Department
for Education

Quantitative programme of research for adult English and maths

Longitudinal survey of adult learners waves 1 and 2

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Executive Summary

Background and Aims

This report covers the first 2 waves of the longitudinal survey of adult learners, which is part of a larger study, the programme of research for adult English and maths.

The development of adult English and maths skills is one of the fundamentals of current further education policy, and is seen as an important factor in improving employment opportunities. All adults in England are currently entitled to free training to enable them to improve their basic literacy and numeracy skills to English and maths GCSE / Level 2.[1] In addition, in October 2015, the Conservative government commissioned a programme of work to reform maths and English Functional Skills qualifications, to ensure they are rigorous and suit the needs of employers today.

This research aims to provide a better understanding of learners' experiences of adult English and maths courses in terms of skills gain, confidence and other life circumstances such as employment. In this longitudinal survey we interviewed a cohort of learners on courses from Entry Level 1 to Level 2 at the start and end of their course. They were also asked to complete a skills assessment at each stage.

The longitudinal survey of adult learners final research report, published separately alongside this interim update, includes the findings from a further survey conducted one year after learners' courses ended, allowing us to understand what happens to learners in the year following their course.

Findings

Understanding the different profiles of adult learners

Learners tended to be younger, and there was a greater proportion of females than males. Many learners did not have English as a first language.

- Over three-fifths of learners on maths (64%) and English (63%) courses were under 35

- Three-fifths of learners were female (59% of learners on English courses, and 60% of learners on maths courses)

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[1] https://www.gov.uk/government/consultations/new-challenges-new-chances-next-steps-in-implementing-the-further-education-reform-programme

- 40% of learners on English courses and 28% of learners on maths courses and did not speak English as their first language[2]

- These proportions were even higher for Entry Level courses (47% of Entry Level English learners and 40% of maths)[3]

Many learners attending adult education courses have had to deal with difficult life circumstances which negatively affected their earlier achievement in education. Courses therefore play a role in re-engaging learners in education.

- Overall, 42% of English learners and 45% of maths learners experienced difficulties that got in the way of their learning when they were younger. These circumstances ranged from physical and mental disability through to difficulties with their family life or frequent changes in school

- 47% of learners on English courses believed that 'poor English skills had held me back from getting on in life'. This was particularly prevalent amongst learners who were not in employment due to illness or disability (64%) and those lacking formal qualifications (60%). It was also more common amongst older learners (56% of learners on English courses aged 55 or over)

Underlining the strong correlation between adult learning and a desire to improve employment circumstances, many learners said their reason for attending the course was related to work. At the end of their course, many learners felt their course had helped with aspects of their work life.

- 44% of learners on English courses and 59% of learners on maths courses were not currently in work at the start of their course

- 27% of learners on Entry Level maths and English courses started the course to help find work; while 25% of Entry Level English learners and 21% of Entry Level maths learners started the course to help get a better job

- Amongst learners who were in work at the end of their course a large proportion agreed that: 'the course helped with my confidence at work' (82% of English learners and 72% of maths learners); and that 'the course helped with my ability to do my job' (76% of English learners and 67% of maths learners)

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[2] The sample included 176 learners who were on English for Speakers of Other Languages (ESOL) courses (9% of the English learner sample). These learners have been excluded from the 40% overall profile. When including these learners, 45% of all English learners were non-native English speakers.
[3] This excludes learners on ESOL courses - the proportion is 53% of English learners when ESOL courses are included.

What happened to learners' skills?

In this report we identify the proportion of learners whose skills level increased (defined as having made progress) between the 2 survey waves, as this is the expected direction of skills change. The final report uses multivariate techniques for a greater understanding of changes in skills, drawing on the data gathered for all 3 waves.

When interpreting these findings an important consideration is the reasons why learners took their course. We should not assume that all learners were aiming to improve their skills. It is possible some learners will have been seeking a qualification at their existing skills level, for example to help them find work or meet the requirements for a more advanced course. It is also not possible to identify the incidence of learners who were potentially taking a course at an inappropriate level for their skills.

- Three-tenths (30%) of English learners took their English course to improve their everyday reading and writing skills, while a quarter (25%) of maths learners took their maths course to improve their ability to work with numbers

- For other learners the main reason was work-related or a stepping stone to further qualifications

These comparisons should also be considered indicative for methodological reasons. The timing of the survey necessitated a different methodology at wave 1 compared to wave 2.[4] Variations in performance may also indicate a regression to the mean - the phenomenon whereby random variations in measured scores disappear when re-measured. Essentially, in a real life test situation people can have a bad day or a good day, which means there is a random element to their test score on any day. [5]

- Overall, there was an increase in English skill levels for around half of English learners (52% for reading and 51% for writing) and two-thirds (66%) of maths learners

- Progress was more widespread amongst learners attending higher level courses, particularly in maths. A third (33%) of learners on Entry Level maths courses demonstrated progress in their maths skills, compared with nearly three-quarters of

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[4] Wave 1 was conducted in colleges via pen and paper, while wave 2 was conducted in-home using Computer Aided Personal Interviewing with an interviewer present.

[5] Some individuals may be identified as having shown a decline, however it is important to bear in mind that this cannot be interpreted as being a result of their study as there are clearly multiple factors that could have a bearing. In the same way there may have been a range of other factors that led to other learners' skills progressing beyond the course itself.

learners on higher levels (72% of learners on Level 1 and 74% of learners on Level 2 courses)[6]

- Male learners who attended English courses were much more likely to show an identifiable improvement in their reading skills than female learners (62% of males improved, compared with 45% of females)

- This gender skew was not, however, observed in the writing or maths assessments, where progression rates were similar for both men and women

- Learners who said they felt 'nervous when I have to take an English test' or who 'get anxious during maths tests' were less likely to show progress than other learners in the reading and maths assessments.

What benefits did learners perceive?

The vast majority of learners felt their course helped to improve their skills. However, there was a large proportion of learners who felt the course improved their skills 'a lot' but did not demonstrate progress in the assessments. This raises questions over the extent to which there may be a difference between perceptions of skills gain and measurable progress; and the wider skills that learners gained during their course.[7]

- 96% of English learners and 93% of maths learners agreed 'the course helped with my skills.' The majority of learners felt their course helped them to improve their skills 'a lot' (66% of English learners and 62% of maths learners)

- Around half of English learners who felt the course improved their skills 'a lot' demonstrated progress in the reading assessment (53%), and a similar proportion in the writing assessment (51%)

- Three-fifths (62%) of maths learners who felt the course improved their skills 'a lot' demonstrated progress in the maths assessment

- Amongst English learners the proportion rating their writing skills as 'fairly good' or 'very good' rose from 69% at the start of the course to 76% at the end. The equivalent proportion for speaking English rose from 86% to 93%

- The proportion of learners on English courses rating their reading skills as 'very good' rose from 34% to 43%

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[6] The equivalent figures for English courses were: 44% Entry Level , 46% Level 1, and 61% Level 2 (progress in reading); 52% Entry Level, 30% Level 1, and 70% Level 2 (progress in writing).
[7] It should be highlighted that in this specific question the word 'skills' was open to interpretation, and it did not directly ask about reading, writing, or maths skills. It is therefore not possible to directly match perceptions of skills improvement to the assessment.

- There were similar changes for learners on maths courses. The proportion rating their maths skills as 'fairly good' or 'very good' rose from 83% to 87% at the end of their course, with the proportion rating their maths skills as 'very good' increasing from 27% to 37%

- However, there were also some negative findings in terms of perceptions of skills. Learners were asked whether they agreed with a series of statements relating to their feelings about maths or English. These included statements such as 'I worry about making grammar mistakes', 'I find it easy to write to somebody I know' and 'I worry about my ability to solve maths problems' (see Chapter 6). Although the proportion of learners expressing a positive shift was larger for every statement, between 20% and 30% of learners showed a negative shift in their answers to these statements between the start and the end of their course

- Two-thirds of English learners (67%) reported that their course had helped improve the degree of interest that the wider family had in learning and 58% said it had helped relationships with their partner or family. The equivalent proportions of learners on maths courses were 62% and 50% respectively

- Learners also tended to report higher levels of happiness at the end of their courses - 43% of English learners and 50% of maths learners gave a higher happiness rating at the end of their courses than they gave at the start

These findings are consistent with an evaluation of learners who started on Skills for Life-funded English and maths courses in 2002 or 2003, which identified the positive effect of courses on learners' perceptions of their skills and confidence during (and beyond) their course.[8]

Next steps

The third wave of the longitudinal survey explores learners' longer term outcomes. It investigates whether learners improved their employment outcomes and if, and how, learners were motivated to continue their learning journey. In the Final Report, published alongside this interim assessment of waves 1 and 2, we explore how skills developed in the year after learners' courses by repeating the assessments used in the first 2 interviews.

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[8] Evaluation of the impact of Skills for Life learning: longitudinal survey of adult learners on college-based literacy and numeracy courses - final report NIESR and BMRB.

Chapter 1 Introduction

This report covers the first 2 waves of the longitudinal survey of adult learners, which make up part of a larger programme of work - the programme of research for adult English and maths. In addition to this longitudinal survey, the full research programme incorporates a Randomised Controlled Trial, qualitative research into the implementation of adult learning in colleges, and research on courses run by local authorities. All learners included in the programme of research for adult English and maths were aged 19 or above and attending Skills for Life-funded (publically-funded) English or maths courses between Entry Level 1 and Level 2.

This research was commissioned by the Department for Business, Innovation and Skills (BIS) and aims to provide a better understanding of the way in which adult learners' skills develop and/or decline over time. This aids understanding of the effectiveness of adult skills provision and enables evidence-based policy decisions on the future development of the sector. The outputs are being published by the Department for Education, as during machinery of government changes in early 2017, responsibility for skills analysis moved to the Department for Education.

To accomplish this complex research project, a consortium of organisations led by Kantar Public (formerly TNS BMRB) worked together on the design and implementation of its various elements. The longitudinal survey of adult learners was conducted by Kantar Public using assessment tools designed by AlphaPlus, and with support from Work and Learning Institute (formerly NIACE) in the recruitment of colleges. The analysis of the longitudinal assessment data was conducted by NIESR, and Professor Steve Reder[9] provided input into the questionnaire design and analysis.

The 2 waves of longitudinal data that are currently available provide an overview of the extent to which learners progressed between the start (wave 1) and the end (wave 2) of their English or maths course. It also explores aspects such as the profile of learners who attend these courses, the level of confidence they have in their skills, and the barriers to education that they may have faced in their earlier lives. The next stage of the longitudinal survey (wave 3) involved interviewing the learners a year after their course finished, to understand what happens to their skills and their life circumstances in the longer term.

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[9] Professor Steve Reder is on the faculty at Portland State University (PSU) where he specialises in adult literacy skills, language education, and the role of language, literacy and technology in everyday life. He is an active member of the Literacy, Language and Technology Research Group (LLTR) at PSU.

Aims of the research

There were 4 main aims for the programme of research for adult English and maths. These were to:

1. Test different models of delivery for adult basic English and maths provision and assess which is most effective for which group of learners
2. Understand skills gain and atrophy over time
3. Understand the economic and social effects of participation in Skills for Life courses
4. Develop rigorous and valid psychometric test instruments for use in research

The first of these aims is addressed by both the longitudinal survey of adult learners and the RCT. The longitudinal survey explores the level and length of courses, and whether learners from a variety of backgrounds are affected in different ways by their courses. The RCT explores whether the rate of skills gain differs between more traditional classroom-based learning and classes that make extensive use of information technology.

The second aim is also addressed, to some extent, by both the longitudinal survey of adult learners and RCT. The RCT involves measuring skill levels at both the start and the end of courses, giving a measure of skills gain (but not atrophy). The longitudinal research includes a third stage of interviewing, in which learners are contacted a year after the completion of their course. This means it is possible not only to understand how skills may have improved between the start and the end of the course, but to see what happens in the longer term.

The third aim is primarily addressed by the longitudinal survey of adult learners and will be explored in the final report.

The fourth aim was addressed by AlphaPlus, who designed the assessments that were used in both the longitudinal survey and the RCT.

Policy context

The history of the adult skills sector is long and complex. There have been significant changes in policy focus over the past 3 decades and responsibility for the sector has fallen under the remit of several different government departments. As such, we concentrate on the recent policy developments here.[10]

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[10] A more detailed summary of historical changes to the sector can be found in the following publication from the City and Guilds Group: http://www.cityandguilds.com/~/media/Documents/news-insight/oct-14/CGSkillsReport2014%20pdf.ashx

Under the Coalition Government of 2010-2015, there was a strong focus on the development of adult skills in the context of improving employment opportunities. In particular, there was a desire to continue developing the uptake and implementation of apprenticeships, whose renaissance began with the introduction of Modern Apprenticeships in 1994. Underpinning this desire to help people back to work was recognition of the fundamental importance of English and maths skills. In November 2010, the Coalition Government published its Skills for Sustainable Growth strategy document, which stated that:[11]

> *"Literacy and numeracy skills enable people to function in society, progress into vocational learning and employment, and operate more productively in work. But millions of adults in England lack even basic reading, writing and mathematical skills. We believe this resulted from an unacceptable failure of the education system and that it is therefore only right to give them a second chance to acquire those skills."*

> *"We will therefore continue to fully fund literacy and numeracy provision for those who need it, whether in the workplace or in the community, but to maximise economic and personal returns we will review the way basic skills are delivered and take steps to ensure this training fully equips individuals and employers with the functional literacy and numeracy skills they need. This reformed programme will move away from targets to focus on equipping individuals with the skills and qualifications they need to get a job, progress in work and play a full part in society. We recognise the importance of the quality of teaching and learning, access for those most in need, and skills which support progression, employability and improved productivity."*

To address this need to maximise returns, a consultation was undertaken and the outcomes were published in New Challenges, New Chances (December 2011).[12] This report highlighted an intention to improve the quality of apprenticeships:

> *"…ensuring that providers support apprentices to achieve Level 2 in English and maths wherever possible."*

Other important actions were to:

> *"Prioritise young adults who lack English and maths skills, and those adults not in employment."*

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[11] https://www.gov.uk/government/publications/skills-for-sustainable-growth-strategy-document
[12] https://www.gov.uk/government/consultations/new-challenges-new-chances-next-steps-in-implementing-the-further-education-reform-programme

> *"Fund GCSE English and maths qualifications [for adult learners] from September 2012."*

> *"…increase its focus on the quality of teaching, learning and assessment in inspection. Paying particular attention to how well teaching develops English and maths skills."*

> *"Undertake a new research, development and evaluation programme from 2012."*

The Longitudinal Survey of Adult Learners described in this report is part of the wider effort to address this final action.

More recently, the Conservative manifesto outlined some of the ambitions of the current government in terms of adult skills.[13] Once again, there is a strong emphasis on the importance of apprenticeships and employability, stating that:

> *"Over the next five years we will deliver three million more [apprenticeships] and ensure they deliver the skills employers need."*

There is also an intention to:

> *"…replace lower-level classroom-based Further Education courses with high quality apprenticeships that combine training with experience of work and a wage."*

As such, the future policy priorities for the adult skills sector remain keenly centred on improving the employment prospects of learners. English and maths skills are integral to this goal.

Methodology

This section briefly overviews the research methods used in this study. A more detailed research methodology is included in the longitudinal survey technical report.

Assessment instrument design and analysis

The assessments used in all the interviews were designed by AlphaPlus, who undertake performance analysis of assessment for UK awarding organisations, DfE and Ofqual. The first stage of their development involved the design of a large bank of questions which were then trialled with learners to assess their validity. Following the trialling phase, any unreliable questions were removed. Questions were designed to cover the full range of course levels involved in the survey - Entry Levels 1 to 3 and Levels 1 to 2.

