

OECD SKILLS STUDIES

BUILDING SKILLS FOR ALL: A REVIEW OF ENGLAND

POLICY INSIGHTS FROM THE
SURVEY OF ADULT SKILLS

Małgorzata Kuczera
Simon Field
Hendrickje Catriona Windisch



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Summary and recommendations

Giving priority to early intervention

An estimated 9 million adults of working age in England have low basic skills

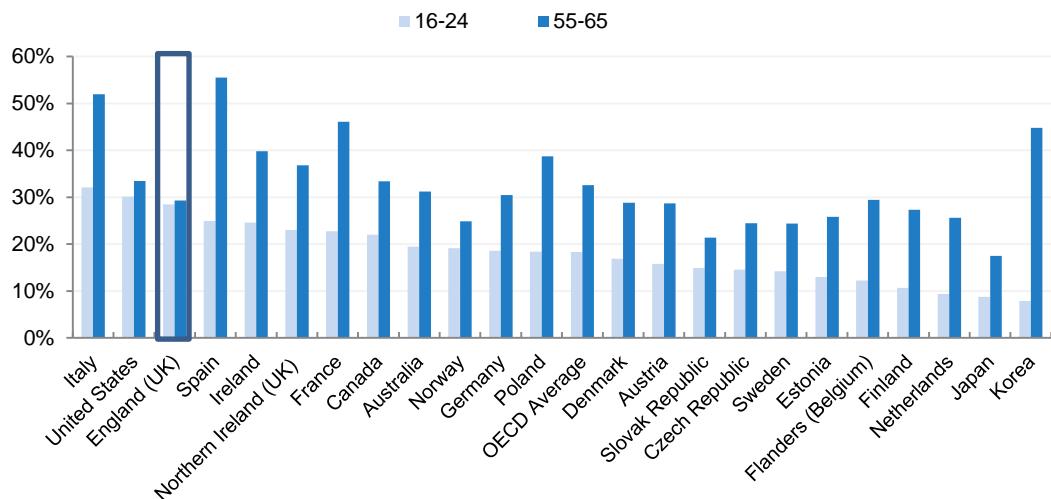
There are an estimated 9 million working aged adults in England (more than a quarter of adults aged 16-65) with low literacy or numeracy skills or both. This reflects England's overall performance in the Survey of Adult Skills - around average for literacy, but well below average for numeracy relative to other OECD countries in the Survey (OECD, 2013). These 9 million people struggle with basic quantitative reasoning or have difficulty with simple written information. They might, for example, struggle to estimate how much petrol is left in the petrol tank from a sight of the gauge, or not be able to fully understand instructions on a bottle of aspirin. Here they are referred to as 'low-skilled'. Weak basic skills reduce productivity and employability, damage citizenship, and are therefore profoundly implicated in challenges of equity and social exclusion. This report explores the factors behind these findings, and proposes policy solutions.

There are surprisingly many young people among the low-skilled in England

For England, a further concern is that young adults perform no better than older ones. So although adults approaching retirement age (55-65 year-olds) in England compare reasonably well with their counterparts in other countries, younger people are lagging badly behind (see Figure 1). Other things being equal (including migration) this means that in time the basic skills of the English labour force could fall further behind those of other countries. In many countries rising education attainment has driven better basic skills. But while in England many young people are more likely than their parents' generation to continue to further and higher education, too many still have weak basic skills.

Figure 1. In most countries, but not in England, younger people have stronger basic skills than the generation of people approaching retirement

Percentage of adults with low skills (literacy and/or numeracy below level 2) in different age groups



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

So what has gone wrong?

At every qualification level, low basic skills are more common among young people in England than in many other countries (see Table 1). This means that despite the rapid expansion of educational opportunities, and a relatively well *qualified* cohort of young adults, the basic skills of this cohort have remained weak.

Table 1. Share of young adults with low basic skills

16-34 year-olds, by highest qualification			
Qualification level	Average of OECD Survey participants	England	
Below UK level 2	29.8%	48.0%	
UK level 2 and 3	15.0%	20.7%	
Post-secondary non university (UK level 4 and 5)	10.2%	21.4%	
University (UK level 6 and above and some level 5)*	3.6%	6.9%	

Note: See Box 3.1. for the classification of postsecondary qualifications.

* Difference between England and the OECD average for university graduates is not significant (at the 5% level).

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

The priority of priorities is to improve the standard of basic schooling

In England, the weak basic skills of young adults compared with other countries can be traced back to a lower standard of performance at the end of initial education. Solving these problems should be feasible, on the model of what other countries have achieved, and an active programme of school reform is in train. The *priority of priorities* is therefore to improve the standard of basic schooling in England, improving both average and minimum standards (which are especially weak in England). Basic skills should be developed and sustained throughout the stages of the education system and into adult life. Each phase depends on an intake from the previous phase of well-prepared students, fully versed in the relevant foundation skills. While remediation of weaknesses in basic skills arising from earlier phases of education is sometimes necessary, it is typically less cost-effective than earlier intervention.

Alongside school reform, an impressive range of initiatives addresses the needs of young adults

Alongside reform of basic schooling, England has in recent years adopted a wide-ranging set of measures to address the literacy and numeracy weaknesses of young adults at 16-19 and beyond. The participation age has been raised to 18; maths and literacy courses have been made a requirement in most 16-19 education; some of the less demanding qualifications have been dropped. These headline reforms have been underpinned by measures to improve maths and literacy teaching, and support such teaching with research. It is too early to evaluate the success of these reforms, but their objectives are clearly the right ones.

Low-skilled adults are a diverse group

It is sometimes assumed that the majority of adults lacking basic skills are school dropouts, outside the labour market and living on benefits. In fact, rather few meet this description. The low-skilled are a surprisingly varied group, some with good qualifications, the majority in work of some sort or other, and include a number of migrants (including some who may have very good literacy skills in their mother tongues, if not in English).

Recommendation 1: Give priority to early intervention

Priority should be given to early intervention to ensure that all young people have stronger basic skills.

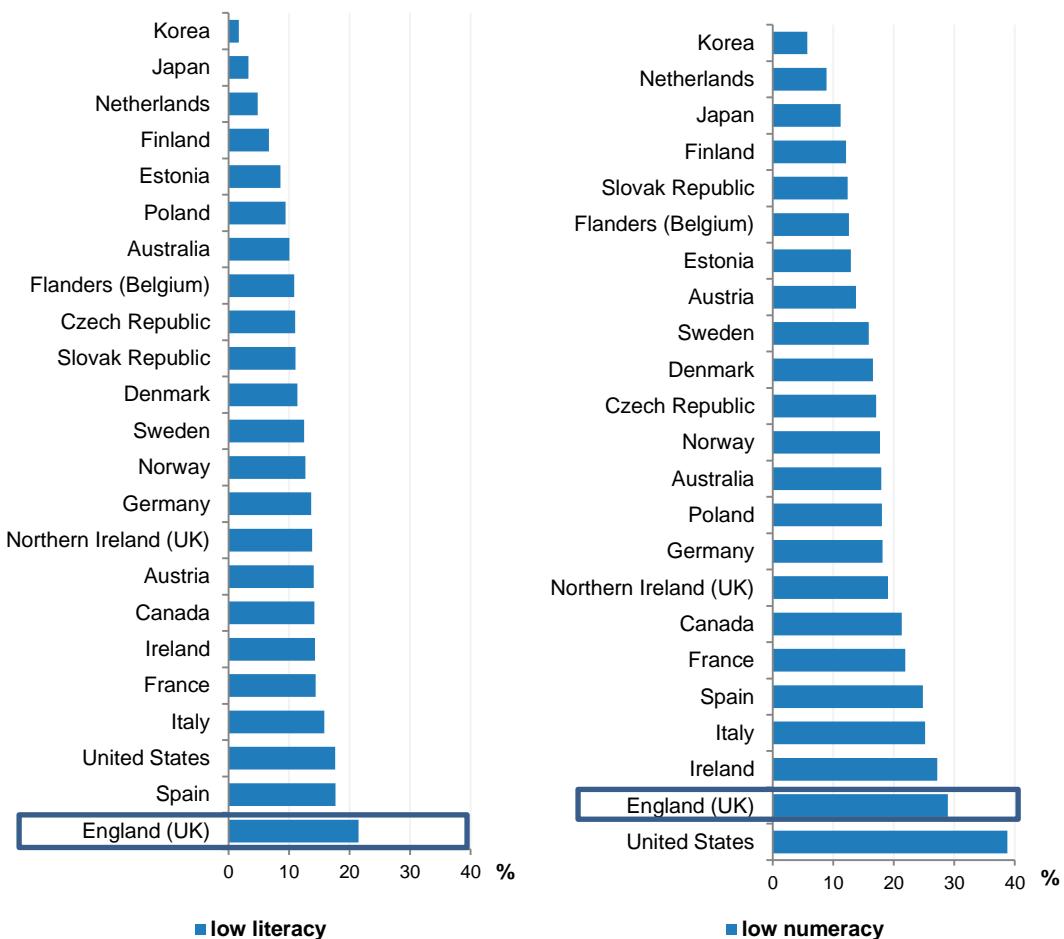
Tackling low skills among those aged 16-19

In England, one-third of those aged 16-19 have low basic skills

England has three times more low-skilled people among those aged 16-19 than the best-performing countries like Finland, Japan, Korea and the Netherlands (see Figure 2). Much of this arises from weak numeracy (and to a lesser extent literacy) performance on average. In 2012 in England, only 70 % of 16-19 year-olds were participating in education or training leading to a formal qualification, compared to nearly universal participation in many other OECD countries. So in England, young people tend to leave formal education and training earlier than elsewhere.

Figure 2. Too many teenagers in England have low basic skills

Percentage of 16-19 year-olds with low literacy and numeracy (below level 2)



Note: Adults who obtained their highest qualification outside the host country: those with foreign qualifications and 1st generation migrants, who obtained their highest qualification prior to entering the host country, are excluded.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

The basic skills standards for all young people need to be raised

Comparison of numeracy and literacy scores realised by graduates of different upper secondary qualifications shows that young people in England with the General Certificate of Secondary Education (GCSE) or equivalents and National Vocational Qualifications (NVQs) as their highest qualification, (accounting for nearly half of all of those with UK level 2 and 3 as their highest qualification), perform less well on basic skills, particularly numeracy, than their counterparts in many other countries, including those with vocational qualifications. Around 30% of young people with GCSE or equivalents and NVQs (UK level 2 and 3) as their highest qualification have low basic skills. Even for those with GCSEs that include maths and English, the basic skills outcomes are weaker than for many upper secondary qualifications obtained in other OECD countries. England should set more demanding basic skills standards linked to upper secondary completion. This means developing appropriate goals to encourage all young people to continue to develop their maths and English skills beyond the age of 16. Although current reforms address this very issue, in the longer term they could go further, particularly in making the need to go beyond (UK) level 2 explicit and universal.

Building on current reforms, strengthened expectations are needed for the 16-19 phase of education

If the English education system were to be designed from scratch on a blank sheet of paper it would be unlikely to include an awkward programmatic and institutional break point at 16, supported by a high-stakes examination, in a context where the OECD norm, (embraced by England) is for initial education and training to continue until 18 at least. The more radical would therefore abolish GCSEs in favour of an English Baccalaureate at age 18. The more cautious would remind us that we do not have a blank sheet, and point to the labour market currency of GCSE qualifications, and argue instead for stronger options post-16, to encourage retention in education and good quality education for all. It is beyond the scope of this review to judge between these options. The common factor is strengthened expectations for what should be achieved at the end of the 16-19 phase of education.

Recommendation 2: Sustain reform efforts and increase basic skills standards for upper secondary education

Building on recent initiatives for those aged 16-19 and stronger basic schooling, establish more demanding basic skills standards in upper secondary education to match those already realised in other countries. Seek to deliver skills to those standards, on an inclusive basis, to all students by age 19.

Tackling low skills in postsecondary education

Around one in ten university graduates have low skills

Around one in ten of all university students in England have numeracy or literacy levels below level 2 (see Figure 3. For the distribution of basic skills among university students). These figures indicate a major basic skills challenge among current students, which is often not resolved at the point of graduation. University programmes typically rest on the assumption that entrants have good core academic skills acquired at school. But while England is graduating more young people from university than many other countries, the basic skills of those in the potential entrant pool (aged 16-19) show more weaknesses than elsewhere, with one third of the age group having low basic skills. This suggests an imbalance between an entrant pool with weak skills and a high level of university participation.

Low skills are even more common among those with shorter postsecondary qualifications

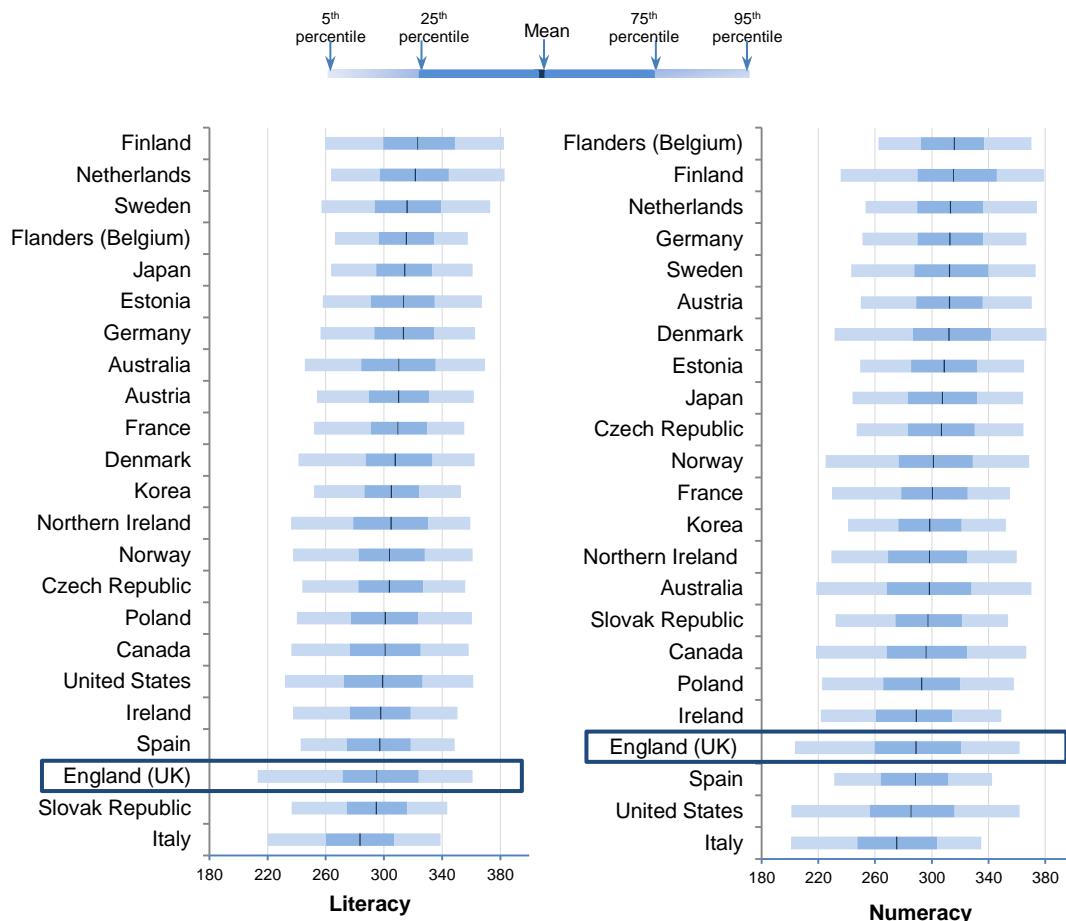
Around 10% of 16-34 year-olds hold ‘other’ shorter postsecondary qualifications, such as higher national certificates and diplomas, and other UK level 4 and 5 qualifications. About two-thirds of these are vocational¹ and will be described here as ‘professional qualifications’. For both professional and general qualifications of this type, one in five graduates are low-skilled (either on literacy or numeracy or both), more than in many other countries, and similar weaknesses are found among current students studying for these programmes.

For the low-skilled, short professional programmes are typically more cost-effective for society but may still be attractive to individuals

For those with low basic skills, the social returns to shorter professional programmes are almost certainly at least as good as those from university programmes. Given that the social cost of short professional programmes is clearly much lower than university programmes, they will be a more cost-effective option for society as a whole for most low-skilled persons, even if, for some of the individuals involved, there may be attractions in a university qualification. Reducing student numbers in university programmes in favour of more suitable programmes, particularly in the Further Education (FE) sector, is therefore desirable. Two main approaches to this task are possible: one would be to inhibit those with low skills from entering university, while a second approach would be to prevent universities from graduating students with low basic skills, leaving institutions to work out how to deliver that outcome. These approaches might be blended together. The savings of some hundreds of millions of pounds, should be redeployed to improve basic standards in initial schooling and 16-19 education, and to support the development of short professional postsecondary programmes. This would help to rebalance the English education system towards one which would be both more efficient in the use of public resources and fairer to all. The medium term impact of the measure would be to balance the scale of university education with the flow of well-prepared entrants.

Figure 3. England has more university students with weak literacy and numeracy skills than most countries

Distribution of numeracy (chart on the right) and literacy (chart on the left) skills among current university students
16-34 year-olds



Note: Countries are ranked in ascending order of the mean.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Equity in education requires early intervention

It is sometimes argued that if universities were more selective, then this would damage equity. At present, initial schooling results in one third of 16-19 year-olds in England having low basic skills, and these poor outcomes depend heavily on parental background. Solving these problems is the clear equity priority, as it would allow young people from disadvantaged backgrounds a much better chance of realising their potential, and benefitting fully from the full range of university and other postsecondary options, as well as granting them much better prospects in the labour market.

Universities need to do more to improve literacy and numeracy at intermediate level

Universities can and should do more to address basic skills at intermediate level. Around one in five young English university graduates can manage to read the

instructions on a bottle of aspirin, and understand a petrol gauge, but will struggle to undertake more challenging literacy and numeracy tasks. Widening participation therefore needs to be linked to improvement in the reading, basic numeracy and writing skills of university students.

Developing professional programmes needs to take the basic skills challenge fully into account

Postsecondary professional programmes already yield relatively good returns to low-skilled adults, probably because of job specific skills acquired on these programmes. Improvement in basic skills among current students would further increase the returns to professional qualifications, because basic skills within each level of educational attainment, including postsecondary professional programmes, are positively associated with labour market outcomes.

Recommendation 3: Divert unprepared university students and enhance basic skills tuition

Those with low basic skills should not normally enter three-year undergraduate programmes, which are both costly and unsuited to the educational needs of those involved, while graduates with poor basic skills undermine the currency of an English university degree. These potential entrants should be diverted into more suitable provision that meets their needs.

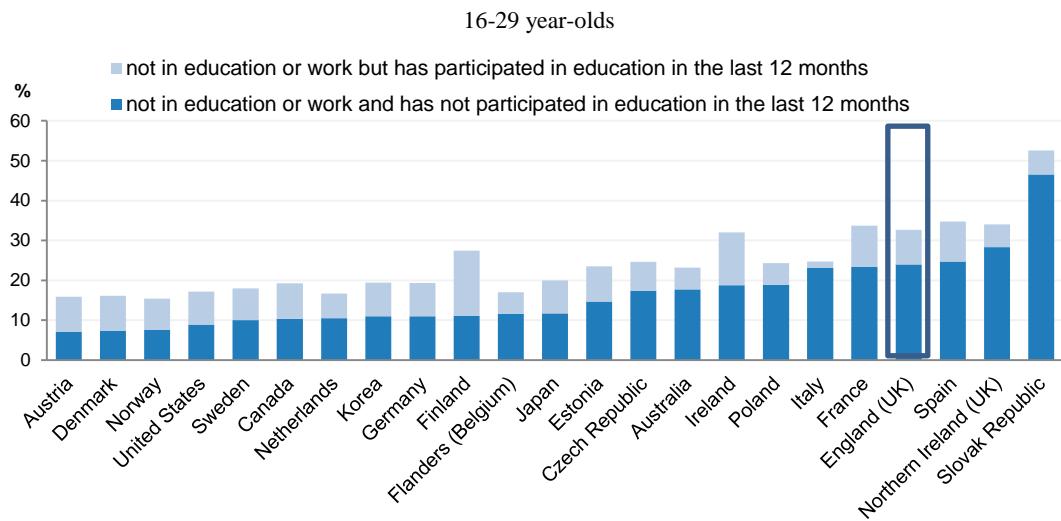
Such students need postsecondary alternatives that will address their needs and tackle basic skills. Such alternatives need further development in England. Resources diverted from university provision should be redeployed, particularly in the FE sector, to support this.

For students with intermediate levels of basic skills, much more needs to be done within universities to develop quite basic literacy and numeracy skills, alongside higher level study skills.

Enhancing skills through working life

Most low-skilled people of working age are in employment

In 2012 nearly 60% of the low-skilled, or more than 5 million people, were in work. A further one million low-skilled people were looking for a job. So through work people can, in principle, maintain and develop their skills. In a similar pattern to other countries, just over one third of 16-29 year-olds with low skills have jobs, but in England a larger proportion of them neither work nor study (see Figure 4). These young people might find it extremely difficult to find a good job. So the workplace when combined with education can offer significant potential for young people to develop basic skills. It provides meaningful learning alternatives to students who are more practically oriented, and often facilitates entry to the labour market.

Figure 4. In England, many young adults are not in either education or work

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Low skills are also a cause of unemployment

Low skills may cause unemployment directly, but they can also lead to a sequence of insecure jobs. Since skills decay through lack of use, low basic skills may also result from unemployment, or unskilled employment. Someone who starts their career with low basic skills can therefore become entrenched in a career trajectory in which their pattern of employment both reinforces, and is reinforced by low basic skills. If this is so, then midlife remediation of basic skills may, in isolation from other interventions, have limited power to reset a new career and learning trajectory.

Recommendation 4: Improve transitions into work and promote upskilling at work

Improve transition from school to jobs by offering opportunities to upskill, in particular to young people with poor or no qualifications, through good quality apprenticeships and traineeships.

Using evidence to advance adult learning

Tackling weak basic skills is hard and incentives to learn are often lacking

Tackling serious literacy and numeracy weaknesses among adults is challenging, and the returns from doing so are very uncertain. Often those concerned will have done badly at school; they may often lack awareness of their deficiencies, and even if aware, are embarrassed to admit it. Even for those interested in tackling their weaknesses, it may be hard to translate that interest into action. Adults with busy working and family lives find

it hard to find space for learning; drop-out rates are usually very high. But although the general evidence is disappointing, more specific interventions have shown promise.

The roots of motivation are variable

Some learners are highly dependent on teachers for structure and guidance, while others prefer to manage their own learning. Some may be motivated to learn because of some specific objective like helping their children with homework, others may want to learn out of curiosity. Assistance with childcare, transport, access to social services, and measures to avoid wage loss and unemployment during course participation can make a difference.

Teacher preparation and certification arrangements vary widely

Strong teachers are needed to assist learners who often have a long history of struggling in school, but low pay is a common barrier. Often, a specialist profession does not exist. Volunteer support can be vital, but it needs to be backed by at least some training of volunteers.

Key targeted techniques for addressing needs of adults with low basic skills include:

- Formative assessment uses assessment of learners' knowledge to establish needs and learning objectives to modify teaching activities, while tracking learning progress. Empirical studies have demonstrated that formative assessment can make a significant contribution to learning progress, and it is particularly suited to the teaching of literacy and numeracy to low-skilled adults (Black and William, 1998, 2003).
- E-learning and learning technology has been argued to be a cost-effective way of overcoming the obstacles to literacy and numeracy learning (e.g. Department for Business, Innovation and Skills, 2011; Davis et al., 2010). Some have found that it can connect with 'hard-to-reach' learners and can reinforce both ICT and basic skills. But since face-to-face contact with teachers and peers can be a powerful motivating factor ICT normally needs to be twinned with tutor input through face-to-face contact or via telephone or email to support motivation.
- Under a 'contextualised' approach, basic skills are acquired in the context of learning something else. Such approaches may engage low-skilled learners who have negative feelings about classroom numeracy and literacy (e.g. Vorhaus et al., 2011; House of Commons, 2014). Basic skills linked to an occupational skill are more likely to be sustained through use. But contextual learning makes quite complex organisational demands so that literacy and numeracy teachers coordinate their work with vocational teachers.
- Family literacy and numeracy programmes address adults not only as learners, but also as a powerful influence on their children. They focus on literacy and numeracy development, and may require specially trained staff, separate as well as combined teaching sessions for parents and children (Benseman and Sutton, 2005). Well-designed programmes have been shown to promote literacy and numeracy among children in particular, and adults' parenting capacity, with parents reporting that they benefitted most in terms of their ability to help their

children in schoolwork, parenting skills, and in terms of employment and self-confidence.

Recommendation 5: Use evidence to support adult learning

Use research evidence to develop teaching methods and guide interventions, recognising that successful adult learning programmes need to motivate learners, ensure a high quality teaching workforce, use evidence-based teaching methods, and make use of relevant learning environments, including occupational and family contexts.

NOTE

1. National programmes are coded according to ISCED 1997.

References

- Benseman, J. and A. Sutton (2005), *Summative Evaluation of the Manukau Family Literacy Project*, Auckland Uni Services Ltd. Auckland.
- BIS (Department for Business, Innovation and Skills) (2011), “Review of Research and Evaluation on Improving Adult Literacy and Numeracy Skills”, *BIS Research Paper Number 6*, Department for Business, Innovation and Skills, London.
- Black, P. and D. Wiliam (1998), *Inside the Black Box – Raising Standards through Classroom Assessment*, Department of Education and Professional Studies, Kings College, London
- Black, P. and D. Wiliam (2003), “In Praise of Education Research: Formative Assessment”, *British Education Research Journal*, Vol. 29(5).
- Davis, N., J. Fletcher, B. Brooker, J. Everatt, G. Gillon, J. Macke and D. Morrow (2010), E-learning for adult literacy, language and numeracy: a review of the literature, Ministry of Education, Wellington.
- House of Commons, Business, Innovation and Skills Committee (2014), *Adult Literacy and Numeracy, Fifth Report of Session 2014-15*, www.publications.parliament.uk/pa/cm201415/cmselect/cmbis/557/557.pdf.
- OECD (2013), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, OECD Publishing; Paris.
- Vorhaus J., et al. (2011), *Review of research and evaluation on improving adult literacy and numeracy skills*, Department for Business, Innovation and Skills, London.

Chapter 1

Introduction: Giving priority to early intervention

9 million adults in England have weak literacy or numeracy, according to the OECD Survey of Adult Skills. While overall, the performance of England is not much behind many other countries, England's young people lag much further behind their counterparts in other countries, particularly on numeracy. Although young people in England are relatively well-qualified, those qualifications often fail to carry with them an adequate package of basic skills. There is evidence that basic skills acquired early on in life sustain a favourable career trajectory, and conversely, later remediation is very challenging. It follows that early intervention, including basic schooling, must be a priority in England. Recent reforms are designed to give more attention to the basic skills of young adults, and these set a commendable direction.

