any differences between those aged 16-24 and those 25-65 are difficult to identify with certainty.

4.2 Comparisons of factors associated with low proficiency in 16-24 year olds and all adults

This section summarises the variables identified as being differentially associated with low proficiency for young people in any of the three domains of literacy, numeracy and problem solving compared with all adults aged 16-65. The model from the national report was rerun with just adults aged 16-24 so that comparisons could be made with adults aged 16-65 to look at differences in the effect sizes between young adults and all adults in England. An interaction model was then run to look at whether the factors identified as being different amongst adults aged 16-24 (highlighted blue in appendix C1) were statistically significant.

The paragraphs that follow describe the effects for 16-24 year olds which are different compared with all adults, and whether they are significantly different from those aged 25-65.

4.2.1 Education

Having an education above secondary school level was significantly associated with a lower probability of having low proficiency for both 16-24 year olds and the full sample (16-65 year olds) in literacy, numeracy and problem solving. The size of this effect was similar

³ Default characteristics are held fixed to predict probabilities: a different collection of characteristics implies a different probability. The default characteristics were: male, age 34-44, employed or self-employed, first language English, white, born in the UK, 'very good' health, no disability, mother and father less than secondary school educated, experience with computers, does not have children.

for 16-24 years olds and the full sample. Furthermore, many 16-24 year olds are yet to complete their education, so interpreting the differences in education levels between 16-24 year olds and 25-65 year olds could be challenging. Therefore, differences in the level of education were not explored as an explanation of particularly low proficiency for young people.

Orientation of education was not included in the original regression in the national report (Wheater *et al.*, 2013b), but has been included in this regression. The variable is only defined for adults with a highest level of education at secondary level and therefore covers a small proportion of adults that participated in the survey (340 cases). The small sample size means it is difficult to determine a statistically significant correlation between low skills and orientation of education. However, the analysis suggests that having a vocational education was associated with a higher likelihood of low skills in literacy, numeracy and problem solving in the full sample (significantly so for problem solving) compared with those with a highest non-vocational secondary education level, but was associated with a lower likelihood of low skills for literacy and problem solving for young adults, though this effect was not significant at the five per cent level. The number of adults with a vocational education is small in the full sample, and therefore the analysis of adults aged 16-24 with a vocational education is based on a proportion of this.

When parental education is considered, there was a stronger association between higher parental education and lower probability of low skills for each domain in the 16-24 sample than in the full sample. Having a mother with above secondary level education was significantly associated with a lower likelihood of low skills in all domains in the 16-24 age group and has a significantly stronger effect than the full sample for literacy and numeracy.

Comparing adults aged 16-24 and those aged 25-65 shows that mother's education above secondary school level compared with mother's education below secondary school level is significantly different from the main effect at the five per cent level on numeracy scores (and significant at the ten per cent level for literacy). The gap in likelihood of having low skills for a person with a mother educated above secondary school compared with a mother with less than secondary school is larger for a young person aged 16-24 than a person aged 25-65. This supports the findings in section 2.4 above which find that the socio-economic gradient in England is particularly strong among those aged 16-24.

4.2.2 Occupational status

Being unemployed was strongly and significantly associated with a high probability of low skills in numeracy in the full sample, but not for problem solving and literacy. The magnitude of the association between being unemployed and a higher probability of low numeracy skills was higher for 16-24 year olds in numeracy and problem solving, though because the sample of unemployed is relatively small, the difference was not statistically significant.

Being a student was significantly associated with a lower probability of low skills in problem solving for the full sample but there was no significant association with low literacy or numeracy skills. On the other hand, though not statistically significant because of the small sample size of students, being a student was associated with a lower likelihood of low skills among 16-24 year olds. The interactions did not show any significant differences between the 16-24 sample and the full sample.

4.2.3 Ethnicity and language

The sample of adults with English as an additional language was small, so significant differences within the full sample, and especially differences between the full sample and the sample of 16-24 year olds were not likely to be detected. Having English as an additional language was associated with a higher likelihood of low proficiency in literacy and numeracy in the full sample (significant for numeracy), but not for problem solving. Although no coefficients were statistically significant because of the small number of young adults with English as an additional language, having English as an additional language was instead associated with a lower likelihood of low proficiency for 16-24 year olds in literacy, numeracy and problem solving.

Having Asian ethnicity was associated with a significantly higher likelihood of low skills in literacy and numeracy in the full sample and a higher but statistically insignificant likelihood in problem solving. In contrast, though not statistically significant because of the small sample of 16-24 year olds with Asian ethnicity, Asian ethnicity was associated with a lower likelihood of having low skills in literacy and problem solving for those aged 16-24.

Having black ethnicity was strongly and significantly associated with low proficiency in the full sample for all domains, but for 16-24 year olds was less strongly and not significantly associated for literacy and numeracy and associated with not having low proficiency for problem solving.

There was a strong and significant association in the full sample between being born outside the UK and low proficiency in numeracy and literacy. This association was greater in the 16-24 sample, but was not statistically significant because of the small sample size of adults age 16-24 born outside the UK. The interactions were not statistically significant.

Because of the low level of precision for 16-24 year olds with English as an additional language and Asian and black ethnicity, the interactions with age 16-24 were not significant in any of the domains at the five per cent level. The interaction between black ethnicity and age 16-24 for problem solving was significant at the ten per cent level, but in the context of other coefficients it seems overall that ethnicity, language and foreign birth do not help in explaining the particularly low performance of 16-24 year old adults.

4.2.4 Summary

Those variables identified above as being differentially associated with low proficiency for young people in any of the three domains were included in a separate regression model where they were interacted with age 16-24 (highlighted blue in Appendix C1). This enables a robust estimation of the ability of characteristics to explain the particularly high probability of adults age 16-24 having low skills and enables a test of whether the effect is statistically significant. Only one effect (mother's education above secondary school level associated with higher numeracy skills) is significantly different from the main effect at the five per cent level, but this is to be expected as the standard errors are large because of the small sample of adults age 16-24. If significance at ten per cent is considered, there are two more effects that are significantly different from the main effect. These are mother's education above secondary school level on literacy scores, and having black ethnicity compared to white on problem solving scores.

Given the small sample size for this group, all these findings should be interpreted with caution. However, the association between skills and mother's education is large and consistent across domains, and this supports previous research (e.g. Green *et al.*, 2014). These findings also support those reported in section 2.4 above that the socio-economic gradient in England is particularly strong among those aged 16-24.

5. Conclusions

The data from the OECD Survey of Adult Skills identifies some factors which can explain some of the poor performance of England's 16-24 year olds.

When the pattern of performance of England's adults with age and over time (since the last international survey of adult literacy) are compared, the relative poor performance of England's young adults could possibly be explained by a different pattern of skills gain of young people into their thirties and a slower decline in skills as adults approach retirement. However, comparisons of average score for each age group in the OECD Survey of Adult Skills with the OECD average and comparisons with IALS, the International Survey of Adult Literacy conducted in England in 1996, shows us that there are countries, such as Korea and Poland, where young people are improving, whilst young adults in England are standing still or declining. Our young adults are completing education less able to tackle the types of real world challenges in literacy and numeracy that the OECD Survey of Adult Skills measures, compared with young adults in other countries.

Further evidence on the skills of young people and how these skills change in early adulthood comes from comparisons with performance of 15-year-olds in the Programme for International Student Assessment (PISA). England is not unique in having different performance in their young adults in the Survey of Adult Skills from what would be expected given performance in PISA. Although the comparator countries are strong performers in PISA, there are other countries whose young adults' performance in the Survey of Adult Skills differed from that which would be expected from their performance in PISA. England has been an average performer in PISA, whereas, for instance, Sweden and Denmark have not been high performers in PISA, but are strong performers in the 16-24 age group in the Survey of Adult Skills. Australia and Canada, on the other hand, are consistently strong performers in PISA but their 16-24 year olds have average numeracy skills in the Survey of Adult Skills. It is notable that there are no English speaking countries that have above average results in the 16-24 year age group in the Survey of Adult Skills, except for Australia in literacy.