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[13] https://www.conservatives.com/manifesto

AlphaPlus then drew upon the bank of validated questions to create a separate assessment for each of the 10 different types of class involved in the survey (5 levels in each of the 2 subjects). Each version was designed to be manageable and engaging for learners on a course of a given level as well as being appropriate for measuring progress over the course timescale. Therefore, each of the assessments contained questions at a range of levels, ensuring that those with higher skills were challenged by some questions while accepting that those with lower skills would find some questions too difficult.

The assessments were designed to be suitable for administration via pen and paper as well as via computer-based delivery to ensure compatibility across different learner environments and the wave 1 and waves 2 and 3 survey methodologies.

Learners in wave 1 completed the version of the assessment which was designed to be suitable for learners starting out on a course at a given level. These same learners in wave 2 then took a version of the assessment which was one level higher to take into account the effect that the course was likely to have had on their skills. Bridging questions were included in the questionnaire variants to allow AlphaPlus to calibrate results across waves and determine whether progress had been made.

AlphaPlus used Item Response Theory (IRT) when analysing the results to derive a measure of performance across all of the different assessment versions. This process is described in more detail in chapter 4 and a full description of the statistical methods is included in the technical report.

Wave 1

The first wave of the survey was conducted using pen and paper interviewing (PAPI). Colleges were recruited to take part in the survey by Kantar Public's telephone interviewing team prior to the start of the autumn term. Details about the expected number of adult learners in English and maths were also collected at this stage, allowing Kantar Public to identify how many questionnaires at each level to send to the college. Fieldwork took place in the autumn 2013 and spring 2014 terms.

Face to face interviewers delivered printed versions of the questionnaires to the colleges and briefed a nominated member of staff on how to administer the questionnaires. Tutors were told they could help learners complete the first section of the questionnaire (which included demographics and attitudinal questions) if needed, but the assessment section needed to be the learner's own work. Colleges were asked to administer the questionnaires on the college premises, as close as possible to the start of the course.

A boost sample of learners attending e-learning classes (i.e. classes where the learning is primarily software guided rather than teacher-led) was also included. Learners were contacted through learndirect centres and in total 236 of these learners were interviewed. The process for sampling these learners is discussed in the accompanying technical report. The findings for these learners are included in the results discussed throughout the report. Chapter 8 compares these learners with learners who were sampled through colleges.

Learners were asked about their willingness to participate in later stages of the survey and were given a £5 incentive as a thank you for their involvement in the first wave. Overall 70% of learners agreed to be re-contacted in wave 2.

On completion, questionnaires were returned to Kantar Public, where the demographic and attitudinal survey responses were digitally scanned and converted into a usable data format. The assessment sections were sent to AlphaPlus for marking by their team of specialists.

Wave 2

The second wave of the survey was conducted using Computer Assisted Personal Interviewing (CAPI). Kantar Public's face to face interviewers visited learners in their homes, as close as possible to the end date of their courses (for the majority of the sample this was at the end of the summer 2014 term). In addition to the sample of wave 1 participants who had agreed to be re-contacted, a boost sample of learners taken from the Individualised Learner Record (ILR) was included. This was to create a large enough sample size for reliable analysis of any changes in skill levels between waves 2 and 3. Where appropriate this report analyses data based: on the total sample of learners at wave 1; the total sample of learners at wave 2; or, on the sample of learners who completed a survey at both wave 1 and wave 2.

Respondents completed the assessment section of the interview, observing the same guidelines as were applied in wave 1 - primarily that their answers had to be all their own work. The only help that interviewers were allowed to give to respondents related to the use of the computer, for example explaining how to use the mouse or how to move from one question to the next. If the respondent was unable to input their own answers due to a disability, then the interviewer was permitted to act as a scribe.

Once again, the assessment data was marked by AlphaPlus.

The final wave 3 interview will follow the same process as wave 2.

Weighting

The data from wave 1 were weighted to make it representative of the adult learning sector as a whole in terms of age, gender, region and the level of the course. Separate weights were applied for English and maths.

The wave 2 data were additionally weighted to take account of any non-response bias, i.e. correcting for the fact that certain types of respondent may have been less likely to agree to be re-contacted in wave 2.

Full details of the weighting process can be found in the technical report.

Chapter 2 Profile of learners

Summary

This chapter describes the profile of learners included in this research. The majority of data is self-reported by learners in the survey, however, where indicated, the data shown are drawn from the Individualised Learner Record.[14]

Overview[15]

English learners		Maths learners
63%	**Aged <35**	**64%**
37%	**Aged 35+**	**36%**
41%	**Male**	**40%**
59%	**Female**	**60%**
55%	**English first language**	**72%**

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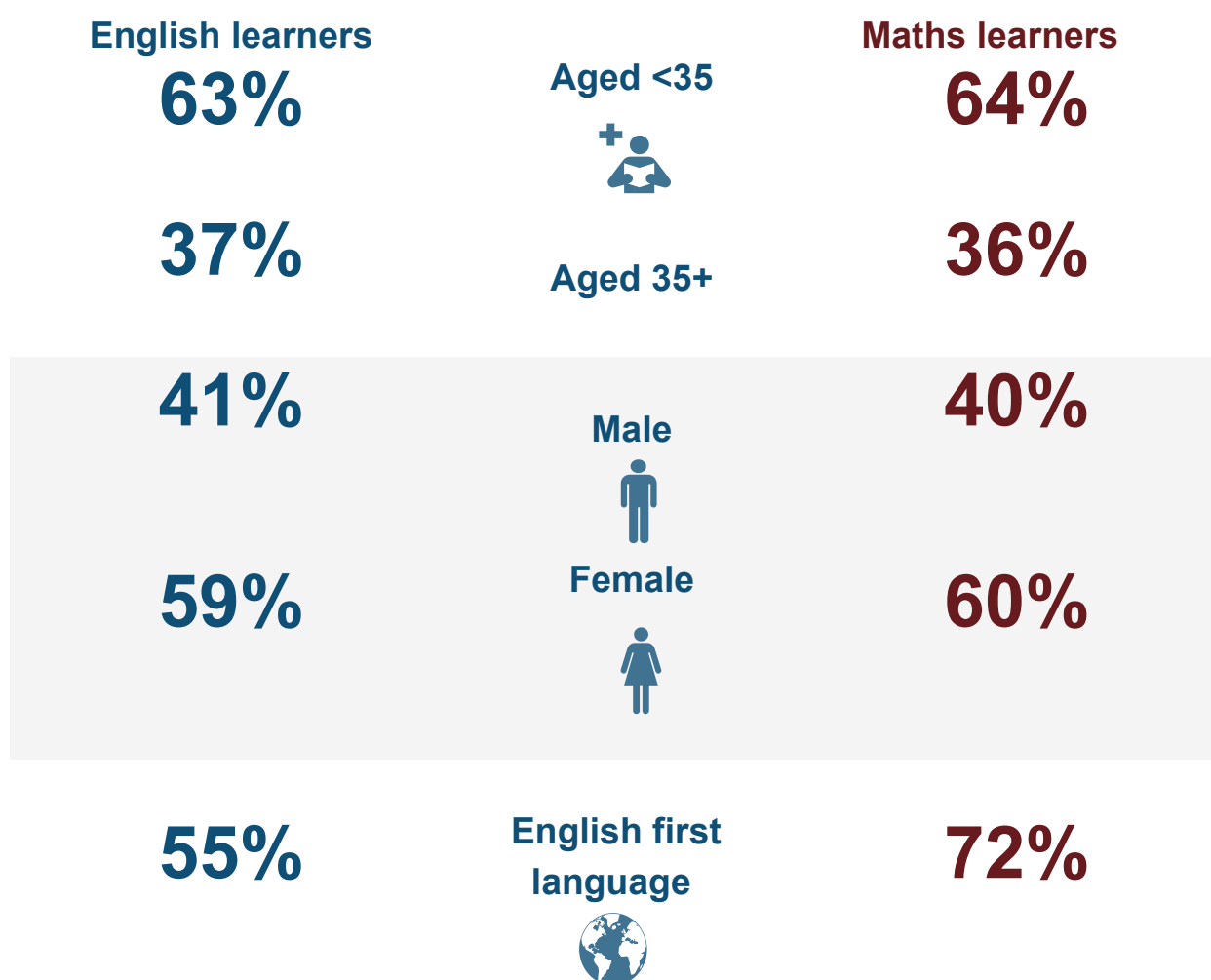
[14] The process of matching data from the ILR to our survey data is documented in the accompanying technical report.

[15] Note that percentages are rounded to the nearest whole number (figures are rounded up from .5, and rounded down below this) and do not always add to 100% due to rounding.

English learners		Maths learners
45%	**English additional language**[16]	**28%**

	Not in work £	
44%		**59%**

	No internet access at home	
10% overall		**6%** overall
21% Entry Level learners		**14%** Entry Level learners

Demographic characteristics of learners who started on English courses

Age and gender

Figure 2.1 shows the overall age profile of English learners, while Figure 2.2 shows the age profile of men and of women who attended each level of course. Note that there were only 12 learners in the sample aged 65 or over (the oldest learner being 78).

Learners starting on English courses were predominantly under the age of 35 (63%), although Entry Level learners were, on average, older than learners on higher courses. The mean age of learners was as follows:

- Entry level = 36
- Level 1 = 32
- Level 2 = 31

Men under the age of 25 were particularly likely to attend Level 1 or Level 2 courses.

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[16] The sample included 176 learners who were on ESOL courses (9% of the English learner sample).

Figure 2.1 Age and gender of English course participants

	Female	Male	
55 or over	3%	2%	
45-54	8%	5%	
35-44	12%	7%	
25-34	19%	11%	
24 or under	16%	17%	

■ Female ■ Male
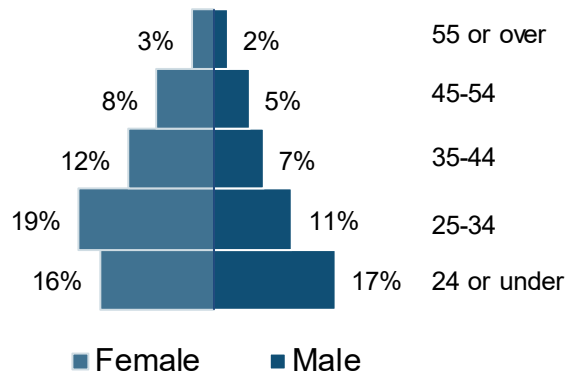
Base: Wave 1 learners who attended any English course and reported their age and gender (1911)
Note: those who refused to give an age have been removed from the base

Figure 2.2 Age and gender of English course participants, by course level

Level 2
	Female	Male
55 or over	4%	1%
45-54	9%	8%
35-44	22%	14%
25-34	34%	24%
24 or under	31%	53%

Level 1
	Female	Male
55 or over	3%	4%
45-54	14%	10%
35-44	19%	17%
25-34	35%	23%
24 or under	29%	47%

Entry Level
	Female	Male
55 or over	6%	8%
45-54	20%	17%
35-44	22%	22%
25-34	30%	34%
24 or under	21%	

■ Female ■ Male
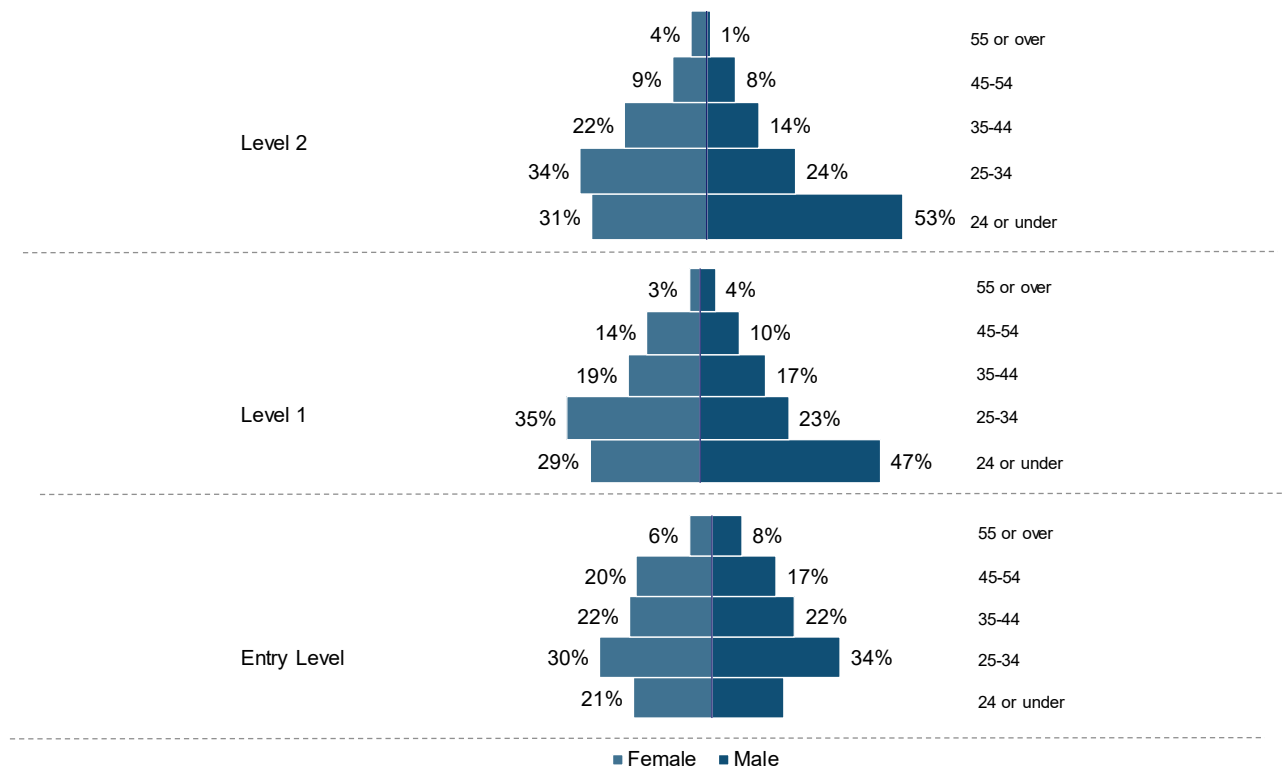
Base: Wave 1 learners who attended: Entry Level 1-3 English course (men: 339; women: 460); Level 1 English course (men: 176; women: 388); Level 2 English course (men: 165; women: 383)
Note: those who refused to give an age have been removed from the bases

Ethnicity and first language

The proportion of Black or Minority Ethnic (BME) learners on English courses was much higher than the general population of working age adults in England (39% compared with 15%).[17] Figure 2.3 shows how the proportion of BME learners decreases with course level.