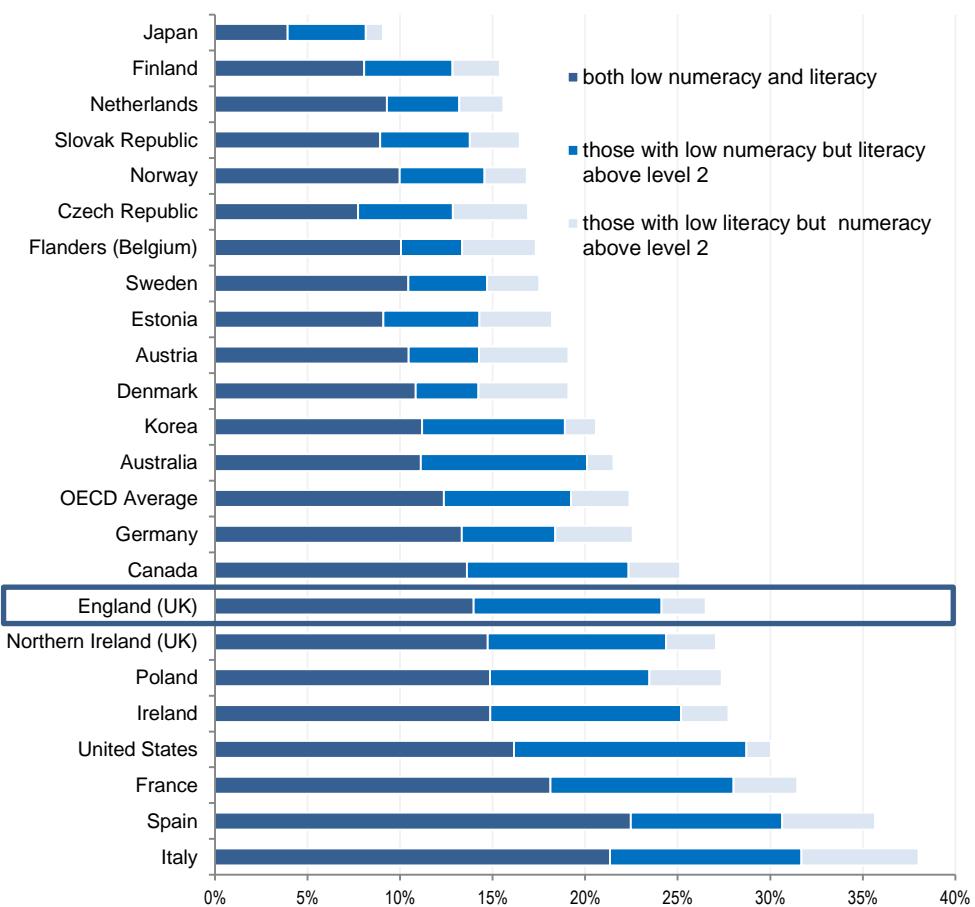
The basic skills challenge

An estimated 9 million adults of working age in England have low basic skills

There are an estimated 9 million working aged adults in England (more than a quarter of adults aged 16-65) with low literacy or numeracy skills or both. 5 million people do poorly in both domains (see Figure 1.1). Repeated surveys have reduced the surprise, but not necessarily the concern over these findings. They reflect England's overall performance relative to other OECD countries in the Survey of Adult Skills - around average for literacy, but well below average for numeracy. England also has a wider spread of results in respect of numeracy, so that more people are low-skilled than in other countries with a similar average performance. These 9 million people struggle with basic quantitative reasoning or have difficulty with simple written information. Here they are referred to as 'low-skilled' – recognising that some will have good occupational skills, and others will have strong basic skills in a language other than English. Weak basic skills reduce productivity and employability, damage citizenship, and are therefore profoundly implicated in challenges of equity and social exclusion. The purpose of this report is to explore the reasons for this finding, and propose policy solutions.

Figure 1.1. How many people have low basic skills?

Percentage of all adults aged 16-65



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

What does it mean to have low skills?

In this report ‘low skills’ are defined as those who are below level 2 on either literacy or numeracy in the Survey of Adult Skills (see Box A1.2 in Annex 1). A third domain assessed in the Survey (problem solving in technology rich environments), is not used widely in this report. (Box A1.1 in Annex 1 explains this point and describes the main findings in this domain for England). ‘Low skills’ is an abstract notion, and doubly so when it depends on an arbitrary cut-off point. Box 1.1 therefore gives examples of the instruments used to test whether individuals are at or below level 2. The skills measured are those of everyday life – reading a petrol gauge and understanding how to take painkillers in a sensible way. The numeracy skills do not require specific technical capacities like algebra, but they are mediated by literacy. It is important to distinguish between the OECD’s Survey measures in terms of levels, and the quite separate levels employed by the UK qualifications framework (see Table A1.1. in Annex 1).

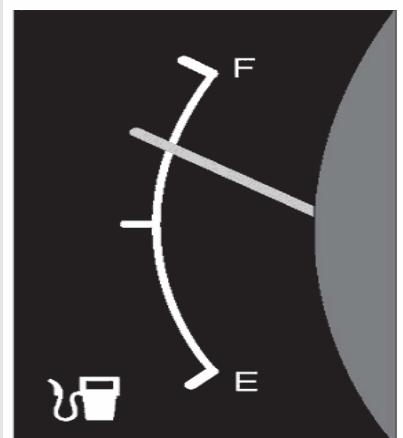
Box 1.1 How low basic skills are measured in the Survey of Adult Skills

Individuals are classified at different levels of numeracy and literacy based on their probability of responding to tasks of different difficulty levels (see Chapter 18 in OECD, 2013). At each point of the scale an individual with a score of that particular value has a 67% chance of successfully completing items located at that point. ‘Low-skilled’ (below level 2 on our definition) adults would, more often than not, be unable to perform these tasks.



Literacy level 2/3

Q: What is the maximum number of days you should take this medicine? List three situations for which you should consult a doctor.



Numeracy level 2

Q: The petrol tank in this truck holds 48 gallons. About how many gallons of petrol remain in the tank? (Assume the gauge is accurate.)

Source: <https://nces.ed.gov/surveys/all/Items.asp?sub=yes&SectionID=2&CatID=2>; OECD (2013), Technical Report of the Survey of Adult Skills (PIAAC), http://www.oecd.org/site/piaac/_Technical%20Report_17OCT13.pdf.

Basic skills are fundamental to life chances

Literacy and numeracy lie at the root of our capacity to communicate and live and work together, to develop and share knowledge, science and culture. Their contribution to workforce skills has increasingly been recognised as critical to economic success, while evidence on gaps in adult basic skills and the link with economic and social outcomes has also been growing, both at national and international level. Most tellingly, there has been a belated realization that despite universal basic education in advanced countries, some young people slip through the net, leaving them with very weak literacy and numeracy as adults. Numeracy and literacy are also more easily measurable than many other skills that are either highly context-dependent (like social skills) or highly specific (like playing the piano) or both.

The causal pathways between low skills and poor life chances are often unclear

When looking at policy remedies, we have to be clear about what we are trying to achieve. One objective is equity, or fairness. Many people with weak basic skills are disadvantaged, often because they have low pay, unpleasant or insecure jobs, or are unemployed, or are poor and excluded from the labour market. We know that lack of basic skills is associated with all of these problems, part of a package of life disadvantages (see for example Vignoles, Coulon, and Marcenaro-Gutierrez, 2010; Bostock and Steptoe, 2012). But the direction of causality is often uncertain, so we do not know if low skills led to bad jobs or no jobs, or vice versa. Even if low basic skills damaged life chances it does not necessarily follow that for adults, strengthened literacy and numeracy can reverse the process.

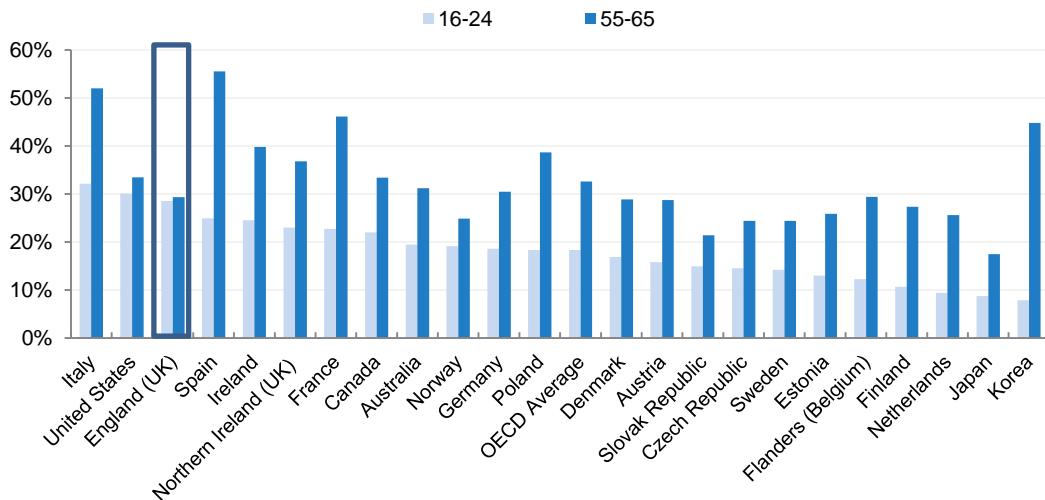
Understanding the main results

There are surprisingly many young people among the low-skilled in England

Relative to other countries, as shown in Figure 1.1, England's overall performance in terms of the proportion of low-skilled adults is weak but not disastrous. But for England, a further concern is that young adults perform no better than older ones. So although adults approaching retirement age (55–65 year-olds) in England compare reasonably well with their counterparts in other countries, younger people are lagging badly behind (see Figure 1.2). Other things being equal (including notably migration) this means that with the passage of time the basic skills of the English labour force could fall further behind those of other countries. This is a major challenge.

Figure 1.2. In most countries, but not in England, younger people have stronger basic skills than the generation of people approaching retirement

Percentage of adults with low skills (literacy and/or numeracy below level 2) in different age groups



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Elsewhere, better schooling has driven improvements in adult skills

In many countries rising education attainment has driven better basic skills. In England too there has been a big change in educational expectations and aspirations, so that young people are much less likely than their parents' generation to leave school at the age of 16, and much more likely to continue to further and higher education. But young people still have weak basic skills.

So what has gone wrong?

At every qualification level, low basic skills are more common among young people in England than in many other countries. Among those aged 16–34, 20% have not completed upper secondary education (UK level 2 and 3), and around half of them lack basic skills, a greater deficiency than for their international counterparts (see Figure 2.3 in Chapter 2). Among those with upper secondary qualifications (particularly those other than A levels) low-skills are more common than among the comparably qualified in other countries (see Chapter 2). So *within* every level of qualification – below upper secondary, at upper secondary, and at postsecondary level young people in England very often lack the basic skills of their similarly qualified counterparts in other countries (see Table 1.1). This means that despite the rapid expansion of educational opportunities, and a relatively well qualified cohort of young adults, the basic skills of this cohort have remained stubbornly weak. (Throughout this document, differences in results between England and other countries are reported if the difference is statistically significant at the 5% level at least).

Table 1.1. Share of young adults with low basic skills

16-34 year-olds, by highest qualification

Qualification level	OECD average	England
Below UK level 2	29.8%	48.0%
UK level 2 and 3	15.0%	20.7%
Post-secondary non university (UK level 4 and 5)	10.2%	21.4%
University (UK level 6 and above and some level 5)*	3.6%	6.9%

Note: See Box 3.1. for the classification of postsecondary qualifications.

**Difference between England and the OECD average for university graduates is not significant (at the 5% level).*

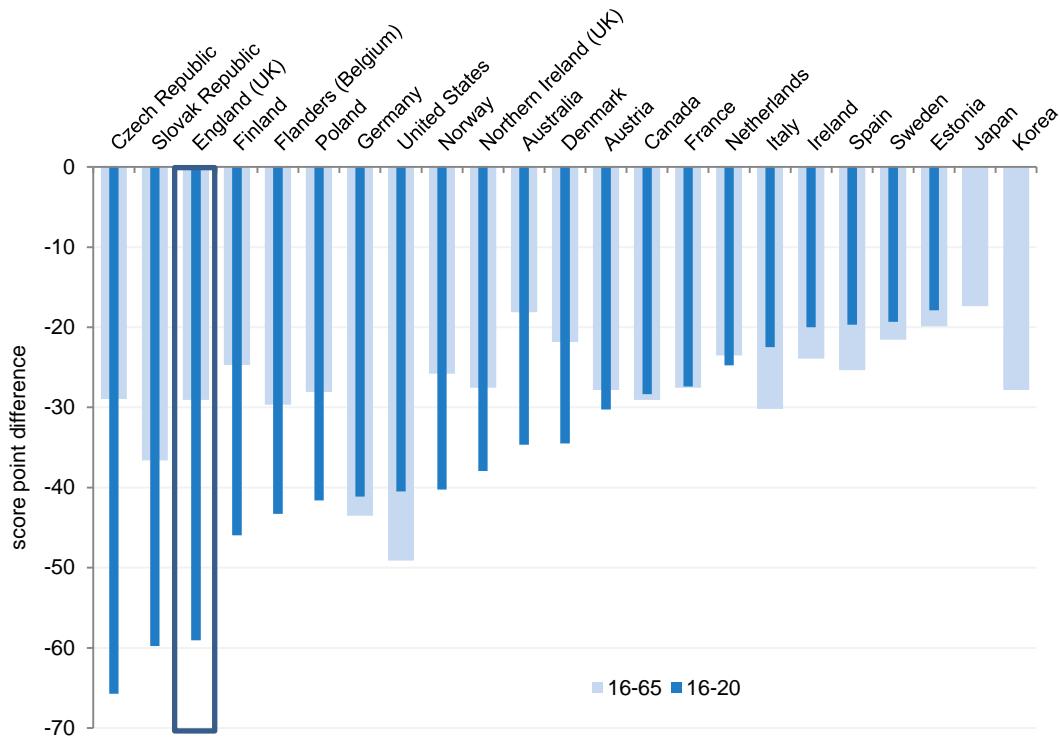
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Family background has a particularly strong effect on basic skills in England

An unusually strong effect of family background, particularly on young people, may also play a part. In England basic skills are strongly associated with socio-economic background measured by parents' education (see Figure 1.3) and this effect is much stronger among young people. This could be explained by increasing inequity among younger cohorts, or because the effect of parental education diminishes later on in life.

Figure 1.3. Basic skills are strongly related to parental education in England

Score point difference in numeracy between (a) persons where neither parent attained at least upper secondary education and (b) persons where at least one parent did so. Comparison of two age groups.



Note: Only statistically significant results are reported: in Japan and Korea parental education is not significantly associated with numeracy performance of 16-20 year-olds.

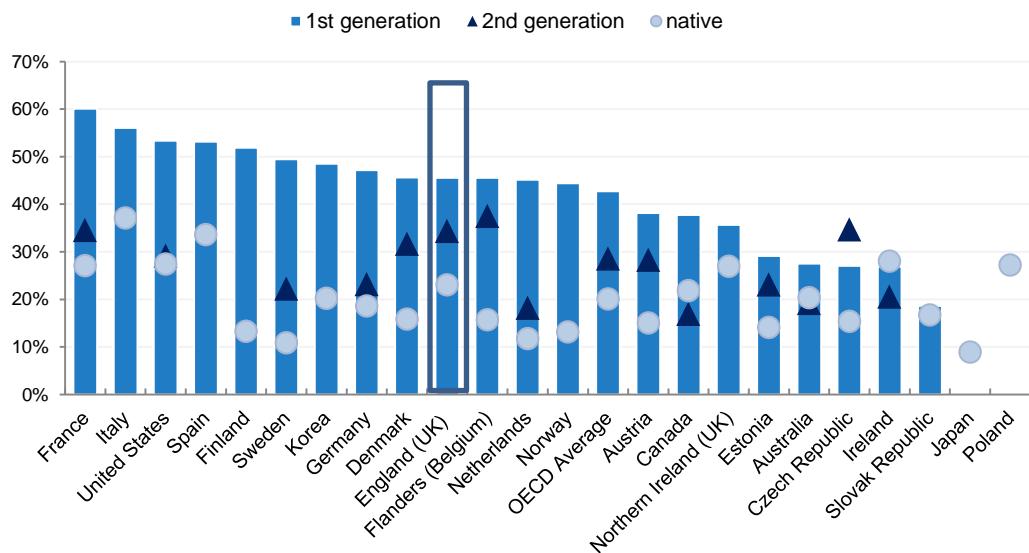
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

The presence of migrants does not significantly alter the overall picture

In England, 13% of the adult (16-65 year-olds) population are migrants (defined as born abroad and having at least one parent born abroad). The literacy and numeracy skills of migrants in England are weaker than those of the native-born, but are around the average of migrants in other countries (see Figure 1.4). Excluding migrants, England would still perform around the average of participating countries in literacy and below the average on numeracy; and it would still have one of the highest shares of young adults (aged 16-24) with low skills.

Figure 1.4. In England as in some other countries, second generation migrants do better

Percentage of first and second generation migrants that have low basic skills (below level 2 in literacy and/or numeracy) in comparison with the native-born



Note: In some countries and some categories results are not reported due to insufficient number of observations.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Who are the low-skilled?

Low-skilled adults are a diverse group

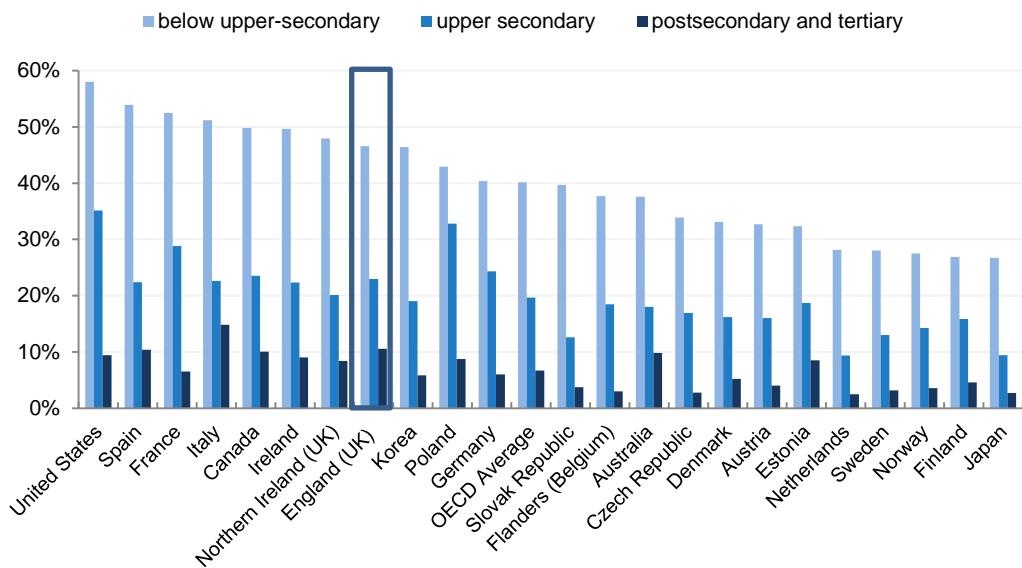
It is sometimes assumed that the majority of adults lacking basic skills are school dropouts, outside the labour market and living on benefits. In fact, rather few meet this description. The low-skilled are a surprisingly varied group, some with good qualifications (see Figure 1.5), the majority in work of some sort or other, and include a number of migrants (including some who may have very good literacy skills in their mother tongues, if not in English).

More than 5 million are in work

Among the low-skilled in England, around two thirds of the men and half of the women were in work in 2012 (see Figure 4.1 in Chapter 4). But only 56% of low-skilled young men were employed, less than in many other countries. This might reflect the fact that at the time of the Survey in 2012 the UK economy was still in recession (Bell and Blanchflower, 2010).

Figure 1.5. Some of the well-qualified are low-skilled

Percentage of 16-65 year-olds in different qualification groups who are low-skilled (literacy and/or numeracy below level 2)



Note: Adults who obtained their highest qualification outside the host country: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded.

Box A1.3 in Annex 1 explains how UK qualifications were matched to these three categories of educational attainment.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

One million of the low-skilled were unemployed in 2012

This one million represent only 10% of all low-skilled adults, but corresponded to nearly half of all unemployed persons in 2012. The Survey does not tell us whether the lack of basic skills caused unemployment, or whether prolonged unemployment undermined the basic skills that need to be refreshed in daily working life, or whether, as so often, the explanation is a bit of both. But in England the association between unemployment and low basic skills is stronger than in many other countries. Chapter 4 looks at this issue in more depth.

2.5 million are not in the labour market nor in education

As in many other countries, English women with low skills are more likely than men to be inactive and not in education - 33% as compared to 19% of men. 42% of the low-skilled inactive women say they are fulfilling domestic tasks and looking after children. With Slovakia, England has the highest inactivity rate among young women aged 16-24. In this age group, one in four low-skilled women are neither in education nor in the labour market (NEETs) – around a quarter of a million persons.

Long term disability can also explain economic inactivity

Disability is more common among the low-skilled everywhere, and in England 7% of low-skilled adults report being permanently disabled. The disability rate rises with age and in England it reaches 13% among low-skilled men aged 45-65 and 11% among their female counterparts. In England only 9% of older low-skilled men (45-65 year-olds) are retired compared to 35% in Denmark and 30% in Finland and the Czech Republic.

Around 2.3 million are first generation migrants

As indicated in Figure 1.4, low skills are more common among first generation migrants than the native-born. In England around 30% of first generation migrants with low skills have a mother tongue other than English, and they will normally have stronger basic skills in their mother tongue. Evidence shows that improved host country language skills among well qualified migrants leads to fast gains in literacy and numeracy (Chiswick, 1991; Dustmann and Fabbri, 2003). In England, tests of reading performance a year and two years after a 30-hour workplace course showed that learners with English as a second language (ESL) had improved their reading skills more than native English speakers (Wolf and Evans, 2010). The researchers attribute the improvement to continued exposure to an English-speaking environment.

What are the effects of low-skills?

People with stronger basic skills perform better on the labour market and have better social outcomes

While literacy and numeracy are important everywhere, in some respects they are particularly important in England. Thus in England the link between basic skills and employment and wages is stronger than in other countries; in England also the link with health and citizenship is stronger than elsewhere: the odds of reporting “fair” or “poor” health¹ are three times higher for those with low literacy skills (below Level 2) than for those with strong skills (Level 4/5). In England, even more than in most other countries, those with lower skills are more likely to feel that they lack influence on public decisions. 60% of low-skilled adults do not believe that “people like them” have a say in what the government does, as opposed to 45% of those with better skills. The association between literacy and both trust and voluntary participation² in England is stronger than in most countries.

Adults with strong basic skills participate more often in education and training

Basic skills facilitate further learning. While in all countries those with stronger basic skills tend to participate more frequently in adult education and training, in England this link is weaker. Low-skilled adults in England therefore tend to participate more in adult education and training than their counterparts in some other countries.

The policy response in England

Alongside school reform, an impressive range of initiatives addresses the needs of young adults

Effective basic schooling is the primary driver of basic skills among adults and England has an extensive programme of school reform designed to address this challenge. While this report will not seek to directly explore the issue of quality in basic schooling or these reforms, it will underline the importance of this issue – which it will describe as the *priority of priorities*. Alongside reform of basic schooling, England has in recent years adopted a wide-ranging set of measures to address the literacy and numeracy weaknesses of young adults at 16-19 and beyond. These measures are set out below.

More young people are required to continue with English and maths

To increase completion rates, and improve basic skills among young people, the participation age in education has been raised from 16 to 18, and English and mathematics have become mandatory for those not meeting minimum requirements. Since August 2014 students aged between 16 and 19 who have not achieved a good pass in English and/or maths GCSE by age 16 must continue to work towards these qualifications, or an approved interim qualification such as functional skills. To complete their qualification, apprentices have to reach a minimum standard of English and maths: 60% of learners aged 19 and over studying English and maths, and funded through the Skills Funding Agency, are apprentices.

From September 2015 new GCSE and A levels are being taught in schools in England

These qualifications will contain new content and will be assessed and graded differently from before (Ofqual, 2014).

New initiatives seek better preparation of further education (FE) teachers of mathematics and English

With a view to upskilling the FE workforce in the teaching of maths and English, a GBP 30m-package was put in place for 2014/2015. It includes bursaries of GBP 9 000 for English teachers, and of GBP 20 000 for maths teachers to attract good graduates into teaching, and programmes to enhance the skills of existing maths and English teachers so they can teach GCSE. Support will also be offered for the professional development of up to 2 000 teachers who want to teach maths to GCSE standard. The new Education and Training Foundation (ETF) is seeking to improve standards in teaching and learning including English and maths. The Ofsted Common Inspection Framework has been revised to give more attention to English and mathematics.

A number of other quality initiatives are under way

A sequence of reviews of GCSE, Functional Skills and other qualifications have sought to eliminate poor quality qualifications, and ensure that those that remain have substantial educational and labour market value. A major programme

of research has been undertaken, and the new Behavioural Research Centre for Adult Skills and Knowledge has been launched, with a focus on adult literacy and numeracy.

A new programme offers workplace training for young people

The Traineeship programme, launched in 2013/2014, targets young people i) who are not currently in a job and have little work experience, but are focused on work, and ii) who are 16-24 and qualified below (UK) Level 3. The traineeship can last up to six months and provides a combination of work preparation through a training provider, a work experience placement of 100 to 240 hours with an employer, and English and maths support if required. In the first nine months of 2014/2015 there were over 15 100 starts. Trainees and apprentices must study English and/or maths if they do not already have (UK) level 2 qualifications in these subjects.

Benefit claimants can be referred for training

For those who meet the Skills Funding Agency's eligibility criteria, free training is offered to address the skills needs of people who are out of work. This can include units and full qualifications in English, maths and ICT. Where English is not a claimant's first language, English tuition is made available: 14% of all learning by benefit claimants in 2013/14 was in English and maths.

The objectives and direction of these reforms are commendable

Collectively, these measures increase the attention given to literacy and numeracy in many of the domains affecting young adults. It is too early to judge their success, since they need a number of years to bed down and be implemented fully. They clearly make substantial demands on the quality and quantity of numeracy and literacy teaching and the resources that underpin them, and this will clearly be challenging. Some of the issues arising will be discussed further in Chapter 2. But the emphasis and range of the reforms are very much to be welcomed. This report will argue that this approach needs to be extended systematically to the entire post-16 domain, including postsecondary and tertiary education. This point will be pursued in Chapter 3.

Setting priorities

Career trajectories, once established, are hard to change for the better

The evidence on basic skills and their impacts of life chances can be understood in terms of career trajectories. Heckman (2008) and others have argued convincingly that learning is a dynamic process, in which successive stages of learning depend on skills acquired previously, particularly foundation skills of literacy and numeracy. Strong basic skills therefore support a favourable career trajectory, through educational achievement, the acquisition of qualifications, and a good first job, which in turn support further upskilling and career development. At every stage in a career, basic skills help to reinforce achievement, but they are also in their turn reinforced by the exercise of those skills. Conversely, weak foundation skills limit initial learning, reduce career opportunities and lead to jobs that offer few opportunities for learning on-the-job, or other forms of upskilling. The implication

is that career trajectories are much easier to launch favourably than to change for a stronger trajectory in later life.

Much empirical evidence supports the career trajectory perspective

This evidence comes in two forms: first that basic skills acquired early and the associated initial career trajectories, have many long term benefits; and second that it is hard (although not impossible) to change career trajectories once established (OECD, 2013).

- First, the evidence that positive initial career trajectories yield long term benefits emerges in the large returns observed from investment in early childhood education, in the strong effects of parental education (and therefore childhood environment) on life outcomes (see Figure 1.3), in the substantial labour market returns from basic skills (independently of educational qualifications) (see Chapter 4), in the evidence that the quality of first jobs has a long run impact on employment outcomes and, inversely that youth unemployment can have a long term scarring effect (Scarpetta, Sonnet and Manfredi, 2010), and in the strong relationship between PISA (Programme for International Student Assessment) performance and the basic skills of adults.
- Second, the evidence suggests that it is hard, but not impossible to change established career trajectories. Teaching basic skills to young adults runs into a multiplicity of challenges. Adults often do not acknowledge their basic skills deficiencies, they are difficult to motivate, and the classroom delivery of basic skills may be off-putting to those who have previously failed at school. More fundamentally, basic skills in isolation may not be enough to shift a career trajectory for an adult already in a poor quality job. Employers seem to place limited explicit value on basic skills (see Chapter 4). Evidence on more successful interventions tends to confirm the difficult hurdles involved in shifting career trajectories. Labour market returns from basic skills appear non-linear, so that low-skilled individuals need a substantial skills boost to realise significant returns – a threshold effect reported by different observers (see Chapter 5). Outcomes are better when basic skills are taught in conjunction with occupational competences (see Chapter 5).

Giving priority to the young should yield feasible programmes with large benefits

Sometimes the admirable objective of ‘lifelong learning’, and the associated rhetoric, can obscure the awkward truth that learning investments of some types, and for some age groups, yield much greater returns, including returns to equity, than others. In an environment of public expenditure restraint, this point cannot be ignored. Some countries have been relatively successful in building strong initial education and training systems, and smooth transitions from school to work. These are systems which England can reasonably seek to emulate – for example in the comprehensive school reform of Finland in the 1970s, or the reform in Ontario over the last decade. So while it is possible to point to examples of successful school reforms that have underpinned a long term step change in adult basic skills, examples of postsecondary remedial or adult learning interventions with this type

of impact are thinner on the ground. Conversely, while some, often small scale and highly targeted programmes can be pointed out as successes, few countries have major successes to report in terms of wholesale interventions with older adults.

The priority of priorities is to improve the standard of basic schooling

In England there are a number of concrete challenges in basic schooling, in further education and training, and more broadly in school-to-work transition, and these are currently reflected in the weak basic skills of young adults compared with other countries. The *priority of priorities* is therefore to solve these problems through better schooling in England, both improving average standards, particularly in numeracy where the challenges are most severe, and by improving minimum standards – which are especially weak in England. An active programme of school reform is in train, including measures to address the primary curriculum, national testing and school accountability. Basic skills should be developed and sustained throughout the stages of the education system and into adult life, through early childhood education, primary, secondary, 16-19 and postsecondary and adult phases of education. Each phase depends on an intake from the previous phase of well-prepared students, fully versed in the relevant foundation skills. While remediation of weaknesses in basic skills arising from earlier phases of education is sometimes necessary, it is typically less cost-effective than earlier intervention.