One large difference between young adults in England and those in high performing countries is the high level of qualifications that young adults gain in England at a comparatively young age. It may be that the narrowing of subjects at 16 in preparation for A Level and equivalent qualifications could impact upon the development of young adult's literacy and numeracy skills. For instance, many young adults did not do a numerate subject post 16. There is some support for this theory from the use of skills in comparator countries as young adults aged 16-18 were particularly likely to use numeracy skills with a high frequency in the comparator countries compared with young adults in England.

Adults aged 16-18 in England were significantly less likely to be in some form of education compared with those in high performing countries, and those aged 19-24 were significantly more likely to be out of work and looking for work than their counterparts in the comparator countries. In addition, these young adults have lower levels of literacy, numeracy and problem solving skills than similar young adults in the top performing countries – Netherlands, Finland, Korea and Japan. There are, therefore, two issues that distinguish England from the comparator countries: the proportion of young adults that continue education, and the level of skills of those young adults who are in education or training.

There are significant differences between the proportions of young adults with demographic factors that are related to attainment between England and high performing countries. For instance, young adults in England were more likely to be unemployed than those in high performing countries, were more likely to be born in another country and were more likely to speak another language at home. However, these differences do not fully explain why England's young adults performed particularly poorly compared with young adults in other countries because when the mean scores of young adults by each factor are considered, in general, young adults perform significantly less well than their counterparts in high performing countries.

When the effect of demographic factors on proficiency are considered, other things being equal, parental education has a stronger effect on proficiency in the group aged 16-24 compared with adults aged 25-65. The impact of social background on performance is particularly strong in England and particularly so for young adults.

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Appendix A

A1 Significant differences in average scores of adults aged 16-24 in literacy between England and other countries participating in PIAAC

	Average score		
	Average	S.E.	Significance
Japan	299	(1.6)	^
Finland	297	(1.9)	^
Netherlands	295	(1.6)	^
Korea	293	(1.7)	^
Estonia	287	(1.3)	^
Belgium (Flanders)	285	(1.6)	^
Australia	284	(2.2)	^
Sweden	283	(1.7)	^
Poland	281	(1.1)	^
Czech Republic	281	(2.1)	^
OECD Average	280	(0.4)	^
Germany	279	(1.6)	^
Austria	278	(1.5)	^
Denmark	276	(1.3)	^
Slovak Republic	276	(1.6)	^
Canada	276	(1.3)	^
Norway	275	(1.4)	^
France	275	(1.3)	^
Russian Federation	274	(4.0)	NS
Northern Ireland	272	(2.7)	NS
United States	272	(2.0)	^
Republic of Ireland	271	(1.8)	NS
England	265	(2.4)	
Spain	264	(1.6)	NS
Italy	261	(2.7)	NS

Key	
^	significantly higher
NS	no significant difference
v	significantly lower

Source: PIAAC (2012)

Simple comparison *P*-value = 5%

Note: data from Cyprus is not available.

A2 Significant differences in average scores of adults aged 16-24 in numeracy between England and other countries participating in PIAAC

	Average score		Significance
	Average	S.E.	
Netherlands	285	(1.8)	^
Finland	285	(1.8)	^
Japan	283	(2.3)	^
Belgium (Flanders)	283	(1.7)	^
Korea	281	(1.9)	^
Austria	279	(1.6)	^
Estonia	279	(1.2)	^
Sweden	278	(1.7)	^
Czech Republic	278	(1.6)	^
Slovak Republic	278	(1.8)	^
Germany	275	(1.8)	^
Denmark	273	(1.5)	^
Russian Federation	273	(3.7)	^
OECD Average	271	(0.4)	^
Norway	271	(1.7)	^
Australia	270	(2.5)	^
Poland	269	(1.1)	^
Canada	268	(1.6)	^
Northern Ireland	264	(3.4)	NS
France	263	(1.6)	^
Republic of Ireland	258	(2.2)	NS
England	256	(2.7)	
Spain	255	(1.7)	NS
Italy	251	(2.6)	NS
United States	249	(2.2)	v

Key

^ significantly higher

NS no significant difference

v significantly lower

Source: PIAAC (2012)

Simple comparison *P*-value = 5%

Note: data from Cyprus is not available.

A3 Significant differences in average scores of adults aged 16-24 in problem solving between England and other countries participating in PIAAC

	Average score		Significance
	Average	S.E.	
Korea	304	(1.5)	^
Finland	303	(1.9)	^
Sweden	302	(1.7)	^
Netherlands	300	(1.8)	^
Japan	300	(2.1)	^
Belgium (Flanders)	299	(1.7)	^
Czech Republic	297	(2.1)	^
Norway	296	(1.4)	^
Australia	295	(2.2)	^
Germany	295	(1.8)	^
OECD Average	295	(0.4)	^
Austria	294	(1.4)	^
Canada	294	(1.4)	^
Denmark	294	(1.4)	^
Estonia	293	(1.6)	^
England	288	(1.9)	
Northern Ireland	287	(2.9)	NS
Slovak Republic	287	(1.6)	NS
Poland	287	(1.3)	NS
Republic of Ireland	286	(1.8)	NS
United States	285	(2.2)	NS
Russian Federation	283	(5.1)	NS

Key

^ significantly higher

NS no significant difference

v significantly lower

Source: PIAAC (2012)

Simple comparison *P*-value = 5%

Appendix B

B1 Level of education

Age			Literacy					Numeracy					Problem Solving							
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N			
England	16-18	Less than high school	c	c	c	c	12	c	c	c	c	12	c	c	c	c	9			
		High school	85	(2.2)	264	(4.1)	189	85	(2.2)	254	(4.7)	189	87	(2.4)	286	(3.6)	183			
		Above high school	c	c	c	c	8	c	c	c	c	8	c	c	c	c	8			
		Not definable	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1			
	19-24	Less than high school	7	(0.9)	206	(11.9)	43	7	(0.9)	191	(14.0)	43	5	(0.8)	249	(10.6)	32			
		High school	63	(1.4)	270	(3.5)	284	63	(1.4)	259	(3.9)	284	66	(1.3)	284	(2.6)	276			
		Above high school	27	(1.3)	287	(4.3)	136	27	(1.3)	280	(4.2)	136	28	(1.2)	308	(4.0)	130			
		Not definable	c	c	c	c	10	c	c	c	c	10	c	c	c	c	5			
Netherlands	16-18	Less than high school	81	(2.3)	*	283	(2.7)	256	81	(2.3)	*	274	(2.8)	256	80	(2.4)	*	291	(2.6)	241
		High school	19	(2.3)	*	300	(4.7)	61	19	(2.3)	*	300	(5.2)	61	20	(2.4)	*	305	(5.9)	60
		Above high school	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	0	
		Not definable	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	0	
	19-24	Less than high school	23	(2.0)	*	271	(3.9)	130	23	(2.0)	*	258	(4.2)	130	23	(2.0)	*	281	(3.5)	124
		High school	62	(1.9)		304	(2.2)	366	62	(1.9)		296	(2.5)	366	63	(1.9)		307	(2.3)	353
		Above high school	14	(1.7)	*	324	(6.0)	71	14	(1.7)	*	309	(5.8)	71	14	(1.7)	*	322	(4.2)	69
		Not definable	c	c	c	c	3	c	c	c	c	3	c	c	c	c	2	c	2	
Finland	16-18	Less than high school	97	(1.0)	*	288	(2.1)	324	97	(1.0)	*	276	(3.1)	324	96	(1.0)	*	298	(2.7)	308
		High school	c	c	c	c	11	c	c	c	c	11	c	c	c	c	11	c	11	
		Above high school	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1	c	1	
		Not definable	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	0	
	19-24	Less than high school	14	(1.7)	*	273	(7.2)	68	14	(1.7)	*	259	(8.4)	68	12	(1.6)	*	293	(5.8)	59
		High school	79	(1.9)	*	307	(2.5)	452	79	(1.9)	*	295	(2.2)	452	81	(1.7)	*	307	(2.4)	439
		Above high school	6	(1.0)	*	312	(7.1)	38	6	(1.0)	*	303	(7.7)	38	7	(1.1)	*	313	(7.1)	38
		Not definable	c	c	c	c	1	c	c	c	c	1	-	-	-	-	0	-	0	