Figure 2.3 Ethnicity of learners attending English courses, overall and by course level
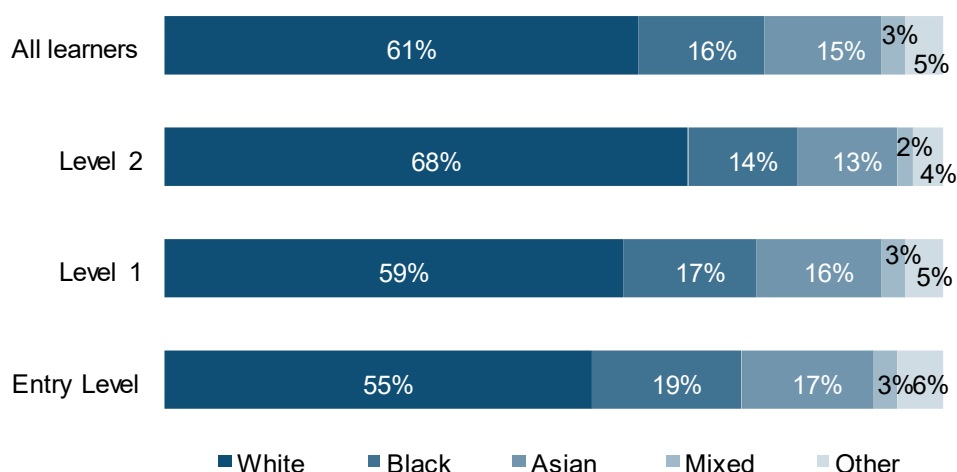
Base: All wave 1 learners who gave their ethnicity and attended: Any English course (1899); Entry Level 1-3 English course (786); Level 1 English course (570); Level 2 English course (543)

Figure 2.4 breaks down learners' first language by course level. Fifty-five per cent of all learners spoke English as their first language.[18]

Figure 2.4 First language of learners attending English courses, overall and by course level
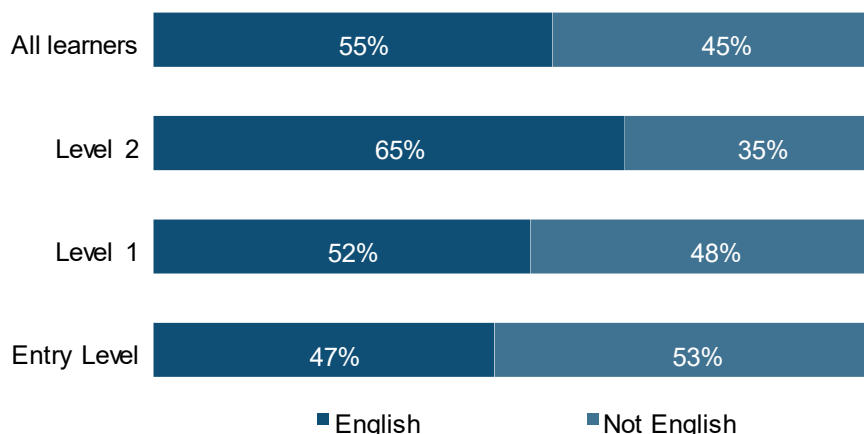
Base: All wave 1 learners who reported their first language and attended: Any English course (1981); Entry Level 1-3 English course (839); Level 1 English course (589); Level 2 English course (553)

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[17] Ethnic profile data from Census 2011 http://www.nomisweb.co.uk
[18] The sample included 176 learners who were on ESOL courses (9% of the English learner sample).

Previous qualifications in English

Seventy-two per cent of English learners held a previous qualification in English. This was more likely amongst Level 2 course participants (85%) than Level 1 learners (74%) or Entry Level learners (55%).

Figure 2.5 shows the proportion of learners at each level who had a previous English qualification, indicating whether the course they were attending was more basic, equivalent to or more advanced than the qualification they had attained. Note that this is based on self-reported survey data as it was not possible to match the ILR data across the sample.

It is also important to note that in the survey Entry Levels 1 and 2 were grouped together. Therefore it isn't possible to identify whether the learner may have, for example, been studying on an Entry Level 2 course with a previous qualification at Entry Level 1.

Figure 2.5 Previous English qualifications held relative to course level

English course at higher level or same level as prior attainment

	Unspecified /refused	Course level lower	Course same level	Course level higher
Level 2	12%	2%	13%	73%
Level 1	12%	7%	17%	65%
Entry Level	15%	5%	40%	39%

Unspecified /refused　Course level lower　Course same level　Course level higher
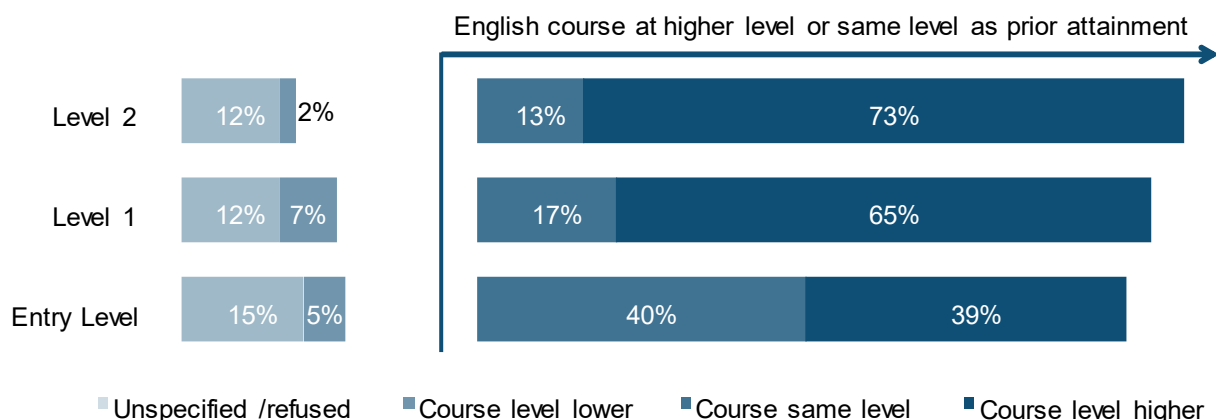
Base: All wave 1 learners who reported a previous English qualification and attended: Any English course (1828); Entry Level 1-3 English course (771); Level 1 English course (529); Level 2 English course (528)

The majority of Level 2 learners (73%) and Level 1 learners (63%) already had an English qualification below the level of course they were attending. A substantial minority of learners at these levels (13% of Level 2 learners and 17% of Level 1 learners) reported that they held a qualification at the same level as the course they were assigned to. When looking at the matched ILR data many English learners appeared to be on a modular course. It may therefore be the case that their previous qualification was part of the same course.[19] A small minority in each group (2% and 7% respectively) held a qualification that was more advanced that the course they were assigned to.[20]

Main economic activity

Over two in five English learners were in employment at the beginning of their course (44%). This is broken down by course level in Figure 2.6.

Figure 2.6 Main economic activity of learners attending English courses, overall and by course level

	All learners	Entry Levels	Level 1	Level 2
In education or training	24%	25%	23%	28%
Working full time	26%	21%	25%	24%
Working part time	19%	15%	22%	23%
Looking for work	10%	11%	9%	11%
Looking after home/family	6%	6%	10%	8%
Unwell/disabled	5%	7%	5%	3%
Unemployed and not looking for work	4%	7%	7%	3%
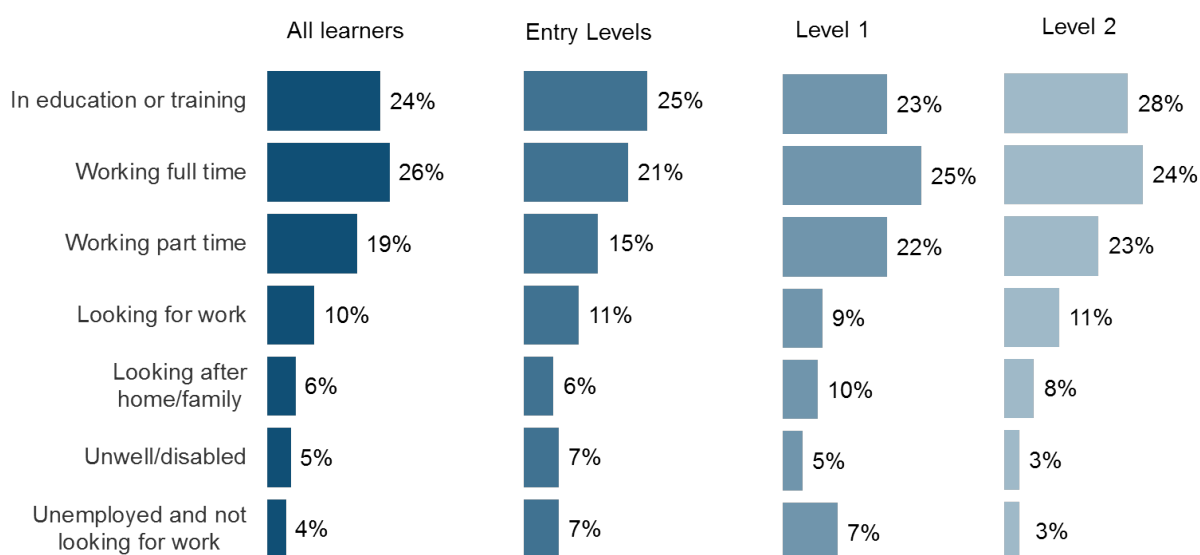
Base: All wave 1 learners who reported their main economic activity and attended: Any English course (1641); Entry Level 1-3 English course (691); Level 1 English course (4487); Level 2 English course (463)

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[19] This was not asked in the questionnaire so it is not possible to confirm this.
[20] It is worth noting that although 40% of Entry Level course participants already possessed an Entry Level qualification, their qualification may have been at a more basic Level that the course they attended (e.g. an Entry Level 1 qualification held by learners attending an Entry Level 2 course).

Internet access and usage

Overall, 90% of learners had internet access from a computer or tablet (at home, work, library, college, or at a friend's or relative's house) at the start of their English course. However, access levels varied considerably for learners attending different levels of course, ranging from 79% of Entry Level course participants to almost universal access (96%) amongst Level 2 course participants.

The frequency with which English learners carried out various IT tasks is shown in Figure 2.7. While online discussions were undertaken by similar proportions of learners at each course level, and with a broadly similar degree of regularity, the prevalence and frequency of all other activities differed between learners attending different course levels. Entry Level course participants were more likely than other learners to never undertake these activities at all: this low level of activity was apparent even when discounting learners who did not have internet access. Level 2 course participants were not only more likely than others to perform most of these activities, but to do so daily.

Figure 2.7 Frequency of carrying out IT tasks amongst English learners
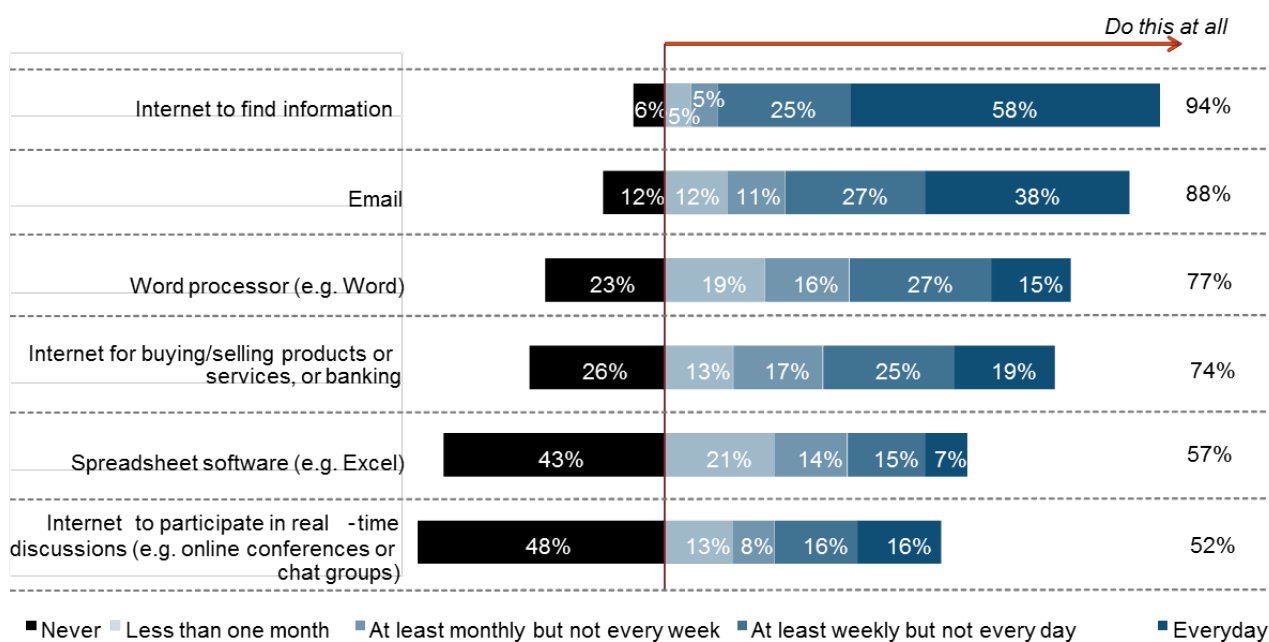
Base: Wave 1 learners who answered the question and attended an English course (c. 1800)
Note: those who refused to answer or said 'don't know' have been removed from the base

Demographic characteristics of learners who started on maths courses

Age and gender

Figure 2.8 shows the overall age profile of maths learners, while Figure 2.9 shows the age profile of men and of women who attended each level of course.

As was the case with learners starting on English courses, the majority of learners starting on maths courses were under the age of 35 (64%). The mean age of learners was as follows:

- Entry level = 33
- Level 1 = 32
- Level 2 = 31

Male learners, particularly those attending Entry Level and Level 1 courses, were disproportionately likely to be under the age of 25.

Figure 2.8 Age and gender of maths course participants
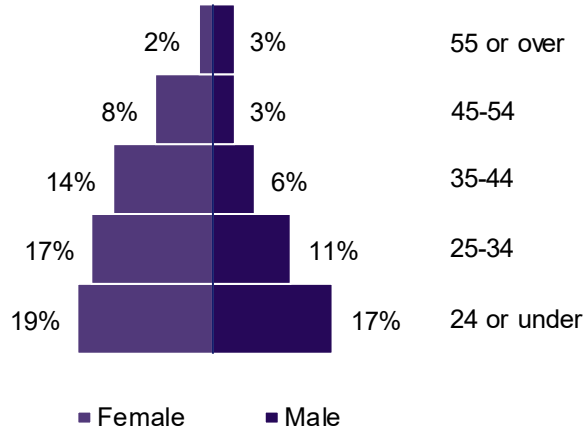
Base: Wave 1 learners who attended any maths course and reported their age and gender (1697)
Note: those who refused to give an age have been removed from the base

Figure 2.9 Age and gender of maths course participants, by course level

Level 2

	Female	Male	Age
	2%	4%	55 or over
	10%	8%	45-54
	24%	17%	35-44
	28%	30%	25-34
	36%	41%	24 or under

Level 1

	Female	Male	Age
	3%	8%	55 or over
	13%	8%	45-54
	24%	13%	35-44
	31%	23%	25-34
	30%	47%	24 or under

Entry Level

	Female	Male	Age
	4%	8%	55 or over
	17%	9%	45-54
	21%	15%	35-44
	29%	28%	25-34
	28%	40%	24 or under