There are good arguments for addressing the basic skills needs of adults in context

Given the evidence that mid-life changes of career trajectory are hard but not impossible, one option is to encourage a ‘contextual’ approach, in which basic skills weaknesses are identified and remediated in the context of wider interventions and policies, rather than as free-standing programmes. This means identifying weak basic skills in the context of other learning, or in employment programmes or working life, and pursuing interventions that, so far as possible, link basic skills to a practical context, occupational skills in particular. This approach should make it easier to engage and identify low-skilled adults, by linking the acquisition of basic skills to wider outcomes including occupational skills and family literacy.

This report looks at basic skills through mainstream institutions for learning and working

Chapter 2 of this report looks at measures for those aged 16-19, commending current approaches, but argues that these need to be taken further in the form of higher aspirations for the basic skills of those at upper secondary level. Chapter 3 explores basic skills among university and other postsecondary students and graduates and argues for demanding measures to ensure that university graduates have an adequate minimum of basic skills alongside measures to develop postsecondary alternatives to university that address basic skills more fully. Chapter 4 looks at basic skills in the context of work. Chapter 5 describes the range of issues that need to be addressed to ensure quality in programmes offered to low-skilled adults.

Recommendation 1: Give priority to early intervention

Priority should be given to early intervention to ensure that all young people have stronger basic skills.

NOTES

1. Survey respondents were invited to describe their own health status
2. Adults were considered as having low level of trust if agree with the statement that “there are few people you can trust completely”

References

- Bell, D and D. Blanchflower (2010), “UK Unemployment in the Great Recession” *National Institute Economic Review*, 214 (1): R3–25,
www.dartmouth.edu/~blnchflr/papers/Bell-Blanchflower.pdf.
- Bostock, S. and A. Steptoe (2012), “Association between Low Functional Health Literacy and Mortality in Older Adults: Longitudinal Cohort Study”, *BMJ*, 344, March,
[/ww.bmjjournals.org/content/344/bmj.e1602](http://www.bmjjournals.org/content/344/bmj.e1602).
- Chiswick, B. (1991), “Speaking, Reading, and Earnings among Low-Skilled Immigrants.” *Journal of Labor Economics* Vol 9 , No 2: 149–70, University of Chicago Press on behalf of the Society of Labor Economist and the NORC at the University of Chicago,
www.jstor.org/stable/2535238?seq=1#page_scan_tab_contents.
- Dustmann, C. and F. Fabbri (2003), “Language Proficiency and Labour Market Performance of Immigrants in the UK”, *The Economic Journal* 113 (489): 695–717, Oxford, UK, onlinelibrary.wiley.com/doi/10.1111/1468-0297.t01-1-00151/pdf.
- OECD (2013), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, OECD Publishing; Paris.
- Ofqual (Office of Qualifications and Examinations Regulation) (2014), *Get the facts: GCSE and A level reform*, Ofqual, www.gov.uk/government/publications/get-the-facts-gcse-and-a-level-reform/get-the-facts-gcse-reform.
- Scarpetta, S., A. Sonnet and T. Manfredi (2010), "Rising Youth Unemployment During The Crisis: How to Prevent Negative Long-term Consequences on a Generation?", *OECD Social, Employment and Migration Working Papers*, No. 106, OECD Publishing, Paris,
DOI: dx.doi.org/10.1787/5kmh79zb2mmv-en.
- Vignoles, A., A. De Coulon, and O. Marcenaro-Gutierrez. (2010), “The Value of Basic Skills in the British Labour Market”, *Oxford Economic Papers*, Oxford, oep.oxfordjournals.org/content/63/1/27.abstract.
- Wolf, A. and K. Evans (2010), *Improving Literacy at Work*, Routledge, UK,
www.routledge.com/products/9780415548724.

Chapter 2

Tackling low skills among those aged 16-19

In England, one-third of those aged 16-19 have low basic skills, three times more than in strongly performing countries. In addition, the basic skills standards set by many upper secondary qualifications in England have been lower than elsewhere. Recent reforms of the 16-19 phase of education usefully encourage retention in education and give more attention to basic skills. In the longer term England needs to set more demanding standards of basic skills for 16-19 year-olds and increase the capacity to meet these standards.

Challenge: Low skills and sometimes inadequate standards

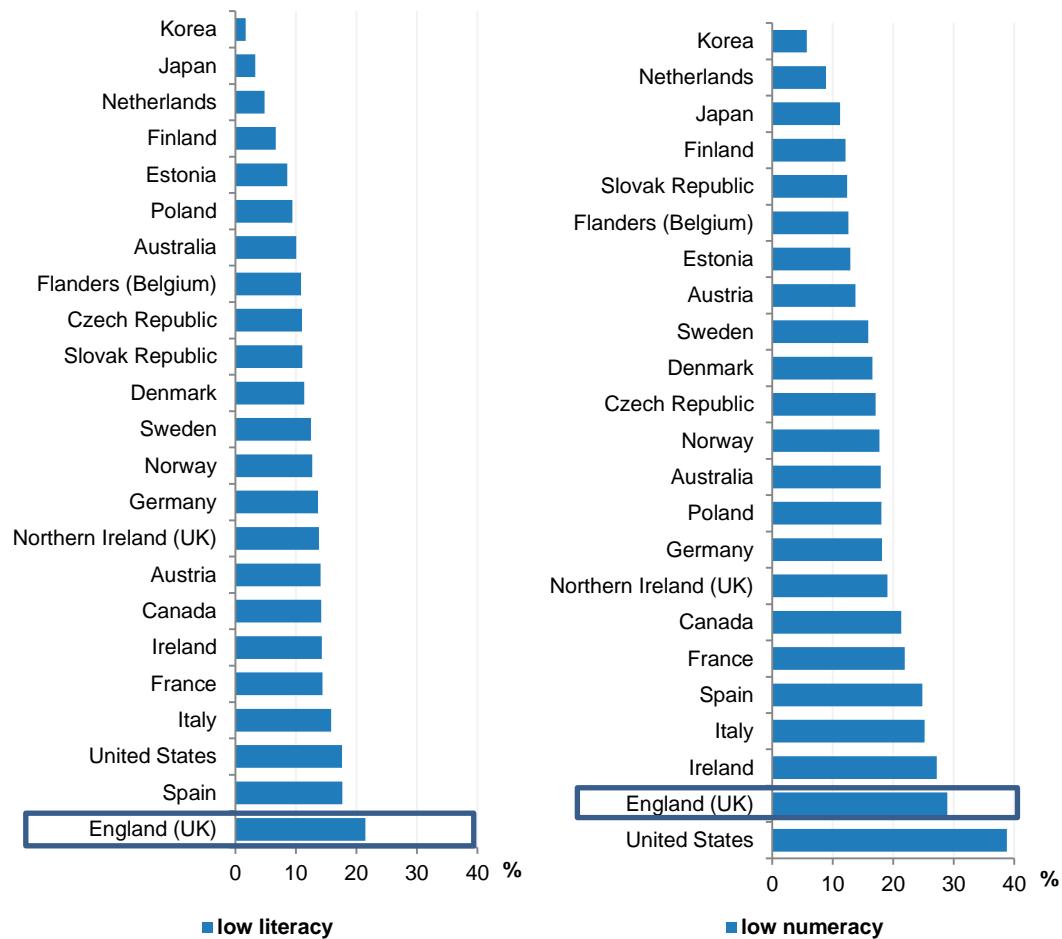
Progress and participation

In England, one-third of those aged 16-19 have low basic skills

England has three times more low-skilled people among those aged 16-19 than the best-performing countries like Finland, Japan, Korea and the Netherlands (see Figure 2.1). Much of this arises from weak numeracy (and to a lesser extent literacy) performance, but the large proportion of low-skilled teenagers not only reflects low numeracy skills overall among young people in England, but also the wider distribution of basic skills (particularly for numeracy).

Figure 2.1. Too many teenagers in England have low basic skills

Percentage of 16-19 year-olds with low literacy and numeracy (below level 2)



Note: Adults who obtained their highest qualification outside the host country: those with foreign qualifications and 1st generation migrants, who obtained their highest qualification prior to entering the host country, are excluded.

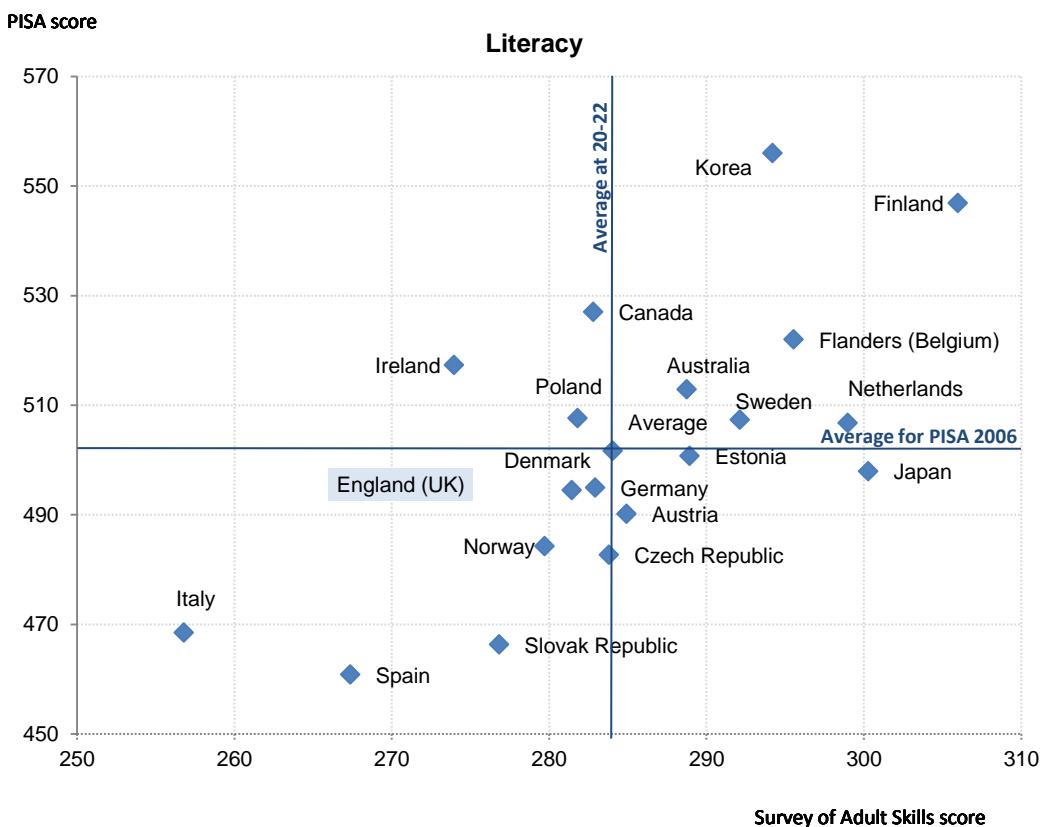
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

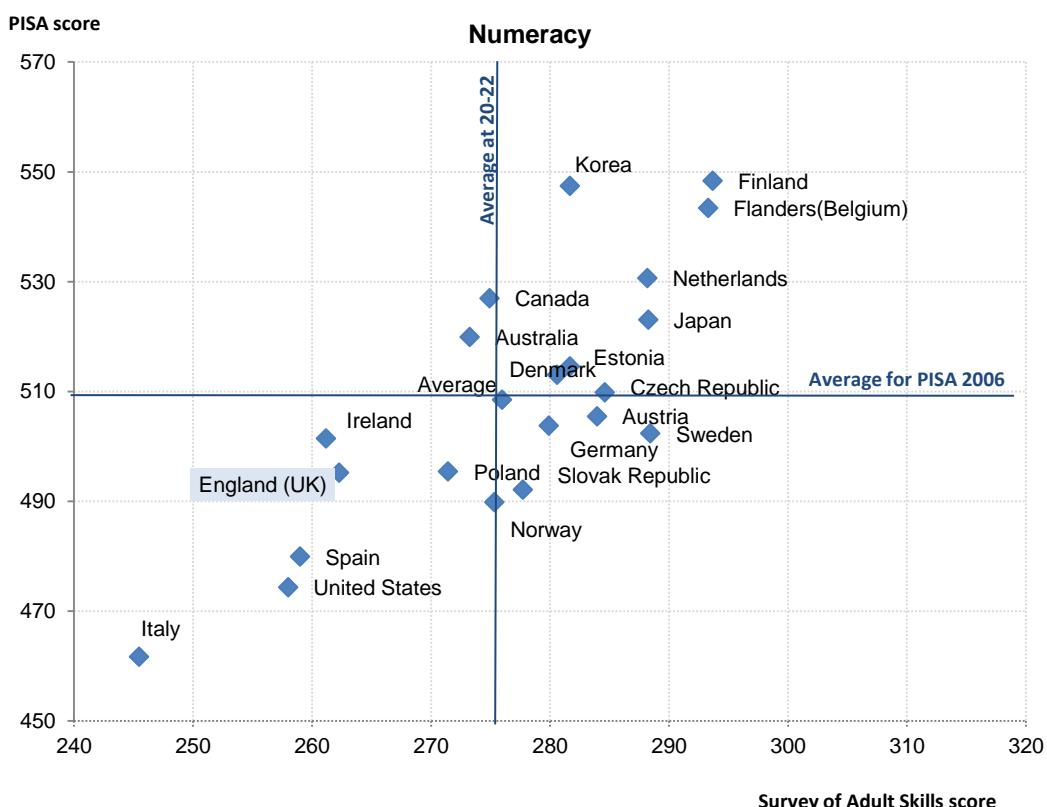
16-19 year-olds appear to develop their skills more slowly in England than elsewhere

While English 15 year-olds have similar literacy levels to their counterparts in countries such as Germany, Denmark, Austria, Japan, by the age of 20-22 their literacy skills fall behind (see Figure 2.2). Similar conclusions apply to numeracy – English relative performance slips down after the age of 15 in comparison to countries such as Norway, Poland and the Slovak Republic. (These conclusions draw on a comparison of two independent cross sectional datasets administered at different points of time and therefore need to be treated cautiously.)

Figure 2.2. In England, more limited literacy and numeracy progress in the later teenage years

Comparison of 15 year-olds in 2006 in PISA assessment with that of 20-22 year-olds in 2012 on PIAAC assessment





How to read this chart: These charts show how 15 year-old students performed in PISA relative to other countries, and how the same cohorts scored, again relative to other countries, as young adults a few years later in the Survey of Adult Skills.

Note: The average presented here is a refinement of the average presented in the main report of the Survey of Adult Skills (OECD, 2013). It refers to the arithmetic mean of country estimates, restricted to the set of countries that participated in both the Survey of Adult Skills and the corresponding round of PISA. Migrants who entered the host country in 2006 or later were excluded from the PIAAC sample.

Source: OECD, Survey of Adult Skills (2012) and OECD, PISA database (2006).

In England, many young people opt out of education and training relatively early

One reason for the limited progress in later teenage years could be low educational participation. In 2012 in England, only 70% of 16-19 year-olds were participating in education or training leading to a formal qualification, compared to nearly universal participation in, for example, the Czech Republic, Poland, Estonia and the Netherlands (Annex 2, Table A2.1). Similarly, in 2013 90% of 16 year-olds were in full or part-time education but for 18 year-olds the figure drops to 56% (Department for Education, 2015c). By increasing participation in education among young people, England should be able to improve basic skills, given a strong association between being in education and basic skills even after accounting for individual characteristics such as spoken language and parental education (Annex 2, Table A2.2).

England has a low completion rate for upper secondary education

In 2012 17% of 20-34 year-olds in England lacked upper secondary qualifications (UK level 2 or 3) (Annex 2, Table A2.3). Completion rates have improved in recent years

so that nearly ninety percent of young people now reach (UK) level 2 by the age of 19 (Department for Education, 2015a). But some studies argue that, because of grade inflation, this improvement in attainment does not translate into genuine improvement in students' education and skills (Evans, 2015).

Basic skills standards in upper secondary education in England

The structure of upper secondary education in England, with a break point at 16, is unusual

In many OECD countries young people pursue upper secondary education (classified internationally as ISCED 3), typically starting around the age of 14/15 and ending around the age of 18/19. In England upper secondary education covers both (UK) level 2 and 3 qualifications, with students typically passing (UK) level 2 qualifications, particularly GCSE, at the age of 16. GCSE (the flagship academic qualification taken in a number of subjects) is (UK) level 2 at grades A*-C. Unlike many countries, secondary education in England is therefore separated into pre-16 and post-16 stages "...characterised by a national curriculum to the age of 16 but variegated expectations beyond that point" (Evans, 2015). So while upper secondary qualifications in England are a diverse mix, covering GCSEs, A levels, NVQs, BTEC and other qualifications, many of them, particularly GCSEs, are typically taken at the age of 16. But these are compared with other countries where upper secondary school completion qualifications are commonly taken at the age of 18 or thereabouts.

Transitions for those over 16 can be challenging

Those who continue in education beyond 16 face both programmatic and institutional transitions. Two-thirds of those who continue enter programmes leading to higher level (A Levels or other UK level 3) qualifications (Wolf, 2011: 51). Institutionally, school sixth forms concentrate on A levels, so that 90% of 16-18 year-olds in school sixth forms take the more academically demanding A level qualifications, compared to only 14% in FE colleges (Crawford, Meschi, and Vignoles, 2011). Students with stronger academic records, more advantageous socio-economic backgrounds and with strongly aspiring parents are more likely to opt for 'sixth form' institutions (Department for Education, 2015b).

Have basic skills requirements for 16-19 year-olds been adequate in the past?

While standards in respect of diverse curricula and qualifications cannot easily be compared across countries, the Survey of Adult Skills allows some comparison in respect of basic skills. Young people in England with GCSE or equivalents and NVQs as their highest qualification, (accounting for nearly half of all of those with UK level 2 and 3 as their highest qualification), perform less well on basic skills, particularly numeracy, than their counterparts in many other countries, including those with vocational qualifications (see Tables 2.1 and 2.2). While A levels and BTEC type qualifications appear adequate by international standards, other English qualifications are associated with weaker basic skills, even in relation to vocational qualifications in other countries. Around 30% of young people with GCSE or equivalents and NVQs (UK level 2 and 3) as their highest qualification have low basic skills. In recent years there has been an expansion in level 2 qualifications other than GCSEs taken by young people, and Alison Wolf has argued that many of these qualifications, often vocational, have low standards in English and

mathematics and bring no positive returns in the labour market (Wolf, 2011; Evans, 2015).

Table 2.1. What are the basic skills demands of upper secondary qualifications in England?

Those aged 16-34 with upper secondary as their highest qualification (numeracy and literacy scores).

Main UK level 2 and 3 qualifications ¹	Numeracy mean	Literacy mean	% with low numeracy and/or literacy skills	% of all UK level 2 and 3 qualifications ²
A Level/Vocational A Level or equivalent	284 (4)	297 (4)	9% (3)	26%
BTEC, BEC, TEC or EdExcel	269 (6)	276 (5)	19% (6)	14%
NVQ/SVQ	247 (3)	261 (4)	34% (4)	24%
O Level/GCSE/Vocational GCSE/CSE or equivalent	258 (5)	271 (4)	22% (6)	21%
<i>Of which, GCSEs that include:</i>				
Neither English or maths	231 (11)	235 (11)		
Just English	235 (7)	251 (6)		
Just maths	241 (10)	248 (10)		
Both English and maths	259 (5)	275 (4)		

Note: 1. NVQs, BTEC, BEC, TEC or EdExcel include qualifications level 2 and 3, while GCSEs are level 2 and A Levels level 3.

2. The results are presented for qualifications with at least 30 observations. Qualifications with less than 30 observations account for around 15% of all qualifications.

Standard errors are in brackets.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database) and UK Survey of Adult Skills (2012).

Table 2.2. What are the basic skills demands of upper secondary qualifications in other countries?

Those aged 16-34 with upper secondary as their highest qualification. Numeracy and literacy scores.

	Numeracy Academic	VET	Literacy Academic	VET
Australia	279 (3)	266 (3)	294 (3)	274 (3)
Austria	311 (4)	274 (2)	307(3)	272 (2)
Denmark	299 (3)	278 (3)	300 (2)	269 (3)
Finland	311 (2)	280 (2)	319 (2)	290(2)
France	285 (2)	248 (2)	295 (2)	260 (2)
Germany	306 (3)	268 (3)	308 (2)	267 (3)
Norway	293 (3)	276 (3)	319 (2)	286 (2)
Netherlands	314 (2)	279 (2)	294 (2)	275 (3)
Spain	270 (2)	254 (7)	278 (2)	258 (5)

Note: Standard errors in brackets. Variable ‘VET’ cannot be applied to English data in PIAAC.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Even those with GCSE maths and English have relatively weak basic skills

While Wolf (2011) argues that English and maths GCSE (at grades A*-C) are fundamental to young people’s employment and education prospects, they are not required for level 2 qualifications, and around 40% of pupils in their last year of compulsory education do not achieve them; very few of them complete this qualification later on (Wolf, 2011). Table 2.1 shows that, as might be expected, those with GCSEs including maths and English, perform better on numeracy and literacy, but even they have basic skills levels below many of their international counterparts with upper secondary qualifications.

Those without upper secondary qualifications have particularly weak basic skills

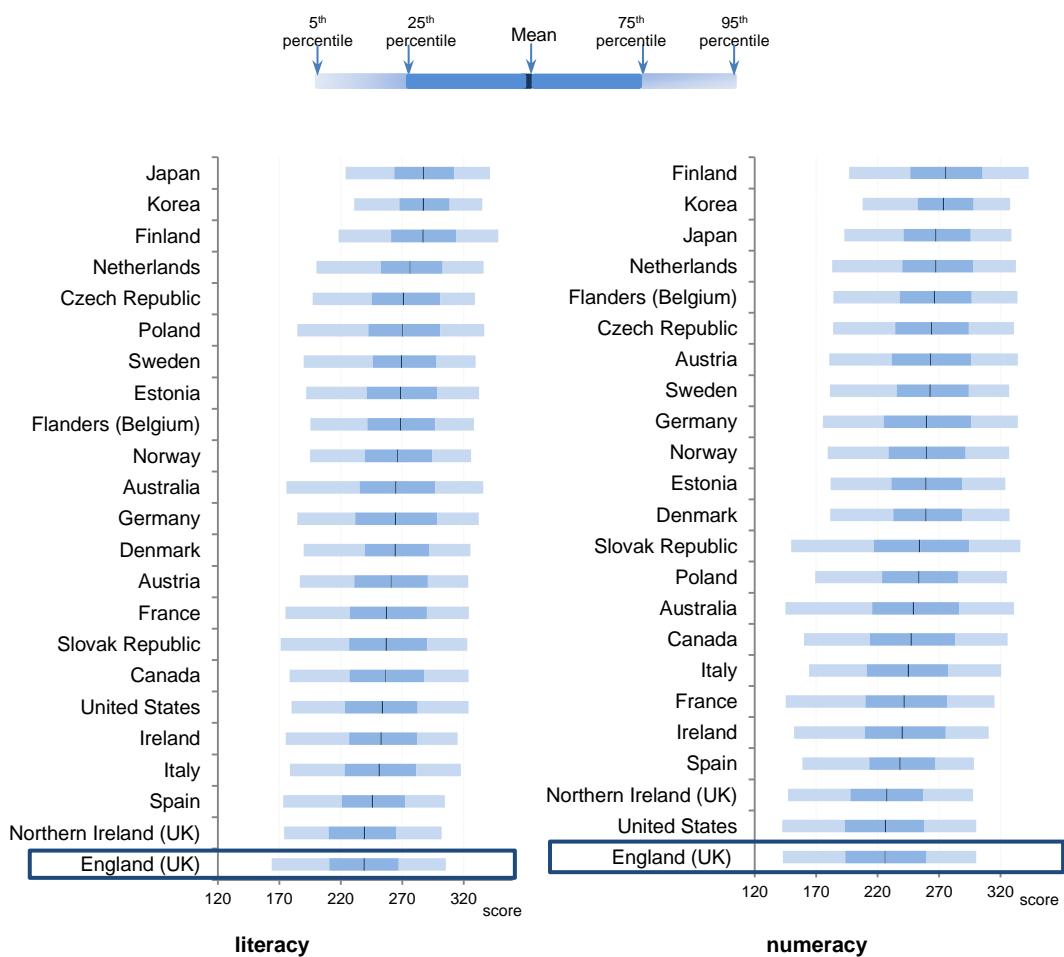
A further way of looking at the data is to compare the basic skills of those who lack upper secondary qualifications, since, other things being equal, a demanding standard in terms of basic skills for such qualifications should mean relatively high skills among those who fail to meet the standard. Again, the evidence points to upper secondary programmes in England which require lower levels of basic skills than many other countries (see Figure 2.3).

The basic skills standards set by some upper secondary qualifications in England are low

In conclusion, given upper secondary examinations often taken at age 16 rather than 18 as in other countries, some curricula which do not require maths and English and others which set undemanding standards, and some qualifications of questionable quality, it is no surprise that the achieved basic skills levels of those with English upper secondary qualifications are lower than in many comparable countries, and that the basic skills levels of those who have not obtained these qualifications are particularly low. This conclusion very much supports the direction of current reforms, including changes to GCSE standards, but in some respects these reforms could be taken further.

Figure 2.3. In England, unqualified young people have very weak basic skills

Those aged 16-34 with qualifications below upper secondary (below UK level 2). Distribution of numeracy and literacy scores.



Note: Adults who obtained their highest qualification outside the host country: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Recommendation 2: Sustain reform efforts and increase basic skills standards for upper secondary education

Building on recent initiatives for those aged 16-19 and stronger basic schooling, establish more demanding basic skills standards in upper secondary education to match those already realised in other countries. Seek to deliver skills to those standards, on an inclusive basis, to all students by age 19.

Supporting arguments: Building better skills through stronger initial education

New reforms to address the identified challenges are to be welcomed

An impressive and wide-ranging sequence of reforms, set out in more detail in Chapter 1, and introduced in recent years, address the challenges of weak attainment in basic skills, patchy standards and limited progression for those aged 16-19. The participation age has been raised to 18. Maths and literacy courses have been made a requirement in most 16-19 education. Some of the less demanding qualifications have been dropped. These headline reforms have been underpinned by measures to improve maths and literacy teaching, and support such teaching with research. It is too early to evaluate the success of these reforms. They will, no doubt, face challenges and problems of all types in their implementation, particularly perhaps in developing and supporting an expanded workforce of high quality professional teachers to deliver the required basic skills. But the objectives of the reform are clearly the right ones. Their delivery will require sustained effort over many years and this should be supported.

When basic skills have not been acquired early on, it is hard to catch up

Chapter 1 argued for a perspective whereby strong basic skills underpin a learning and career trajectory which becomes progressively entrenched. Under the new reform young people aged 16-19 without relevant qualifications in maths and English will be encouraged to study those subjects. Given that current reforms aim to make GCSE standards more rigorous, and eliminate some undemanding qualifications, the number of learners requiring remediation may increase further. Unless or until maths and English provision in basic school improves, remedial maths and English might therefore become a regular pathway for a large proportion of students. Evidence from the United States, where community colleges (which have some similarities to FE colleges) are a big provider of remedial courses in literacy and numeracy skills, shows that these interventions can work, but face many challenges (see Box 2.2), recognising that community college students are very often in their 20s and 30s, rather than 16-19. So the priority of priorities, in improvements in basic schooling, remains fundamental in achieving higher basic skills for those aged 16-19.

The basic skills standards for all young people need to be raised

As argued above, even for those with upper secondary qualifications in England, basic skills are often weaker than for other countries. These standards should now be improving as a result of the sequence of reforms designed to eliminate weak qualifications and raise standards for qualifications. The medium term effects of these reforms on basic skills standards remain to be evaluated, but even for those with GCSEs

that include maths and English, the basic skills outcomes are weaker than for many upper secondary qualifications obtained in other OECD countries. (At the same time, the GCSE exam may set an appropriate standard for an exam taken at age 16, two years earlier than the upper secondary examinations of many other countries). Comparative upper secondary attainment rates for England therefore flatter England's achievements relative to countries that seem to set a higher bar, a problem noted by other observers (Machin and Vignoles, 2005). This risks complacency. England should aim over time to match the basic skills outcomes of better performing countries, and therefore set more demanding basic skills standards linked to upper secondary completion. This means developing appropriate goals to encourage all young people to continue to develop their maths and English skills beyond the age of 16. Although current reforms address this very issue, in the longer term they could go further, particularly in making the need to go beyond (UK) level 2 explicit and universal. In support of this longer term aspiration, one option which should be considered is to reclassify some (UK) level 2 qualifications – including GCSE - as below ISCED level 3, on the grounds that they appear anomalous in relation to international standards.