Age			Literacy					Numeracy					Problem Solving				
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N
Korea	16-18	Less than high school	84	(2.3) *	291	(2.3)	366	84	(2.3) *	278	(2.7)	366	83	(2.4) *	301	(2.9)	344
		High school	16	(2.3) *	293	(4.6)	65	16	(2.3) *	286	(5.3)	65	17	(2.4) *	303	(4.7)	63
		Above high school	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0
		Not definable	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0
	19-24	Less than high school	c	c	c	c	11	c	c	c	c	11	c	c	c	c	9
		High school	82	(1.2) *	296	(2.6)	489	82	(1.2) *	284	(2.5)	489	82	(1.4) *	306	(2.4)	460
		Above high school	15	(0.9) *	294	(3.4)	134	15	(0.9) *	280	(4.1)	134	16	(1.0) *	307	(3.6)	130
		Not definable	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1
Japan	16-18	Less than high school	84	(2.4) *	292	(2.7)	247	84	(2.4) *	273	(4.0)	247	81	(3.1) *	296	(3.4)	185
		High school	16	(2.3) *	310	(6.2)	44	16	(2.3) *	293	(7.0)	44	18	(3.0) *	308	(8.4)	37
		Above high school	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1
		Not definable	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0
	19-24	Less than high school	c	c	c	c	21	c	c	c	c	21	c	c	c	c	14
		High school	64	(2.2)	299	(2.5)	316	64	(2.2)	287	(3.3)	316	62	(2.4)	301	(3.2)	234
		Above high school	30	(2.1)	314	(2.6)	139	30	(2.1)	297	(3.9)	139	32	(2.4)	308	(4.4)	113
		Not definable	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1

Source: PIAAC (2012)

S.E. standard error

N number of cases (unweighted)

* significantly different from England at five per cent level

c less than 30 cases

- no cases

B2 Level of mother's education

Age			Literacy					Numeracy					Problem Solving							
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N			
England	16-18	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	c	c	c	c	26	c	c	c	c	26	c	c	c	c	24			
			53	(3.8)	260	(5.3)	101	53	(3.8)	252	(5.5)	101	53	(4.0)	289	(4.3)	97			
			34	(4.1)	283	(6.1)	54	34	(4.1)	278	(7.7)	54	35	(4.3)	297	(5.4)	54			
	19-24	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	21	(2.7)	233	(5.6)	88	21	(2.7)	222	(6.4)	88	19	(2.8)	265	(4.7)	76			
			52	(2.9)	278	(3.6)	218	52	(2.9)	268	(4.1)	218	54	(2.9)	296	(3.5)	211			
			26	(2.7)	296	(5.1)	93	26	(2.7)	288	(6.0)	93	27	(2.9)	305	(4.5)	92			
Netherlands	16-18	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	34	(2.9)	*	274	(4.6)	100	34	(2.9)	*	266	(4.8)	100	32	(2.9)	*	285	(4.4)	89
			40	(3.0)	*	283	(4.1)	130	40	(3.0)	*	274	(4.6)	130	40	(3.1)	*	290	(3.5)	125
			27	(2.4)		307	(3.4)	82	27	(2.4)		304	(3.7)	82	28	(2.5)		309	(4.6)	82
	19-24	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	43	(1.8)	*	287	(2.7)	250	43	(1.8)	*	276	(2.9)	250	43	(1.9)	*	295	(2.8)	239
			33	(1.9)	*	303	(3.5)	187	33	(1.9)	*	290	(3.8)	187	33	(2.1)	*	304	(3.5)	178
			24	(1.7)		317	(3.9)	128	24	(1.7)		311	(4.1)	128	25	(1.7)		318	(3.9)	126
Finland	16-18	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	10	(1.8)		266	(9.0)	31	10	(1.8)		255	(11.9)	31	9	(1.5)		c	c	26
			56	(3.2)		285	(2.7)	184	56	(3.2)		272	(3.6)	184	57	(3.1)		294	(2.7)	179
			34	(3.0)		305	(4.2)	111	34	(3.0)		294	(4.9)	111	34	(3.0)		308	(4.1)	105
	19-24	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	14	(1.7)	*	276	(9.3)	73	14	(1.7)	*	257	(10.1)	73	12	(1.6)	*	287	(6.0)	63
			52	(1.9)		301	(3.1)	298	52	(1.9)		289	(2.8)	298	53	(1.9)		304	(2.6)	287
			34	(2.2)	*	315	(3.1)	184	34	(2.2)	*	307	(3.4)	184	35	(2.3)	*	316	(3.0)	182
Korea	16-18	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	11	(1.7)		284	(6.4)	49	11	(1.7)		273	(7.0)	49	11	(1.8)		298	(6.0)	43
			55	(2.7)		290	(2.6)	238	55	(2.7)		277	(2.9)	238	54	(3.0)		300	(2.9)	222
			34	(2.9)		295	(3.4)	142	34	(2.9)		285	(4.4)	142	35	(3.0)		305	(3.7)	140

Age			Literacy					Numeracy					Problem Solving					
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	
19-24	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	ISCED 5 and 6	18	(1.6)	279	(4.4)	120	18	(1.6)	268	(4.5)	120	17	(1.7)	293	(4.5)	112	
			58	(2.4)	293	(2.2)	374	58	(2.4)	280	(2.7)	374	58	(2.4)	305	(2.0)	351	
			23	(2.2)	308	(4.3)	139	23	(2.2)	298	(4.0)	139	24	(2.4)	312	(4.5)	135	
Japan	16-18	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	c	c	c	c	8	c	c	c	c	8	c	c	c	c	7	
			49	(3.6)	287	(3.4)	138	49	(3.6)	264	(4.4)	138	45	(4.0)	286	(4.3)	99	
			48	(3.6)	*	304	(3.5)	135	48	(3.6)	*	290	(4.7)	135	51	(4.1)	*	309
	19-24	ISCED 1, 2, and 3C short ISCED 3 (excluding 3C short) and 4	c	c	c	c	17	c	c	c	c	17	c	c	c	c	13	
			54	(2.7)	298	(2.8)	231	54	(2.7)	281	(3.3)	231	50	(2.9)	295	(4.0)	162	
			42	(2.5)	*	309	(2.7)	212	42	(2.5)	*	297	(3.5)	212	47	(2.8)	*	309

Source: PIAAC (2012)

S.E. standard error

N number of cases (unweighted)

* significantly different from England at five per cent level

c less than 30 cases

- no cases

Note: ISCED 1, 2, and 3C short includes adults with fewer than five GCSEs, or equivalent, grade C or above; ISCED 3 and 4 includes adults with five GCSEs, or equivalent, grade C or above or A level, and equivalent, qualifications; ISCED 5 and 6 includes adults with first degree or higher level qualifications.