■ Female ■ Male
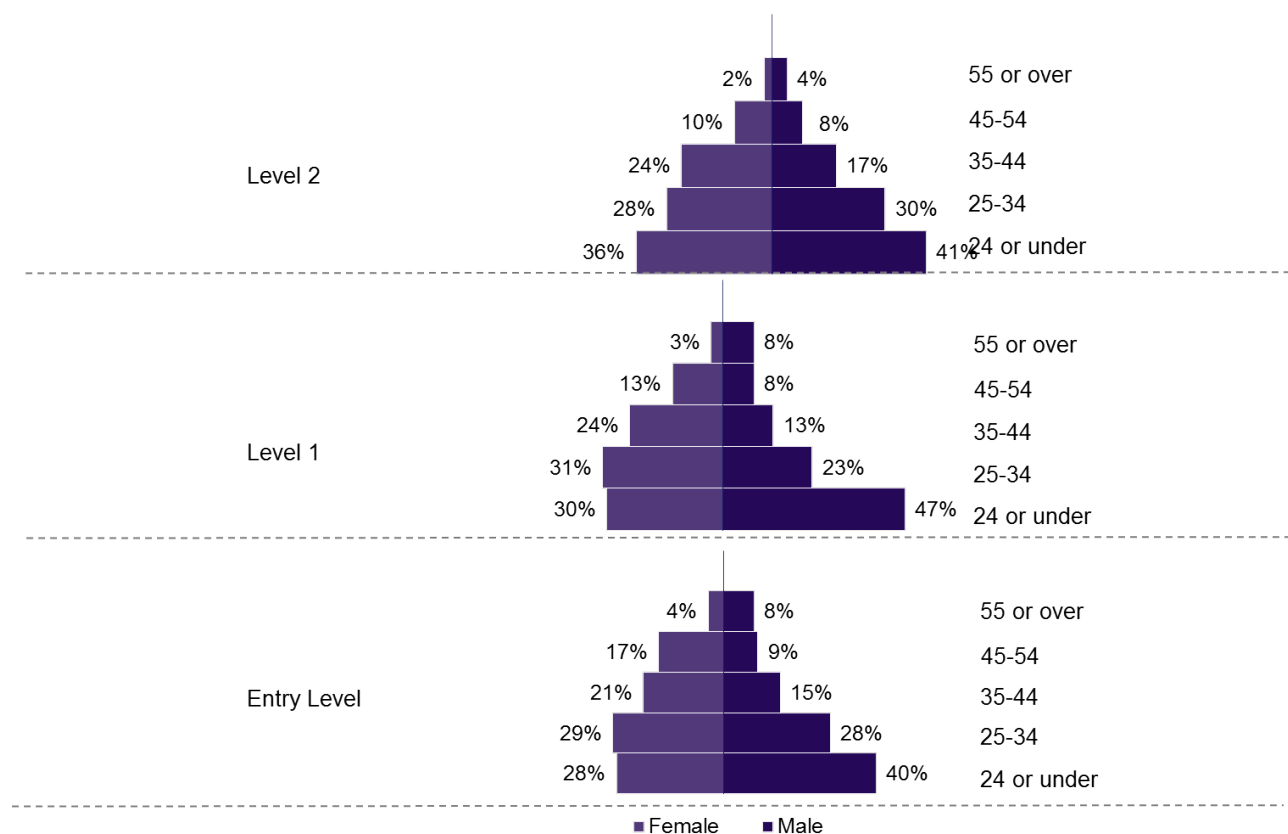
Base: Wave 1 learners who attended: Entry Level 1-3 maths course (men: 226; women: 394); Level 1 maths course (men: 164; women: 383); Level 2 maths course (men: 156; women: 358)
Note: those who refused to give an age have been removed from the bases

Ethnicity and first language

As was the case with the English learners, BME groups were over-represented amongst the maths learners (32%) relative to the general population of England (15%).[21] The proportion of BME learners was lower in more advanced courses (Figure 2.10).

Figure 2.10 Ethnicity of learners attending maths courses, overall and by course level
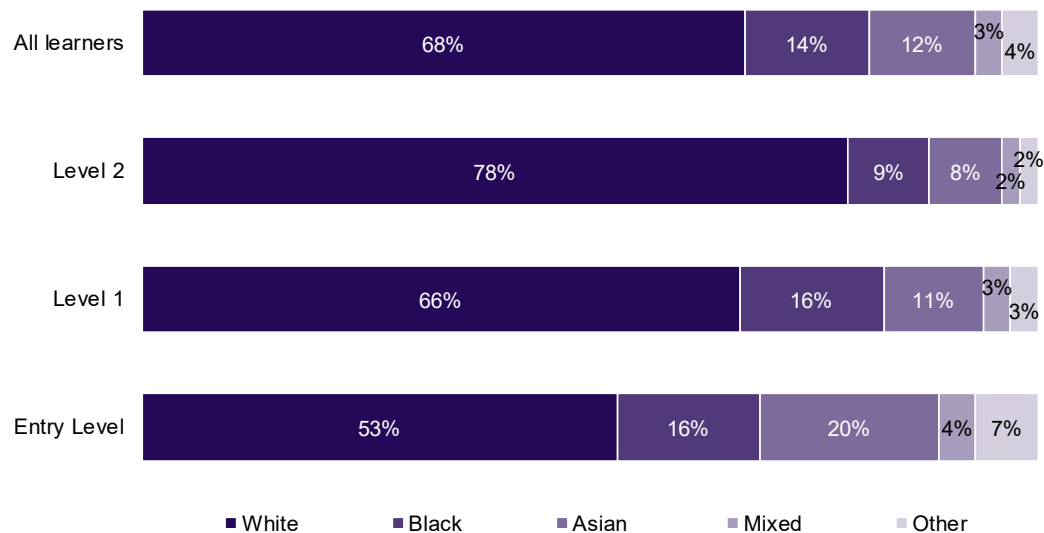
Base: All wave 1 learners who gave their ethnicity and attended: any maths course (1696); Entry Level 1-3 maths course (623); Level 1 maths course (554); Level 2 maths course (519)

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[21] Ethnic profile data from Census 2011 http://www.nomisweb.co.uk

Figure 2.11 breaks down learners' first language by course level. Almost 3 in 10 maths course participants (28%) spoke a language other than English as their first language.

Figure 2.11 First language of learners attending maths courses, overall and by course level

	English	Not English
All learners	72%	28%
Level 2	79%	21%
Level 1	71%	29%
Entry Level	60%	40%

■ English　　　■ Not English
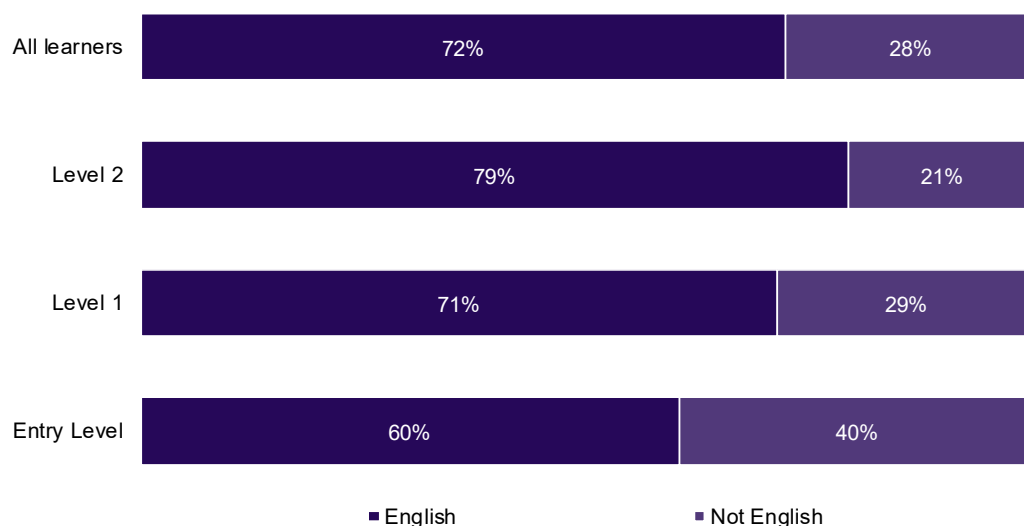
Base: All wave 1 learners who reported their first language and attended: any maths course (1768); Entry Level 1-3 maths course (660); Level 1 maths course (574); Level 2 maths course (534)

Previous qualifications in maths

Over four-fifths of maths learners (82%) held a previous qualification in maths. This was true of relatively fewer Entry Level learners (68%, compared with 83% of Level 1 and 87% of Level 2 learners).

Figure 2.12 shows the proportion of learners at each level who had a previous maths qualification, indicating whether the course they were attending was more basic, equivalent to or more advanced than the qualification they had attained.

As for English learners, when interpreting these data it should be noted that in the survey learners did not distinguish between being on an Entry Level 1 or an Entry Level 2 course. This means it is not possible to identify whether the learner may have, for example, been studying on an Entry Level 2 course with a previous qualification at Entry Level 1. Similarly, for learners matched to the ILR, there appears to be a notable proportion on a modular course, and it is possible that a previous qualification could have been gained as part of the same course.

Figure 2.12 Previous maths qualifications held relative to course level

Maths course at higher level or same level as prior attainment →

	Unspecified/refused	Course level lower	Course same level	Course level higher
Level 2	6%	1%	11%	82%
Level 1	11%	6%	32%	51%
Entry Level	15%	17%	41%	28%

■ Unspecified/refused ■ Course level lower
■ Course same level ■ Course level higher
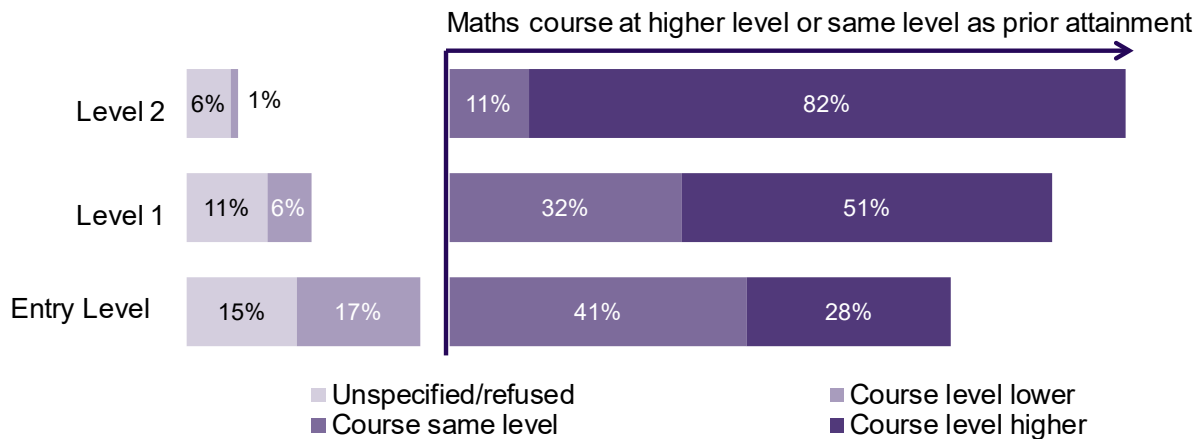
Base: All wave 1 learners who reported a previous maths qualification and attended: any maths course (1449); Entry Level 1-3 maths course (503); Level 1 maths course (475); Level 2 maths course (471)

Main economic activity

As shown in Figure 2.13, the proportion of learners not in employment was particularly high amongst Entry Level course participants (73%).

Figure 2.13 Main economic activity of learners attending maths courses, overall and by course level
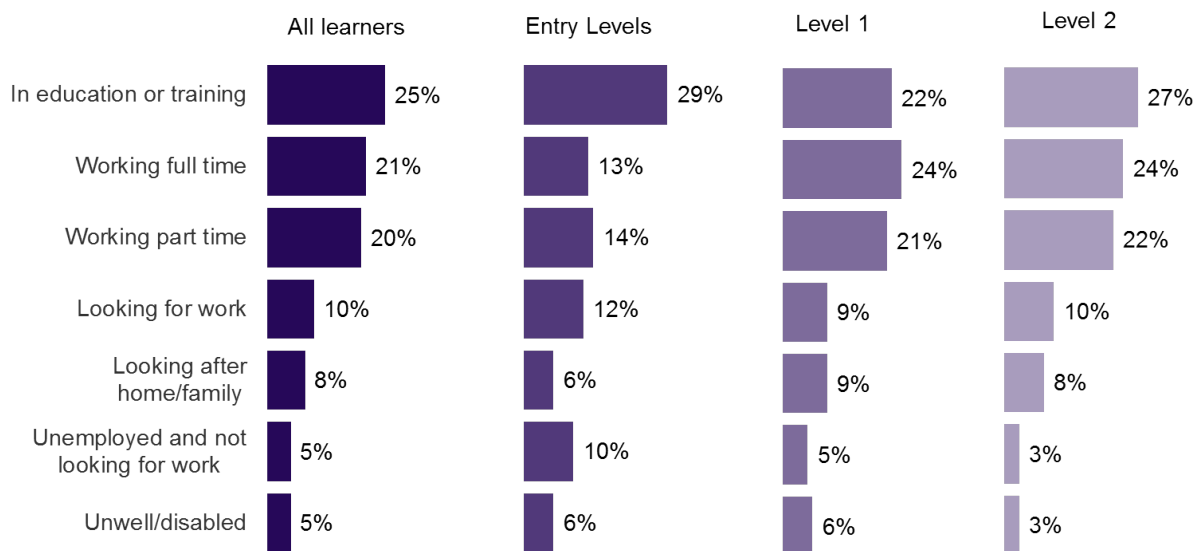
	All learners	Entry Levels	Level 1	Level 2
In education or training	25%	29%	22%	27%
Working full time	21%	13%	24%	24%
Working part time	20%	14%	21%	22%
Looking for work	10%	12%	9%	10%
Looking after home/family	8%	6%	9%	8%
Unemployed and not looking for work	5%	10%	5%	3%
Unwell/disabled	5%	6%	6%	3%

Base: All wave 1 learners who reported their main economic activity and attended: any maths course (1403); Entry Level 1-3 maths course (514); Level 1 maths course (471); Level 2 maths course (418)

Internet access and usage

The majority of maths learners (94%) had access to the internet from a computer or tablet at the start of the course, whether at work, home, in a library or college, or a relative's or

friend's home. While access was almost universal amongst Level 2 course participants (97%), only 86% of Entry Level course participants had access.

In general, maths learners were more likely than English learners to use the internet for various activities. However, the general pattern of usage was similar between the 2 groups of learners, with internet searches and email the most common activities, and far fewer learners using spreadsheet applications or undertaking online discussions. The prevalence of each activity, and frequency with which it was carried out, is shown in Figure 2.14.

Figure 2.14 Frequency of carrying out IT tasks amongst maths learners

	Never	Less than one month	At least monthly but not every week	At least weekly but not every day	Every day	Do this at all
Internet to find information	3%	5%	4%	26%	62%	97%
Email	7%	10%	12%	29%	43%	93%
Word processor (e.g. Word)	17%	19%	18%	30%	16%	83%
Internet for buying/selling products or services, or banking	20%	14%	17%	26%	23%	80%
Spreadsheet software (e.g. Excel)	43%	25%	11%	14%	7%	57%
Internet to participate in real-time discussions (e.g. online conferences or chat groups)	46%	12%	11%	15%	17%	54%

Base: Wave 1 learners who answered the question and attended a maths course (c.1600)
Note: those who refused to answer or said 'don't know' have been removed from the base

Entry Level, Level 1 and Level 2 course participants were as likely to use spreadsheet software and participate in real-time online discussions as each other. However, Entry Level course participants were less likely than learners on more advanced courses to perform the remaining activities. This was true even when learners who did not have internet access were discounted.

Younger learners were less likely than older learners to report that they never performed the activities. The likelihood of performing the activities daily also varied with age: learners under the age of 45 were more likely than older learners to say they searched the internet daily for information (66% compared with 45%), and it was more common for those under the age of 35 to say they chatted online daily (21%, compared with 10% of older learners) and used the internet daily to carry out transactions (26%, compared with 16% of older learners). The level of daily email usage was similar for learners from the age of 19 up to the age of 54 (44%), but dropped off for those aged 55 or over (21%). A similar drop-off in daily usage was also reported amongst those aged 55 or over with regards to spreadsheet applications.

Chapter 3 Experience of courses

Summary

This chapter explores learners' motivations for undertaking training in basic English and maths and experiences of the courses, including the degree to which learners perceived their course helped them to improve their skills.