Box 2.2. Remediating basic skills weaknesses in US community colleges

In the United States, community colleges play an important role in providing qualifications to young adults, and in most states, access to the system is relatively easy and affordable. Basic skills weaknesses among entrants are very common. Typically, community colleges screen entrants and offer remediation - 45% of first and second year community college students reported having to take remedial courses in English or mathematics. For example in Texas, students who do not meet the Texas Success Initiatives standards in math, reading and writing must take remedial courses. In Texas 21% of university entrants and 64% of community college entrants in 2007 were not college-ready in maths, reading or writing.

Remedial interventions can work: a number of studies suggest that when students successfully complete remedial education, their outcomes in terms of credit attainment, graduation and transfer are similar to those who did not need remediation. But relatively few students referred for remediation end up completing: Among those who entered two-year institutions in fall 2005, of those who required remediation only 8% graduated within three years. Students with no remedial needs were more than twice as likely to complete credentials than those with high remedial needs. One multi-institutional study found that three out of four students do not complete remedial courses and these students have very weak outcomes: more than four in five do not complete a credential. Remedial efforts are also expensive. In Texas, the total estimated expenditure for remedial programmes in 2010-11 was USD 392 million, including state appropriations, tuition and fees paid by students

Source: Bahr, P. (2008), "Does Mathematics Remediation Work?: A Comparative Analysis of Academic Attainment among Community College Students", *Research in Higher Education* 49 (5): 420–50. doi:10.1007/s11162-008-9089-4; Bettinger, E. and B. Long (2004), "Shape Up or Ship Out: The Effects of Remediation on Students at Four-Year Colleges" *Working Paper 10369*, National Bureau of Economic Research, <http://www.nber.org/papers/w10369>; Clery, S., and A. Topper (2007), "Changes in Cohort Composition. Data Notes", *Volume 2, Number 3, September/October 2007*, <http://eric.ed.gov/?id=ED521293>; Texas Higher Education Coordination Board (2009), "Closing the Gaps. Progress Report 2009"; Texas Higher Education Coordination Board (2010) "Developmental Education Accountability Measures Data, Graduation and Persistence of Developmental Education Students: 2-Year Institutions," www.txhighereddata.org/reports/performance/deved/; U.S. Department of Education, Institute of Education Sciences, and National Center for Education Statistics (2012), "U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training 'Skills Beyond School' Study", <http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf>.

Building on current reforms, strengthened expectations are needed for the 16-19 phase of education

If the English education system were to be designed from scratch on a blank sheet of paper it would be unlikely to include an awkward programmatic and institutional break point at 16, supported by a high-stakes examination, in a context where the OECD norm, (embraced by England) is for initial education and training to continue until 18 at least. The more radical would therefore abolish GCSEs in favour of an English Baccalaureate at age 18 (see for example Paton, 2012). The more cautious would remind us that we do not have a blank sheet, and point to the labour market currency of GCSE qualifications, and argue instead for stronger options post-16, to encourage retention in education and good quality education for all. It is beyond the scope of this review to judge between these options, which in any case need to look across the range of relevant competences, not just maths and English. The common factor is strengthened expectations for what should be achieved at the end of the 16-19 phase of education.

Realising goals and standards is harder than setting them in the first place

Clearly some discretion is required in setting higher standards for 16-19 year-olds. If basic schooling has not prepared young people for such demands, and/or if the FE system is not resourced, in both financial and human terms, to take on the challenge of intensive remediation, then such an approach may be fruitless. ‘Setting higher standards’ might then quickly translate into achievement for a few, and demoralising failure and dropout for many. But the longer term goal of 16-19 education, resting on the *priority of priorities* in strengthened pre-16 education should be clear – that most young people should acquire literacy and numeracy levels equivalent to those gained by their counterparts in comparable OECD countries with strong schooling systems. This will require a sustained effort, involving all parts of the education system, from early childhood, through primary and secondary schools, and into the 16-19 phase. This needs to be achieved inclusively (focusing efforts on the weakest performers), and sequentially, so that improvements in basic skills in early schooling underpin the sustained development of basic skills in subsequent phases of education. Chapter 3 will look, in its turn, at how this may support effective preparation for postsecondary programmes.

References

- Crawford, C., E. Meschi et A. Vignoles (2011), *Post-16 Educational Choices and Institutional Value Added at Key Stage 5*, CEE DP 124, Centre for the Economics of Education, London, cee.lse.ac.uk/ceedps/ceedp124.pdf.
- Department for Education (2015a), “Attainment by Young People in England Measured Using Matched Administrative Data: Attainment by Age 19 in 2014.” Statistics: NEET and participation, England, www.gov.uk/government/collections/statistics-attainment-at-19-years.
- Department for Education (2015b), “Destinations of Key Stage 4 and Key Stage 5 Pupils: 2012 to 2013”, Statistics: NEET and participation, England, www.gov.uk/government/statistics/destinations-of-key-stage-4-and-key-stage-5-pupils-2012-to-2013.
- Department for Education (2015c), “Participation in Education, Training and Employment, Age 16 to 18 - Publications - GOV.UK”, Statistics: NEET and participation, England, www.gov.uk/government/statistics/participation-in-education-training-and-employment-age-16-to-18--2.
- Evans, L. (2015), “Moving on Up. Developing a Strong, Coherent Upper Secondary Education in England”, *Institute for Public Policy Research*, London,
- Machin, S. and A. Vignoles (2005), *What's the Good of Education: The Economics of Education in the UK*, Princeton University Press, press.princeton.edu/titles/7947.html.
- Paton, G. (2012), “CBI: Children Being Failed by GCSE Exams System”, *The Telegraph*, Education News, UK.
- Wolf, A. (2011), *Review of Vocational Education - The Wolf Review*, Department for Education and Department for Business, Innovation & Skills, UK, www.gov.uk/government/uploads/system/uploads/attachment_data/file/180504/DFE-00031-2011.pdf

Chapter 3

Tackling low skills in postsecondary education

In England, one in ten university students has low basic skills, giving rise to a whole set of challenges. University teaching gives limited attention to low levels of literacy and numeracy. Graduates with low basic skills gain modest returns from their qualifications and will often not be able to repay their student debts. Removal of the cap on higher education student numbers could worsen the problem. One reason for this pattern is that England has a large university system relative to a poorly skilled pool of potential entrants. This Chapter argues that reform should follow three principles: first, most low-skilled students currently pursuing university programmes should be diverted into programmes better suited to their needs. Second, short professional postsecondary programmes, that might meet the needs of those involved, require development, and should give greater attention to basic skills. Third, to address the needs of university students with intermediate levels of basic skills, university programmes need to give greater attention in their teaching to the development of literacy and numeracy.

Challenges: Low skills among the well-qualified

In England, one in ten university students has low basic skills, giving rise to a whole set of challenges. University teaching gives limited attention to low levels of literacy and numeracy. Graduates with low basic skills gain modest returns from their qualifications and will often not be able to repay their student debts. Removal of the cap on higher education student numbers could worsen the problem. One reason for this pattern is that England has a large university system relative to a poorly skilled pool of potential entrants. At the same time, a large share of students and graduates from shorter postsecondary programmes also has low basic skills.

University students and graduates and low basic skills

We distinguish between university and shorter postsecondary qualifications

This chapter looks at two levels of postsecondary qualification (see Box 3.1). The two categories employed are the internationally accepted definitions used to compare across countries, and they cut across the English category of higher education.

Box 3.1. How university and shorter postsecondary qualifications obtained in the UK are identified

UK Qualifications	Where do UK qualifications sit in relation to the international classification based on ISCED?	How are these qualifications described in this report?
Nursing or other medical qualification mentioned below, Teaching qualification (excluding PGCE), Degree level qualification including foundation degrees, graduate membership of a professional institute or PGCE, or higher, Master's degree, PhD	ISCED 5A, ISCED 6	University qualifications (most, but not all of them are obtained in universities)
Access to HE, RSA/ OCR (Level 4/5), NVQ (Level 4/5), Other Higher Education qualification below degree level Teaching, or Nursing qualifications, BTEC, BEC, TEC or EdExcel (Level 4/5), HNC/HND (Level 4/5), Diploma in higher education	ISCED 4 ¹ , ISCED 5B	Shorter postsecondary qualifications (around two thirds of these other postsecondary qualifications are vocational and will be described in this report as <i>professional qualifications</i>).

Note: 1. These ISCED 4 qualifications are limited to the access to higher education qualifications in the United Kingdom, but in some other countries they can be quite a substantial category.

Two populations are examined: current students and graduates

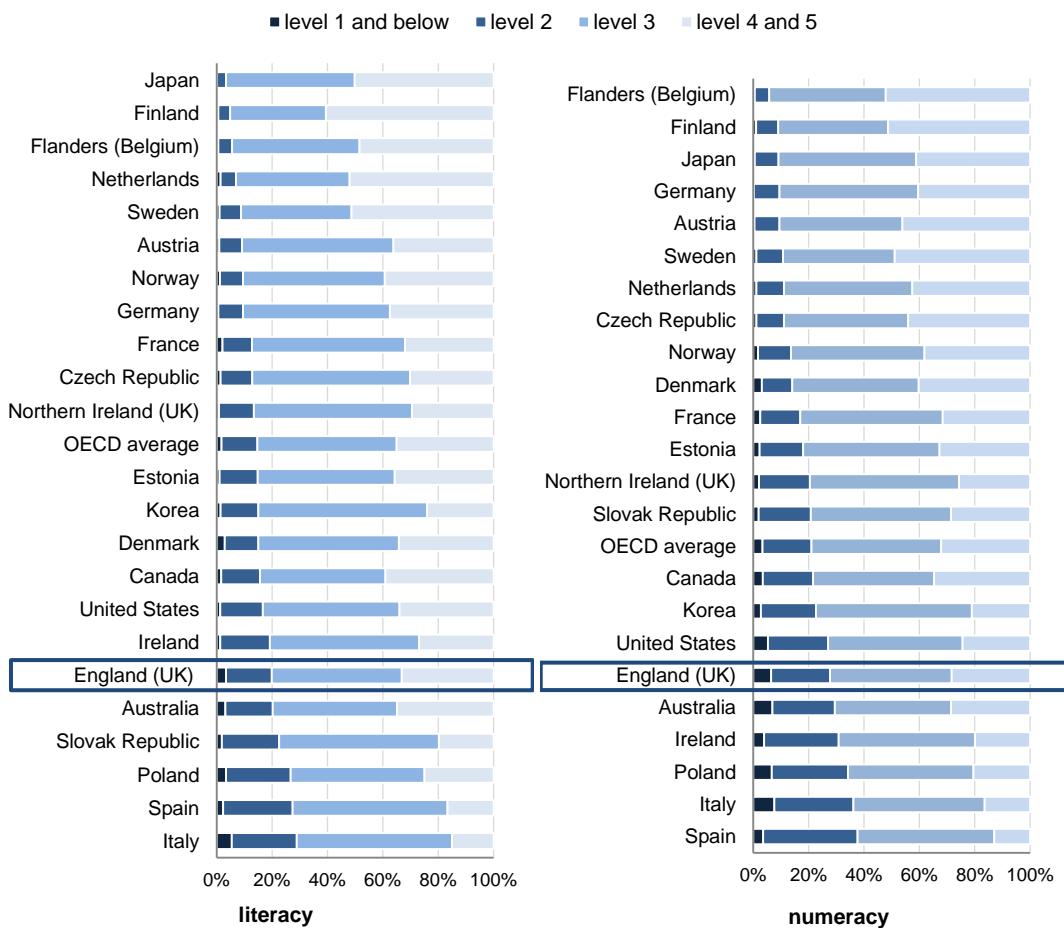
- *Current students*: those currently studying at institutions in England (with no exclusions).
- *Graduates*: the analysis relates to graduates of UK institutions living in England in 2012, and excludes those living in England who gained their postsecondary qualifications outside the UK. The sample includes (alongside graduates of English institutions) a relatively small proportion of graduates from institutions in Scotland, Wales and Northern Ireland living in England when the Survey was administered (since the data do not allow these individuals to be excluded). Those with ‘foreign’ (non-UK) university qualifications are excluded. This category includes: adults who obtained their university qualifications outside the UK; and migrants who arrived in the UK subsequent to the date of their qualification, (even if these qualifications were coded as UK university qualifications).

About 7 percent of university graduates in England have low basic skills

Young university graduates (aged 20-34) in England perform at around the OECD average level in literacy and below the average in numeracy. But the spread of performance is particularly large in England, so that a relatively large proportion of graduates perform poorly (see Figure 3.1 and Figures A3.1(L) and A3.1(N) in the Annex). University graduates in England more often have weak basic skills than those from many other countries (see Figure 3.1 Around one in five young graduates score at level 2 or below on literacy. England is therefore in a group of countries, including the English-speaking countries plus Italy, Poland and Spain where weak literacy and numeracy among graduates is relatively common – with 20% and more graduates having literacy and numeracy skills below level 3, with better performing countries having roughly half that proportion. Although one might expect that the majority of young adults with university qualifications would also perform at the highest levels in basic skills (level 4 and 5 in PIAAC), this is not the case in England and a number of other countries. While England does not perform well in international comparison, the issues raised in this chapter involve challenges for many countries.

Figure 3.1. Some young university graduates in England have very low literacy and numeracy skills

Numeracy (chart on the right) and literacy (chart on the left) skills of university graduates aged 20-34



Note: Countries are ranked in ascending order of the percentage of graduates with numeracy/literacy at or below level 2. In Austria, Finland, Flanders, Germany, Japan, Northern Ireland, Netherlands and Sweden the estimated percentage of graduates performing at level 1 or below on numeracy is not different from zero. In Austria, Czech Republic, Estonia, Finland, Flanders, Germany, Japan, Korea, Northern Ireland, Netherlands, Sweden and the US the estimated percentage of graduates performing at level 1 or below on literacy is not different from zero.

Adults who obtained their highest qualification outside the host country: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

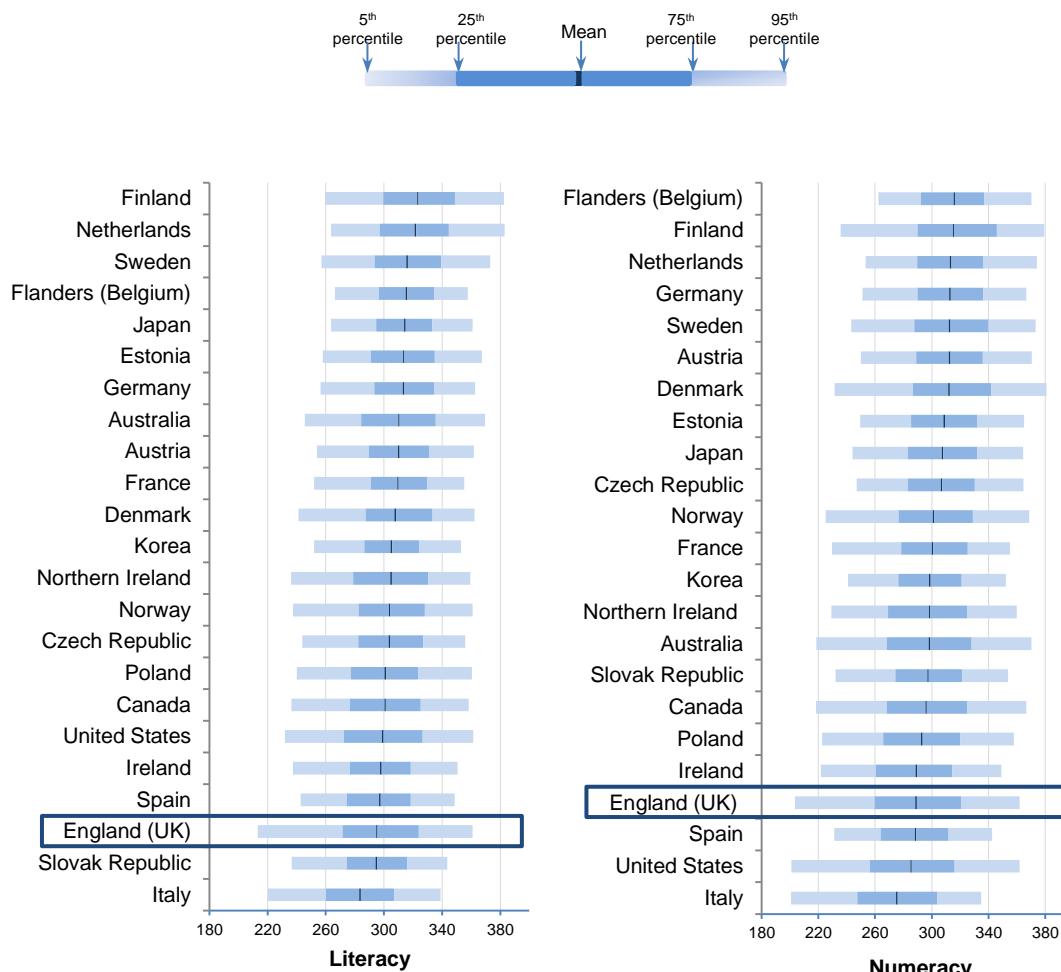
Among current university students about 10 percent have low literacy or numeracy levels

As with graduates, current university students in England have lower levels of literacy and numeracy than do those in many other countries (see Figure 3.2). Around one in ten of all university students in England have numeracy or literacy levels below level 2. Some of these students may drop out or fail to graduate. Others may improve their basic skills during their university studies, and become better-skilled graduates. Some have a non-English mother tongue.¹ But whatever the precise interpretation, the figures

indicate a major basic skills challenge among current students, which, given the data on graduates, is often not resolved at the point of graduation.

Figure 3.2. England has more university students with weak literacy and numeracy skills than most countries

Distribution of numeracy (chart on the right) and literacy (chart on the left) skills among current university students, 16-34 year-olds



Note: Countries are ranked in ascending order of the mean.

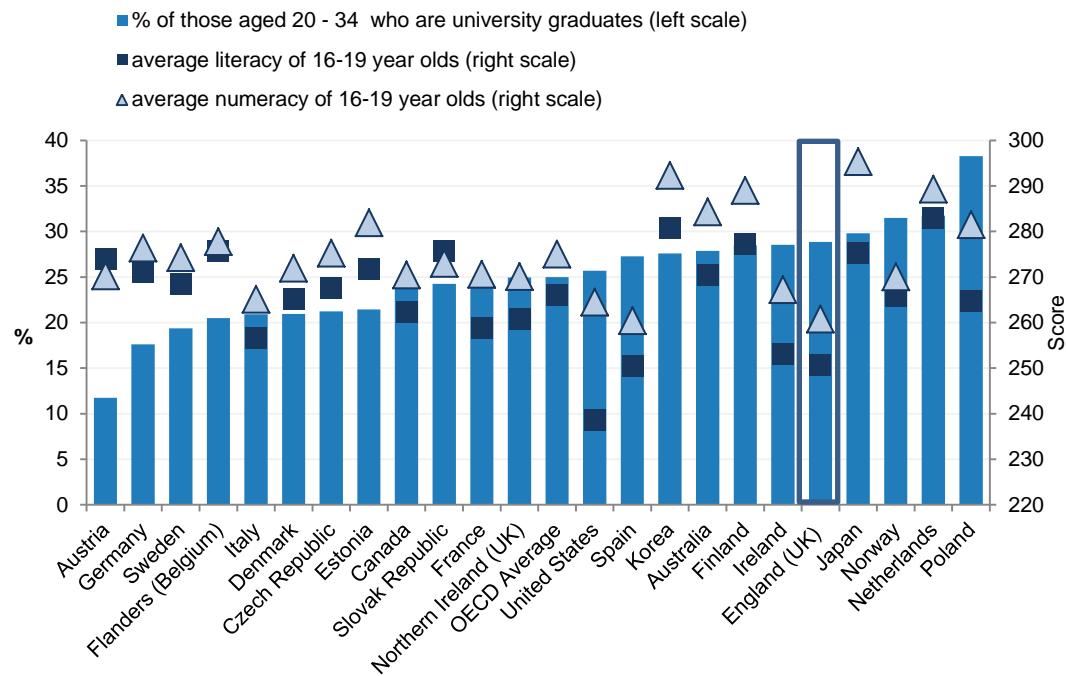
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

There are low basic skills among many in the current university entrant pool – a higher proportion than in many countries

University programmes typically rest on the assumption that entrants to university are well-prepared with core academic skills acquired at school. Figure 3.3 shows that while England is graduating more young people from university than most other countries in the Survey of Adult Skills, the basic skills of those in the potential entrant pool (aged 16-19) show more weaknesses than elsewhere, with one-third of the age group having low basic

skills – an issue discussed in Chapter 2. This suggests an imbalance between an entrant pool with weak skills and a high level of university participation in England.

Figure 3.3. In England, an imbalance between high university participation and low skills among potential entrants



Note: Adults who obtained their highest qualification outside the host country: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

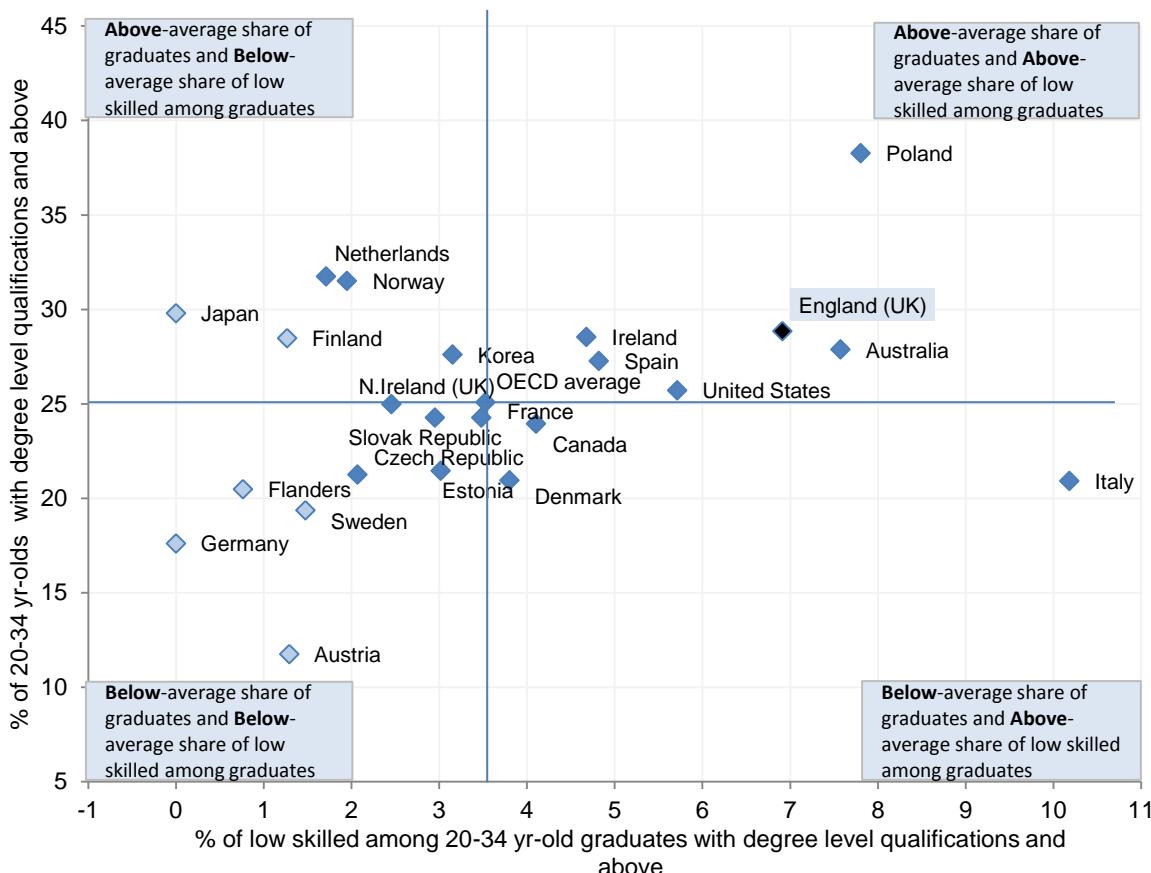
Growth in student numbers

Expansion of university education has been concentrated in universities with modest entry requirements

According to PIAAC data in 2012 approximately 35% of 25-34 year-olds held a university qualification – 13 percentage points above the level of 45-54 year-olds, and indicating growth in participation. Expansion among less selective institutions was one of the factors contributing to the expansion of the whole university sector. (Office for Fair Access, 2014: 14) argues that the increase in higher education participation between 1998/99 and 2011/12 was driven primarily by rising student numbers in institutions with medium and low entry requirements; participation remained relatively stable in institutions with high entry requirements. Some countries combine wide access to university education with strong basic skills among graduates: Finland, Japan, Norway and the Netherlands have similar or higher university attainment rates among young people but they report much lower shares of university graduates with poor basic skills (see Figure 3.4).

Figure 3.4. In some countries with high rates of university attainment, few graduates have low basic skills

20-34 year-olds with university qualifications as their highest qualification low skills = low literacy and/or numeracy



How to read the chart: For example in England nearly 30% of adults aged 20-34 hold a university qualification (vertical axis) and around 7% of these graduates have low basic skills (horizontal axis).

Note: Values not different from zero are shown in a paler shade. In these countries there are very few university graduates with low basic skills.

Adults who obtained their highest qualification outside the host country: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

The cap on student numbers in higher education has been lifted

Until recently the government imposed limits on the number of students (UK-domiciled or EU) higher education institutions could enrol. If an institution exceeded the cap, the amount of public funding it received was reduced (Higher Education Funding Council for England, 2013: 40). Students with A level grades of at least ABB were removed from the cap from 2013/14 (Hillman, 2014) and in 2014/15 the cap was removed entirely. In consequence the government expects to fund 60 000 more full-time undergraduate places each year (Hillman, 2014). Removal of the cap will not affect the majority of student applicants with good quality entrance qualifications since they would be able to enter university programmes in any case. Instead the effect will fall

on what might be called ‘marginal’ students, with relatively weak qualifications, who wish to enter university programmes, but have not done so in the past because they received no sufficiently attractive offers from institutions.

Removal of the cap could increase the risk of low basic skills among university students

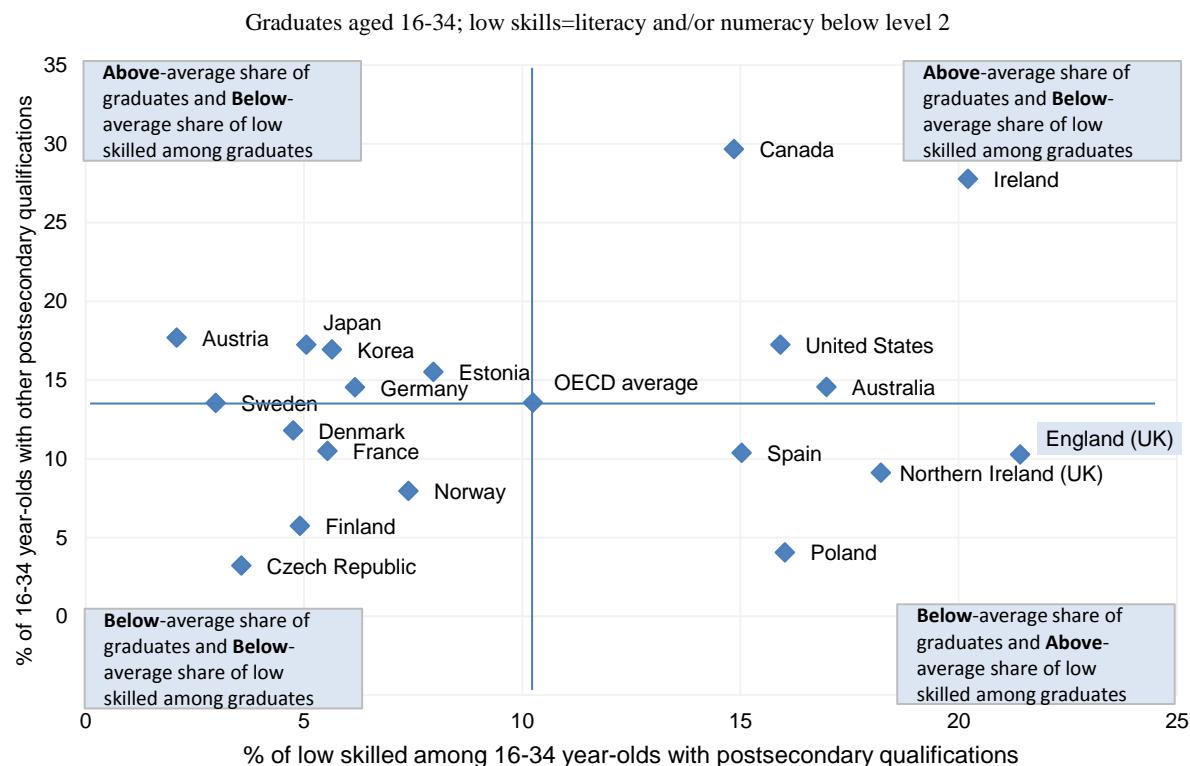
As shown earlier, expansion of student numbers in recent years has been associated with lower entry standards and with lower basic skills among graduates. Moreover, among the pool of potential entrants to higher education with upper secondary qualifications, a significant proportion perform poorly on basic skills (see Table 2.1 in Chapter 2). In the absence of additional quality controls some of the additional students who will enter higher education following the removal of the cap are therefore very likely to have weak basic skills. Australia relaxed its own numbers cap on university entrants in 2009 and lifted it entirely in 2012 (Norton, 2014). During this period the share of applicants meeting low entry criteria (based on the Australian Tertiary Admission Rank) who received an offer from a university institution increased from 1.6% in 2009 to 5.7% in 2014 (Australian Government, Department of Education, 2014: 43). Similarly, in the absence of additional quality controls, removal of the cap could further increase the number of UK university students with weak basic skills.