B3 Level of father's education

Age			Literacy					Numeracy					Problem Solving							
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N			
England	16-18	ISCED 1, 2, and 3C short	20	(3.3)	238	(9.4)	35	20	(3.3)	225	(9.6)	35	18	(3.2)	265	(6.7)	32			
		ISCED 3 (excluding 3C short) and 4	50	(4.0)	271	(6.3)	85	50	(4.0)	261	(6.8)	85	52	(4.1)	295	(4.5)	83			
		ISCED 5 and 6	30	(4.2)	269	(6.9)	41	30	(4.2)	266	(8.4)	41	30	(4.1)	290	(5.3)	40			
	19-24	ISCED 1, 2, and 3C short	21	(2.4)	247	(5.5)	91	21	(2.4)	232	(6.0)	91	19	(2.2)	272	(5.2)	81			
		ISCED 3 (excluding 3C short) and 4	51	(3.0)	278	(3.8)	186	51	(3.0)	270	(3.8)	186	53	(3.1)	296	(3.6)	181			
		ISCED 5 and 6	28	(3.5)	295	(5.6)	91	28	(3.5)	290	(6.2)	91	28	(3.7)	306	(4.6)	88			
Netherlands	16-18	ISCED 1, 2, and 3C short	34	(3.4)	*	275	(4.3)	103	34	(3.4)	*	265	(4.9)	103	33	(3.3)	*	283	(4.4)	94
		ISCED 3 (excluding 3C short) and 4	34	(3.3)	*	286	(4.4)	108	34	(3.3)	*	280	(5.0)	108	35	(3.4)	*	296	(3.8)	104
		ISCED 5 and 6	32	(3.0)		301	(3.5)	98	32	(3.0)		296	(4.1)	98	32	(3.1)		306	(4.4)	95
	19-24	ISCED 1, 2, and 3C short	34	(2.0)	*	286	(2.9)	200	34	(2.0)	*	275	(3.0)	200	34	(2.0)	*	291	(3.1)	191
		ISCED 3 (excluding 3C short) and 4	30	(1.8)	*	304	(3.4)	173	30	(1.8)	*	292	(3.7)	173	31	(1.8)	*	308	(3.4)	168
		ISCED 5 and 6	35	(2.1)		309	(3.6)	188	35	(2.1)		300	(3.6)	188	35	(2.1)		312	(2.8)	180
Finland	16-18	ISCED 1, 2, and 3C short	18	(2.2)		273	(6.6)	56	18	(2.2)		261	(7.8)	56	17	(2.4)		288	(5.0)	51
		ISCED 3 (excluding 3C short) and 4	53	(3.1)		287	(2.9)	175	53	(3.1)		274	(3.9)	175	54	(3.2)		296	(3.0)	168
		ISCED 5 and 6	28	(2.6)		306	(4.6)	93	28	(2.6)		294	(5.3)	93	29	(2.6)		310	(4.7)	89
	19-24	ISCED 1, 2, and 3C short	20	(2.0)		286	(6.6)	109	20	(2.0)		274	(6.4)	109	19	(1.9)		294	(4.4)	100
		ISCED 3 (excluding 3C short) and 4	49	(2.1)		300	(3.1)	271	49	(2.1)		290	(2.7)	271	49	(2.1)		305	(2.7)	261
		ISCED 5 and 6	30	(1.9)		318	(3.4)	164	30	(1.9)		306	(4.0)	164	31	(1.9)		316	(3.3)	162
Korea	16-18	ISCED 1, 2, and 3C short	10	(1.9)	*	289	(6.4)	39	10	(1.9)	*	280	(6.6)	39	10	(2.0)	*	297	(6.6)	36

Age		Literacy					Numeracy					Problem Solving				
		%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N
19-24	ISCED 3 (excluding 3C short) and 4	44	(2.5)	289	(2.6)	190	44	(2.5)	274	(3.1)	190	43	(2.5)	299	(3.2)	174
	ISCED 5 and 6	46	(2.8) *	294	(3.1)	199	46	(2.8) *	284	(3.9)	199	48	(2.9) *	305	(3.3)	194
	ISCED 1, 2, and 3C short	15	(1.7) *	276	(4.6)	94	15	(1.7) *	266	(5.3)	94	14	(1.9)	290	(5.0)	88
	ISCED 3 (excluding 3C short) and 4	47	(2.2)	291	(2.6)	301	47	(2.2)	276	(3.2)	301	47	(2.2)	301	(2.5)	281
	ISCED 5 and 6	38	(2.5) *	304	(3.2)	239	38	(2.5) *	295	(3.2)	239	39	(2.6) *	314	(3.2)	230
Japan	ISCED 1, 2, and 3C short	c	c	c	c	18	c	c	c	c	18	c	c	c	c	12
	ISCED 3 (excluding 3C short) and 4	45	(3.1)	290	(3.1)	123	45	(3.1)	270	(4.4)	123	46	(3.8)	291	(3.6)	97
	ISCED 5 and 6	48	(3.2) *	304	(3.7)	131	48	(3.2) *	289	(4.9)	131	48	(4.1) *	311	(4.7)	100
	ISCED 1, 2, and 3C short	11	(1.7) *	286	(6.6)	41	11	(1.7) *	272	(7.0)	41	c	c	c	c	27
	ISCED 3 (excluding 3C short) and 4	43	(2.6) *	300	(2.9)	192	43	(2.6) *	283	(3.7)	192	43	(3.0) *	294	(4.6)	146
	ISCED 5 and 6	46	(2.6) *	309	(2.7)	224	46	(2.6) *	296	(3.1)	224	47	(2.9) *	310	(3.4)	171

Source: PIAAC (2012)

S.E. standard error

N number of cases (unweighted)

* significantly different from England at five per cent level

c less than 30 cases

- no cases

Note: ISCED 1, 2, and 3C short includes adults with fewer than five GCSEs, or equivalent, grade C or above; ISCED 3 and 4 includes adults with five GCSEs, or equivalent, grade C or above or A level, and equivalent, qualifications; ISCED 5 and 6 includes adults with first degree or higher level qualifications.

B4 Employment status

Age			Literacy					Numeracy					Problem Solving							
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N			
England	16-18	Employed or self employed	16	(2.0)	260	(6.6)	41	16	(2.0)	248	(8.0)	41	15	(2.0)	287	(5.4)	38			
		Not working and looking for work	c	c	c	c	14	c	c	c	c	14	c	c	c	c	13			
		Student (including work programs)	77	(2.5)	261	(4.7)	151	77	(2.5)	255	(5.1)	151	79	(2.4)	285	(4.1)	147			
		Doing unpaid household work	c	c	c	c	2	c	c	c	c	2	c	c	c	c	1			
		Other	c	c	c	c	2	c	c	c	c	2	c	c	c	c	2			
	19-24	Employed or self employed	54	(2.0)	273	(3.3)	253	54	(2.0)	266	(3.4)	253	55	(2.1)	293	(2.8)	239			
		Not working and looking for work	15	(1.6)	247	(7.0)	81	15	(1.6)	235	(7.2)	81	14	(1.6)	272	(5.6)	73			
		Student (including work programs)	24	(3.1)	283	(7.2)	79	24	(3.1)	273	(7.6)	79	24	(3.3)	303	(5.1)	74			
		Doing unpaid household work	6	(0.9)	232	(9.0)	45	6	(0.9)	211	(10.3)	45	5	(1.0)	248	(6.4)	42			
		Other	c	c	c	c	14	c	c	c	c	14	c	c	c	c	14			
Netherlands	16-18	Employed or self employed	11	(1.9)	284	(8.6)	33	11	(1.9)	282	(9.3)	33	11	(2.0)	299	(7.0)	31			
		Not working and looking for work	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0			
		Student (including work programs)	88	(1.9)	*	286	(2.5)	281	88	(1.9)	*	279	(2.6)	281	88	(2.0)	*	293	(2.7)	267
		Doing unpaid household work	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0			
		Other	c	c	c	c	3	c	c	c	c	3	c	c	c	c	3			
	19-24	Employed or self employed	45	(2.0)	*	292	(3.1)	256	45	(2.0)	*	281	(3.3)	256	45	(2.0)	*	296	(2.6)	246
		Not working and looking for work	c	c	c	c	22	c	c	c	c	22	c	c	c	c	21			
		Student (including work programs)	49	(2.2)	*	308	(2.7)	280	49	(2.2)	*	298	(3.3)	280	49	(2.2)	*	312	(2.8)	271
	Doing unpaid household work	c	c	c	c	3	c	c	c	c	3	c	c	c	c	3				
	Other	c	c	c	c	9	c	c	c	c	9	c	c	c	c	7				
Finland	16-18	Employed or self employed	c	c	c	c	13	c	c	c	c	13	c	c	c	c	12			
		Not working and looking for work	c	c	c	c	5	c	c	c	c	5	c	c	c	c	4			
		Student (including work programs)	94	(1.4)	*	289	(2.1)	315	94	(1.4)	*	277	(3.2)	315	94	(1.4)	*	298	(2.7)	301