- 42% of English learners; and 45% of maths learners experienced issues which got in the way of their learning when they were younger

- The most widely reported issues were a 'learning disability' (18% of English learners; 18% of maths learners), followed by 'difficult family circumstances' (16% of English learners; 15% of maths learners)

- 32% of English learners; and 41% of maths learners (who gave at least one reason) started their course as a 'stepping stone to other training / qualifications'

- Three-tenths (30%) of English learners wanted to 'improve their everyday reading and writing skills'; and 25% of maths learners sought to 'improve their ability to work with numbers'

- Employment-related reasons were also common, with around a fifth of English learners and maths learners hoping the qualification would 'help them find work' (23% of English learners; and 21% of maths learners who gave at least one reason), or help them 'get a better job' (22% of English learners; and 20% of maths learners who gave at least one reason)

- English learners did an average of 4.2 hours; and maths learners 3.8 hours of homework per week. Amongst both English and maths learners, the reported amount of time spent doing homework increased with course level. However, 13% of English learners overall (9% on Level 2 courses); and 16% of maths learners overall (12% on Level 2) reported doing no homework

- 7% of English learners; and 9% of maths learners withdrew from the course before its end.[22] The most common reason was 'personal, domestic, or illness' (43% English learners; 33% maths learners). A tenth of maths learners (9%) who withdrew before the course end 'couldn't cope academically'

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[22] Five per cent of each of English and maths courses were still underway at the time of interview.

Issues which got in the way of learning when young

English learners' previous experiences of learning

Over two-fifths of English learners (42%) experienced issues which got in the way of their learning when they were young. Entry Level learners were more likely to say that they had issues which got in the way of their learning (48%) than Level 2 learners (38%). Table 3.1 shows the various issues reported by learners who attended an English course.

As might be expected, learners who were not in employment because they were unwell or disabled were most likely to report that there were issues affecting their learning when they were young (85%).

Table 3.1 Issues which got in the way of learning when young amongst English learners[23]

	All English learners	Learners who reported an issue
	%	%
Learning disability	18	43
Difficult family life	16	37
Moves and changes in school	8	19
Mental or emotional difficulties	7	17
An illness which lasted a long time	5	13
Speech problem	5	12
Physical disability	3	6
None	58	-
Base (unweighted)	*1889*	*813*

[23] Note that learners were provided with a list of issues in the survey questionnaire from which they selected all relevant issues. Therefore, for example, having a learning disability has necessarily not been independently assessed.

Maths learners' previous experiences of learning

Compared to English learners, a similar proportion of maths learners (45%) reported that there were issues which got in the way of their learning when they were younger. Again, this proportion was particularly high amongst learners who were not in employment because they were unwell or disabled (80%).

The likelihood of having experienced difficulties decreases with course level: 53% of Entry Level learners reported experiencing issues which got in the way of their learning, 49% of Level 1 learners and 37% of Level 2 learners. Table 3.2 shows the issues which got in the way of learners' education.

Table 3.2 Issues which got in the way of learning when young amongst maths learners[24]

	All maths learners	Learners who reported an issue
	%	%
Learning disability	18	39
Difficult family life	15	33
Moves and changes in school	10	22
Mental or emotional difficulties	8	19
An illness which lasted a long time	5	12
Speech problem	4	9
Physical disability	3	6
None	55	-
Base (unweighted)	*1798*	*843*

Male maths learners were more likely (28%) than female learners (12%) to say that a learning disability got in the way of their learning. Department for Education statistical analysis does show that boys are more likely to be identified as having Special Educational Needs than girls.[25] Conversely, more female learners (21%) than male learners (11%) said a difficult family life got in the way of their learning.

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[24] Note that learners were provided with a list of issues in the survey questionnaire from which they selected all relevant issues. Therefore, for example, having a learning disability has necessarily not been independently assessed.
[25] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/350129/SFR31_2014.pdf

Reasons for starting an English course

The reasons offered by English learners for starting a course tended to be related to self-improvement and employability, as shown in Figure 3.1.

Figure 3.1 Reasons English learners started an English course

Reason	Percentage
Stepping stone to other training/qualifications	32%
To improve everyday reading and writing	30%
To help find work	23%
To help get a better job	22%
To help own child at school	7%
Requirement of job	3%
Encouraged by a family member	3%
Employer wanted you to	2%
To pass a citizenship test	1%
Another reason	5%
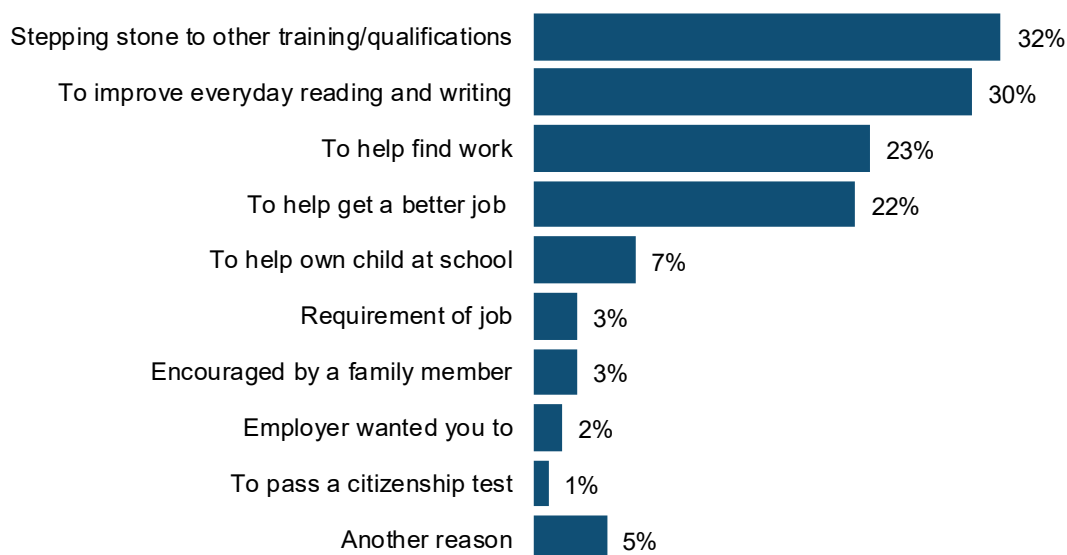
Base: All wave 1 learners who attended an English course and gave at least one reason (1981)

Figure 3.2 shows the change of priorities through the course levels. Entry Level learners were particularly interested in improving their everyday reading and writing (40%) and, in contrast to learners at Level 1 and Level 2, placed greater emphasis on work-related reasons such as to help find work. As we observed in the previous chapter, Entry Level learners were less likely to be in employment (29%) than those attending more advanced courses (40% of Level 1 and 38% of Level 2). In contrast, Level 2 learners were particularly likely to view the course as a stepping stone towards further qualifications (45%). Learners on Level 1 courses show a balance between these priorities.

41

Figure 3.2 Reasons for starting an English course

Stepping stone to other training/ qualifications
- Level 2: 45%
- Level 1: 32%
- Entry Level: 19%

To improve everyday reading and writing
- Level 2: 21%
- Level 1: 31%
- Entry Level: 40%

To help find work
- Level 2: 19%
- Level 1: 24%
- Entry Level: 27%

To help get a better job
- Level 2: 19%
- Level 1: 22%
- Entry Level: 25%

To help own child at school
- Level 2: 7%
- Level 1: 7%
- Entry Level: 8%

Requirement of job
- Level 2: 5%
- Level 1: 3%
- Entry Level: 1%

Encouraged by a family member
- Level 2: 3%
- Level 1: 3%
- Entry Level: 3%

Employer wanted you to
- Level 2: 3%
- Level 1: 2%
- Entry Level: 1%

To pass a citizenship test
- Level 2: 1%
- Level 1: 1%
- Entry Level: 2%

Another Reason
- Level 2: 7%
- Level 1: 4%
- Entry Level: 3%

Base: Wave 1 learners who attended an English course and gave at least one reason (1981)
Note: multiple responses allowed

Almost 1 in 6 English learners who had a child under the age of 16 living with them said they were taking a course to help their child at school (16%, equivalent to 7% of all learners). Learners with children who felt that their 'poor reading writing and speaking skills have held [them] back from getting on in life' were more likely than those who did not feel this way to say they were attending a course to help their child at school (18%, compared with 12% of learners who disagreed with this statement), demonstrating a desire to assist their children to do better in life.

Reasons for starting a maths course

As for English learners, a notable proportion of maths learners saw the course as a stepping stone to other training or qualifications (41% overall). This is shown in Figure 3.3, and was particularly common amongst Level 2 learners (48%), as seen in Figure 3.4.

Figure 3.3 Reasons maths learners started a maths course

Reason	Percentage
Stepping stone to other training/qualifications	41%
To improve ability to work with numbers	25%
To help find work	21%
To help get a better job	20%
To help own child at school	8%
Requirement of job	2%
Encouraged by a family member	2%
Employer wanted you to	1%
Another reason	6%
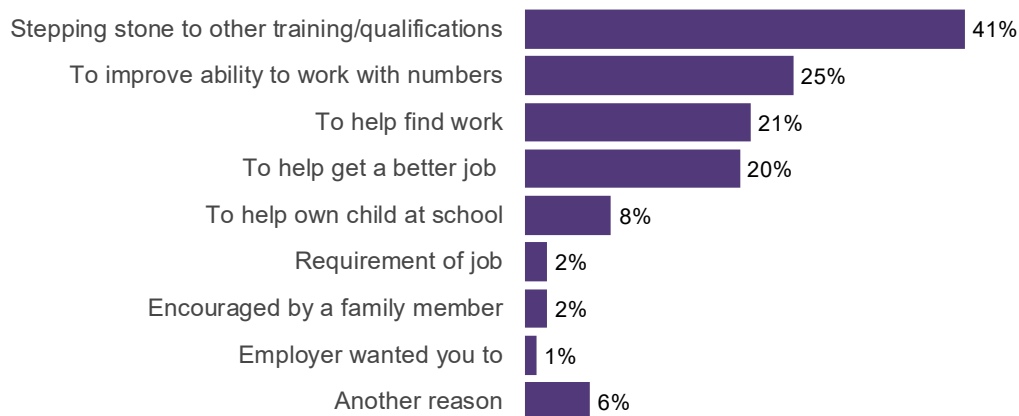
Base: Wave 1 learners who attended a maths course and gave at least one reason (1845)

Entry Level course participants were less likely to be employed (27%) than learners attending more advanced courses (45% of Level 1 and 46% of Level 2 course participants), and were more likely to be taking the course (27%, compared with 22% of Level 1 and 17% of Level 2 learners).

Figure 3.4 Reasons for starting a maths course

Reason	Level 2	Level 1	Entry Level
Stepping stone to other training/qualifications	48%	40%	32%
To improve ability to work with numbers	19%	27%	31%
To help find work	17%	22%	27%
To help get a better job	19%	21%	21%
To help own child at school	5%	9%	10%
Requirement of job	3%	2%	1%
Encouraged by a family member	3%	3%	1%
Employer wanted you to	2%	1%	1%
Another Reason	7%	5%	6%
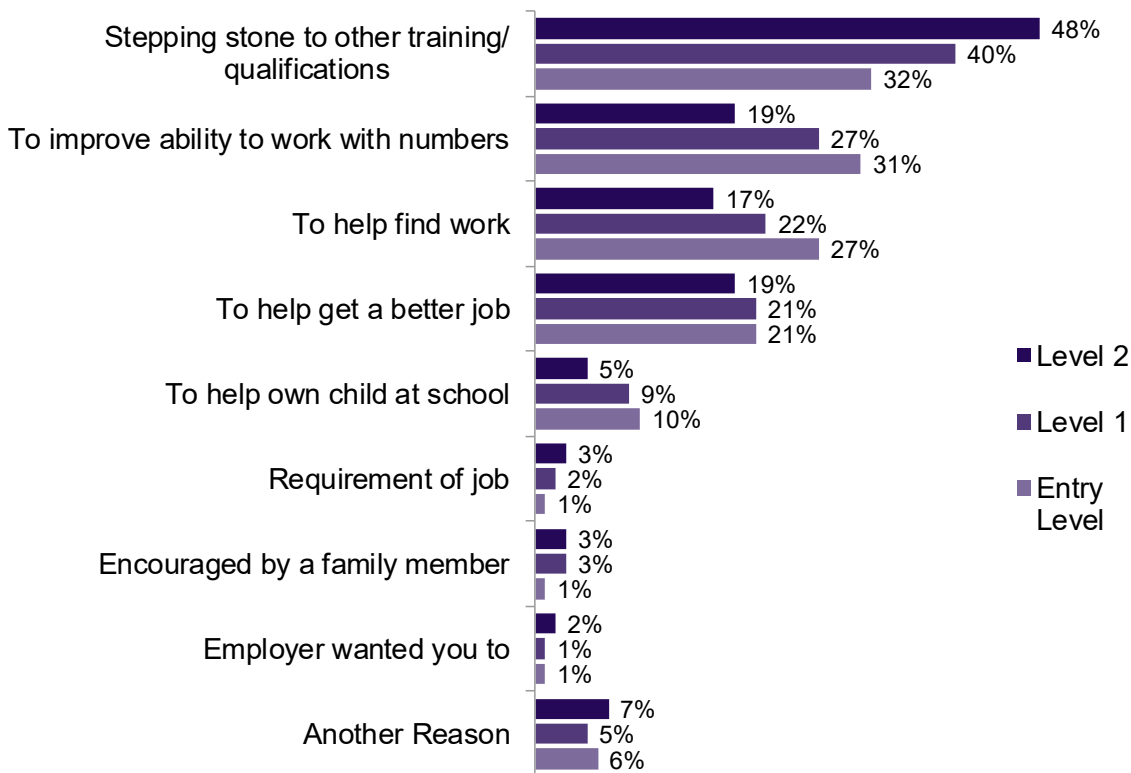
Base: Wave 1 learners who attended a maths course and gave at least one reason (1743)
Note: multiple responses allowed

Learners who believed their ability to work with numbers when they needed to in daily life was 'below average' or 'poor' were more likely to say they were taking the course to improve their skills (35%, compared with 23% of other learners).

Course structure

English course structure

Number of learning hours

ILR data was matched to survey data where a match was possible and the learner had agreed that their survey responses could be linked to administrative data.[26] Table 3.3 below outlines the average number of planned learning days and hours, actual learning days and employability, enrichment and pastoral hours (EEP hours). Across all English learners, the average course lasted approximately 7 months or 173 learning days . There were no significant differences between course levels.

The mean number of planned learning hours was 213 hours, which approximately translates to 30 days based on a 7 hour working day. Entry Level courses tended to have a lower number of planned learning hours (151 on average, compared with 173 hours for Level 1 learners and 192 hours for Level 2 learners).

Table 3.3 Analysis of learner hours amongst English learners based on ILR data

	All English learners	Entry Level	Level 1	Level 2
Mean number of planned learning days	173	151	173	192
Mean number of planned learning hours	213	176	224	232
Mean number of actual learning days	145	128	148	155
Base (unweighted)	*c.920*	*c.380*	*c.277*	*c.263*
Mean number of planned EEP hours	2	1	3	2
Base (unweighted)	*602*	*261*	*189*	*152*

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[26] A description of the matching process is included in the technical report.

Homework

Table 3.4 shows the number of hours of homework completed per week by learners undertaking an English course. Thirteen per cent reported that they did no homework, with Level 2 learners less likely (9%) than Entry Level learners (14%) or Level 1 learners (15%) to report doing no homework. Conversely, around a fifth (22%) of all learners said they did 6 hours or more on average per week. Overall the mean amount of homework per week was 4.2 hours, although learners on Level 2 courses reported spending more time on homework than those on Entry Level courses. There were no significant differences between the amount of homework and attainment of qualification at the end of the course.