Other postsecondary qualifications and low basic skills

Low skills are even more common among those with shorter postsecondary qualifications

Around 10% of 16-34 year-olds hold ‘other’ shorter postsecondary qualifications, such as ‘higher national certificates and diplomas, and other UK level 4 and 5 qualifications. About two-thirds of these are vocational² and will be described here, as set out in Box 3.1, as ‘professional qualifications’. For both professional and general qualifications of this type, one in five graduates are low-skilled (either on literacy or numeracy or both), more than in many other countries (see Figure 3.5), and similar weaknesses are found among current students studying for these programmes.

Figure 3.5. In England, one in five young graduates with shorter postsecondary qualifications lack basic skills



How to read the chart: For example in England around 10% of those aged 16-34 hold a non-university postsecondary qualification as their highest qualification (vertical axis). Around 20% of these graduates have low basic skills (horizontal axis).

Note: Values not different from zero are shown in pale colours. In these countries there are very few non university postsecondary graduates with low basic skills. The number of observations was insufficient to include Italy and the Slovak Republic in the analysis.

Adults who obtained their highest qualification outside the host country: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

The returns from university education for those with low basic skills

Average returns to university qualifications are sizable, but there is substantial variation in returns

A key policy question is whether those with weak basic skills are able to benefit from university education – or would they be better off pursuing some other form of education or training? *On average*, university qualifications yield good economic returns for the individual (for England see for example BIS 2011). But returns vary depending on field of study, institution and student characteristics (O’Leary and Sloane, 2005; BIS, 2011). In university education, high level reading, writing and numeracy skills underpin the capacity to explore and analyse complex subject matter. One implication is that those who pursue a university programme without adequate basic skills may not learn effectively and therefore not gain the skillset and labour market returns that would normally flow from a university degree, as illustrated by Table 3.1.

For those with weak basic skills, shorter professional qualifications yield wage premia that are similar to university qualifications

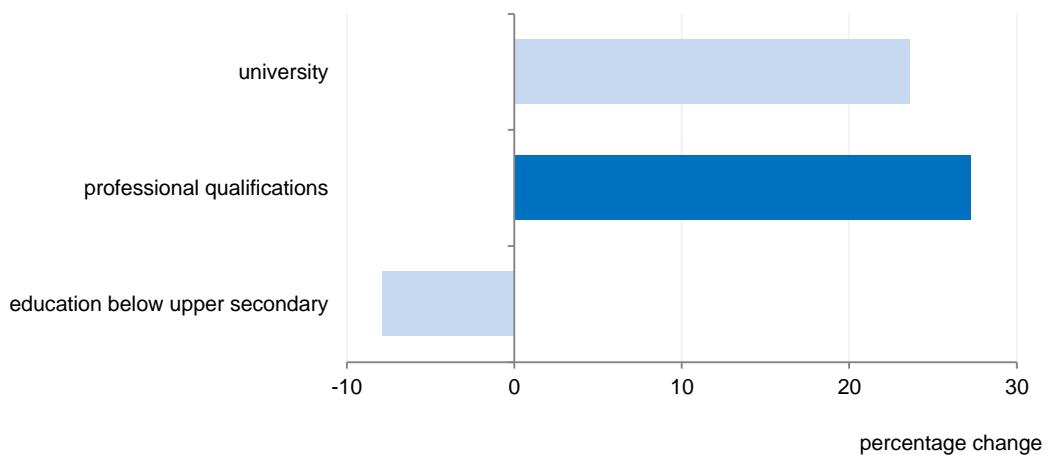
Figure 3.6 shows that controlling for other factors such as numeracy level, parental education, gender and age, a low-skilled university graduate earns around 25% more than a low-skilled upper secondary graduate (UK level 2 and 3). but this difference is statistically significant only at the 10% level. Earnings of low-skilled university graduates are also similar to the earnings of low-skilled adults with shorter postsecondary professional qualifications (see Table A3.1 in the Annex for the regression results). (Results of an analysis of employment outcomes among low-skilled adults with different qualifications are not reported due to the small number of observations.)

The capacity of the two sectors to tackle weak basic skills also affects the comparison

There are two respects in which the results in Figure 3.6 may not accurately reflect the comparative benefits from university and short postsecondary professional programmes. First, the returns shown to both university and professional programmes will be higher than those suggested in Figure 3.6 if the programmes succeed in taking low-skilled entrants, and graduating them with substantially better basic skills (ie no longer in the low-skilled category). For example the median monthly earnings of a graduate with low numeracy skills is just GBP 1 500 – for graduates with numeracy skills above level 2 the median earnings are over GBP 2 700 (see Table 3.1). So in comparing the returns from university and professional programmes one should add to Figure 3.6 an assessment of their relative capacity to address and improve low basic skills.

Figure 3.6. Association between qualifications and wages of low-skilled adults (controlling for background factors)

Percentage difference in the wages of 16-65 year-olds with low skills (literacy or numeracy below level 2 or both) according to their level of education and training. Reference category: upper secondary education (UK level 2 and 3).



Note: Coefficients from the ordinary least squares (OLS) regression of log hourly earnings. Coefficients adjusted for numeracy performance, age, gender and parental education. Wage outliers were dropped, namely wages above the 99th percentile and wages below the 1st percentile. Results statistically significant (at 5% level) are marked in darker tone.

Coefficients for the category ‘shorter general postsecondary qualifications’ are not reported due to a small number of observations.

Adults who obtained their highest qualification outside the UK: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the UK, are excluded.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Some of the returns may also reflect no more than ‘signalling’, particularly for university qualifications

The second point is that part of the apparent return from qualifications displayed in Figure 3.6 will be ‘signalling’, whereby employers use qualifications as a signal of productivity and skills, independently of actual skills – which are more difficult to observe. Signalling means there can be a wage and employment return from a qualification, particularly a recognised qualification with good status, even in the absence of increased productivity by the individual. Employers reward the average productivity value of the qualification, even if for some subsets of those so-qualified, (not readily identifiable by the employer), the qualification does not correspond to better skills and productivity. For a low-skilled university graduate, such signalling effects may explain a substantial part of the observed returns, since they are in possession of a good status qualification, but lack the skills that would normally be required to undertake what we see as being graduate jobs. This argument may also apply to some extent to short postsecondary qualifications, but less so, because they are typically less prestigious than university degrees. This implies that even if there is a benefit from the qualifications to individuals, the returns to society as a whole (the social returns) may be significantly overstated in Figure 3.6, particularly for university qualifications. So it may be quite rational for a low-skilled *individual* to pursue a university programme, (particularly given a loan system which, at public expense, insures against the risk of low wages), even if the added value of that university education in terms of skills and productivity is very limited.

For the low-skilled, short professional programmes are typically more cost-effective for society but may still be attractive to individuals

Taking these two points together with Figure 3.6 suggests that, for those with low basic skills, the social returns to shorter professional (postsecondary vocational) programmes are almost certainly at least as good as those from university programmes. Given that the social cost of short professional programmes is clearly much lower than university programmes, they will be a more cost-effective option for society as a whole for most low-skilled persons, even if, for some of the individuals involved, there may be attractions in a university qualification.

Who bears the cost of university programmes for the low-skilled?

University fees are set against a system which waives loan repayments to low-earning graduates

In 2013 the average annual fee for an undergraduate programme at an English university was GBP 8 610 (Matthews, 2013), with most programmes commanding the maximum GBP 9 000. Students typically take out government-supported student loans, with debt repayment triggered by income over GBP 21 000 a year. 30 years later, any remaining debt is forgiven (UK.GOV, 2015). The portion of loan outlay that will never be repaid by graduates – known as the resource accounting and budgeting (RAB) charge – is estimated to be 45% on average (Hillman, 2015).

For those with poor basic skills, most of the cost of university education will fall on the taxpayer

Table 3.1 shows that the earnings of university graduates with good numeracy or literacy skills (level 3 and above) are nearly double those of low-skilled graduates. The median monthly earnings of a university graduate with low literacy and numeracy skills was just over GBP 1 500 in 2012 (Table 3.1), below the current threshold (adjusting the earnings for inflation) at which graduates start repaying their loans. The earnings in the top quartile of those with low numeracy skills, although above the repayment threshold, might still not be high enough to ensure full debt repayment. These are rough approximations due to small cell sizes (particularly for literacy), but they point to the fact that many low-skilled university graduates will not repay their debts so, despite the up-front fees, the tuition costs of university education for low-skilled graduates will mainly fall on the public purse.

Table 3.1. The earnings of university graduates in England depend heavily on basic skills

. Earnings of university graduates (16-65) by skills levels

	Skills level on PIAAC	25th percentile	Median	75th percentile
Numeracy	Under (PIAAC) level 2	1 080 (303)	1 550 (361)	2 080 (413)
	Level 2	1 370 (163)	2 130 (226)	2 920 (263)
	Over level 2	1 800 (74)	2 740 (239)	3 770 (211)
Literacy	Under (PIAAC) level 2	980 (590)	1 520 (451)	2 190 (732)
	Level 2	1 410 (169)	2 100 (160)	3 010 (486)
	Over level 2	1 750 (91)	2 650 (115)	3 680 (151)

Note: Monthly earnings including bonuses for wage and salary earners. Foreign university qualifications are excluded. Earnings presented in the table are not the starting salary but an average for all ages combined. Adults who obtained their highest qualification outside the UK: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the UK, are excluded. Standard errors in brackets.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Recommendation 3: Divert unprepared university students and enhance basic skills tuition

Those with low basic skills should not normally enter three year undergraduate programmes, which are both costly and unsuited to the educational needs of those involved, while graduates with poor basic skills undermine the currency of an English university degree. These potential entrants should be diverted into more suitable provision that meets their needs.

Such students need postsecondary alternatives that will address their needs and tackle basic skills. Such alternatives need further development in England. Resources diverted from university provision should be redeployed, particularly in the FE sector, to support this.

For students with intermediate levels of basic skills, much more needs to be done within universities to develop quite basic literacy and numeracy skills, alongside higher level study skills.

Supporting arguments: Rebalancing postsecondary education

Enhancing efficiency and fairness

Implementing these recommendations will help to make education both more efficient and fairer to all

Implementation of the recommendations would mean that university numbers would fall. The savings, which would run to hundreds of millions of pounds, should be redeployed to improve basic standards in initial schooling and 16-19 education, and to support the development of short professional postsecondary programmes (see below). This would help to rebalance the English education system towards one which would be both more efficient in the use of public resources and fairer to all. The medium term impact of the measure would be to balance the scale of university education with the flow of well-prepared entrants, and over the longer term, link the growth of university education to the basic skills of the potential entrant pool, and send a clear message that the full value of university education depends on adequate preparation, (including basic skills).

Equity in education requires early intervention

It is sometimes argued that if universities were more selective, as proposed here, then this would damage equity. At present, initial schooling results in one third of 16-19 year-olds in England having low basic skills, and these poor outcomes by international standards depend more heavily on parental background than in most comparable countries. As argued in Chapter 1, solving these profound problems is the clear equity priority, in the context of the *priority of priorities* of basic schooling. Their resolution would allow young people from disadvantaged backgrounds a much better chance of realising their potential and benefitting fully from the full range of university and other

postsecondary options, as well as granting them much better prospects in the labour market. It is a misconception to imagine that at the far end of the education supply chain, in the context of universities, all the equity problems generated by earlier stages in that chain can be easily resolved, under the heading of ‘widening participation’.

Universities currently give limited attention to low basic skills among students

While many programmes encourage students from diverse and disadvantaged backgrounds to enter universities, there is little evidence that the development of literacy and numeracy has been embraced as part of that exercise. Thus the *National Strategy for Access and Student Success in Higher Education*, prepared by HEFCE and the Office for Fair Access (OFFA, 2014), addresses a wide range of access and retention issues. Many useful practices are described, such as coaching and mentoring, buddy schemes, partnership with employers and support for study skills, but there is not a single mention of literacy or numeracy challenges and how they might be addressed. Pedagogical interventions that form part of this body of activity include, for example, the development of writing skills in an Aston University scheme, and a study skills initiative at the University of Hull that seeks to develop critical and analytical thinking, note-taking, essay writing, referencing and plagiarism. While these are useful initiatives, they are aimed at developing higher level study skills, rather than helping those who cannot read very well, or who cannot understand a petrol gauge.

Universities need to do more to improve literacy and numeracy at intermediate level

While university programmes cannot solve all the problems arising from weak basic skills in the entrant population, they have a useful contribution to make. In accordance with the final part of the recommendation advanced above, universities can and should do more to address basic skills at intermediate level, (on the basis that those with the weakest skills should not be in university programmes). Around one in five young English university graduates can manage to read the instructions on a bottle of aspirin, and understand a petrol gauge, but will struggle to undertake more challenging literacy and numeracy tasks. Such skills are manifestly inadequate to address the kind of higher level tasks of critical analysis to which university programmes very properly aspire, and to realise the strong labour market outcomes, that, as shown here, depend heavily on good basic skills, not just the possession of a university degree. Widening participation therefore needs to be linked to a much fuller and more systematic embrace of the quite basic pedagogical tasks of improving the reading, basic numeracy and writing skills of university students. In this domain, English universities may be able to learn from the extensive experience of different programmes and initiatives in community colleges in the United States (see Box 2.2 in Chapter 2 and Box 5.5 in Chapter 5).

Implementing the recommendations

There are two approaches to implementation

Implementing these recommendations will involve reducing student numbers in university programmes in favour of other programmes, particularly in the FE sector. This will require well thought out measures, recognising that low-skilled young people, for reasons discussed above, may want to enter university programmes even when those programmes do not address their needs, while universities will not welcome any loss of students and fee income. Two main approaches to this task are possible: one would be to inhibit those with low skills from entering university, while a second approach would be to prevent universities from graduating students with low basic skills, leaving institutions to work out how to deliver that outcome. These approaches might be blended together.

The first approach would be to control the access of low-skilled students to universities

One direct possibility, discussed by Hillman (2014) would be to require a minimum entry standard, which could be tied to numeracy and literacy. This has obvious attractions, but as Hillman³ acknowledges, it is not easy to identify such a standard in the framework of all the different upper secondary qualifications which currently exist – and GCSE maths and English exams, often taken some years earlier, may not be adequate. A specially developed test of numeracy and literacy to be undertaken by all university applicants (or applicants for a student loan), would take time and substantial resources to develop and implement. Re-imposition of the cap might reduce the numbers of low-skilled students, but this would be a crude measure, since it would not be targeted on institutions and programmes where there are the greatest problems. More generally, measures aimed solely at controlling entrants would not yield incentives for universities to address the literacy and numeracy needs of their students – as in the third recommendation above.

The second approach would be to inhibit the graduation of low-skilled students

This would allow institutions to be flexible in their approach, with some institutions putting more emphasis on selection to ensure that graduates have adequate basic skills, while others might augment this with more emphasis on energetic measures to tackle and improve basic skills. This would support the third recommendation, advanced above, encouraging more attention to literacy and numeracy issues within the frame of university teaching. The measure would also influence the 16-19 sector, reinforcing the recent reforms which have granted increased attention to basic skills in this domain and indeed the recommendations advanced in Chapter 2. One means of implementing the second approach would be through an audit of the basic skills of students at the point of graduation (see Box 3.2). This would be quick and relatively cheap, but might then in time be augmented by measures at either institutional or national level to ensure that university entrants have sufficient basic skills to benefit from the experience.

Box 3.2. An audit of the basic skills of university graduates

One way of ensuring that university graduates have adequate basic skills would be through a regular, institutional level audit of the basic skills of graduates, with effective penalties for institutions which graduate significant numbers of persons lacking a minimum level of basic skills. This would involve a test of numeracy and literacy administered to a sample of students at the point of graduation in each institution. This could be conducted regularly on samples of graduates, perhaps as part of the final exam in institutions, but administered by HEFCE. Tests of this type are already used in certain cases, for example as a condition of becoming a qualified teacher (see <http://sta.education.gov.uk/>). Such audit arrangements would allow institutions with impeccable outcomes following an initial screening to have a lowered burden of audit while others deemed more at risk would be subject to more regular and intensive scrutiny, thus adjusting the regulatory burden to local requirements. The audit would provide good monitoring data on literacy and numeracy challenges and their distribution across types of institution, programme and student. Such information is currently unavailable because of small samples in the Survey of Adult Skills. The assessment tools used in the audit could also be benchmarked against the Survey of Adult Skills. Once implemented fully, this would provide reassurance that the basic skills of English university graduates match those of university graduates of other countries, underpinning the international reputation of a degree obtained in an English university.

An effective response to this challenge is urgent

A rapid response is necessary for two reasons. First, the government has announced substantial reductions in public expenditure across a range of programmes to meet its broader financial objectives. This will involve painful decisions. Against that background it is impossible to justify the economic costs, which must be of the order of some hundreds of millions of pounds annually, of continuing to admit students to university who are clearly unprepared, and whose educational needs are not going to be addressed by their university experience. Second, in the context of the removal of the cap, some universities are very likely to be expanding the number of entrants, and perhaps planning further expansion in the years ahead, potentially increasing the economic waste involved. So that institutions can plan effectively, they need to receive an immediate signal from the government of a requirement to limit entrants to those with an adequate initial level of basic skills.

Developing professional education and training

The OECD has already argued that professional programmes need development in England

The OECD has separately argued that England needs to further develop shorter postsecondary professional programmes – that is programmes at postsecondary level, involving somewhere between six months and two years of full-time study, and leading to occupationally specific qualifications. Labour market demand for such programmes is high, and England graduates fewer people with this type of qualification than many comparable countries (Musset and Field, 2013). The same OECD review also argued that such development needs to be accompanied by measures to improve the quality of programmes. Other commentators, including most recently Porter and Simons (2015)

have argued in a similar vein. The government is now actively considering how to take forward this policy agenda.

Developing professional programmes needs to take the basic skills challenge fully into account

The proposals advanced in the earlier OECD review are now reinforced by the argument put here, that those in university programmes with low skills should be diverted into more suitable programmes, while recognising that, at present, there are many weaknesses in the basic skills of graduates from professional programmes – with one in five having low skills. Postsecondary professional programmes already yield relatively good returns to low-skilled adults, probably because of job specific skills acquired on these programmes. Improvement in basic skills among current students would further increase the returns to professional qualifications, because basic skills within each level of educational attainment, including postsecondary professional programmes, are positively associated with labour market outcomes. Reinforcing basic skills among these students and graduates would also have other advantages, reducing dropout from programmes, and increasing the capacity to enter more highly skilled jobs and pursue further training and career development.

In principle providers of shorter postsecondary qualifications are equipped to remediate basic skills.

In principle, and to an extent in practice, FE colleges and perhaps other training providers are better suited to the teaching of basic skills than universities. Less academically oriented students often learn more effectively, including basic skills, in more practical contexts than in a traditional classroom. Many institutions providing short professional qualifications are already remediating poor basic skills (Ofsted, 2011). For example, it is not uncommon for FE colleges to screen new entrants on basic literacy and numeracy to identify and provide basic skills to those who need it most. But the evidence shows that the quality of basic skills provision varies widely across providers of professional postsecondary qualifications (Ofsted, 2011; Ofqual, 2015). According to PIAAC data, in postsecondary professional programmes low-skills are no less common among graduates than among students, raising questions about the effectiveness of these programmes in tackling basic skills weaknesses.

Targeted remediation can be effective

Remediating basic skills is difficult but not impossible. Faced with the failure of mainstream remedial education, US colleges and states have experimented with alternative, more targeted but often also more expensive interventions, with some of them being successful. Providers of postsecondary professional qualifications therefore should be encouraged to address underperformance in basic skills more vigorously and effectively. For example, progress in basic skills made by students in postsecondary professional programmes could be one of the criteria of government funding for institutions offering the corresponding qualifications.

Examples of successful initiatives

Box 3.3 gives example of a funding incentive introduced in the state of Washington (US) to improve college completion. While this initiative focuses primarily on student progression through the programme similar incentives could be introduced to tackle low

basic skills. It also describes the IBEST model that provides basic skills in the context of learning vocational subjects.

Box 3.3. Innovative initiatives addressing poor basic skills in US colleges

The Student Achievement Initiative (SAI) is a performance funding system for all community and technical colleges. It includes certificate and associate degrees (one and two year programmes), apprenticeship retraining for workers and a program for adults without high school diploma. Institutions are rewarded with additional funds if they record a positive change in the number of students that move from remedial to credit courses, complete specific credits, and successfully complete the degree. So colleges are evaluated based on the progress made relative to their own prior performance. As one official document states “there are no targets, colleges compete with themselves rather than each other” (SBCTC, 2013). SAI does not affect the regular formula by which the state distributes funds among institutions.

The model tracks student progress over time, from basic skills courses to the completion of a degree. It encourages institutions to measure the impact of tools designed to improve student progression. On this basis institutions can identify and adjust their practices genuinely contributing to student progressions. This focus on student progression and completion has increased attention to basic skills and remedial education, and had also led to stronger investment in student services (Jenkins et al., 2009).

The evidence collected through systematic evaluation of the SAI shows that the number of students in technical and community colleges reaching crucial progression points (momentum points) has been growing since its introduction. In particular, more students perform better on basic skills and are college ready. Over the same period more students enrolled in community and technical colleges, contributing to the higher number of students progressing through the system. Yet, the achievement gains grew at a much faster rate than the number of students enrolled (SBCTC, 2013), implying that better student achievement explains an important part of this improvement. There is also little evidence that colleges serving more at-risk, low-income students are penalized by the SAI funding (Belfield, 2012). The growth in student performance halted in 2011. This could be related to funding cuts in postsecondary education.

I-BEST is an innovative blend of basic skills with vocational education and training. Often too few students in adult basic skills programs upgrade their skills by transferring to postsecondary education. The Integrated Basic Education and Skills Training (I-BEST) was developed to improve entry rates to postsecondary career and technical education (CTE) in response to this challenge. Around 2% of basic skills students participated in I-BEST in the 2006-2008 period (Wachen et al., 2010). An I-BEST program combines basic skills teaching and professional training. Occupational training yields college credits that contribute to a certificate degree. These CTE courses can only be provided in occupations in demand on the labor market and leading to well paid jobs (Wachen et al., 2010). Combining basic skills with CTE content is facilitated by the availability of both types of program at community and technical colleges (I-BEST programmes are available in every community and technical college in Washington State) (WTECB, 2013a). Individuals must score below a certain threshold on an adult skill test and qualify for adult basic education to participate in an I-BEST program. I-BEST students tend to perform better than non-participants and are more likely to have a high school or equivalent qualification.

**Box 3.3. Innovative initiatives addressing poor basic skills in US colleges
(continued)**

In the I-BEST program a teacher of basic skills and a teacher of professional-technical subject jointly instruct in the same classroom with at least a 50% overlap of instructional time (SBCTC, 2012). This increases the cost of provision and the state therefore funds I-BEST students at 1.75 times the normal per capita funding rate. From an individual point of view I-BEST programs are more expensive than adult basic education as students pay for the college-level portion of the I-BEST program. This might prevent some adults from participating as many I-BEST students are from low-income families and cannot afford tuition in college-level classes (Wachen et al., 2010). Students can receive financial support from federal (Pell grant) and state sources (State need Grant and opportunity Grant) but as reported by Wachen et al., (2010) many students interested in I-BEST do not qualify for this aid. Proving eligibility for the financial aid can sometimes be complicated and deter students from applying.

A few studies measuring the impact of I-BEST found that I-BEST students earn more credits and are more likely to complete a degree than a comparable group of basic skill students not participating in the program. Evidence on the link between participation in I-BEST and earnings is less conclusive, although this might be due to changing economic conditions and the US and Washington State economy entering the recession (Jenkins et al, 2010).

Source: SBCTC (2012), Integrated Basic Education and Skills Training (I-BEST), www.sbctc.ctc.edu/college/e_integratedbasiceducationandskillstraining.aspx (accessed February 2013); Belfield C. (2012), "Washington State Student Achievement Initiative: Achievement Points Analysis for Academic Years 2007-2011", CCRC-HELP Student Achievement Initiative Policy Study; Jenkins D., T. Ellwein and K. Boswell (2009), "Formative Evaluation of the Student Achievement Initiative Learning Year", Report to the Washington State Board for Community and Technical Colleges and College Spark Washington, CCRC, www.collegespark.org/files/documents/News_and_Research_from_Grantees/332_655.pdf; Wachen J., D. Jenkins and M. Van Noy (2010), "How I-BEST Works: Findings from a Field Study of Washington State's Integrated basic Education and Skills Training Program", CCRC, New York; Jenkins D., M. Zeidenberg and G. Kienzl (2010), "Educational Outcomes of I-BEST, Washington State Community and Technical College System's Integrated Basic Education and Skills Training Program: Findings from a Multivariate Analysis", *Working Paper No. 16*, CCRC in Kuczera M. and S. Field (2013), *Skills beyond School Review of the United States, OECD Reviews of Vocational Education and Training*, OECD publishing, www.oecd.org/edu/skills-beyond-school/ASkillsbeyondSchoolReviewoftheUnitedStates.pdf

The further education system needs the resources to address basic skills

Wolf (2015) estimates the annual funding per ‘home’ university graduate to be about GBP 8 400,⁴ nearly twice the funding per 16-18 year-old, and four times that per full-time FE college student (Wolf, 2015). In the context of a relative decrease in funding channelled to the non-university postsecondary system, expectations on FE colleges (major providers of short professional programmes), in terms of addressing basic skills in young school leavers, have increased. While new responsibilities of FE colleges should be adequately resourced (for example by shifting resources from the university sector). FE colleges should be kept accountable for the outcomes they achieve. Similarly, Porter and Simons (2015) have argued that some of the GBP 532 million annual budget previously devoted to widening participation and some related tasks should be diverted to further education.

NOTES

1. The sample size in PIAAC is too small to provide a reliable estimate of the share of low-skilled university students who have a mother tongue other than English low-skilled.
2. National programmes are coded according to ISCED 1997. Since ISCED 4, 5B and 5A each include both general and vocational programmes, short cycle postsecondary vocational programmes were approximated by modifying ISCED 4 and 5B by reference to the field of study. The Survey provides information on the areas of studies for current education and for the highest qualification. There are nine of them, ‘general ‘and ‘humanities, languages and arts’ fields of study were defined as general (clearly non-vocational). Two further categories “social science business and law” and “science, mathematics and computing” were included into the definition of vocational, while recognising that some of the students will not be pursuing genuinely vocational programmes. The other vocational fields of study are: “teacher training and education science”, “Engineering, manufacturing and construction”, Agriculture and veterinary”, “health and welfare “and services”
3. Hillman (2014) also describes two further options to control quality in higher education - using institutional dropout rates to monitor and control quality, and using RAB charge outturns, as a measure of labour market outcomes, for the same purpose. But as Hillman acknowledges, there is always the challenge that institutions which seek to widen access will always tend to have higher dropout rates, while the RAB charge outturn only becomes apparent many years later, so it has little value as a means of guiding current practice
4. Net of fee reductions, not including HEFCE funds for research, but including teaching grants for lab-based subjects (pp 14)

References

- Australian Government, Department of Education and Training (2014), *Undergraduate Applications, Offers and Acceptances, 2014 report*, Department of Education, Canberra, docs.education.gov.au/system/files/doc/other/undergraduate_applications_offers_and_acceptances_2014_0.pdf.
- BIS (Department for Business, Innovation and Skills) (2011), “Supporting Analysis for the Higher Education White Paper”, *BIS Economics Paper No.14*, Department for Business, www.gov.uk/government/publications/supporting-evidence-for-the-higher-education-white-paper-2011.
- UK Government (2015), Repaying Your Student Loan, www.gov.uk/repaying-your-student-loan/overview (Accessed 30 October 2015).
- Higher Education Funding Council for England (2013), “Guide to Funding and Student Number Control 2013-14, How HEFCE Allocates Its Funds and Controls Student Numbers”, *HEFCE*, www.hefce.ac.uk/pubs/year/2013/201325/.
- Hillman, N. (2015), "A Baker's Dozen on the RAB", *HEPI Higher Education Policy Institute*, www.hepi.ac.uk/2014/03/27/bakers-dozen-rab/.
- Hillman, N. (2014), "A Guide to the Removal of Student Number Controls", *Higher Education Policy Institute*, Report 69, Higher Education Policy Institute,**Error! Hyperlink reference not valid.**
- Matthews, D. (2013), “International and Postgraduate Student Fees Survey, 2013”, *Times Higher Education*, 8, www.timeshighereducation.com/features/international-and-postgraduate-student-fees-survey-2013/2006262.article.
- Musset, P. and S. Field (2013), “A Skills beyond School Review of England”, *OECD Reviews of Vocational Education and Training*, OECD publishing, Paris, www.oecd.org/edu/skills-beyond-school/ASkillsBeyondSchoolReviewOfEngland.pdf.
- Norton, A. (2014), “Unleashing Student Demand by Ending Number Controls in Australia: An Incomplete Experiment?”, *HEPI Report 68*, Higher Education Policy Institute, <http://www.hepi.ac.uk/2014/08/07/unleashing-student-demand-ending-number-controls-australia-incomplete-experiment/>.
- OFFA (Office for Fair Access). (2014), *Trends in Young Participation by Student Background and Selectivity of Institution*, Office for Fair Access, **Error! Hyperlink reference not valid.**
- Ofqual (Office of Qualifications and Examinations Regulation) (2015), *Improving Functional Skills Qualifications*, Ofqual,

www.gov.uk/government/uploads/system/uploads/attachment_data/file/398441/2015-01-27-improving-functional-skills-qualifications.pdf.