Age			Literacy					Numeracy					Problem Solving							
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N			
	19-24	Doing unpaid household work	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1			
		Other	c	c	c	c	2	c	c	c	c	2	c	c	c	c	2			
		Employed or self employed	38	(2.2)	*	299	(3.6)	217	38	(2.2)	*	287	(3.8)	217	38	(2.2)	*	302	(2.8)	207
		Not working and looking for work	9	(1.3)	*	287	(8.2)	48	9	(1.3)	*	266	(8.2)	48	9	(1.3)	*	290	(5.7)	46
		Student (including work programs)	46	(2.1)	*	312	(3.5)	256	46	(2.1)	*	302	(3.1)	256	47	(2.2)	*	316	(3.0)	248
		Doing unpaid household work	c	c	c	c	16	c	c	c	c	16	c	c	c	c	14			
		Other	c	c	c	c	21	c	c	c	c	21	c	c	c	c	21			
Korea	16-18	Employed or self employed	c	c	c	c	18	c	c	c	c	18	c	c	c	c	18			
		Not working and looking for work	c	c	c	c	2	c	c	c	c	2	c	c	c	c	2			
		Student (including work programs)	94	(1.3)	*	292	(2.2)	406	94	(1.3)	*	279	(2.7)	406	94	(1.4)	*	302	(2.6)	382
		Doing unpaid household work	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1			
	19-24	Other	c	c	c	c	4	c	c	c	c	4	c	c	c	c	4			
		Employed or self employed	34	(2.6)	*	284	(3.2)	232	34	(2.6)	*	271	(3.8)	232	33	(2.6)	*	297	(2.7)	215
		Not working and looking for work	c	c	c	c	28	c	c	c	c	28	c	c	c	c	26			
		Student (including work programs)	54	(2.8)	*	301	(2.9)	327	54	(2.8)	*	290	(2.9)	327	56	(2.7)	*	311	(3.0)	315
		Doing unpaid household work	c	c	c	c	11	c	c	c	c	11	c	c	c	c	10			
Other	6	(1.1)	*	300	(8.2)	37	6	(1.1)	*	286	(8.6)	37	6	(1.1)	*	297	(9.4)	34		
Japan	16-18	Employed or self employed	c	c	c	c	19	c	c	c	c	19	c	c	c	c	16			
		Not working and looking for work	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1			
		Student (including work programs)	91	(2.0)	*	295	(2.5)	269	91	(2.0)	*	277	(3.9)	269	91	(2.3)	*	298	(3.2)	205
		Doing unpaid household work	c	c	c	c	1	1	(0.8)	c	c	1	-	-	-	-	0			
	19-24	Other	c	c	c	c	2	c	c	c	c	2	c	c	c	c	1			
		Employed or self employed	57	(2.3)		299	(2.8)	244	57	(2.3)		282	(3.1)	244	52	(2.9)		295	(4.4)	169
		Not working and looking for work	c	c	c	c	22	c	c	c	c	22	c	c	c	c	15			
		Student (including work programs)	31	(1.7)	*	309	(2.8)	195	31	(1.7)	*	301	(4.3)	195	36	(2.2)	*	315	(4.5)	165

Age	Literacy					Numeracy					Problem Solving				
	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N
Doing unpaid household work	c	c	c	c	11	3	c	c	c	11	c	c	c	c	9
Other	c	c	c	c	4	1	c	c	c	4	c	c	c	c	3

Source: PIAAC (2012)

S.E. standard error

N number of cases (unweighted)

* significantly different from England at five per cent level

c less than 30 cases

- no cases

B5 Born in the country of test

Age			Literacy					Numeracy					Problem Solving							
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N			
England	16-18	Yes	89	(2.7)	261	(4.2)	188	89	(2.7)	254	(4.6)	188	91	(2.4)	286	(3.8)	182			
		No	c	c	c	c	22	c	c	c	c	22	c	(c	c	c	19			
	19-24	Yes	86	(1.8)	272	(2.9)	417	86	(1.8)	263	(3.2)	417	90	(1.8)	290	(2.5)	405			
		No	14	(1.8)	247	(10.8)	56	14	(1.8)	237	(11.9)	56	10	(1.8)	287	(8.3)	38			
Netherlands	16-18	Yes	92	(1.7)	289	(2.4)	300	92	(1.7)	281	(2.5)	300	94	(1.7)	294	(2.6)	288			
		No	c	c	c	c	17	c	c	c	c	17	c	c	c	c	13			
	19-24	Yes	92	(1.3)	*	302	(2.1)	534	92	(1.3)	*	292	(2.2)	534	93	(1.3)	304	(2.0)	517	
		No	8	(1.3)	*	269	(9.2)	36	8	(1.3)	*	252	(10.2)	36	7	(1.3)	289	(7.8)	31	
Finland	16-18	Yes	97	(1.1)	*	289	(2.1)	327	97	(1.1)	*	276	(3.0)	327	97	(1.0)	*	298	(2.7)	313
		No	c	c	c	c	9	c	c	c	c	9	c	c	c	c	7			
	19-24	Yes	93	(1.2)	*	306	(2.3)	531	93	(1.2)	*	294	(2.0)	531	95	(1.1)	*	307	(2.1)	514
		No	c	c	c	c	28	c	c	c	c	28	c	c	c	c	22			
Korea	16-18	Yes	100	(0.3)	*	291	(2.1)	429	100	(0.3)	*	279	(2.5)	429	100	(0.3)	*	302	(2.6)	405
		No	c	c	c	c	2	c	c	c	c	2	c	c	c	c	2			
	19-24	Yes	97	(1.0)	*	296	(2.2)	618	97	(1.0)	*	283	(2.3)	618	98	(0.8)	*	306	(2.0)	591
		No	c	c	c	c	17	c	c	c	c	17	c	c	c	c	9			
Japan	16-18	Yes	100	(0.4)	*	295	(2.5)	292	100	(0.4)	*	276	(3.6)	292	100	(0.5)	*	298	(3.4)	223
		No	c	c	c	c	1	c	c	c	c	1	c	c	c	c	1			
	19-24	Yes	99	(0.2)	*	302	(2.1)	474	99	(0.2)	*	287	(2.6)	474	99	(0.3)	*	301	(2.8)	359
		No	c	c	c	c	3	c	c	c	c	3	c	c	c	c	3			

Source: PIAAC (2012)

S.E. standard error

N number of cases (unweighted)