Table 3.4 Hours of homework per week completed by English learners – overall and by course level

	All English learners	Entry Level	Level 1	Level 2
	%	%	%	%
No homework	13	14	15	9
1 to 3 hours	49	49	50	48
4 to 5 hours	16	15	16	18
6 hours and more	22	21	19	25
Mean number of hours	4.2	3.9	4.0	4.8
Base (unweighted)	*1853*	*987*	*393*	*464*

Maths course structure

Course length and hours

As for English learners, analysis was conducted using administrative data from the ILR to look at average learning hours and course length. Table 3.5 shows the course length and hours for maths learners. Across all maths learners, the average number of days was 206, with no significant difference across course levels.

The average number of planned learning hours was 217, which is approximately 31 working days based on a 7 hour day. Level 1 learners had the lowest number of learning hours on average (189 hours) compared with Entry Level learners (205 hours) and Level 2 learners (250 hours).

Table 3.5 Analysis of learner hours amongst maths learners based on ILR data

	All maths learners	**Entry Level**	**Level 1**	**Level 2**
Mean number of planned learning days	206	198	200	216
Mean number of planned learning hours	217	205	189	250
Mean number of actual learning days	159	151	146	176
Base (unweighted)	*c.775*	*c.276*	*c.242*	*c.257*
Mean number of planned EEP hours	8	9	5	9
Base (unweighted)	*465*	*169*	*156*	*140*

Homework

Approximately 1 in 6 maths learners (16%) reported that they did no homework while on their course, although the majority of maths learners reported completing an average of between 1 and 3 hours of homework each week. There were no significant differences between amount of homework and attainment of qualification at the end of the course.

Overall, the mean number of hours of homework each week was 3.8 hours. However, the number of hours spent on homework increased with course level, as shown in Table 3.6 below.

Table 3.6 Hours of homework per week completed by maths learners – overall and by course level

	All maths learners	Entry Level	Level 1	Level 2
	%	%	%	%
No homework	16	19	18	12
1 to 3	52	52	51	53
3 to 5	15	13	13	16
6 or more	18	16	18	18
Mean number of hours	3.8	3.2	3.8	4.2
Base (unweighted)	*1778*	*924*	*418*	*436*

Course completion rates and reasons for non-completion

Course completion amongst English learners

Nearly nine-tenths (88%) of the learners who were re-interviewed at a time shortly after their course was scheduled to end reported that they had completed their course. However, 7% of English Learners withdrew from the course part way through. Level 1 learners (9%) were more likely to withdraw from the course than Level 2 learners (4%).

As shown in Figure 3.5, the most common principal reason given by English learners for abandoning their course was 'personal, domestic reason or illness' (43%).

Figure 3.5 Most common reason for not completing English course
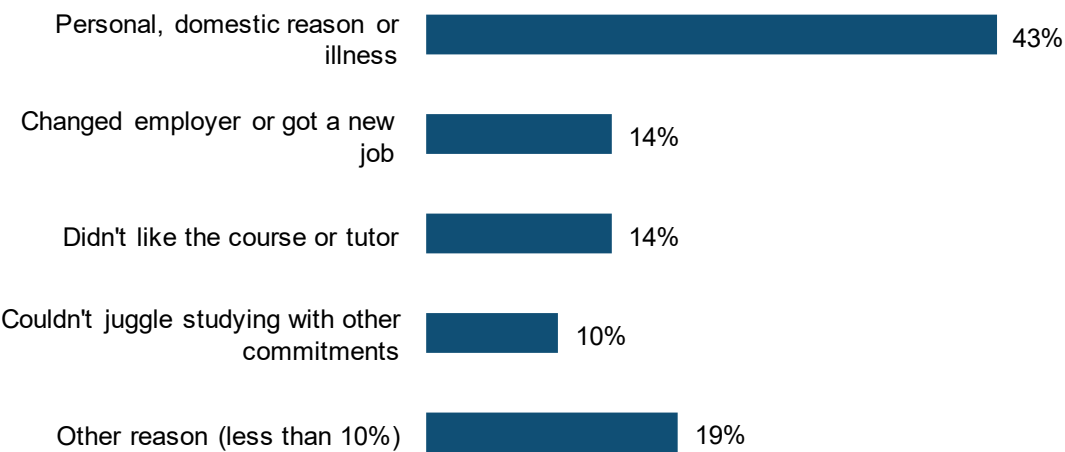
Base: Wave 2 learners who attended an English course but abandoned it part way through (125)

Course completion amongst maths learners

Compared with English learners, a slightly larger proportion of maths learners said they withdrew from their course part way through (9%), while 86% had completed the course[27] at the time of interview.

A greater proportion of Level 1 learners (11%) claimed to have abandoned their course partway through than Entry Level learners (6%). Withdrawing from a course was slightly less common amongst learners whose first language was something other than English (7%) than amongst native English speakers (12%).

Figure 3.6 shows the principal reasons given by maths learners for abandoning their course. As for English learners, the most common reason was 'personal or domestic reason or illness' (33%).

Figure 3.6 Most common reason for not completing maths course

Personal, domestic reason or illness	33%
Didn't like the course/tutor	14%
Couldn't juggle studying with other commitments	12%
Couldn't cope academically	10%
Other reason (less than 10%)	31%
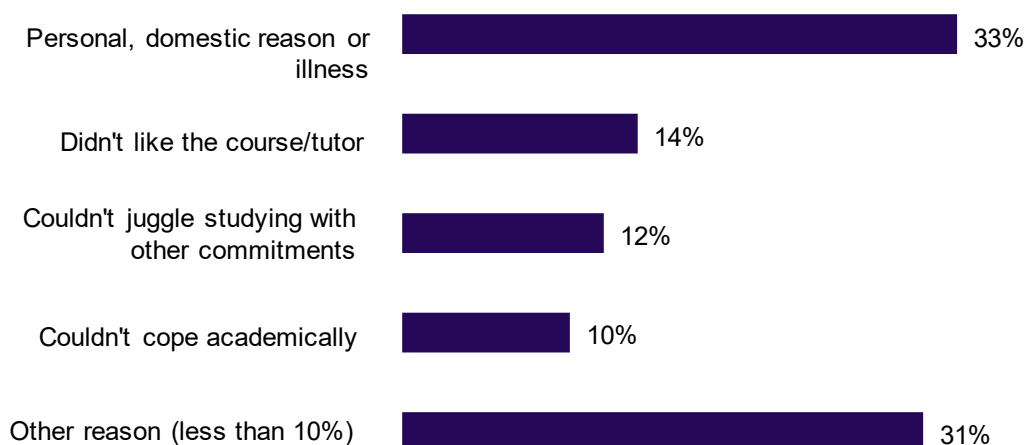
Base: Wave 2 learners who attended a maths course but abandoned it part way through (139)

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[27] Five per cent of maths learners were still on the course at the time of the interview.

Participation in other courses since leaving school

English learners' participation in other courses

Three-tenths of English learners (29%) reported that they had attended another course in English since leaving school. The vast majority of these learners (88%, equating to 25% of all English learners) had already completed this course before beginning the course which was included in this survey. Level 2 learners were more likely (33%) than either Level 1 learners (28%) or Entry Level learners (26%) to have attended another course in English.

Maths learners' participation in other courses

A quarter of maths learners (25%) said they had been on another maths course since leaving school. Most of them (85%) said the course had finished before they began the maths course they were asked about in their interviews. While 30% of Level 2 learners had been on another course, only 24% of Level 1 learners and 20% of Entry Level learners had done so.

Factors affecting studies during course

Factors affecting English learners' studies

Learners were asked whether they faced any circumstances during their course which made their studies difficult, and the effect these difficulties had on their learning. Figure 3.7 shows the extent to which various factors affected their learning.

Figure 3.7 Difficulties faced during course amongst English learners
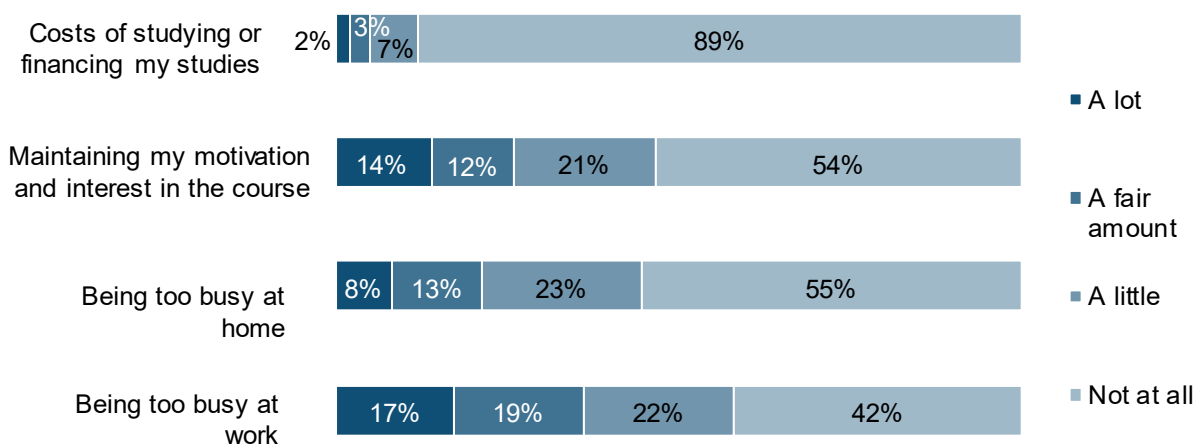
Base: Wave 2 learners who attended an English course and gave a response (1853); 'being too busy at work base = learners in employment (782)

It is worth noting that all English and maths courses were fully funded up to and including Level 2. Accordingly, 89% of English learners responded that the cost of studying or financing their studies was not an obstacle. However, 11% did mention this as a difficulty, suggesting that these learners had wider financial considerations. The proportions mentioning this as a difficulty did not vary according to the learner's personal income.

Close to half of English learners (46%) found maintaining their motivation and interest in the course difficult during the course. As might be expected, this problem was less common amongst learners who undertook short courses and therefore did not have to maintain their interest for more than 3 months: 38% reported this as a hindrance, compared with 47% of learners who took courses lasting 3 months or more.

A similar proportion overall (45%) found being too busy at home a difficulty. It was more common for Level 2 learners to feel their learning was affected by this factor (51% compared with 42% of Entry Level and 40% of Level 1 learners). Learners attending longer courses were also more likely to be affected in this way (45% of learners on courses lasting more than 3 months, compared with 34% of learners on shorter courses).

Almost three-fifths (58%) of learners who were in employment at the end of the course felt that their work demands affected their learning. This sentiment was more common amongst full-time workers (66%) than part-time workers (46%), but did not vary between learners who attended different course levels.

Factors affecting maths learners' studies

Figure 3.8 shows the extent to which various factors asked about during the survey affected the studies of maths learners.

Figure 3.8 Difficulties faced during course amongst maths learners
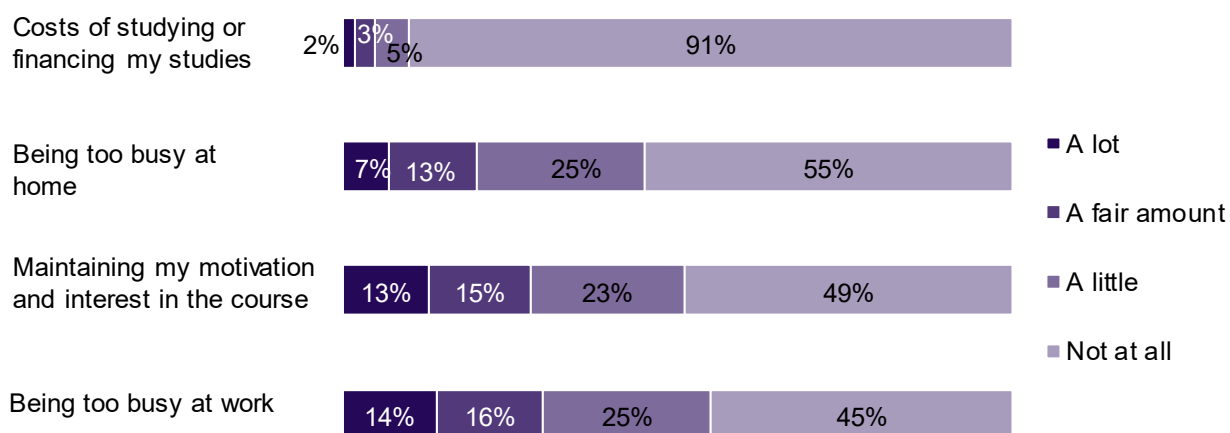
Base: Wave 2 learners who attended a maths course and gave a response (1786); 'being too busy at work base = learners in employment (746)

Only 1 in 10 maths learners (9%) said the financial cost of the course affected their learning. Again, it is worth noting that all English and maths courses are fully funded. Learners with an annual income of £5,200 or below were more likely (11%) than those with an income of £11,440 or above (6%) to be affected by this factor.

Fewer than half (45%) said a busy home life affected their learning, although only 7% felt that this affected them 'a lot'. As with English course participants, Level 2 maths course participants were more likely than learners on more basic courses to regard this as a difficulty during their studies (52%, compared with 40% of Entry Level and 42% of Level 1 learners), while those on longer courses were more likely to be affected by a busy home life (46% of learners on courses lasting more than 3 months, compared with 35% of learners on shorter courses).

Around half (51%) felt that maintaining their motivation or interest in the course was a difficulty affecting their learning, with 13% saying that it affected them 'a lot'. There were no differences in this respect between learners on different course levels. Nor was there a difference between learners attending shorter or longer courses.

A busy work life was regarded as a difficulty by 55% of maths learners who were employed by the end of the course, though this was a more widespread issue amongst full-time workers (61%) than part-time workers (47%). There was no variation between learners who attended different course levels.

Extent to which course helped skills

Extent to which course helped English learners' skills

The vast majority of English Learners (96%) felt their course helped to improve their skills, with two-thirds (66%) saying that the course helped to improve their skills 'a lot.' This was consistent across the different course levels.

Amongst particular subgroups of learners the belief that the course helped their skills to develop was almost universal. This was true of learners who were not in employment and looking for work (98%) or not in employment because they were unwell or disabled (99%); learners between the ages of 35 and 44 (99%); and learners whose first language was not English (99%).

Women were more likely than men to feel that their skills had been helped 'a lot' (70% compared with 61% of men). Learners who had attended courses lasting less than 3 months or had undertaken an online course were also more likely than average to say their skills had been helped 'a lot' (80% and 83%, respectively, compared with 65% who attended longer courses and 66% whose courses were not delivered online).

Extent to which course helped maths learners' skills

The perception that skills had improved was also widespread amongst learners who had attended a maths course, with 93% saying that the course had helped to improve their skills, and 62% reporting that the course had helped their skills 'a lot'. The degree of perceived effect did not differ substantially between learners who attended courses at different levels or courses of different duration, nor between e-learners and other learners.

The belief that skills had been helped 'a lot' was more common amongst female learners (65%) than male learners (57%). Only half of learners under the age of 25 (51%) or who were not in employment because they were unwell or disabled (50%) felt their skills were helped 'a lot'.

Attainment of qualification related to course

Proportion of English learners attaining qualification

Of learners who were matched back to ILR data, three-quarters (75%) of learners achieved their learning outcome. Breaking this down by level: 82% of Entry Level learners; 70% of Level 1 learners; and 74% of Level 2 learners achieved their outcome.

Proportion of maths learners attaining qualification

Based on learners who were successfully matched back to ILR data: 83% of Entry Level learners; 64% of Level 1 learners; and 71% of Level 2 learners achieved their outcome.