Ofsted (Office for Standards in Education, Children's Services and Skills) (2011), *Tackling Low Numeracy Skills in Young People and Adults*, Ofsted, London, www.gov.uk/government/publications/tackling-low-numeracy-skills-in-young-people-and-adults.

O'Leary, N. and P. Sloane (2005), "The Return to a University Education in Great Britain." *National Institute Economic Review* 193 (1): 75–89, UK, www.swansea.ac.uk/welmerc>Returns%20to%20Degrees.pdf.

Porter, N., and J. Simons (2015). "*Higher, Further, Faster, More: Improving higher level professional and technical education*", Policy Exchange, London, [/www.policyexchange.org.uk/publications/category/item/higher-further-faster-more-improving-higher-level-professional-and-technical-education](http://www.policyexchange.org.uk/publications/category/item/higher-further-faster-more-improving-higher-level-professional-and-technical-education).

Wolf, A. (2015), *Heading for the Precipice: Can Furhter and Higher Education Funding Policies Be Sustained?*, King's College, London, www.kcl.ac.uk/sspp/policy-institute/publications/Issuesandideas-alison-wolf-digital.pdf

Chapter 4

Enhancing skills through working life

In England, most low-skilled adults, or more than five million people, are in work. But for many young low-skilled adults, who neither participate in education nor work, employment prospects are bleak. This is because employers value and reward strong basic skills, while current changes in labour markets are suppressing a sector of middle-skill jobs. First jobs often determine career trajectories and opportunities to use and develop skills. To facilitate the successful entry of young people to the labour market many countries offer programmes combining education with training in workplaces, but In England these pathways are relatively underdeveloped. The recent efforts to promote good quality apprenticeships and traineeships are therefore to be encouraged.

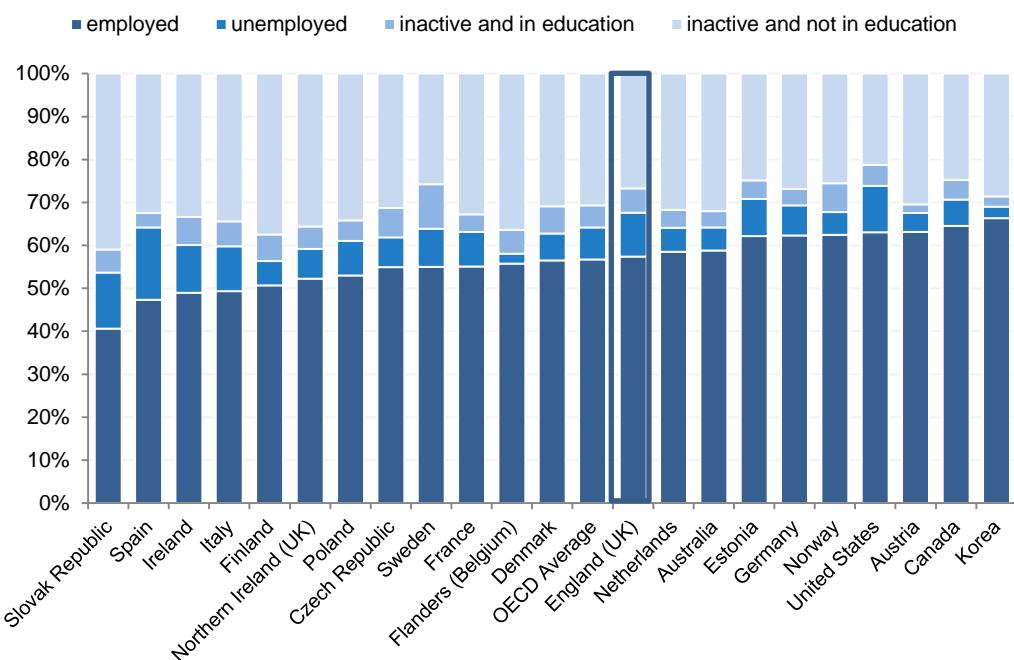
Challenges: Low-skilled young adults and transition to the labour market

Most low-skilled adults under the age of 65 are in work

In 2012 nearly 60% of the low-skilled, or more than five million people, were in work. A further one million low-skilled people were looking for a job (see Figure 4.1). So work and the search for work are a very important part of the life of most low-skilled adults, and through work people can, in principle, maintain and develop their skills.

Figure 4.1. In England as in many countries, more than half of the low-skilled have jobs

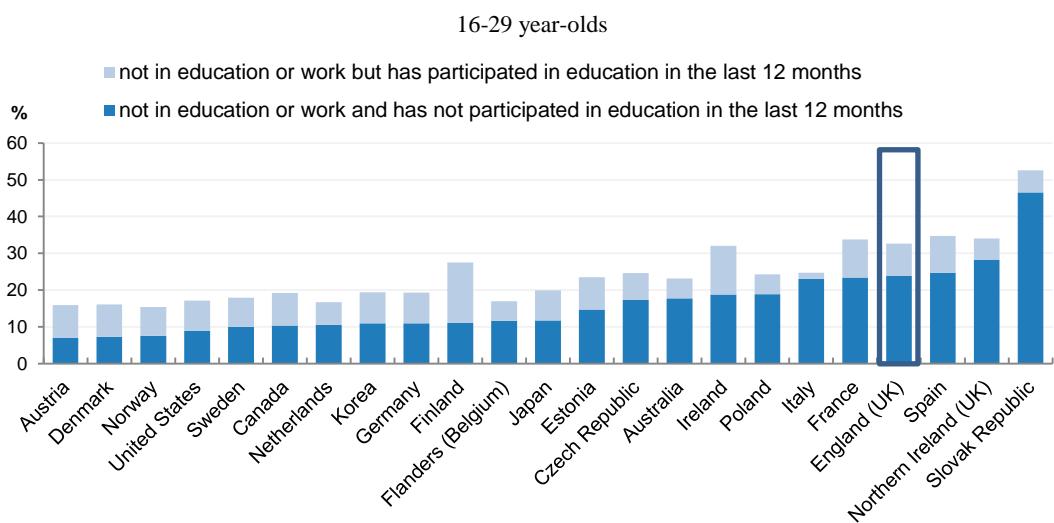
Labour market status of all low-skilled adults (with literacy and/or numeracy below level 2) aged 16-65



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

But labour market opportunities of young adults with low skills are bleaker

In England around 36% of young adults (16-29 year-olds) with low skills are employed. While this is similar to other OECD countries, England has a larger proportion of this group not working or studying (see Figure 4.2). These young people might find it extremely difficult to find a job, or might end up in jobs with few upskilling opportunities. Potential reasons for this difficult transition are discussed below.

Figure 4.2. In England, many young adults are not in either education or work

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Labour market opportunities for low-skilled workers are shrinking

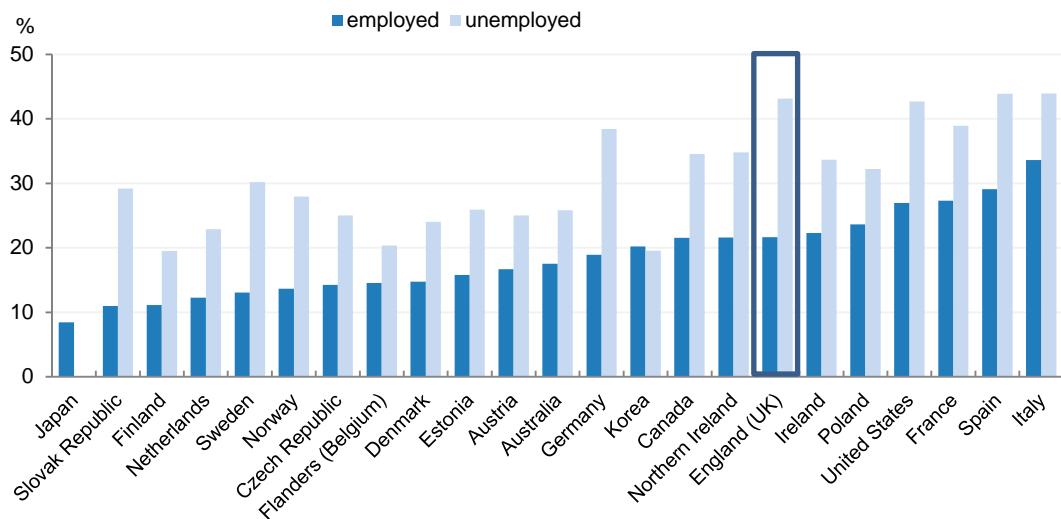
The share of people employed in occupations requiring high level skills has been growing in recent decades. There is some growth in low-skill sectors, including elementary jobs, and sales and services, but the middle skill job sector contracted. A CEDEFOP study of 27 EU countries (CEDEFOP, 2011) reports that between 2000 and 2008 the percentage of the labour force with low education (less than upper secondary) decreased by six percentage points, while that of employees with high level education (ISCED 5 and above) increased by five percentage points. Given the ‘hollowing out’ of middle level jobs and rising educational attainment, workers in elementary jobs are increasingly found to have good levels of education. This might have involved workers with better qualifications filling low-skill and medium-skill jobs not traditionally targeted by these qualifications, but it could also reflect increasing skill requirements in these jobs. These developments make the situation of low-skilled, low educated people with limited labour market experience very precarious.

Basic skills are strongly linked with good labour market returns in England

Stronger basic skills (literacy and numeracy) are associated with higher rates of economic activity, higher wages and a lower risk of unemployment in virtually all countries (see Figure 4.3). In England, controlling for other factors, these associations are particularly strong (Tables 6.5, 6.6, 6.7 in OECD, 2013). This correlation between basic skills and labour market outcomes is generally stronger in more deregulated labour markets, including England but also the United States. This may be because when minimum wages are lower and employment protection weaker recruitment decisions involve less risk, and therefore perhaps less weight is placed on qualifications – leaving more room for skills, including basic skills, to affect labour market outcomes.

Figure 4.3. In England, more than 40% of the unemployed have low basic skills

Percentage of the employed and unemployed 16-65 year-olds with literacy and/or numeracy below level 2



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Employers use qualifications to screen for basic skills in potential recruits

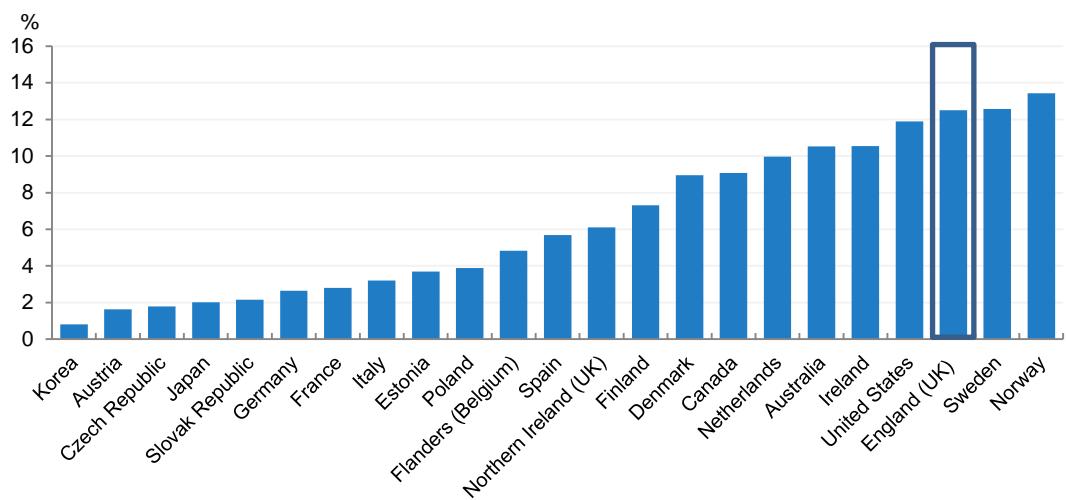
When employers in England are asked in surveys, they do not mention numeracy and literacy as being particularly important in potential recruits relative to other characteristics (UK Commission for Employment and Skills, 2014). But English and maths GCSEs are viewed by employers as critical or important factors when recruiting – second only to work experience and above academic and vocational qualifications, so employers may be using these qualifications as signals of basic skills (UK Commission for Employment and Skills, 2015).

A small proportion of low-skilled adults in England return to education and training later on in life.

Around 12% of low-skilled adults say that they participate in formal education and training in England. Relative to other countries, the low-skilled in England are more likely to engage in formal education and training (see Figure 4.6). But relative to the overall number of adults lacking basic skills and the scale of the problem, formal education and training addresses only a tiny part of the challenge. In England, in common with virtually all countries, low-skilled workers have many fewer opportunities for learning at the workplace than higher skilled workers.

Figure 4.6. More low-skilled adults continue in education in England than in other countries

% of low-skilled (with literacy and/or numeracy below level 2) 25-65 year-olds participating in formal education and training



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Recommendation 4: Improve transitions into work and promote upskilling at work

Improve transition from school to jobs by offering opportunities to upskill, in particular to young people with poor or no qualifications, through good quality apprenticeships and traineeships.

Supporting arguments: Smoothing the path to the labour market

First jobs are important when there are barriers to career development

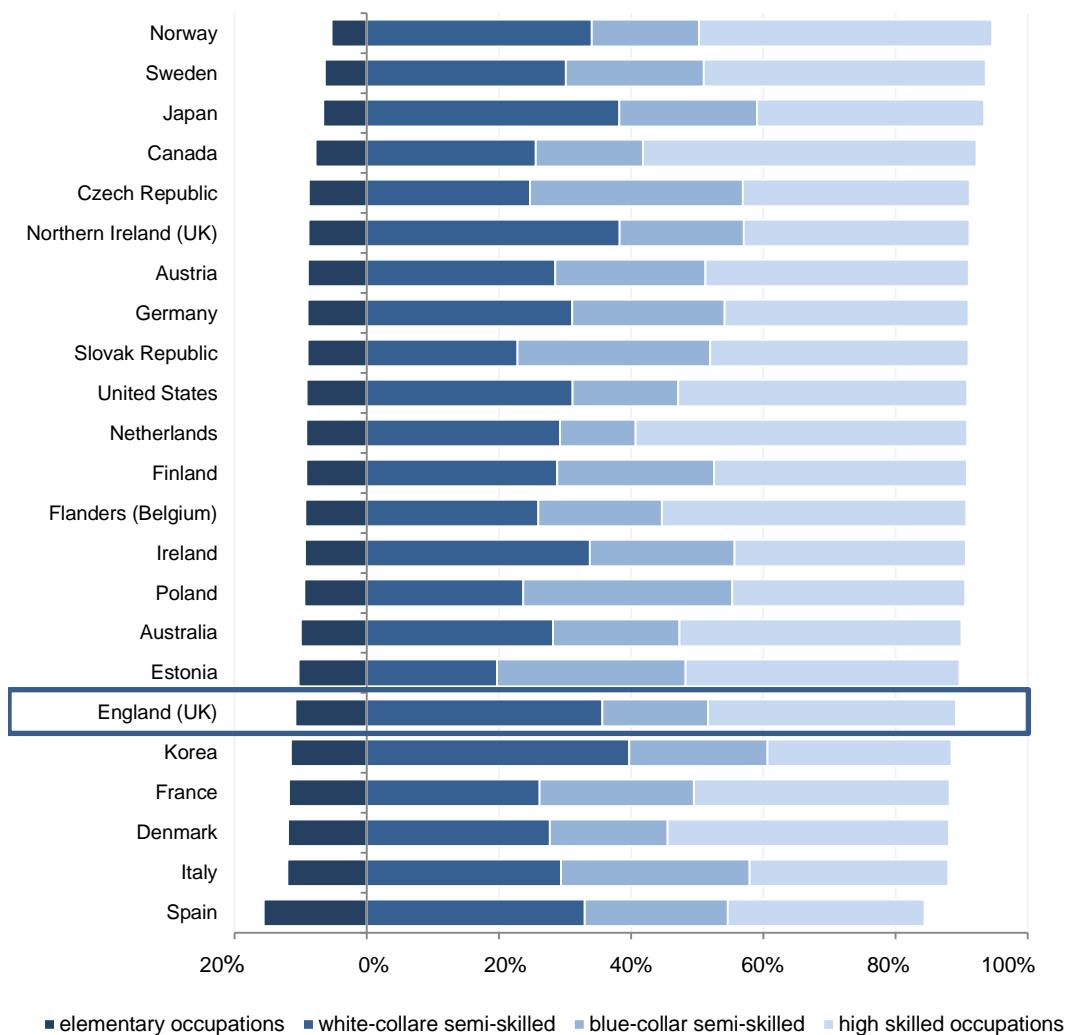
Those who start in elementary jobs often have limited opportunities to develop their basic skills. Survey data shows that low-skilled adults in England and elsewhere change jobs less often¹ than people with higher skills, despite less favourable working conditions. In England as in many countries, there has been a hollowing out of the labour market into an ‘hour-glass’ shape with a very narrow aperture in the middle, making career progression harder for those who start at the bottom. Many commentators have also remarked on stagnating productivity in England – a related phenomenon, as it may reflect an entrenched pool of low-skilled jobs with few upskilling opportunities.

Nearly one-third of employees think their jobs only require low level qualifications

England has slightly more people than other countries (on average) in elementary jobs requiring few skills (see Figure 4.4), and just under one third of workers say their job requires less than upper secondary education (no qualification or level 1 UK qualification), again more than in many other countries. Many low-skilled individuals work in the area of clerical support, service and sales services. In many countries including England the low-skilled are more likely than the better-skilled to hold a fixed term or temporary contract, or work without a contract. Current plans to increase the minimum wage may affect this pattern.

Figure 4.4. Elementary jobs are relatively common in England

Adults in employment aged 16-65, by ISCO classification

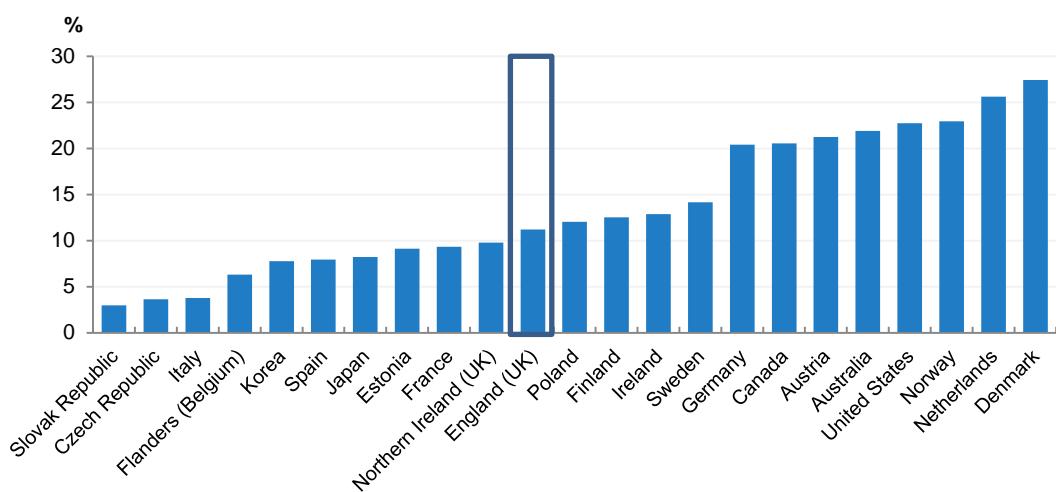


Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Combining education with workplace learning smooths transition to the labour market

Chapter 2 argued for reinforced attention to basic skills in the education offered to 16-19 year-olds, while recognising the significant challenges involved in pursuing classroom education for those who failed at school. The workplace, when combined with education can offer significant potential for young people to develop basic skills. It provides meaningful learning alternatives to students who are more practically oriented and often facilitates entry to the labour market, and therefore a positive career trajectory.

Figure 4.5. share of young adults (16-29) with low-skilled combining work and study



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

England could make a better use of paths combining education and training in workplaces

In England one in ten young adults (aged 16-29) with low skills work while studying (see Figure 4.5), close to the average of participating countries. In some countries the combination of education and work is more common: it covers activities such as holding a job unrelated to the programme of studies, or pursuing training that is an integrated part of the study programme such as apprenticeship training. While in Germany and Austria the majority of low-skilled adults (16-29 year-olds) who report working while studying are apprentices, in countries such as the US, Canada and England few in this group so define themselves. Given the benefits of work-based learning, recent initiatives to develop traineeships and expand good quality apprenticeships in England are to be encouraged. Other countries also use work-based learning to support young people at risk of dropping out – Norway’s experience is described in Box 4.1.

Box 4.1. Certificate of Practice – flexible provision of vocational education and training in Norway

In Norway, the standard model for upper secondary vocational education and training, often described as the 2+2 model, involves two years in school followed by two years of apprenticeship in a company. The two-year apprenticeship takes place with an employer (or employers) and follows a national curriculum. Legally, apprentices are employees of the enterprise, with conditions specified in a contract that is signed by the candidate, the company and the county (local authority). Apprentices receive a wage that ranges from 30 to 80% of the wage of a qualified worker, the percentage increasing over the apprenticeship period. Employers taking on apprentices receive a state grant for each apprentice (approximately EUR 14 000 per apprentice in 2015 for the entire training period).

The certificate of practice is a measure aimed at students who want a more practical form of training during their first two years of upper secondary education. Upon completion, successful candidates receive a certificate of practice. Afterwards they can continue in education and training, and obtain a full trade- or journeyman's certificate.

The certificate of practice started out as a pilot scheme in 2008, and this phase will end in 2017. Seven out of nineteen counties have participated in the scheme so far. The government has decided to make the certificate of practice available in all counties alongside regular upper secondary education and training.

Typically, the certificate of practice combines training in a company with one day of instruction in Norwegian, mathematics and social science, building on the regular curriculum of a vocational programme. The certificate of practice targets students with lower grades and a lot of absence recorded during lower secondary education. Experience so far shows that companies that provide training to these candidates often struggle to recruit new employees and attract a sufficient number of regular apprentices. Employers taking on certificate candidates receive a state grant, similar to that received by other training companies. Counties have a lot of freedom in the organisation of the programme. Consequently, the use and delivery of the certificate of practice and its results can differ by counties.

The evaluation of the certificate of practice from 2008–2011 showed encouraging results; the completion rate was high, as were the share of graduates that continued towards a trade- or journeyman's certificate.

Source: Małgorzata Kuczera et al., *Learning for Jobs OECD Reviews of Vocational Education and Training. Norway, 2008*, <http://www.oecd.org/edu/skills-beyond-school/41506628.pdf>; Håkon Høst, *Continuity and Change in Norwegian Vocational Education and Training (2)* (NIFU STEP, 2010), <http://brage.bibsys.no/xmlui/handle/11250/279099>; Norwegian Directorate for Education and Training, "The Education Mirror 2012. Analysis of Primary and Secondary Education and Training in Norway," 2012; Gjerstad C. and E. Waagene, "Spørsmål Til Skole-Norge Våren 2015: Resultater Og Analyser Fra Utdanningsdirektoratets Spørreundersøkelse Blant Skoler Og Skoleeiere" (NIFU Nordisk institutt for studier av innovasjon, forskning og utdanning, 2015), <http://www.nifu.no/publications/1251607/>; e-mail exchange with the Norwegian Directorate for Education and Training.

Do low-skilled adults develop their basic skills on the job?

Recently company spending on training has been falling

Over the period 2011-13 the number of staff receiving training increased, but overall spending declined (UK Commission for Employment and Skills, 2014). According to a 2012 survey among UK employers 27% of all the time spent on continuing vocational training² courses was devoted to mandatory training, often related to health and safety (BIS, 2013). Such mandatory training is often common among low-skilled workers, but in its nature it may not contribute much to basic skills development.

In England relatively many low-skilled adults use basic skills at work

In many countries, including England, Survey results show that employees with low skills are overrepresented in jobs where they receive no help from co-workers and supervisors, and in jobs involving no ‘learning while doing’ (presumably often jobs requiring few skills). Learning from co-workers and colleagues is more common in large companies, among younger workers and among those with better education levels and stronger basic skills. But in England the low-skilled are more likely than in most countries to use reading, writing and problem-solving skills at work (see Table 4.1). This is positive if using these skills at work promotes their development. On the negative side, allocation of low-skilled individuals to tasks requiring higher level of skills can be a sign of misallocation of human resources, especially if tasks performed on the job have little effect on the basic skills of employees.

Table 4.1. Relative to other countries, the low-skilled in England are more likely to use their basic skills at work

Use of specific skills by low-skilled (literacy and/or numeracy) workers in England in comparison with use of the same skills by low-skilled workers in other countries

		The tasks involved	Use of these skills in England in comparison to the average of participating countries
Reading	Reading documents (directions, instructions, letters, memos, e-mails, articles, books, manuals, bills, invoices, diagrams, maps)		Above average
Writing	Writing documents (letters, memos, e-mails, articles, reports, forms)		Above average
Numeracy	Calculating prices, costs or budgets; use of fractions, decimals or percentages; use of calculators; preparing graphs or tables; algebra or formulas.		Similar to the average
ICT skills	Using e-mail, Internet, spreadsheets, word processors, programming languages; conducting transactions online; participating in online discussions		Similar to the average
Problem solving	Facing complex problems (at least 30 minutes of thinking to find a solution)		Above average

Source: OECD, 2013:143; Survey of Adult Skills, 2012.

Low basic skills as a potential cause of unemployment

Unemployment has declined

In 2012, around one million people in England with low skills were unemployed, approaching half of all unemployed people at the time. (Unemployment has since declined significantly). Low skills may be a cause of unemployment as much because initially low basic skills have led into a sequence of insecure poor quality jobs as because recruiting employers are directly concerned with literacy and numeracy weaknesses (given evidence from employer surveys). Since skills decay through lack of use, low basic skills may also be partly the result of long term unemployment (not a big problem in England), or an extended period of years in which poor and insecure jobs which do not promote basic skills alternate with periods of unemployment. Someone who starts their career with low basic skills can therefore become entrenched in a career trajectory in which their pattern of employment both reinforces, and is reinforced by low basic skills. If this is so, then midlife remediation of basic skills may, in isolation from other interventions, have limited power to reset a new career and learning trajectory.

There are limited training opportunities for the unemployed

England is among very few countries where, other factors³ held constant, unemployed persons are no more likely than employed adults to participate in adult education. This might reflect different approaches towards the role of training in labour market activation policies, in which England invests relatively little (0.02% of GDP compared to 0.15% on average in the OECD (OECD, 2014). Fully-funded training for the unemployed that addresses basic skills tends to be of short duration. Most claimants take low-level courses (UK entry and level 1) and only 12% of courses provided were in mathematics and English. While increasing spending on active labour market policies seems to be an obvious response to the basic skills challenge, available evidence on the outcomes of training programmes for the unemployed argue for a cautious and evidence-based approach to such interventions (OECD, 2014). An evidence-based approach tends to be a strength of England: the Departments for Work and Pensions (DWP) and Business, Innovation and Skills (BIS) jointly organised in 2014-2015 a pilot for unemployed 18-21 year-olds (who do not have (UK) level 2 maths and/or English) to test if employment and skills outcomes could be enhanced by developing basic skills through blended or pure online learning. The pilot was closed due to falling youth unemployment and unexpectedly low numbers of potential participants.