* significantly different from England at five per cent level

c less than 30 cases

- no cases

B6 Language spoken at home

Age			Literacy					Numeracy					Problem Solving						
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N		
England	16-18	Not same as test language	c	c	c	c	7	c	c	c	c	7	c	c	c	c	5		
		Same as test language	96	(1.8)	261	(4.0)	203	96	(1.8)	253	(4.3)	203	96	(1.6)	285	(3.6)	196		
	19-24	Not same as test language	9	(1.6)	232	(13.6)	35	9	(1.6)	220	(14.9)	35	c	c	c	c	21		
		Same as test language	91	(1.6)	273	(2.8)	435	91	(1.6)	263	(3.2)	435	95	(1.4)	291	(2.4)	419		
Netherlands	16-18	Not same as test language	c	c	c	c	13	c	c	c	c	13	c	c	c	c	11		
		Same as test language	94	(1.6)	288	(2.5)	304	94	(1.6)	280	(2.6)	304	94	(1.6)	294	(2.6)	290		
	19-24	Not same as test language	c	c	c	c	25	c	c	c	c	25	c	c	c	c	23		
		Same as test language	94	(1.1)	301	(2.0)	542	94	(1.1)	291	(2.1)	542	94	(1.2)	304	(2.1)	525		
Finland	16-18	Not same as test language	c	c	c	c	4	c	c	c	c	4	c	c	c	c	3		
		Same as test language	99	(0.5)	289	(2.1)	326	99	(0.5)	277	(3.1)	326	99	(0.4)	298	(2.6)	312		
	19-24	Not same as test language	c	c	c	c	16	c	c	c	c	16	c	c	c	c	15		
		Same as test language	97	(0.8)	*	305	(2.3)	530	97	(0.8)	*	293	(1.9)	530	97	(0.8)	307	(2.1)	515
Korea	16-18	Not same as test language	c	c	c	c	2	c	c	c	c	2	c	c	c	c	2		
		Same as test language	100	(0.3)	*	291	(2.1)	429	100	(0.3)	*	279	(2.5)	429	100	(0.3)	302	(2.6)	405
	19-24	Not same as test language	c	c	c	c	10	c	c	c	c	10	c	c	*	c	c	3	
		Same as test language	98	(1.0)	*	295	(2.2)	624	98	(1.0)	*	283	(2.3)	624	99	(0.5)	*	305	(2.1)
Japan	16-18	Not same as test language	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0		
		Same as test language	100	(0.0)	*	295	(2.5)	293	100	(0.0)	*	276	(3.6)	293	100	(0.0)	*	298	(3.4)
	19-24	Not same as test language	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0		
		Same as test language	100	(0.0)	*	302	(2.1)	475	100	(0.0)	*	287	(2.6)	475	100	(0.0)	*	301	(2.8)

Source: PIAAC (2012)

S.E. standard error

N number of cases (unweighted)

* significantly different from England at five per cent level

c less than 30 cases

- no cases

B7 Skills use at home

Age			Reading skills - Literacy					Writing skills - Literacy					Numeracy skills - Numeracy					ICT skills - Problem Solving						
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N		
England	16-18	All zero response	-	-	-	-	0	c	c	c	c	12	c	c	c	c	16	c	c	c	c	1		
		Lowest to 20%	19	(3.2)	238	(8.5)	40	c	c	c	c	28	16	(2.9)	234	(10.2)	35	c	c	c	c	24		
		More than 20% to 40%	19	(2.5)	244	(7.8)	42	c	c	c	c	20	c	c	c	c	28	21	(3.0)	278	(6.0)	37		
		More than 40% to 60%	14	(2.4)	269	(8.2)	34	22	(3.5)	260	(7.3)	45	17	(3.0)	257	(9.4)	35	22	(3.3)	287	(5.9)	49		
		More than 60% to 80%	21	(3.1)	271	(7.4)	41	15	(2.8)	273	(9.5)	34	17	(3.1)	261	(10.3)	34	20	(3.4)	282	(6.2)	41		
		More than 80%	27	(3.5)	271	(7.3)	53	31	(3.3)	260	(5.9)	71	34	(4.3)	258	(8.4)	62	25	(3.7)	298	(5.9)	44		
	19-24	All zero response	c	c	c	c	2	c	c	c	c	28	11	(1.9)	232	(9.7)	47	c	c	c	c	3		
		Lowest to 20%	12	(1.6)	238	(6.8)	62	17	(2.2)	251	(6.4)	81	23	(2.2)	251	(6.5)	113	15	(2.2)	262	(4.6)	63		
		More than 20% to 40%	24	(2.5)	255	(4.6)	122	11	(1.7)	258	(5.9)	56	20	(1.9)	252	(6.0)	98	16	(2.1)	283	(4.9)	74		
		More than 40% to 60%	18	(2.0)	265	(7.4)	95	20	(2.1)	269	(6.9)	110	14	(1.8)	257	(7.5)	84	22	(2.4)	285	(4.5)	94		
		More than 60% to 80%	18	(2.0)	284	(5.9)	89	20	(1.8)	270	(7.0)	98	16	(2.1)	272	(8.4)	75	17	(2.1)	304	(5.7)	68		
		More than 80%	27	(2.6)	288	(5.4)	103	26	(2.4)	294	(4.7)	100	15	(2.1)	287	(7.7)	56	30	(3.7)	309	(4.0)	103		
Netherlands	16-18	All zero response	-	-	-	-	0	c	c	c	c	6	c	c	c	c	25	-	-	-	-	0		
		Lowest to 20%	12	(1.7)	271	(7.7)	36	14	(1.8)	278	(6.1)	47	c	c	c	c	19	c	c	c	c	15		
		More than 20% to 40%	19	(2.4)	276	(5.5)	59	10	(1.7)	277	(8.7)	33	c	c	c	c	18	c	c	c	c	28		
		More than 40% to 60%	19	(2.4)	279	(6.9)	61	24	(2.5)	292	(4.2)	74	10	(1.7)	*	279	(6.8)	33	21	(2.2)	291	(5.3)	64	
		More than 60% to 80%	20	(2.2)	296	(4.7)	66	24	(2.3)	*	289	(5.1)	77	13	(1.9)	255	(6.6)	42	29	(2.8)	*	298	(4.0)	89
		More than 80%	29	(2.9)	296	(3.7)	95	25	(2.5)	286	(5.1)	80	57	(3.0)	*	291	(2.9)	180	35	(2.5)	*	302	(4.1)	104
	19-24	All zero response	-	-	-	-	0	c	c	c	c	9	10	(1.3)	260	(6.1)	60	-	-	-	-	0		
		Lowest to 20%	11	(1.4)	263	(6.0)	66	11	(1.5)	*	272	(6.0)	61	18	(1.9)	274	(5.0)	101	c	c	c	c	23	
		More than 20% to 40%	14	(1.4)	*	288	(4.6)	8	(1.1)	287	(6.6)	43	16	(1.5)	284	(5.9)	93	10	(1.2)	*	281	(5.8)	55	
		More than 40% to 60%	16	(1.6)	293	(5.3)	88	22	(1.8)	297	(3.9)	125	12	(1.4)	292	(6.4)	68	17	(1.7)	294	(3.8)	92		
		More than 60% to 80%	24	(2.2)	307	(4.3)	132	24	(1.9)	302	(4.3)	138	16	(1.6)	291	(5.9)	85	31	(2.2)	*	307	(3.3)	170	
		More than 80%	36	(2.2)	*	312	(3.0)	202	34	(2.0)	*	310	(3.3)	194	28	(1.9)	*	308	(3.3)	163	38	(2.3)	315	(2.7)
Finland	16-18	All zero response	c	c	c	c	3	c	c	c	c	4	c	c	c	c	7	c	c	c	c	2		
		Lowest to 20%	13	(1.8)	262	(5.1)	44	18	(2.3)	268	(6.5)	62	c	c	c	c	7	11	(1.8)	283	(5.7)	36		