Chapter 4 Changes in performance in English and maths between waves 1 and 2

Summary

In the previous chapter we explored learners' perceptions of whether their overall skills had improved at the end of their course. This is explored further in chapter 5. Learners were also independently assessed using one of a battery of tests appropriate for their current level of performance at the start and shortly after the end of the course. These tests were converted into a score that is comparable across the battery of tests using Item Response Theory (IRT) analysis, enabling us to identify whether the learner made progress between the 2 surveys. English learners completed 2 assessments, one in each of reading and writing skills, while maths learners completed one assessment in maths skills. The analysis is briefly explained at the start of this chapter, along with a more detailed overview in appendix 1 of this report. Please refer to the technical report for a full explanation of how the assessment was designed and analysed.

It is important to remember that the progression of skills will not necessarily be an appropriate outcome measure for all learners. As discussed in chapter 3, learners took courses for a range of reasons and many were motivated by employment or future courses. It is possible some learners will have been seeking a qualification at an existing skills level. Similarly, it is not possible to identify the extent to which some learners may have started on a course at an inappropriate level for their existing skills.

These comparisons should also be seen as indicative for methodological reasons. The timings of the survey necessitated a different methodology at wave 1 than wave 2.[28] Variations in performance may also indicate a regression to the mean - the phenomenon whereby random variations in measured scores disappear when re-measured. Essentially in a real life test situation people can have a bad day or a good day, which means there is a random element to their test score on any given day.

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[28] Wave 1 was conducted in colleges via pen and paper, while wave 2 was conducted in-home using Computer Aided Personal Interviewing with an interviewer present.

Overall, the assessments identified progress in:

- Reading amongst 52% of English learners

- Writing amongst 51% of English learners

- Maths amongst 66% of maths learners

As shown below, the higher the course level, the greater the proportion of learners who showed progress, with the most widespread skills gain occurring amongst maths learners on Level 2 and Level 1 courses and English learners on Level 2 courses.

English learners: Reading	Entry Level	Level 1	Level 2
Progress	44%	46%	61%
No progress	56%	54%	39%

English learners: Writing	Entry Level	Level 1	Level 2
Progress	52%	30%	70%
No progress	48%	70%	30%

Maths learners: Maths	Entry Level	Level 1	Level 2
Progress	33%	72%	74%
No progress	67%	28%	26%

There was no difference by gender amongst maths learners, or in the writing assessment. However, male learners on English skills courses were significantly more likely to show progress than female learners in the reading assessment.

Assessments used in the longitudinal survey

English and maths skills were assessed using separate tests. The English assessment consisted of a reading component and writing component. The writing component tested learners' abilities in spelling, punctuation and grammar (SPAG), and also included an extended writing element, where learners were asked to write a piece of text.[29]

Learners attending different levels of course were tested using separate assessments. There was substantial overlap between levelled tests, for example some Entry Level 2 questions were also used in Entry Level 3 tests, and some Entry Level 3 questions were in Level 1 tests, and so on. This overlap was useful for linking tests to show comparability. Further information on the development and contents of the assessments is included in the technical report.

Item Response Theory - an explanation

Item Response Theory (IRT) is an approach to assessment widely used in psychological and educational testing. In this research, IRT was used to model learners' latent ability by looking at each learner's overall test score, as well as which particular questions they got right.

The assessment drew on an IRT approach to give a more nuanced understanding of learners' abilities. To give an example taken from Yu (2013),[30] imagine that 5 individuals all score 60% on a test. Classical test theory would conclude that all 5 have the same ability. However, IRT would also look at which questions each individual got right. Questions which only one respondent answered correctly could be seen as more difficult than those which everyone got right. This provides additional information that can be used to model individuals' underlying ability. In this way IRT approaches use 'item difficulty' (the share of correct answers on a question), and respondents' scores across all items, to model the latent ability of a respondent.[31]

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[29] There was no marker judgement involved in scoring the mathematics, reading and SPAG items. By contrast, the extended writing exercise required markers to judge learners' scripts against a 0 – 11 scale.
[30] Yu C-H. (2013) A Simple Guide to Item Response Theory (IRT) and Rasch Modeling http://www.creative-wisdom.com/computer/sas/IRT.pdf.
[31] Thissen D and Steinberg L. (2009) Item Response Theory In: Millsap RE and Maydeu-Olivares A (eds) *The SAGE Handbook of Quantitative Methods in Psychology.* London: SAGE, page 148-177.

For this analysis we used Rasch modelling to structure this relationship.[32] The Rasch model rests on creating a common scale, and states that the relationship between a person's ability and item difficulty is probabilistic, i.e. when an able individual encounters an easy item, there is a finite probability that he or she will get it right. We can also modify this equation to estimate a person's ability based on their responses to items of known difficulty. This feature of the Rasch model is known as 'sample independent measurement.' It means that we are able to understand a person's score independently of the sample of questions that he or she responded to, and we can understand a question's difficulty independently of the sample of people who answered it. This feature of Rasch measurement has enabled us to compare different participants' abilities even where they have (in the main) answered different questions.

In this way we have derived a 'score,' which is an estimate of the participant's ability – this is called the 'log odds ratio', or logit for short. By convention, logits have a mean of 0 and, in practice[33], run from approximately -3 to about +3. A higher logit value, or 'score' equals a higher ability estimate. Our scores have been scaled to have a standard deviation of one. This means that our interpretation of changes in these scores should be as proportions of standard deviations, akin to 'effect sizes' in an effect analysis setting. Weights are used to take account of observable patterns of non-response between the 2 waves.

Changes in reading performance amongst learners who attended English courses

Table 4.1 shows the average change in learners' performance on the assessment between waves 1 and 2. Overall we did not find evidence of significant change in English learners' reading performance between waves 1 and 2 - the change in the average score was 0.1 standard deviations. However, this conceals significant differential change in learners' performance depending on whether they were taking part in an Entry Level course, Level 1 course or Level 2 course. There is statistically significant positive change of 0.3 standard deviations among those on Level 2 courses but a marginally significant reduction in skills among Entry Level learners (Table 4.1).

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[32] Rasch G. (1960) Probabilistic Models for Some Intelligence and Attainment Tests. Copenhagen: Denmarks Paedagogiske Institut.
[33] While in principle logit values could run to minus or plus infinity, they seldom do.

Table 4.1 Mean change in English reading IRT score between waves 1 and 2, by course level

	Lower 95% CI	Mean	Upper 95% CI	N
Entry Level	-0.40	-0.20	0.00	194
Level 1	-0.21	-0.02	0.18	154
Level 2	0.16	0.28	0.39	215
Total	-0.05	0.05	0.15	563

Notes: Sample includes all learners present and with valid IRT scores in both waves 1 and 2. Entry Level includes Entry Levels 1, 2 and 3. Weighted analysis. 95% CIs (Confidence Intervals) reported around the point estimate of change in mean and calculated as plus/minus 1.96 multiplied by the estimated standard error of the mean.

It is unclear what is driving this outcome,[34] particularly in the case of the Entry Level participants. To check the strength of our analysis of differential group performance we repeated the analysis, restricting the sample only to learners participating in Level 1 or Level 2 courses, who on average experienced an increase in performance. However, the substantive results by subgroup were not altered by excluding learners on Entry Level courses.

In the rest of this section we look at differential group performance by calculating the percentage of each group who had a higher test score at wave 2 than wave 1.

Applying this approach to the groups of learners on each level of course (Table 4.2) tells a similar story to the mean changes in performance for these groups, but provides additional information on what proportion of participants made measurable progress in their skills. Overall, 52% of learners made progress in English reading skills, while 48% did not.

In the Entry Level group, where we saw a marginally significant reduction in the average performance of learners in their reading skills, 44% of learners showed progress in reading performance, while 56% did not progress. In the Level 1 group, where we did not find a statistically significant change, 46% progressed in reading skills and 54% did not. The pattern differed in the Level 2 group, where 61% showed progress in their reading skills and 39% did not (Table 4.2).

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[34] The discussion section in appendix 1 considers possible reasons affecting this outcome.

Table 4.2 Proportion of learners whose performance in English reading skills progressed or did not progress, by course level

	All English learners	Entry Level	Level 1	Level 2
	%	%	%	%
Progress	52	44	46	61
No progress	48	56	54	39
Base (unweighted)	*563*	*194*	*154*	*215*

Changes in reading performance by demographic characteristics of learners

Age

Table 4.3 shows differences in performance between learners in different age groups. While learners aged 24 or less appear somewhat more likely to progress (56%) than those aged 45 or over (43%), this variation is not statistically significant.

Table 4.3 Proportion of learners whose performance in English reading progressed or did not progress, by age

	All English learners	24 or less	25 – 34	35 – 44	45 or over
	%	%	%	%	%
Progress	52	56	52	51	44
No progress	48	44	48	49	56
Base (unweighted)	*549*	*124*	*187*	*148*	*90*

Gender

There was stronger evidence of differential change in reading performance depending upon learners' gender (Table 4.4). Male learners were significantly more likely to improve than female learners: over three-fifths of men showed progress between the start and end of their course, while only 45% of women did so.

Table 4.4 Proportion of learners whose performance in English reading progressed or did not progress, by gender

	All English learners	Male	Female
	%	%	%
Progress	52	62	45
No progress	48	38	55
Base (unweighted)	*549*	*178*	*371*

First language

Given that English courses are about improving fundamental English skills it is perhaps unsurprising that those for whom English is not their first language were well represented, making up almost half of all learners. We found that 55% of native English speakers improved between the start and end of their course, compared with 49% of those for whom English was an additional language (Table 4.5). However, this difference was not statistically significant.[35]

Table 4.5 Proportion of learners whose performance in English progressed or did not progress, by first language

	All English learners	English is first language	English not first language
	%	%	%
Progress	52	55	49
No progress	48	45	51
Base (unweighted)	*553*	*287*	*266*

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[35] In total 29 learners on English for Speakers of Other Languages (ESOL) courses had a valid reading score. Broken down by course level these numbers are: Entry Level = 15; Level 1 = 9; and Level 2 = 9.

Main economic activity

It is not clear what we might expect in terms of labour market attachment and skill development. We might think that learners who are not working or, to a lesser extent, those working part-time have more time to concentrate on developing their skills on the course. Alternatively it could be that those in work are more likely to have higher levels of human capital,[36] which may make further skills gain easier or have more opportunity through work to further enhance their skills.

In fact we found something of a mixed picture (Table 4.6). Learners who were working part-time were significantly less likely (39%) than those in full-time jobs (54%) to show progress. Learners who were not working appeared to be slightly more likely than those in work to improve, although this was not a statistically significant difference.

Table 4.6 Proportion of learners whose performance in English progressed or did not progress, by main economic activity

	All English learners	In Work			Out of Work		
		All	Full-time work	Part-time work	All	In education or training	Other
	%	%	%	%	%	%	%
Progress	52	47	54	39	56	57	55
No progress	48	53	46	61	44	43	45
Base (unweighted)	*474*	*178*	*94*	*84*	*296*	*125*	*171*

Other demographic characteristics

There was a significant difference in the likelihood of improving in the assessments depending on the age that learners left full-time education. Learners who left full-time education aged 16 or younger were more likely (56%) than those who left aged 17 or above (46%) to show progress in their English reading skills.

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[36] Bourdieu, P. (1986) The forms of capital. In J. Richardson (Ed.) Handbook of Theory and Research for the Sociology of Education (New York, Greenwood), page 241-258.

The likelihood of showing measurable progress in reading did not vary significantly depending on learners' cultural background, marital status, level of educational attainment, highest previous qualification in English, or ability to access to the internet.

Changes in reading performance by course characteristics

Learners who attended courses that lasted 3 months or more were more likely to show progress in their English reading skills (54%) than learners who attended courses lasting less than 3 months (41%). These results should be treated with caution as the number of learners who attended short courses and had valid IRT scores at both survey waves was small (88 learners).

Learners were asked about the effect they felt the course had on their skills at the end of their English course and it is interesting to compare measured progress with learners' perceptions of progress. Only half of English learners who felt the course improved their skills 'a lot' demonstrated progress in the reading assessment (53%), which might suggest a mismatch between perceptions of skills gain and objectively measured progress. Such a mismatch would not be unduly surprising as respondents were not asked specifically about progress in reading, so it may be that they feel they have progressed, just not always with regard to reading. Also, we should repeat that the progress measures reported here cannot be viewed as being due to the course. This is different from the survey questions that explicitly asked respondents about the effect of the course, which are discussed later in this report. Learners' perceptions of specific skills at the start and end of their courses are explored in more detail in the next chapter.

Changes in performance by perceived abilities and attitudes towards English

Learners who attended English courses were asked to describe their abilities in reading, writing and speaking English 'when you need to in daily life' (see chapter 5). Learners who described their reading ability at the start of the course as 'very good' or 'fairly good' were no more or less likely to show measurable progress in their reading ability than learners who described their reading as 'below average', those who said it was 'poor', and those who said that they could not read. Similarly, the likelihood of showing progress in English reading ability did not differ between learners who rated their writing or English speaking abilities positively and those who rated them negatively. It should be noted, however, that this analysis relies on small base sizes.

English learners were shown a series of attitudinal statements at the beginning of their course and asked the extent to which they agreed with each one, to gauge their attitudes towards English and identify any concerns they had in using English in their everyday lives (see chapter 6). Learners who agreed with the statements were no more or less likely than those who expressed disagreement or a neutral stance to show progress in their English reading skills. The only exceptions to this concerned learners' attitudes towards punctuation and their attitudes towards English tests. Those who had agreed with the statement 'I worry about my ability to use punctuation correctly' were more likely to show progress in their skills than learners who had few or no concerns about their use of punctuation (55% versus 42%). Perhaps learners who expressed this concern had particularly poor skills to begin with, and the fact that more people in this group showed progress reflects the fact that their skills had more room to develop than those of other learners. Meanwhile, learners who agreed with the statement 'I feel nervous when I have to take an English test' were less likely to show progress in their skills than learners who did not feel nervous (46% versus 58%).

Changes in writing performance amongst learners who attended English courses

Overall we did not find evidence of significant change in English learners' writing performance between waves 1 and 2. The change in the average score was 0.5,[37] and not statistically significant. As with reading, there was considerable variation across levels. Again, Level 2 learners showed the most progress, with their wave 2 writing scores being an average of 5.5 above their wave 1 scores. More worrying is the change of Level 1 learners; they showed a fall of 4.4 (Table 4.7).

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[37] As explained in the technical report, construction of the writing scores involved a different method from the reading and maths scores. The resulting score was designed to have a standard deviation of 10. To get a rough sense of the scale of the changes reported in Table 4.7, the values can be divided by 10. This expresses the changes relative to the standard deviation of the score. For example, an increase of 5 is (roughly) an increase of half a standard deviation.

Table 4.7 Mean change in English writing score between waves 1 and 2, by course level

	Lower 95% CI	Mean	Upper 95% CI	N
Entry Level	-1.84	0.39	2.62	191
Level 1	-6.33	-4.40	-2.47	111
Level 2	3.59	5.48	7.37	126
Total	-0.87	0.50	1.87	428

Notes: Sample includes all learners present and with valid IRT scores in both waves 1 and 2. Entry Level includes Entry Levels 1, 2 and 3. Weighted analysis. 95% CIs (Confidence Intervals) reported around the point estimate of change in mean and calculated as plus/minus 1.96 multiplied by the estimated standard error of the mean.

Overall, 51% of learners demonstrated progress in the writing assessment and 49% did not. Table 4.8 shows that Level 1 learners were the least likely to show any progress (30%) while Entry Level and Level 2 learners were more likely (52% and 70%, respectively). This variation by level is statistically significant.

Table 4.8 Proportion of learners whose performance in writing progressed or did not progress, by course level

	All English learners	Entry Level	Level 1	Level 2
	%	%	%	%
Progress	51	52	30	70
No progress	49	48	70	30
Base (unweighted)	*428*	*191*	*111*	*126*

Changes in writing performance by demographic characteristics of learners

Age

Table 4.9 suggests learners aged 24 or less; and 35-44 years of age were more likely to have made progress in the writing assessment, while those aged 25-34; and 45 or over were less likely. However, this variation was not statistically significant.