Other challenges with activation policies might also have an impact on the basic skills of the unemployed.

OECD (2014) argue that these include:

- Multiple actors involved in the provision of skills training and frequent changes in the system make it complicated to navigate.
- Different bodies using different methods and tools are responsible for skills screening among unemployed. As a result screening approaches are inconsistent and may be ineffective.
- Benefits claimants can be required to undertake an activity in which their skills needs are evaluated and to undertake training. Participants referred to mandatory training might yield higher costs for providers, for example due to extra form-filling. With training providers receiving no extra resources for mandated participants, there might be a risk of providers

“cream-skimming” other participants who do not incur extra cost at the expense of mandated claimants.

NOTES

- 1 . Measured by the number of jobs held in the last 5 years (variable C_Q10aC), self-reported
2. For the definition of continuing vocational training see BIS (2013) pp.30
3. Other factors include: age, gender, literacy skills, years of education, native language, having children

References

- BIS (Department for Business, Innovation and Skills) (2013), “Continuing Vocational Training Survey - CVTS4”, *BIS Research Paper Number 102*, Department for Business,
www.gov.uk/government/uploads/system/uploads/attachment_data/file/81645/bis-13-587-continual-vocational-training-survey-cvts4.pdf.
- CEDEFOP (2011), “Labour Market Polarisation and Elementary Occupations in Europe Blip or Long-Term Trend?”, *Research Paper*, No 9, Publication Office of the European Union, Luxembourg.
- OECD (2013), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, OECD Publishing; Paris.
- OECD (2014), *Connecting People with Jobs: Activation Policies in the United Kingdom*, OECD Publishing, Paris,
DOI: dx.doi.org/10.1787/9789264217188-en
- UK Commission for Employment and Skills (2014), UKCES Employer Skills Survey 2013 website, www.gov.uk/government/publications/ukces-employer-skills-survey-2013 (accessed 15 April 2015).
- UK Commission for Employment and Skills (2015), Employer Perspectives Survey 2014 website, www.gov.uk/government/publications/employer-perspectives-survey-2014 (accessed 15 April 2015).

Chapter 5

Using evidence to advance adult learning

Effective programmes for low-skilled adults need to motivate adults to take part, convey basic skills effectively and encourage adults to persist in learning; the basic skills acquired need to be sustained through use, and put to good use in good jobs. The literature suggests a number of innovations alongside research to guide effective programmes. Awareness-raising is important. Persistence can be supported through clear learning goals, and the link of basic skills to occupational credentials. Formative assessment, whereby frequent assessment and individual feedback to student and teacher is used to guide individualised learning, can make an important contribution to adult learning. Contextualised learning, in which basic skills are conveyed through occupational skills (for example geometry in carpentry), can also play a very important role. At the same time many teachers in this field have few qualifications and volunteers often play an important role. While there is not yet a rigorous research foundation to inform adult education practice or policy, some approaches appear to show promise, and continued innovation – and high quality research – should be encouraged.

The challenge: Multiple obstacles to adult learning

Tackling weak basic skills is hard and incentives to learn are often lacking

As argued in Chapter 1, most evidence suggests that it is hard for adults to improve their career trajectories by learning basic skills in mid-life, and in the absence of job enhancement, newly acquired literacy and numeracy skills may rapidly decay through lack of use. Tackling serious literacy and numeracy weaknesses among adults is challenging, partly because the task itself is difficult, and partly because even if accomplished successfully, the returns from doing so are very uncertain. On the difficult task, often those concerned will have done badly at school, and have a very negative perception of education and learning; they may often lack awareness of their deficiencies, and even if aware, are embarrassed to admit it (in respect of reading difficulties for example). Initial motivation is therefore a serious obstacle. Even for those interested in tackling their weaknesses, this interest needs to be translated into action. Adults with busy working and family lives find it hard to find space for learning; drop-out rates are usually very high. Although the employment benefits of basic skills acquired in early life are clear, the returns from mid-life learning are much less certain.

This bleak picture, constructed in terms of averages, should lead to caution but not to despair

Low-skilled adults, in England, as in other countries, are a diverse group, and the shape of potential interventions is equally so. Although the general evidence is disappointing, more specific interventions have shown promise. In England, these points are well-appreciated, and there has been a move away from broad interventions (such as Skills for Life) towards more modest, concrete and carefully researched programmes.

Box 5.1. Australia's National Foundation Skills Strategy sets demanding goals for the future

The 2006 Adult Literacy and Life Skills (ALLS) survey revealed that 44% of Australia's working age population (aged 15-64 years) had literacy levels below Level 3, considered to be the level needed to meet the complex demands of work and life in modern economies. This equated to 40% of employed Australians, 60% of the unemployed, and 70% of those outside the labour force.

It was estimated that an improvement in literacy and numeracy skills from level 1 to level 3 would increase the likelihood of labour force participation by 15 percentage points for women and 5 percentage points for men and raise hourly wage rates by 23% for women and 32% for men. In 2011-12 Australian governments developed the National Foundation Skills Strategy for Adults a 10-year strategy aiming to develop and maintain adult foundation skills. Australian governments set as an aspirational target that by 2022, two-thirds of working age Australians will have literacy and numeracy skills at Level 3 or above, using as a benchmark the results of PIAAC. In 2013, the OECD Survey of Adult Skills (PIAAC) revealed that 12% of adults in Australia had low literacy skills and 20% low numeracy skills, (below level 2).

Source: Windisch, H. C. (2015), "Adults with low literacy and numeracy skills: A literature review on policy intervention", *OECD Education Working Papers*, No. 123, OECD Publishing, Paris.
<http://dx.doi.org/10.1787/5jrxnjdd3r5k-en>

Research evidence has been limited, but studies provide some pointers to effective programmes

Good quality research on effective practice in adult literacy and numeracy teaching is limited (BIS, 2011; Binder *et al.*, 2011). Some of the literature is mere advocacy (OECD, 2008; Lesgold and Welch-Ross, 2012). Many of the tools employed in adult basic education are based on experience with childhood education, a questionable extrapolation (BMBF, 2012; MacArthur *et al.*, 2010). But there is now an emerging body of evidence on the approaches to teaching and learning that work best. A number of OECD countries have concluded that programmes designed to address weak basic skills among adults are a key part of their broader education and training strategy (see Box 5.1 for the example of Australia). The central challenge is therefore to put the evidence to work. It draws heavily on a separately published OECD literature review of interventions designed to help adults lacking numeracy and literacy skills (Windisch, 2015). Readers are referred to this review for full details of the research cited, alongside many further studies and country examples.

Participation in wider learning can help with basic skills.

A recent English study evaluates returns to completing English and maths courses for (adults 19+) taken as part of more substantial qualifications in FE colleges. It finds that an average earning premium associated with completing maths and English courses ranges from 4% to 6% if compared to those who did not manage to complete similar courses. Earning premiums are higher for younger adults (aged 19-24) (Busha and Urwin, 2013).

Recommendation 5: Use evidence to support adult learning

Use research evidence to develop teaching methods and guide interventions, recognising that successful adult learning programmes need to motivate learners, ensure a high quality teaching workforce, use evidence-based teaching methods, and make use of relevant learning environments, including occupational and family contexts.

Supporting arguments: Strengthening motivation, teaching quality and the learning context

Building and sustaining motivation

Motivation needs to be developed, partly by building awareness

Evidence shows that many people are unable or unwilling to recognize their own basic skills weaknesses (Bynner and Parsons, 2006). In 2012 only around one in ten adults with weak basic skills participated in formal education and training. Lack of motivation among the low-skilled is common, and Survey data also show that in most countries, there are more adults with high skills who did not but would like to engage in learning activities¹ than adults with low skills. In England 19% of the low-skilled individuals reported wanting to participate in learning activities compared to 26% of those with better skills. Even when adults recognize their own weaknesses, they may face significant obstacles to learning, or want to avoid the classroom settings where in the past

they experienced failure. Building awareness of the implications of weak basic skills is therefore important both for the adults directly concerned, and their immediate contacts – employers, family and friends (see Box 5.2).

Box 5.2. Countries use different strategies to build awareness of low skills

Direct awareness-raising initiatives range from campaigns promoting all types of adult learning (such as adult education weeks in Denmark and Finland) to those aimed more directly at the low-skilled (such as national literacy and numeracy campaigns in France and Luxembourg). Typically it is argued that motivation can be helped by advertising the benefits of course participation in terms of proficiency gains and social returns.

Social networking, through instructors and former participants spreading the news of adult basic education can be helpful. Findings from the US show that people living in communities where education is seen as a means of advancement are more likely to participate in formal learning. But many potential learners prefer more informal learning venues, such as parish buildings and private homes, over school settings. Evidence from Canada, England, New Zealand, and the US highlight the importance of labour unions, employers, managers and colleagues in motivating low-skilled workers to take up basic skills education.

Only a few countries have a *guidance service* that can be used by adults with low literacy and numeracy skills, such as Austria's central level institution that delivers guidance services related to basic skills and Germany's telephone guidance service for those facing literacy problems. Sensitive and tactful screening and initial assessment is crucial because otherwise potential learners can easily become demoralised and give up at these first hurdles.

Source: Windisch, H. C. (2015), "Adults with low literacy and numeracy skills: A literature review on policy intervention", *OECD Education Working Papers*, No. 123, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5jrxnjdd3r5k-en>.

The roots of motivation are variable

Engaging low-skilled adults requires sensitivity to the different ways in which they might be motivated and how they might want to learn. Some learners are highly dependent on teachers for structure and guidance, while others prefer to manage their own learning (Knowles, 1980). Some may be motivated to learn because of some specific objective like helping their children with homework, others may want to learn out of curiosity (Merriam, 2011). Adults typically prefer to learn what is meaningful to them (Illeris, 2011), so that, for example, if low-skilled adults are obliged to take up basic education in order to receive unemployment benefits and do not see the benefit of such programmes, they typically only learn the programme content partially and what is learned is easily forgotten (Illeris, 2011).

Programmes need to be designed so as to minimise dropout

Everywhere, drop-out is a serious challenge in adult learning programmes. Often, this reflects problems in the quality of students' learning experience, including the teacher-student relationship (Tusting and Barton, 2003). While some low-skilled learners may benefit from a classroom context (e.g. Metcalf et al., 2009), for many it can revive bad memories of their schooldays (Illeris, 2011) and they can learn basic skills more easily in

practical contexts. Practical access factors are also important. Evidence shows that assistance with childcare, transport, access to social services, and measures to avoid wage loss and unemployment during course participation can make a difference (Benseman, Sutton and Lander, 2005). Encouraging learners to establish a learning goal, measuring their progress towards this goal through assessment, and linking basic skills learning with occupational credentials have also helped to reduce dropout (Comings, Parrella, and Soricone, 1999). (See also the points made on formative assessment below). Effective advice and guidance is also critical (Taylor et al., 2005; Lopez et al., 2007). Evidence underlines both the importance of initial orientation as well as continued guidance throughout the programme (Quigley 2000; Taylor et al., 2011; Vorhaus et al., 2011). When adults break off from a course it is sometimes no more than a temporary response to life pressures. Training providers therefore need to remain in touch with such individuals, support them through a break, and entice them back to complete the programme (Vorhaus *et al.*, 2011; Carpentieri, 2008).

Sometimes financial incentives do not work

The subtle features of motivation are well-illustrated by one striking piece of research, which suggested that the effects of financial incentives on participation are actually negative (see Box 5.3).

Box 5.3. Financial incentives for participation in adult learning can sometimes be counterproductive

A randomised control trial was conducted in England to evaluate the effect of financial incentives on attendance in adult literacy classes and literacy scores. They found that contrary to expectations, the incentives resulted in a decline in attendance in the incentive group compared with the no-incentive group, and it had no effect on attainment. The incentive, a total of GBP 70 (10 classes at GBP 5 plus the GBP 20 for completing the pre- and post-tests), was paid in a lump sum based on the tutor's attendance register after a post-test. Although the effect on attendance observed in this study seems counter-intuitive, previous empirical and theoretical work has drawn on economic theory, call it the 'crowding-out effect' and conclude that "external interventions *crowd out* intrinsic motivation if they are perceived as *controlling*". In that case, both self-determination and self-esteem suffer, and the individuals react by reducing their intrinsic motivation in the activity controlled. According to the researchers, this would seem a plausible explanation for the effect found in their study. The researchers call, however, for caution arguing for a replication of the trial, ideally with a larger incentive, before their reasoning could be widely used by policy makers.

Source: Brooks, G., M. Burton, P. Cole, J. Miles, C. Torgerson and D. Torgerson (2008a), "Randomised control trial of incentives to improve attendance at adult literacy classes", *Oxford Review of Education*, Vol. 34(5): pp. 493-504; Windisch, H. C. (2015), "Adults with low literacy and numeracy skills: A literature review on policy intervention", *OECD Education Working Papers*, No. 123, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5jrxnjdd3r5k-en>.

The teaching profession

Teacher preparation and certification arrangements vary widely

Strong teachers are therefore needed to assist learners who often have a long history of struggling in school, but low pay is a common barrier (Besser et al., 2004; Kruidenier et al., 2010; EU High-Level Group of Experts on Literacy, 2012). Often, a specialist profession does not exist. In EU countries, few tutors have specific qualifications in adult literacy and numeracy pedagogy, although Austria and Germany have recently started to offer such qualifications (Eurydice, 2011). In the United States, there is no nationally recognised certification for instruction in adult education and most adult teachers work part-time (Condelli et al., 2010). In England there are professional qualifications for teachers of basic skills in FE, including specialisation for English, maths and English for Speakers of Other languages.

Frequently, volunteer teachers play a big role

In Ireland, trained volunteers account for more than 70% of the teaching workforce, though they teach only 20% of all learners because they focus on small student groups in rural areas (Bailey, 2007). Volunteer support can be vital, but it needs to be backed by at least some training of volunteers. While volunteers are often familiar with the life circumstances of course participants, they may lack relevant pedagogical skills.

Using the right tools and techniques: formative assessment, e-learning, and contextual learning

Formative assessment can make a significant contribution to learning progress

“Formative assessment” is a teaching approach whereby frequent assessment of learners’ knowledge to establish needs and learning objectives is used to modify teaching activities, while tracking learning progress (Looney, 2007; OECD, 2008). It is therefore assessment *for* learning in contrast to assessment *of* learning (Derrick and Ecclestone in OECD, 2008). Empirical studies have demonstrated that formative assessment can make a significant contribution to learning progress (Black and Wiliam, 1998, 2003), and there are reasons for thinking that it is particularly suited to the teaching of literacy and numeracy to low-skilled adults. Among adults basic skills deficiencies often present a patchwork – so that an individual might be defeated by one simple task while having no problem with another more complex task. It is therefore much more difficult than with children to divide adults into well-defined skills levels (Wells, 2001), and instruction tailored to individual learners’ needs is particularly helpful. (Binder et al., 2011; Comings et al., 2003; Comings, Garner and Smith, 2000; Dochy, Segers and Buehl, 1999; Strucker, Yamamoto and Kirsch, 2007; Thomas and Ward, 2009). Pursuing this approach in France, the *Atelier de Formation de Base* workshops in the Haute-Normandie region, the *Savoir pour Réussir* programme in Marseille for young people with low literacy skills, and an adult literacy programme in a prison in Lyon are all using the method apparently with success (Michel and Maroun, 2008).

Box 5.4. E-learning initiatives in the United Kingdom and Germany aim to connect with the low-skilled

Learndirect is a UK network of online learning and information services launched in 2000 to provide e-learning courses for post-16 learners. Although initially set up with the aim of improving the availability and access to workforce skills, much of *Learndirect* is now about basic skills with the principal objective of courses 'to enable adults without a Level 2 or *Skills for Life* qualification to gain the skills and qualifications they need to find a job or to achieve and progress at work'. Courses are offered in collaboration with further education colleges (FECs), private training providers, voluntary and community sector organisations and higher education institutions. These are branded as *Learndirect* centres. Some 2.6 million learners have taken *Learndirect* branded courses since 2000 and more than 8 500 learners log on and learn every day. Most learners are aged 24 to 44 years. Currently 30% of the learners are from minority ethnic backgrounds and 8% declare a disability. In 2004–2005, about 60% of learners enrolling stated that they were pre-(UK) Level 2.

Germany has developed several e-learning offers for adults with weak literacy and numeracy skills under the 2007–2012 initiative of the Federal Ministry for Education and Research (BMBF) entitled "Research and Development for the Promotion of Literacy and Numeracy of Adults" (Forschung und Entwicklung zur Alphabetisierung und Grundbildung Erwachsener). Two examples include:

- Germany's biggest open learning portal www.ich-will-lernen.de/ (translated: I want to learn) launched by the German Adult Education Association (DVV) with BMBF funding in 2004. It provides more than 31 000 exercises on literacy, numeracy, German and other general adult skills such as managing finances, applying for a job and intercultural competences free of charge. Learners can use it anonymously, e.g. as an additional support for learning in courses at continuing education institutions or as a preparation for courses that lead to school-leaving certificates. Between 2004 and 2013, more than 400 000 learner passwords were allocated and more than 3 200 tutors registered to support the learners.
- The computer game www.lernspiel-winterfest.de/ (translated: winter-proof) which puts adult learners in the context of the Middle Ages and helps them to improve their reading, writing, and counting competencies.

Source: Windisch, H. C. (2015), "Adults with low literacy and numeracy skills: A literature review on policy intervention", *OECD Education Working Papers*, No. 123, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5jrxnjdd3r5k-en>.

E-learning has a role to play but needs to be supported by personal contact

Some research (e.g. Department for Business, Innovation and Skills, 2011; Davis et al. 2010; European Commission/EACEA/Eurydice, 2015a) suggests that learning technology may be a cost-effective way of overcoming the obstacles to literacy and numeracy learning, while Davis et al. (2010) and Mellor et al. (2007) found that learning technology can even reach those 'hard-to-reach' learners and that learning through computers can reinforce both ICT skills and basic skills. But while some learners may be comfortable with on-line learning, for others, weak ICT literacy and limited ICT access

are an obstacle. Face-to-face contact with teachers and peers can be a powerful motivating factor, and their absence felt keenly. Many basic skills learners responded positively to e-learning (either in the classroom or by distance) provided by 26 literacy providers involved in *Skills for Life* programmes, but older men were more resistant. Other studies have shown that some learners, in the face of limited access to computers, can lose confidence and motivation (Hinman and Fletcher, 2008; Lopez et al., 2007; CAEL, 2006). So ICT is not a replacement for personal contact with a teacher or tutor. Instead, online approaches need to be twinned with tutor input through face-to-face contact or via telephone or email to support motivation (Davis et al., 2010; Lopez et al., 2007; Lotkowski, Robbins and Noeth, 2004). Box 5.4 gives some country examples of e-learning initiatives designed to engage low-skilled learners.

Box 5.5. In the United States, different approaches have been used to learn basic skills in the context of occupational skills

Team teaching is an important aspect of the US **Accelerated Opportunity (AO) model** which twins the basic skills teacher and the career and technical education (CTE) instructor in the class. The most common approach is “complementary-supportive” team teaching, where adult education instructors are present in CTE classes, help students when needed and often provide supplementary sessions that contextualise basic skills teaching within the CTE content. About three-quarters of colleges use the “monitoring” teacher model of team teaching, in which one teacher is responsible for instructing the entire class and the other teacher circulates through the room to monitor students. Less than two-thirds of the colleges use “traditional” team teaching where the instructors actively share the instruction, with each teacher performing a different but equally important instructional task.

Source: Anderson, T., L. Eyster, R. I. Lerman, C. Clymer, M. Conway and M. Montes (2014), “The First Year of Accelerating Opportunity: Implementation Findings from the States and Colleges”, Urban Institute, Washington D.C.

www.jff.org/sites/default/files/publications/materials/413238-The-First-Year-of-Accelerating-Opportunity.pdf.

Under a ‘contextualised’ approach, basic skills are acquired in the context of learning something else

Very often the context is the acquisition of an occupational skill, but basic skills can also be embedded in an academic programme (Casey et al., 2006; Leach et al., 2010; Lesgold and Welch-Ross, 2012; National Centre for Literacy and Numeracy for Adults, 2015; Ryan et al., 2011; Salomon, 2009). It has been argued that this approach has many advantages. First, it is more likely than other approaches to engage and retain low-skilled adult learners who have negative feelings about classroom numeracy and literacy (e.g. Vorhaus et al., 2011; House of Commons, 2014). Second, it can help retain adult learners, positively change their attitudes towards further education and training, improve their self-confidence and parenting and employability skills, and achieve literacy and numeracy and/or vocational qualifications (Benseman et al., 2005; Brooks et al., 1996; Casey et al., 2006; Carpentieri, 2007; Coben et al., 2007; Ofsted, 2011a; Ryan et al., 2012; Vorhaus et al., 2011). Third, basic skills linked to an occupational skill are more likely to be sustained through use in the occupation. The same is true of basic skills linked to practical non-work requirements of everyday life, such as financial literacy. Many countries have therefore championed the approach (see Box 5.5). For all its merits,

it is hard to deliver effective contextual learning. In particular it makes quite complex organisational demands so that literacy and numeracy teachers work together with vocational teachers in a coordinated way. The IBEST model, for example, involves team teaching in the same classroom, requiring a higher level of funding than single teacher classrooms (Casey et al., 2006).

Family programmes address inter-generational effects

Family literacy and numeracy programmes address adults not only as learners in their own right, but also as a powerful influence on their children. They focus on literacy and numeracy development, and may require specially trained staff, separate as well as combined teaching sessions for parents and children and home visits, and offer parents progression routes to further learning (Benseman and Sutton, 2005). Well-designed programmes have been shown to promote literacy and numeracy among children and adults' parenting capacity. Reviewing 29 family literacy, and numeracy programmes in the UK and elsewhere (Brooks et al., 2008b) found that both parents and children benefitted from participation. A recent UK evaluation shows that family learning within community improves parents' self-confidence and parenting skills (Harding and Ghezelayagh, 2015). In this and other studies (such as one of 200 families in an urban area of Canada by Philips, Hayden, and Norris, 2006), evidence suggests that the benefits to the children were greater than those to their parents. Parents reported that they benefitted most in terms of their ability to help their children in schoolwork, parenting skills, and in terms of employment and self-confidence. For example *Actions éducatives familiales* in France have helped improve parents' engagement with their children's schoolwork since early 2013 (Carpentieri et al., 2011; Education.gouv.fr, 2015), and see Box 5.6. Unfortunately there is a lack of longitudinal research to demonstrate that the benefits are sustained. Likewise, while there is growing evidence of the positive effects of family literacy programmes on adult participants' self-efficacy (Rodriguez-Brown, 2004) and social capital (Anderson et al., 2010; Anderson and Morrison, 2007; Anderson et al., 2010; Carpentieri et al., 2011), evidence of employment benefits is less clear.

Box 5.6. The Family Literacy Project in Hamburg

The Family Literacy Project by the UNESCO Institute of Education and the State Institute for Teacher Training and School Development in Hamburg (*Landesamt für Lehrerbildung und Schulentwicklung*) has offered intergenerational family literacy programmes for children and parents from deprived social and migrant backgrounds that promote linkages between the kindergarten or school and home-based learning since 2004. The project has improved adult participants' communication skills, self-esteem, and integration into German society. As a result of the project, many schools in Hamburg have established family literacy rooms where parents can meet. Parental involvement in their children's education has strengthened family relationships and improved the children's literacy skills. Since many kindergarten and school teachers had no experience in teaching learners from different cultural backgrounds, the programme has helped enhance their intercultural teaching skills. Between 2004 and 2011, the programme benefited about 1 000 parents and 1 000 children annually.

Source: UNESCO (2014e), "Family Literacy Project (FLY)", www.unesco.org/UIL/litbase/?menu=4&programme=67.

NOTES

1. Include formal education and training and other activities such as open/distance education, private lessons and courses, on-the-job training, and seminars and workshops

References

- Anderson, T., L. Eyster, R. I. Lerman, C. Clymer, M. Conway and M. Montes (2014), “The First Year of Accelerating Opportunity: Implementation Findings from the States and Colleges”, Urban Institute, Washington D.C., www.jff.org/sites/default/files/publications/materials/4132_38-The-First-Year-of-Accelerating-Opportunity.pdf.
- Anderson, J., A. Anderson, N. Friedrich and J.E. Kim (2010), “Taking stock of family literacy: Some contemporary perspectives”, *Journal of Early Childhood Literacy*, Vol. 10(1), pp. 33-53.
- Anderson, J. and F. Morrison (2007), “A Great Program...for me as a Gramma”: Caregivers Evaluate a Family Literacy Initiative”, Canadian Journal of Education, Vol. 30, pp. 68-89.
- Bailey, I. (2007), “Overview of the Adult Literacy System in Ireland and Current Issues in its Implementation”, National Adult Literacy Agency, www.alm-online.net/images/ALM/conferences/ALM14/proceedings/ALM14-proceedings-p016-033.pdf.
- Benseman, J. and A. Sutton (2005), *Summative Evaluation of the Manukau Family Literacy Project*, Auckland Uni Services Ltd. Auckland.
- Benseman, J., A. Sutton and J. Lander (2005), *Working in the light of evidence as well as aspiration: A Literature Review of the best available evidence about effective adult literacy, numeracy and language teaching*, Ministry of Education, Auckland, www.educationcounts.govt.nz/publications/tertiary_education/27773/5727.
- Besser, S., G. Brooks, M. Burton, M. Parisella, Y. Spare and S. Stratford (2004), *Adult literacy learners' difficulties in reading: an exploratory study*, National Research and Development Centre for Adult Literacy and Numeracy, London.
- Binder, K. S., M. A. Snyder, S. P. Ardoine and R. K. Morris (2011), “Dynamic Indicators of Basic Early Literacy Skills: An Effective Tool to Assess Adult Literacy Students?”, in *Adult Basic Education and Literacy Journal*, Vol. 5(3), pp. 150-160.
- BIS (Department for Business, Innovation and Skills) (2011), “Review of Research and Evaluation on Improving Adult Literacy and Numeracy Skills”, *BIS Research Paper Number 6*, Department for Business, Innovation and Skills, London.
- Black, P. and D. Wiliam (1998), *Inside the Black Box – Raising Standards through Classroom Assessment*, Department of Education and Professional Studies, Kings College, London
- Black, P. and D. Wiliam (2003), “In Praise of Education Research: Formative Assessment”, *British Education Research Journal*, Vol. 29(5).

- BMBF (German Federal Ministry for Education and Research) (2012), *Alphabetisierung und Grundbildung Erwachsener: Abschlussdokumentation des Förderorschwerpunktes zur Forschung und Entwicklung 2007-2012*, www.alphabund.de/1861.php.
- Broek, S. D., B.J. Buiskool and B. Hake (2010), *Impact of ongoing reforms in education and training on the adult learning sector (2nd phase): Final Report*, Research voor Beleid, adultlearning-budapest2011.teamwork.fr/docs/Ongoing-Reforms-Adult-Learning-Final-Report.pdf.
- Brooks, G., M. Burton, P. Cole, J. Miles, C. Torgerson and D. Torgerson (2008a), “Randomised control trial of incentives to improve attendance at adult literacy classes”, *Oxford Review of Education*, Vol. 34(5): pp. 493-504.
- Brooks, G., K. Pahl, A. Pollard and F. Rees (2008b), “Effective and inclusive practices in family literacy, language and numeracy: a review of programmes and practice in the UK and internationally”, CfBT Education Trust, Reading, cdn.cfbt.com/~media/cfbtcorporate/files/research/2008/r-effective-and-inclusive-practices-in-family-literacy-review-2008.pdf.
- Brooks, G., T. P. Gorman, J. Harman, D. Hutchison, H. Moor and A. Wilkin (1996), *Family Literacy Works: The NFER Evaluation of the Basic Skills Agency's Family Literacy Demonstration Programmes*, Basic Skills Agency, London.
- Busha, F. and P. Urwin (2013), “Estimated the Labour Market Returns to Qualification Gained in English Further Education Using the ILR”, April 2013, Department for Business Innovation and Skills, London, www.gov.uk/government/uploads/system/uploads/attachment_data/file/192861/bis-13-849-estimating-labour-market-returns-to-qualifications-gained-in-english-fe-using-individualised-learner-record-ilr.pdf.
- Bynner, J. and S. Parsons (2006), “New Light on Literacy and Numeracy”, *NDRC Research Report*, National Research and Development Centre for Adult Literacy and Numeracy (NDRC), London, www.nrdc.org.uk/publications_details.asp?ID=78.
- CAEL (Council for Adult and Experiential Learning) (2006), “Building Blocks for Building Skills: An Inventory of Adult Learning Models and Innovations,” Report Prepared for the Department of Labour (WIRED Initiative), Government of the United States, www.cael.org/pdf/publication_pdf/BuildingBlocksforBuildingSkills.pdf.
- Carpentieri, J. D., K. Fairfax-Cholmeley, J. Litster and J. Vorhaus (2011), *Family literacy in Europe: using parental support initiatives to enhance early literacy development*, NDRC, Institute of Education, London.
- Carpentieri, J. D. (2008), *Learning for and in the workplace*, NDRC, London.
- Carpentieri, J. D. (ed.) (2007), *Five years on research, development and changing practice*, National Research and Development Centre for Adult Literacy and Numeracy (NRDC), London.
- Casey, H., O. Cara, J. Eldred, S. Grief, R. Hodge, R. Ivanic, T. Jupp, D. Lopez and B. McNeil (2006), “You wouldn't expect a maths teacher to teach plastering...”: *Embedding literacy, language and numeracy in post-16 vocational programmes – the impact on learning and achievement*, National Research and Development Centre, London, [nrdc.org.uk/publications_details.asp?ID=73#](http://www.nrdc.org.uk/publications_details.asp?ID=73#).