Age			Reading skills - Literacy					Writing skills - Literacy					Numeracy skills - Numeracy					ICT skills - Problem Solving								
			%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N				
19-24	More than 20% to 40%		22	(2.4)	280	(5.1)	73	11	(1.8)	289	(8.8)	35	c	c	c	c	15	23	(2.4)	294	(4.0)	73				
	More than 40% to 60%		23	(2.6)	*	291	(5.3)	76	19	(2.3)	285	(5.0)	63	10	(1.5)	*	261	(8.9)	34	29	(2.6)	298	(4.0)	92		
	More than 60% to 80%		24	(1.8)		298	(4.2)	81	23	(2.3)	*	291	(4.7)	76	18	(2.4)		263	(6.3)	61	23	(2.6)	307	(4.8)	73	
	More than 80%		17	(1.9)	*	306	(6.0)	59	28	(2.0)		303	(4.4)	96	63	(3.1)	*	287	(3.4)	212	13	(1.8)	*	303	(5.4)	43
	All zero response		c	c		c	c	1	c	c		c	c	8	c	c		c	c	4	-	-		-	-	0
	Lowest to 20%		c	c		c	c	29	10	(1.3)	*	283	(5.2)	59	c	c		c	c	25	c	c		c	c	29
	More than 20% to 40%		17	(1.8)	*	280	(7.6)	88	11	(1.5)		291	(8.0)	58	8	(1.1)	*	258	(7.7)	43	17	(1.9)		290	(4.2)	86
	More than 40% to 60%		20	(1.8)		300	(3.9)	111	19	(1.6)		305	(3.6)	109	15	(1.8)		276	(6.3)	80	24	(2.0)		300	(3.4)	128
	More than 60% to 80%		26	(1.8)	*	314	(3.4)	144	23	(1.9)		300	(6.0)	122	25	(2.0)	*	287	(5.2)	140	24	(1.9)	*	311	(3.6)	131
	More than 80%		32	(2.1)		313	(3.6)	185	35	(2.3)	*	313	(3.4)	202	47	(2.2)	*	307	(2.7)	266	29	(2.2)		321	(3.4)	160
Korea	16-18	All zero response	c	c		c	c	7	8	(1.6)		272	(6.8)	33	c	c		c	c	14	c	c		c	c	2
		Lowest to 20%	22	(2.1)		283	(4.0)	97	15	(1.9)		283	(4.3)	63	7	(1.6)	*	262	(7.9)	30	32	(2.5)	*	294	(3.2)	123
		More than 20% to 40%	21	(2.2)		294	(3.5)	93	10	(1.6)		293	(5.1)	44	c	c		c	c	23	18	(1.8)		305	(3.3)	74
		More than 40% to 60%	20	(2.0)		294	(3.5)	89	9	(1.3)	*	297	(5.6)	42	c	c		c	c	24	22	(2.1)		302	(3.9)	88
		More than 60% to 80%	18	(1.8)		297	(3.9)	75	17	(2.0)		296	(4.2)	76	9	(1.4)	*	269	(5.4)	39	14	(2.0)		308	(4.5)	56
	19-24	More than 80%	18	(1.9)	*	296	(5.0)	70	40	(2.8)	*	294	(3.3)	173	69	(2.3)	*	285	(2.7)	301	15	(1.8)	*	308	(6.2)	61
		All zero response	c	c		c	c	7	6	(1.1)		269	(6.7)	41	7	(1.0)	*	263	(7.6)	45	c	c		c	c	4
		Lowest to 20%	15	(1.7)		274	(5.2)	96	18	(1.8)		281	(4.6)	117	14	(1.5)	*	265	(5.2)	87	19	(2.0)		291	(4.2)	117
		More than 20% to 40%	18	(1.6)	*	284	(4.1)	115	11	(1.4)		288	(4.7)	69	11	(1.2)	*	267	(5.0)	82	14	(1.5)		299	(4.2)	93
		More than 40% to 60%	19	(1.8)		295	(3.8)	120	6	(1.0)	*	301	(5.5)	41	17	(1.8)		278	(3.7)	113	18	(1.7)		302	(3.7)	105
		More than 60% to 80%	21	(1.9)		307	(3.0)	136	10	(1.3)	*	294	(4.3)	65	20	(1.6)		281	(4.0)	120	19	(1.9)		313	(4.0)	110
		More than 80%	26	(2.1)		303	(4.1)	161	49	(2.7)	*	302	(3.0)	302	31	(2.4)	*	301	(3.8)	188	29	(2.1)		315	(3.2)	166
Japan	16-18	All zero response	c	c		c	c	3	c	c		c	c	8	c	c		c	c	23	c	c		c	c	6
		Lowest to 20%	27	(2.5)		280	(4.9)	74	12	(2.1)		302	(6.2)	36	11	(2.0)		262	(9.1)	30	34	(4.1)	*	287	(5.9)	66
		More than 20% to 40%	22	(2.3)		289	(4.7)	68	33	(2.9)	*	289	(4.2)	98	10	(1.4)		263	(7.6)	33	25	(3.1)		307	(6.9)	51
		More than 40% to 60%	20	(2.6)		301	(4.5)	58	14	(2.2)	*	300	(6.1)	39	c	c		c	c	25	15	(2.6)		306	(7.0)	32
		More than 60% to 80%	15	(2.1)		308	(5.9)	45	15	(2.1)		302	(7.2)	43	17	(2.2)		273	(7.6)	50	c	c		c	c	24
		More than 80%	16	(2.2)	*	312	(5.8)	45	23	(2.6)	*	296	(4.1)	69	45	(2.9)	*	291	(4.9)	132	c	c		c	c	20

Age		Reading skills - Literacy					Writing skills - Literacy					Numeracy skills - Numeracy					ICT skills - Problem Solving								
		%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N	%	S.E.	score	S.E.	N				
19-24	All zero response	c	c	c	c	3	c	c	c	c	22	21	(2.4)	*	269	(4.7)	93	c	c	c	c	4			
	Lowest to 20%	23	(2.2)	*	289	(4.2)	99	16	(1.6)	303	(4.4)	72	28	(2.2)	277	(4.3)	122	34	(3.1)	*	291	(5.2)	100		
	More than 20% to 40%	26	(2.1)		298	(4.2)	115	37	(2.6)	*	300	(3.0)	165	19	(1.7)	289	(5.0)	85	29	(2.8)	*	304	(4.5)	98	
	More than 40% to 60%	20	(1.9)		307	(3.8)	93	15	(1.9)		307	(4.4)	72	8	(1.2)	*	305	(7.7)	44	15	(1.7)	*	310	(5.9)	56
	More than 60% to 80%	17	(1.6)		309	(4.2)	89	11	(1.8)	*	309	(5.0)	58	10	(1.3)	*	295	(6.2)	54	12	(2.0)		327	(6.5)	44
	More than 80%	14	(1.6)	*	315	(4.3)	78	15	(1.8)	*	305	(4.3)	88	14	(1.6)		316	(5.2)	79	9	(1.5)	*	318	(7.4)	34

Source: PIAAC (2012)

S.E. standard error

N number of cases (unweighted)

* significantly different from England at five per cent level

c less than 30 cases

- no cases

Appendix C

C1 Coefficients and significance tests for each category in the logistic regression for predictors of low proficiency in all adults in England