- Coben, D., M. Brown, V. Rhodes, J. Swain, K. Ananiadou, P. Brown, J. Ashton, D. Holder, S. Lowe, C. Magee, S. Nieduszynska and V. Storey, (2007), *Effective Teaching and Learning: Numeracy*, National Research and Development Centre for Adult Literacy and Numeracy, London.
- Comings, J. P., H. Beder, B. Bingman, S. Reder and C. Smith (2003), "Establishing an Evidence-based Adult Education System", *NCSALL Occasional Paper*, Harvard Graduate School of Education, Cambridge, www.ncsall.net/fileadmin/resources/research/op_comings3.pdf
- Coming, J. P., B. Garner and C. Smith (eds.) (2000), *Review of adult learning and literacy*, Vol., 7, pp. 137-173, Lawrence Erlbaum Associates, Mahwah.
- Comings, J., A. Parrella and L. Soricone, (1999), "Persistence among adult basic education students in pre-GED classes", *NCSALL Reports*, No.12, Cambridge, National Centre for the Study of Adult Learning and Literacy.
- Condelli, L., R. Kirshstein, H. Silver-Pacuilla, S. Reder and H-S. Wrigley (2010), *Changing the Odds: Informing Policy with Research on How Adult Learners Succeed*, American Institutes for Research, Washington D.C., files.eric.ed.gov/fulltext/ED511354.pdf.
- Davis, N., J. Fletcher, B. Brooker, J. Everatt, G. Gillon, J. Macke and D. Morrow (2010), E-learning for adult literacy, language and numeracy: a review of the literature, Ministry of Education, Wellington.
- Derrick, J. and K. Ecclestone (2008), "English-language Literature Review", in *Teaching, Learning and Assessment for Adults: Improving Foundation Skills*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/172251338713>.
- Dochy, F., M. Segers and M. Buehl (1999), "The relation between assessment practices and outcomes of studies: The case of research on prior knowledge", *Review of Educational Research*, Vol. 69(2), pp. 145-186
- Education.gouv.fr (2015), "Circulaire d'orientation et de préparation de la rentrée 2013", http://www.education.gouv.fr/pid25535/bulletin_officiel.html?cid_bo=71409#III.5. A mélanger%20le dialogue entre l'École, ses partenaires et les familles.
- Eurydice (2011), Adults in Formal Education: Policies and Practices, Brussels, Education, Audiovisual and Cultural Executive Agency, http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/128EN.pdf.
- Hinman, J. and M. Fletcher (2008), "Developing Models of Flexible Delivery of Skills for Life Provision", Report of the Project undertaken as Part of the Skills for Life Improvement Programme, Quality Improvement Agency/Skills for Life Improvement Program, www.sflip.org.uk/PDF/Flexible%20Models%20of%20Delivery%20final%20report.pdf.
- House of Commons, Business, Innovation and Skills Committee (2014), *Adult Literacy and Numeracy, Fifth Report of Session 2014-15*, www.publications.parliament.uk/pa/cm201415/cmselect/cmbis/557/557.pdf.
- Illeris, K. (2011), "Characteristics of Adult Learning", in Rubenson, K. (ed.) (2011), *Adult Learning and Education*, Elsevier, Oxford, pp. 47-52.

- Knowles, M. S. (1980), *The Modern Practice of Adult Education: From Pedagogy to Andragogy*, 2nd edition, Cambridge Books, New York.
- Kruidenier, J., C. MacArthur and H. Wrigley (2010), “Adult Education Literacy Instruction: A Review of the Literature”, National Institute for Literacy, Washington D.C.
- Kuczera, M. and S. Field (2013), *A Skills beyond School Review of the United States*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, DOI: dx.doi.org/10.1787/9789264202153-en.
- Leach, L., N. Zepke, P. Haworth and P. Isaacs (2010), *One size does not fit all: how five tertiary education organisations embed literacy, language and numeracy*, Ministry of Education, Wellington
- Lesgold, A. and M. Welch-Ross (eds.) (2012), *Improving adult literacy instruction: Options for practice and research*, National Academies Press, Washington DC, www.nap.edu/catalog.php?record_id=13242
- Looney, J. (2007), “Formative assessment in adult language, literacy and numeracy”, *Assessment in Education*, Vol. 14(3): pp. 373-386.
- Lopez, D., J. Litster, J. Vorhaus and E. Salter (2007), “Stick with it! Motivating Learners to Persist, Progress and Achieve. Year One Final Report”, *NRDC Report to the Quality Improvement Agency*, www.excellencegateway.org.uk/page.aspx?o=165167.
- Lotowski, V. A., S. B. Robbins and R. J. Noeth (2004), “The Role of Academic and Non-Academic Factors in Improving College Retention”, ACT Policy Report, www.act.org/research/policymakers/pdf/college_retention.pdf.
- MacArthur, C.A., T. Konold, J. Glutting and J. Alamprese (2010), “Reading component skills of learners in adult basic education”, *Journal of Learning Disabilities*, Vol. 43(2), pp. 108-121.
- Mellar, H., M. Kambouri, K. Logan, S. Betts, B. Nance and V. Moriarty (2007), *Effective Teaching and Learning: Using ICT*, National Research and Development Centre for Adult Literacy and Numeracy, London.
- Merriam, S. B. (2011), “Adult Learning”, in K. Rubenson (ed.) (2011), *Adult Learning and Education*, Elsevier, Oxford, pp. 29-34.
- Metcalf H., P. Meadows, H. Rolfe and A. Dhudwar (2009), *Evaluation of the impact of Skills for Life Learning: Longitudinal survey of adult learners on college-based literacy and numeracy courses, final report*, Department for Business, Innovation and Skills, London.
- Michel, B. and E. Maroun (2008), “Étude de cas: France”, in *L'enseignement, l'apprentissage et l'évaluation des adultes: pour de meilleures compétences de base*, OECD Publishing, Paris, DOI: dx.doi.org/10.1787/172140204834.
- National Centre of Literacy and Numeracy for Adults (New Zealand) (2015), “Resources”, www.literacyandnumeracyforadults.com/resources/356158.
- OECD (2013), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*. OECD Publishing. OECD Publishing.

- OECD (2008), *Teaching, learning and assessment for adults: Improving foundation skills*, OECD Publishing, Paris, DOI: dx.doi.org/10.1787/9789264039964-en.
- Ofsted (Office for Standards in Education, Children's Services and Skills) (2011a), *Removing barriers to literacy*, London, Ofsted.
- Phillips, L., R. Hayden and S Norris (2006), *Family Literacy Matters: A Longitudinal Parent-Child Literacy Intervention Study*, Detslig Press, Calgary.
- Quigley, B.A. (2000), "The first three weeks: a critical time for motivation", *Focus on Basics*, Vol. 4, National Center for the Study of Adult Learning and Literacy, Boston
- Rodriguez-Brown, F. (2004), "Project Flame: A Parent Support Family Literacy Model", in B. Wasik (ed.), *Handbook of Family Literacy*, pp. 213-229, Laurence Erlbaum, Mahwah.
- Ryan, R., H. McDonald, A. Sutton and S. Doyle (2012), *Formative evaluation of ITO embedded literacy and numeracy projects*, Wellington, Department of Labour.
- Salomon, M. (2009), *Workplace literacy and essential skills: What works? and why?*, The Centre for Literacy of Quebec, www.nald.ca/library/research/cfl/wles/wles.pdf.
- Strucker, J., Yamamoto, K. and I. Kirsch (2007), *The relationship of the component skills of reading to IALS performance: Tipping points and five classes of adult literacy learners*, National Centre for the Study of Adult Learning and Literacy, Cambridge.
- Taylor, S., D. MacLeod, N. Houghton, R. Zwart and D. Sachdev (2005), "A systematic review of effective strategies to widen adult participation in learning", in *Research Evidence in Education Library*, EPPI-Centre, Social Science Research Unit, London, Institute of Education, University of London, London.
- Thomas, G. and J. Ward (2009), *Numeracy for adults. Latest findings from teaching and learning research*, Ministry of Education, Wellington.
- Tusting, K. and D. Barton (2003), *Models of adult learning: a literature review*, National Research and Development Centre for Adult Literacy and Numeracy, London.
- UNESCO (2014a), "Functional Adult Literacy and Women's Support Programme. Country Profile: Turkey", UNESCO Institute for Lifelong Learning, www.unesco.org/UIL/litbase/?menu=4&programme=141.
- Vorhaus J., et al. (2011), *Review of research and evaluation on improving adult literacy and numeracy skills*, Department for Business, Innovation and Skills, London.
- Wells, Alan (2001), "Basic Skills-25 Years on", in *Adults Learning*, 09552308, Vol. 12, Issue 10.
- Windisch, H. C. (2015), "Adults with low literacy and numeracy skills: A literature review on policy intervention", *OECD Education Working Papers*, No. 123, OECD Publishing, Paris. dx.doi.org/10.1787/5jrxnjdd3r5k-en

Annex A

Table A1.1. How low skills in the International Survey of Adult Skills relates to the NQF levels

OECD's International Survey of Adult Skills Literacy and Numeracy Levels	Rough equivalent National Qualification Framework (NQF) Levels (Literacy)	Rough equivalent National Qualification Framework (NQF) Levels (Numeracy)
Below Level 1	Entry Level 1	Entry Level 1
	Entry Level 2	
Level 1	Entry Level 3	Entry Level 2
Level 2	Level 1	Entry Level 3
Level 3	Level 2 and above	Level 1
Level 4		Level 2 and above
Level 5		

Sources: (Wheater et al. 2013, appendices, pp.336, Table G1)

Box A1.1 Problem solving in technology rich environments

Problem solving in technology rich environment is a third domain evaluated in the Survey. Proficiency in this skill reflects the capacity to use ICT devices and applications to solve the types of problems adults commonly face as ICT users in modern societies. In order to display proficiency in this domain, adults must have the basic computer skills needed to undertake an assessment on a computer: the capacity to type, manipulate a mouse, drag and drop content, and highlight text.

Out of 24 participating countries in the Survey, four did not participate in the assessment of problem and in countries that did take part many adults opted out of the computer based assessment. “There are three main reasons why some individuals did not complete the assessment on computer and, thus, did not have a score in problem solving using ICT. First, some adults had never used a computer. Second, among the adults who had used a computer, some did not pass the ICT core test, which was designed to assess whether respondents had sufficient skill in the use of computers to complete the assessment. Third, a number of respondents opted to complete the assessment in its paper-based format rather than on a computer. Due to these methodological issues the proficiency in problem solving in technology rich environment is not used in this report to identify adults with low skills and to compare performance of low skilled adults across countries. Use of numeracy and literacy was considered sufficient for this purpose.

Some of the key findings from the assessment of problem solving are presented below:

- English adults perform near the OECD average for problem solving in technology-rich environments.
- Performance of young adults in problem solving in technology-rich environments is considerably lower than in many other countries. This closely reflects the relatively low performance in literacy and numeracy among young people in England.
- Strong performance in problem solving in technology-rich environments is associated with higher employment and wages.

Source: OECD (2015), What's the Problem? Adults, Computers and Problem Solving, OECD Publishing, Paris.

Box A1.2 The OECD Survey of Adult Skills

The Survey, a product of the Programme for the International Assessment of Adult Competencies (PIAAC)

- The literacy assessment covers a range of skills from the decoding of written words and sentences to the comprehension, interpretation and evaluation of complex texts (but not writing).
- The numeracy assessment involves managing a situation or solving a problem in a real context, by responding to mathematical content/information/ideas represented in multiple ways.
- The problem solving in technology-rich environments assessment focuses on the abilities to solve problems for personal, work and civic purposes by setting up appropriate goals, and accessing and making use of information through computers.

Each of the three assessments yields results scaled from 0 to 500 points. The scales are divided into six levels in literacy and numeracy and four for problem solving in technology-rich environments. The purpose of skill levels is to facilitate the interpretation of the results, and not as standards defining levels of skill required for particular purposes.

In addition, the Survey collects a range of information on the reading- and numeracy-related activities of respondents, the use of information and communication technologies at work and in everyday life, and on a range of generic skills, such as teamwork and time management.

More than 160 000 adults aged 16 to 65 were surveyed in 24 countries and sub-national regions including 22 OECD member countries. Data collection took place from 1 August 2011 to 31 March 2012 in most participating countries.

Sometimes, instead of using ‘levels of proficiency’ it is more relevant to look directly at proficiency either in literacy or numeracy, for example when we are interested in an average performance of a specific population. In such a case, only the results for one domain are presented in the main text of this report and the results for the other domain are reported in the annex. The reason for choosing only one domain is that people with strong skills in one domain also tend to perform well on the other one. Literacy and numeracy are therefore highly correlated. As a result, while the strength of the relationship between numeracy and literacy and other outcomes can vary slightly, overall using one or another domain leads to similar conclusions. For example, in England associations between labour market performance and literacy and numeracy are comparable (see Tables A6.5, A 6.6, A6.7 in *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, web version).

Source: OECD (2013), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, OECD Publishing. doi: <http://dx.doi.org/10.1787/9789264204256-en>; OECD (2013b), *The Survey of Adult Skills: Reader's Companion*, OECD Publishing. doi: <http://dx.doi.org/10.1787/9789264204027-en>.

Box A1.3 English qualifications in the context of three levels of educational attainment

In England below upper secondary education includes: No formal qualifications, Any other professional/ vocational qualifications/ apprenticeship, Entry Level Qualifications, Key Skills/ Basic Skills/ Essential Skills, YT Certificate/ YTP, City and Guilds (Level 1), RSA/ OCR (Level 1), O Level/GCSE/Vocational GCSE/CSE or equivalent, GNVQ (Level 1), NVQ (Level 1), BTEC, BEC, TEC or EdExcel (Level 1).

Upper secondary: City and Guilds (Level 2), RSA/ OCR (Level 2), O Level/GCSE/Vocational GCSE/CSE or equivalent , GNVQ (Level 2) NVQ (Level 2), BTEC, BEC, TEC or EdExcel (Level 2), City and Guilds (Level 3), RSA/ OCR (Level 3), AS level/ Vocational AS level or equivalent, GNVQ (Level 3), NVQ (Level 3), A Level/ Vocational A Level or equivalent, BTEC, BEC, TEC or EdExcel (Level 3), ONC/OND (Level 3), Access to HE

Post-secondary and tertiary: RSA/ OCR (Level 4/5), NVQ (Level 4/5), Other Higher Education qualification below degree level, BTEC, BEC, TEC or EdExcel (Level 4/5), HNC/HND (Level 4/5), Diploma in higher education, Nursing or other medical qualification, Teaching qualification (excluding PGCE), Degree level qualification including foundation degrees, graduate membership of a professional institute or PGCE, or higher.

Annex B

Table A2.1. 16-19 year-olds in formal education and training

Country	In formal education and training		Not in formal education and training		Total	
	%	SE	%	SE	%	SE
Australia	74.1	(2.6)	25.9	(2.6)	100.0	(5.1)
Austria	76.7	(2.0)	23.3	(2.0)	100.0	(4.1)
Canada	81.5	(1.6)	18.5	(1.6)	100.0	(3.1)
Czech Republic	91.8	(1.2)	8.2	(1.2)	100.0	(2.5)
Denmark	88.4	(1.5)	11.6	(1.5)	100.0	(3.0)
England (UK)	71.4	(2.9)	28.6	(2.9)	100.0	(5.8)
Estonia	91.1	(1.2)	8.9	(1.2)	100.0	(2.5)
Finland	82.1	(2.1)	17.9	(2.1)	100.0	(4.3)
Flanders (Belgium)	86.9	(1.6)	13.1	(1.6)	100.0	(3.3)
France	82.9	(1.6)	17.1	(1.6)	100.0	(3.2)
Germany	86.5	(1.4)	13.5	(1.4)	100.0	(2.9)
Ireland	86.4	(1.9)	13.6	(1.9)	100.0	(3.9)
Italy	87.6	(2.2)	12.4	(2.2)	100.0	(4.3)
Japan	83.8	(2.2)	16.2	(2.2)	100.0	(4.5)
Korea	88.1	(1.7)	11.9	(1.7)	100.0	(3.5)
Netherlands	91.8	(1.4)	8.2	(1.4)	100.0	(2.7)
Northern Ireland (UK)	86.5	(2.3)	13.5	(2.3)	100.0	(4.6)
Norway	85.6	(1.6)	14.4	(1.6)	100.0	(3.1)
Poland	92.3	(0.9)	7.7	(0.9)	100.0	(1.7)
Slovak Republic	84.8	(1.7)	15.2	(1.7)	100.0	(3.4)
Spain	79.6	(2.0)	20.4	(2.0)	100.0	(3.9)
Sweden	84.6	(1.6)	15.4	(1.6)	100.0	(3.2)
United States	81.4	(2.8)	18.6	(2.8)	100.0	(5.7)

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Note: SE – standard error

Table A2.2. Numeracy proficiency, adjusted for some socio-demographic characteristics

Country	Intercept			Currently studying			Foreign-born and foreign-language			Neither parent attained upper secondary		
	Estimate	SE	Prob_T	Estimate	SE	Prob_T	Estimate	SE	Prob_T	Estimate	SE	Prob_T
Australia	274	(6.1)	0	10	(6.9)	0.162927	-15	(16.2)	0.354186	-34	(6.2)	3.11E-07
Austria	271	(4.6)	0	13	(5.0)	0.010988	-44	(11.1)	0.000157	-20	(7.9)	0.011132
Canada	250	(6.0)	0	21	(6.0)	0.000773	-5	(6.0)	0.431625	-23	(10.9)	0.035154
Czech Republic	256	(7.3)	0	20	(8.3)	0.016988	-41	(71.0)	0.568292	-53	(14.6)	0.000462
Denmark	279	(4.7)	0	-8	(5.4)	0.16483	-34	(7.8)	4.03E-05	-33	(6.4)	1.32E-06
England (UK)	249	(5.9)	0	21	(7.3)	0.004196	7	(14.1)	0.603601	-58	(9.7)	6.97E-08
Estonia	254	(4.6)	0	25	(4.9)	3.46E-06	0	(0.0)		-13	(6.3)	0.034742
Finland	276	(4.7)	0	9	(5.5)	0.118253	23	(28.7)	0.416394	-27	(12.6)	0.03313
Flanders (Belgium)	269	(4.9)	0	17	(5.1)	0.001302	-68	(22.1)	0.002779	-33	(9.6)	0.000935
France	250	(5.0)	0	21	(5.1)	7.2E-05	-26	(8.5)	0.00328	-20	(6.0)	0.00128
Germany	266	(5.0)	0	13	(5.4)	0.016441	-50	(11.0)	1.67E-05	-32	(9.5)	0.001171
Ireland	236	(7.5)	0	25	(7.4)	0.000983	5	(11.9)	0.658794	-13	(6.5)	0.044779
Italy	242	(8.1)	0	23	(8.1)	0.006443	-23	(20.4)	0.272389	-16	(8.1)	0.057877
Japan	270	(5.6)	0	10	(5.9)	0.083579	0	(0.0)		9	(22.8)	0.678551
Korea	277	(5.3)	0	6	(5.5)	0.279958	-16	(27.1)	0.551974	-7	(8.1)	0.383112
Netherlands	275	(8.8)	0	16	(8.8)	0.080362	-26	(16.4)	0.110814	-22	(5.3)	9.23E-05
Northern Ireland (UK)	265	(9.4)	0	8	(9.1)	0.370628	26	(24.7)	0.298503	-38	(13.8)	0.00725
Norway	261	(6.5)	0	11	(7.1)	0.113933	-29	(11.4)	0.014194	-31	(10.0)	0.00261
Poland	256	(3.0)	0	14	(3.7)	0.000263	0	(0.0)		-37	(11.5)	0.001886
Slovak Republic	264	(4.2)	0	24	(4.9)	5.71E-06	0	(0.0)		-49	(7.5)	7.9E-09
Spain	238	(5.7)	0	28	(5.4)	1.42E-06	-4	(7.3)	0.573549	-14	(3.9)	0.000523
Sweden	276	(4.7)	0	4	(5.3)	0.483426	-61	(9.0)	2E-09	-17	(10.4)	0.101246
United States	245	(7.3)	0	2	(7.0)	0.787087	7	(10.4)	0.525063	-41	(10.1)	0.000118
OECD Average	261	(5.8)	0	18	(6.1)	0.135618						

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Note: SE – standard error

Table A2.3. Share of 20-34 year olds who have not completed upper secondary education

Country	%	SE
Australia	12.9	(1.0)
Austria	11.8	(0.8)
Canada	7.7	(0.5)
Czech Republic	7.6	(0.6)
Denmark	17.5	(1.2)
England (UK)	17.6	(0.9)
Estonia	15.8	(0.7)
Finland	8.1	(0.8)
Flanders (Belgium)	6.8	(0.7)
France	11.7	(0.7)
Germany	13.7	(1.0)
Ireland	12.1	(0.5)
Italy	27.2	(1.7)
Japan	7.9	(0.8)
Korea	2.0	(0.4)
Netherlands	16.8	(1.0)
Northern Ireland (UK)	21.8	(1.3)
Norway	18.9	(1.0)
Poland	6.3	(0.5)
Slovak Republic	11.8	(0.9)
Spain	33.8	(1.2)
Sweden	12.2	(1.0)
United States	8.1	(0.7)
OECD average	13.5	(0.2)

Note: Adults who obtained their highest qualification outside the United Kingdom: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded. SE – standard error

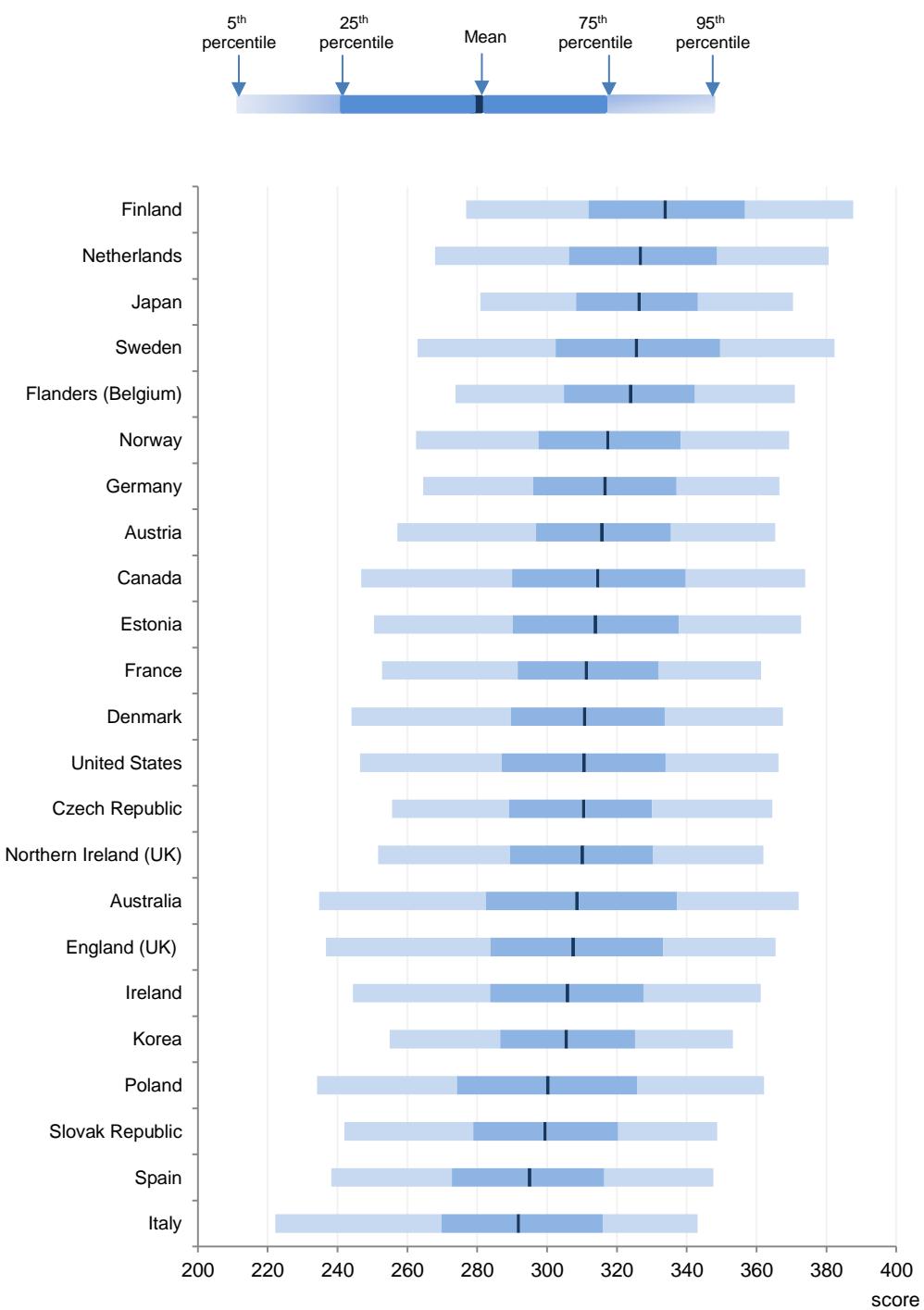
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Annex C

Figure A3.1. (N) Distribution of numeracy among university (tertiary A) graduates 20-34 year olds



Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Figure A3.1. (L) Distribution of literacy among university (tertiary) graduates 20-34 year-olds

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Table A3.1. Wage premium by educational attainment in the population 16-65 year-olds

Reference category: male with upper secondary education (UK level 2 and 3), whose neither parent completed tertiary (A or B) education

	Literacy or numeracy below level 2 or both			Literacy and numeracy level 2 and above		
	Estimate	SE	Prob_T	Estimate	SE	Prob_T
intercept	2.1065	(0.28)	0.0000	1.5323	(0.14)	0.0000
numeracy	0.0009	(0.00)	0.4679	0.0029	(0.00)	0.0000
at least one parent has attained tertiary	0.0203	(0.10)	0.8438	-0.0151	(0.03)	0.6524
gender	-0.1561	(0.06)	0.0181	-0.1637	(0.02)	0.0000
age	0.0081	(0.00)	0.0001	0.0108	(0.00)	0.0000
education below upper secondary	-0.0789	(0.05)	0.1411	-0.0773	(0.04)	0.0746
postsecondary general	0.0451	(0.13)	0.7309	0.0490	(0.11)	0.6463
postsecondary VET	0.2728	(0.09)	0.0028	0.2170	(0.04)	0.0000
university	0.2364	(0.14)	0.0853	0.3818	(0.03)	0.0000

Notes: Wages denote hourly earnings including bonuses for wage and salary earners, PPP corrected USD in log terms. Wage outliers were dropped, namely wages above the 99th percentile and wages below the 1st percentile.

Adults who obtained their highest qualification outside the UK: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded.

SE – standard error

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

Table A3.2. Distribution of adults 16-65, by skills level and qualifications

qualification	Literacy or numeracy below level 2 or both			Literacy and numeracy level 2 and above		
	% of qualifications in the population 16-65	Number of observations	SE	% of qualifications in the population 16-65	Number of observations	SE
below upper secondary	42	210	(2.92)	13	272	(0.79)
upper secondary	41	188	(2.97)	41	761	(1.31)
postsecondary general	2	10	(1.26)	2	45	(0.41)
postsecondary VET	8	37	(1.62)	12	235	(0.87)
university	7	36	(1.62)	32	798	(0.79)

Note: Adults who obtained their highest qualification outside the UK: those with foreign qualifications and 1st generation migrants who obtained their highest qualification prior to entering the host country, are excluded.

SE – standard error

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) (database).

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