Comparison category	Reference category	Literacy		Numeracy		Problem-solving	
		coeff	S.E.	coeff	S.E.	coeff	S.E.
Intercept	N/A	-2.33	(0.27) **	-1.92	(0.24) **	-1.45	(0.3) **
Aged 16–24 * English additional language	First language	-0.64	(0.87)	-0.77	(0.79)	-0.78	(1.45)
Aged 16–24 * Ethnicity Asian	White	-0.36	(0.72)	-0.06	(0.6)	-0.30	(0.88)
Aged 16–24 * Ethnicity Black		-0.56	(0.8)	-1.11	(1)	-1.82	(0.96) *
Aged 16–24 * Not born in the UK	Born in UK	-0.22	(0.7)	-0.18	(0.73)	0.06	(0.97)
Aged 16–24 * Father secondary school	Less than secondary school	-0.29	(0.47)	-0.28	(0.36)	-0.76	(0.64)
Aged 16–24 * Father above secondary school		-0.16	(0.69)	-0.25	(0.57)	0.22	(0.7)
Aged 16–24 * Mother secondary school	Less than secondary school	-0.33	(0.48)	-0.41	(0.39)	-0.28	(0.52)
Aged 16–24 * Mother above secondary school		-1.45	(0.76) *	-1.29	(0.56) **	-1.27	(0.8)
Aged 16–24 * Employment – Not employed and looking for work	Employed or self-employed	0.02	(0.51)	0.21	(0.46)	0.55	(0.5)
Aged 16–24 * Employment – Student		0.79	(0.81)	0.53	(0.52)	0.95	(1)
Aged 16–24 * Vocational orientation	Non-vocational orientation	-1.39	(0.88)	-0.27	(0.68)	-1.06	(1.05)

Comparison category	Reference category	Literacy		Numeracy		Problem-solving	
Female	Male	0.01	(0.14)	0.46	(0.11) **	0.33	(0.14) **
Aged 16–24	35–44	0.89	(0.37) **	0.73	(0.35) **	0.03	(0.47)
Aged 25–34		0.14	(0.2)	0.20	(0.19)	-0.40	(0.23) *
Aged 45–54		0.21	(0.21)	0.25	(0.16)	0.41	(0.17) **
Aged 55–65		0.11	(0.22)	-0.10	(0.17)	0.61	(0.2) **
Less than secondary school	Secondary school	0.71	(0.17) **	0.70	(0.16) **	0.72	(0.25) **
Above secondary school		-0.99	(0.19) **	-0.89	(0.18) **	-0.65	(0.23) **
Education not definable		-0.10	(0.52)	-0.45	(0.42)	-0.14	(0.78)
Vocational orientation	Non-vocational orientation	0.45	(0.23) *	0.44	(0.23) *	0.62	(0.22) **
Not applicable (Education category is lower or higher than 'upper secondary')		0.56	(0.18) **	0.45	(0.16) **	0.18	(0.19)
Employment – Retired	Employed or self-employed	-0.43	(0.32)	-0.14	(0.26)	-0.01	(0.37)
Employment – Not employed and looking for work		0.32	(0.27)	0.52	(0.24) **	0.12	(0.26)
Employment – Student		-0.50	(0.73)	-0.22	(0.49)	-1.16	(0.82)
Employment – Doing unpaid household work		0.04	(0.25)	0.33	(0.21)	0.15	(0.3)
Employment – Other		0.38	(0.29)	0.61	(0.28) **	0.21	(0.3)
English additional language	First language	0.85	(0.5) *	1.07	(0.39) **	0.10	(0.77)
Ethnicity Mixed	White	0.04	(0.55)	0.90	(0.39) **	0.86	(0.5) *

Comparison category	Reference category	Literacy			Numeracy			Problem-solving		
Ethnicity Asian		0.76	(0.33)	**	0.97	(0.37)	**	0.62	(0.43)	
Ethnicity Black		1.43	(0.32)	**	1.72	(0.31)	**	1.03	(0.42)	**
Ethnicity Other		0.49	(0.59)		0.79	(0.49)		0.95	(0.59)	
Ethnicity – missing response		-9.79	(1.54)	**	-9.85	(1.2)	**	-8.30	(1.45)	**
Ethnicity Mixed * English additional language	White*English first language	-1.21	(4.98)		10.47	(1.09)	**	4.60	(7.09)	
Ethnicity Asian * English additional language		0.49	(0.59)		-0.49	(0.54)		0.85	(0.85)	
Ethnicity Black * English additional language		-0.25	(0.81)		0.17	(1.03)		0.88	(1.19)	
Ethnicity Other * English additional language		0.77	(1.17)		0.98	(1.07)		2.09	(1.59)	
Not born in the UK	Born in UK	0.41	(0.23)	*	0.47	(0.21)	**	0.21	(0.34)	
Excellent health	Very good	0.43	(0.19)	**	0.18	(0.15)		0.15	(0.18)	
Good health		0.39	(0.17)	**	0.34	(0.13)	**	0.18	(0.17)	
Fair health		0.44	(0.21)	**	0.19	(0.24)		0.21	(0.22)	
Poor health		0.83	(0.31)	**	0.75	(0.32)	**	0.84	(0.33)	**
Health – missing response		-5.75	(5.12)		-2.76	(7.46)		-2.24	(8.64)	
Disability – activities limited a lot	No disability	0.02	(0.32)		-0.09	(0.26)		-0.20	(0.32)	
Disability – activities limited a little		-0.07	(0.25)		-0.09	(0.19)		-0.01	(0.23)	
Disability – missing response		-4.52	(6.6)		-1.84	(7.91)		-0.54	(9.58)	
Father secondary school	Less than secondary	-0.22	(0.18)		-0.22	(0.14)		-0.26	(0.16)	

Comparison category	Reference category	Literacy			Numeracy			Problem-solving		
Father above secondary school	school	-0.58	(0.31)	*	-0.95	(0.2)	**	-0.75	(0.24)	**
Father schooling – missing response		0.01	(0.2)		0.01	(0.16)		0.02	(0.24)	
Mother secondary school		-0.51	(0.23)	**	-0.41	(0.16)	**	-0.61	(0.21)	**
Mother above secondary school		-0.53	(0.38)		-0.38	(0.26)		-0.46	(0.31)	
Mother schooling – missing response		0.19	(0.26)		0.12	(0.2)		0.16	(0.2)	
No computer experience in everyday life	Computer experience	0.65	(0.19)	**	0.95	(0.18)	**	1.51	(0.25)	**
Computer experience – missing response		0.59	(0.23)	**	1.33	(0.24)	**			
Have children	Not have children	0.11	(0.15)		0.19	(0.13)		-0.18	(0.16)	
Children – missing response		-6.14	(4.83)		-7.71	(0.69)	**	-7.39	(1.38)	**
Occupation – Armed Forces	Services and shop and market sales	-8.63	(3.14)	**	-6.91	(5.13)		-5.26	(5.59)	
Occupation – Legislators, senior officials and managers		-0.69	(0.31)	**	-0.81	(0.26)	**	-0.99	(0.31)	**
Occupation – Professionals		-1.23	(0.34)	**	-1.26	(0.3)	**	-1.41	(0.32)	**
Occupation – Technicians and associate professionals		-0.74	(0.33)	**	-0.57	(0.24)	**	-0.70	(0.27)	**
Occupation – Clerks		-0.75	(0.33)	**	-0.70	(0.28)	**	-1.06	(0.27)	**
Occupation – Skilled agricultural and fishery workers		-0.37	(0.67)		-0.96	(0.7)		-0.67	(0.77)	
Occupation – Craft and related trades workers		-0.43	(0.32)		-0.53	(0.3)	*	-0.29	(0.33)	
Occupation – Plant and machine operators and assemblers		-0.13	(0.27)		0.02	(0.24)		-0.17	(0.36)	

Comparison category	Reference category	Literacy	Numeracy	Problem-solving
Occupation – Elementary occupations		0.25 (0.23)	0.38 (0.22) *	0.13 (0.25)
Occupation – missing response		-0.15 (0.17)	-0.26 (0.16)	-0.30 (0.22)

Source: PIAAC (2012)

Note: Low proficiency is defined as Level 1 or below for literacy and numeracy, and below Level 1 for problem solving. The blue shading denotes the interaction variables which look at whether the factors identified as being different amongst adults aged 16-24 were statistically significant. The white cells show the association between a characteristic and the difference in log odds of having low skills compared to the reference category, for the full sample age 16-65.

* significant at the ten per cent level

** significant at the five per cent level

coeff coefficient

S.E. standard error

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