Table 4.9 Proportion of learners whose performance in writing progressed or did not progress, by age

	All English learners	24 or less	25 – 34	35 – 44	45 or over
	%	%	%	%	%
Progress	51	53	51	57	44
No progress	49	47	49	43	56
Base (unweighted)	*420*	*81*	*157*	*99*	*83*

Gender

While male learners were more likely than females to demonstrate progress in reading, the same was not true of writing. As shown in Table 4.10, there was no statistically significant association between the gender of learners and their performance in the writing assessment.

Table 4.10 Proportion of learners whose performance in writing progressed or did not progress, by gender

	All English learners	Male	Female
	%	%	%
Progress	51	50	52
No progress	49	50	48
Base (unweighted)	*417*	*130*	*287*

First language

The most striking variation in performance in the writing assessment was between learners whose first language was English and those who were non-native English speakers. Whereas 55% of native English speakers showed progress in their writing ability, only 45% of learners for whom English was an additional language did the same (Table 4.11). This was chiefly caused by differences amongst Level 2 course participants: 78% of native English speakers attending courses at that level progressed compared with 55% of non-native English speakers.[38]

Table 4.11 Proportion of learners whose performance in English progressed or did not progress, by first language

	All English learners	**English is first language**	**English not first language**
	%	**%**	**%**
Progress	50	55	45
No progress	50	45	55
Base (unweighted)	*421*	*230*	*191*

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[38] In total 35 learners on English for Speakers of Other Languages (ESOL) courses had a valid reading score. Broken down by course level these numbers are: Entry Level = 15, Level 1 = 9; and Level 2 = 9.

Main economic activity

There was little differential improvement in writing skills between learners who were working full-time and those working part-time. Nor was there much difference between those in work and those out of work (Table 4.12).

Table 4.12 Proportion of learners whose performance in writing progressed or did not progress, by main economic activity

	All English learners	In Work			Out of Work		
		All	Full-time work	Part-time work	All	In education or training	Other
	%	%	%	%	%	%	%
Progress	50	54	51	58	48	55	41
No progress	50	46	49	42	52	45	59
Base (unweighted)	*350*	*143*	*80*	*63*	*207*	*80*	*127*

Other demographic characteristics

No statistically significant associations were found between improved performance in the writing assessment and the age that learners left full-time education, their cultural background, marital status, level of educational attainment, or ability to access the internet. There were significant associations by individuals' highest previous qualification in English. While 38% of those with Entry Level qualifications made progress, 62% with Level 1 qualifications and 70% of those with Level 2 or higher qualifications made progress.

Changes in performance by course characteristics

As there is only a small number of learners who had a writing score and attended courses lasting less than 3 months or did not complete their course, it is not possible to say with confidence whether performance varied by course length. However the available data indicates that whereas only 23% of learners who did not complete their course showed improvement, 54% of those who completed did the same. While we emphasise throughout that attributing progress to the course itself not possible, it is at least in line with expectations that skills improved more among those who completed the course.

Due to small base sizes, it is not possible to analyse writing performance by the amount of homework undertaken, the reasons for starting a course, or perceptions of the effect the course had on helping skills.

Examining variation across other characteristics shows ethnicity, income, qualifications and region do not show a statistically significant association with progress.

Changes in reading and writing performance amongst learners who attended English courses

Looking at English learners who had a valid score for both the reading and writing assessment, 29% showed measurable progress in both their reading and writing, and 28% showed progress in neither skill. Almost a fifth progressed only in writing (19%) and around a quarter progressed only in reading (24%). The fact that improvement in one skill was not automatically accompanied by progression in the other may indicate the discrete nature of the 2 skills, and uneven rate with which learners assimilate and develop different elements of competency in English. However, note that this data is not cross-referenced against the specific nature of the course due to the low base size at a course level.

Table 4.13 shows the proportion of learners at different course levels who progressed in each of the 2 skills. The largest group of Entry Level and Level 1 learners showed progress in neither skill (35% and 40%, respectively). By contrast, the majority of Level 2 learners progressed in both (51%, much more than the 20% of Entry Level and 14% of Level 1 learners who progressed in both).

Learners who attended Level 1 courses were particularly likely to progress only in reading (35%, compared with 16% of Level 2 learners), and particularly unlikely to progress only in writing (11%, compared with around a fifth of Entry Level and Level 2 learners).

Table 4.13 Proportion of learners who showed progress in reading and writing, by course level

	All English learners	**Entry Level**	**Level 1**	**Level 2**
	%	**%**	**%**	**%**
Progress in neither skill	28	35	40	14
Progress in reading only	24	22	35	16
Progress in writing only	19	23	11	20
Progress in both skills	29	20	14	51
Base (unweighted)	*279*	*103*	*74*	*102*

It was more common for learners who described their English abilities at the start of their course as 'very good' or 'fairly good' to show improvement in both skills - 32% of learners who described their reading favourably and 35% who described their writing favourably progressed both their skills (compared with 14% who gave a negative rating of their reading ability and 18% who gave a negative rating of their writing). This is in keeping with the finding that improvement in both skills was more widespread amongst Level 2 learners.

Changes in maths performance amongst learners who attended maths courses

Compared with English learners, we find a larger, statistically significant, improvement of approximately a quarter of a standard deviation in the average learner's performance in maths. In the case of maths, the pattern of relative performance at Entry Level, Level 1 and Level 2 courses is similar to that seen in English (Table 4.14). There is a non-significant reduction of 0.2 standard deviations in the performance of Entry Level course participants, and bigger improvements in performance for participants in Level 1 and Level 2 courses of half a standard deviation. These are quite substantial changes in performance.

Table 4.14 Mean change in maths IRT score between waves 1 and 2, by course level

	Lower 95% CI	Mean	Upper 95% CI	N
Entry Level	-0.73	-0.19	0.35	100
Level 1	0.29	0.45	0.62	140
Level 2	0.31	0.46	0.61	163
Total	0.22	0.34	0.45	403

Notes: Sample includes all learners present and with valid IRT scores in both waves 1 and 2. Entry Level includes Entry Levels 1, 2 and 3. Weighted analysis. 95% CIs (Confidence Intervals) reported around the point estimate of change in mean and calculated as plus/minus 1.96 multiplied by the estimated standard error of the mean.

We considered the differences in performance between different groups further by analysing the proportion of learners whose scores indicate progress, or not, between waves 1 and 2 (Table 4.15). Unsurprisingly, given the larger estimated changes in maths performance (compared with those seen in English), we see more decisive results in this analysis compared with English learners. Overall, around two-thirds of learners improved their maths performance between waves 1 and 2, while one-third saw no improvement. Only a third of Entry Level course participants showed progress, while over two-thirds of Level 1 and Level 2 course participants improved their performance. This variation across course levels is statistically significant.

Table 4.15 Proportion of learners whose performance in maths progressed or did not progress, by course level

	All maths learners	Entry Level	Level 1	Level 2
	%	%	%	%
Progress	66	33	72	74
No progress	34	67	28	26
Base (unweighted)	*403*	*100*	*140*	*163*

Changes in maths performance by demographic characteristics of learners

Age

When considering changes in performance by the age of the learner we see a different pattern to that observed in English (Table 4.16). Individuals aged 35 to 44 were most likely to improve (71%), followed by those aged 24 or less (68%) and those aged 25 to 34 (63%). However, as with English, these differences are relatively small and not statistically significant.

Table 4.16 Proportion of learners whose performance in maths progressed or did not progress, by age

	All maths learners	24 or less	25 – 34	35 – 44	45 or over
	%	%	%	%	%
Progress	66	68	63	71	60
No progress	34	32	37	29	40
Base (unweighted)	*394*	*89*	*132*	*95*	*78*

Gender

In the analysis of English course participants we found that male learners were significantly more likely to improve their reading performance compared with female learners but not their writing skills. There was no pattern by gender in maths performance. As shown in Table 4.17, slightly more males than females made progress, but this difference was not significant.

Table 4.17 Proportion of learners whose performance in maths progressed or did not progress, by gender

	All maths learners	Male	Female
	%	%	%
Progress	66	69	65
No progress	34	31	35
Base (unweighted)	*392*	*111*	*281*

First language

Table 4.18 shows that an improvement in maths performance was no more likely amongst learners for whom English is an additional language (67%) than learners whose first language is English (66%).

Table 4.18 Proportion of learners whose performance in maths progressed or did not progress, by first language

	All maths learners	English is first language	English not first language
	%	%	%
Progress	66	66	67
No progress	34	34	33
Base (unweighted)	*398*	*288*	*110*

Main economic activity

Improvement in maths performance appeared a little more likely among maths learners not in work than among those who were in work (Table 4.19). Although learners who were working part-time at the start of the course appeared a little more likely to improve than learners who were working full-time, this difference was not statistically significant.

Table 4.19 Proportion of learners whose performance in maths progressed or did not progress, by main economic activity

	All maths learners	In Work			Out of Work		
		All	Full-time work	Part-time work	All	In education or training	Other
	%	%	%	%	%	%	%
Progress	68	67	62	73	69	65	71
No progress	32	33	38	27	31	35	29
Base (unweighted)	*322*	*136*	*67*	*69*	*170*	*66*	*120*

Other demographic characteristics

The low base sizes for subgroup analysis means we were unable to identify statistically significant differences in performance depending on learners' cultural background, marital status, level of educational attainment, terminal education age, or ability to access to the internet. However, progress was more likely for those who already held higher maths qualifications rising from 54% for those who held Entry Level qualifications to 93% for learners who were qualified at Level 2 or above.

Changes in maths performance by course characteristics

Similarly, low subgroup base sizes make it difficult to identify differences in performance by attributes of the course itself, such as its length, the amount of homework the learners carried out, or the reasons learners gave for starting the course.

Chapter 5 Learners' perceptions of their abilities

Summary

This chapter looks at how learners rated their abilities in specific aspects of English, in maths and in ICT at the start and at the end of the course. The wave 1 and wave 2 surveys included an identical question set to identify any differences in self-perceptions of learners' skills. It is possible that course participation had a bearing on the differences identified between these 2 points; however, readers should not infer that the course necessarily had a causative effect. Later in this report (chapter 7) we discuss learners' views on the effect that the course had on various aspects of their lives, which reflects their personal opinion of the direct or indirect effect of attending a course.

When comparing learners' pre- and post-course ratings of their skills:[39]

- 29% of English learners gave a higher rating of their reading ability and 14% gave a lower rating

- 35% of English learners gave a higher rating of their writing ability and 16% gave a lower rating

- 34% of maths learners gave a higher rating of their ability to work with numbers and 16% gave a lower rating

As discussed in this chapter, learners' changes in their rating of their skills (described as self-perception) did not always match the survey tests in terms of whether they did or did not demonstrate progress. Notable proportions of learners rated their reading, writing, or numeracy skills more highly at the end of the course despite not demonstrating progress in the assessment. Similarly, over a tenth of learners gave a lower rating of their skills despite demonstrating progress in the corresponding assessment.

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[39] Learners gave a rating at the start and end of the course, which gives an indication of their perception of skills change. When interpreting these data note that learners who gave themselves the highest rating at the start of their course would not have been able to give a higher rating at the end. Similarly, learners who described their reading, writing or maths skills using the lowest rating would not have been able to give a lower rating of their skills.

English course participants' perception of their English skills

Learners who attended English courses were asked to describe their abilities in reading, writing and speaking English 'when you need to in daily life'. The analysis below describes how English course participants rated their abilities when beginning their course, before identifying whether their perceptions changed once the course was complete.

Self-ratings at the start of the course

Over four-fifths of learners categorised their reading ability as 'very good' or 'fairly good', and a similar proportion did the same with regards to their proficiency in speaking English. Of the 3 skills, reading, writing and speaking, writing was the most likely to be described as 'below average' or worse, with almost half of Entry Level course participants (48%) describing their writing abilities in this way.

Comparison with the 2011 Skills for Life survey shows that the learner population was more likely to rate their literacy skills negatively than the general adult population.[40] The proportions of English course participants who gave a positive rating of their reading and writing skills was in line with the proportion recorded by the Skills for Life survey amongst 'current learners.'[41]

Figures 5.1 to 5.3 show the answers given by participants of courses at different levels. Learners attending more advanced courses tended to rate their abilities more highly than other learners.

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[40] BIS Research Paper 81, 2012 "The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England": page 144.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/36000/12-p168-2011-skills-for-life-survey.pdf
[41] BIS Research Paper 81, 2012 "The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England": page 216.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/36000/12-p168-2011-skills-for-life-survey.pdf

Figure 5.1 How good at reading (self-perception) at start of course, overall and by English course level

Below average or worse   Good

Learner group	Below average or worse %	Cannot read	Poor	Below average	Fairly good	Very good	Good %
All learners	16%	1%	4%	11%	50%	34%	84%
Level 2	6%		1%	5%	48%	46%	94%
Level 1	12%		2%	10%	56%	32%	88%
Entry Level	32%	2%	12%	19%	45%	22%	68%

■ Cannot read ■ Poor ■ Below average ■ Fairly good ■ Very good
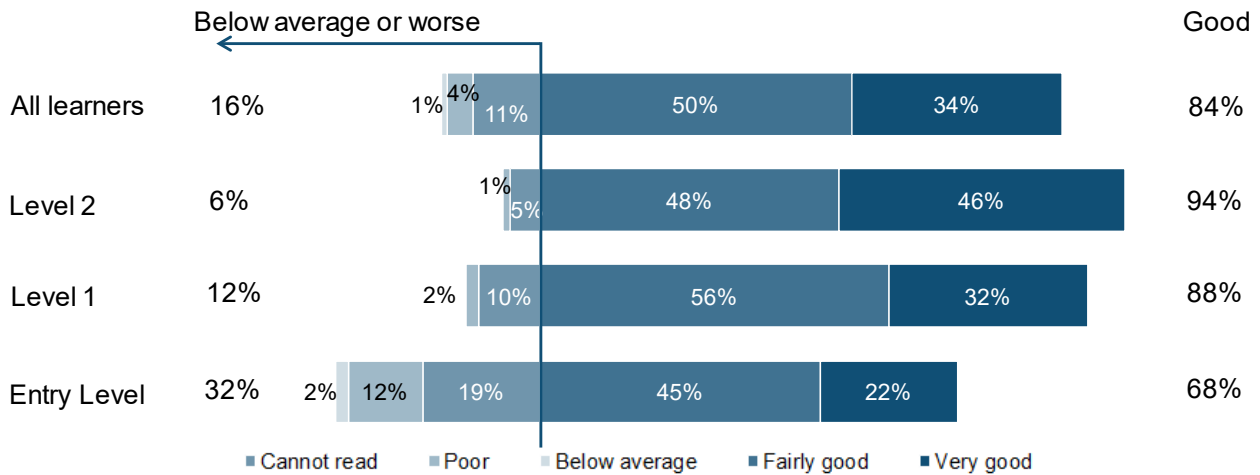
Base: Wave 1 learners who answered the question and attended: Any English course (1983); Entry Level 1-3 English course (833); Level 1 English course (588); Level 2 English course (562)

Figure 5.2 How good at writing (self-perception) at start of course, overall and by English course level

Below average or worse   Good

Learner group	Below average or worse %	Cannot read	Poor	Below average	Fairly good	Very good	Good %
All learners	31%	1%	9%	22%	52%	17%	69%
Level 2	18%		3%	15%	62%	21%	82%
Level 1	30%		7%	23%	54%	16%	70%
Entry Level	48%	3%	17%	28%	39%	13%	52%

■ Cannot read ■ Poor ■ Below average ■ Fairly good ■ Very good
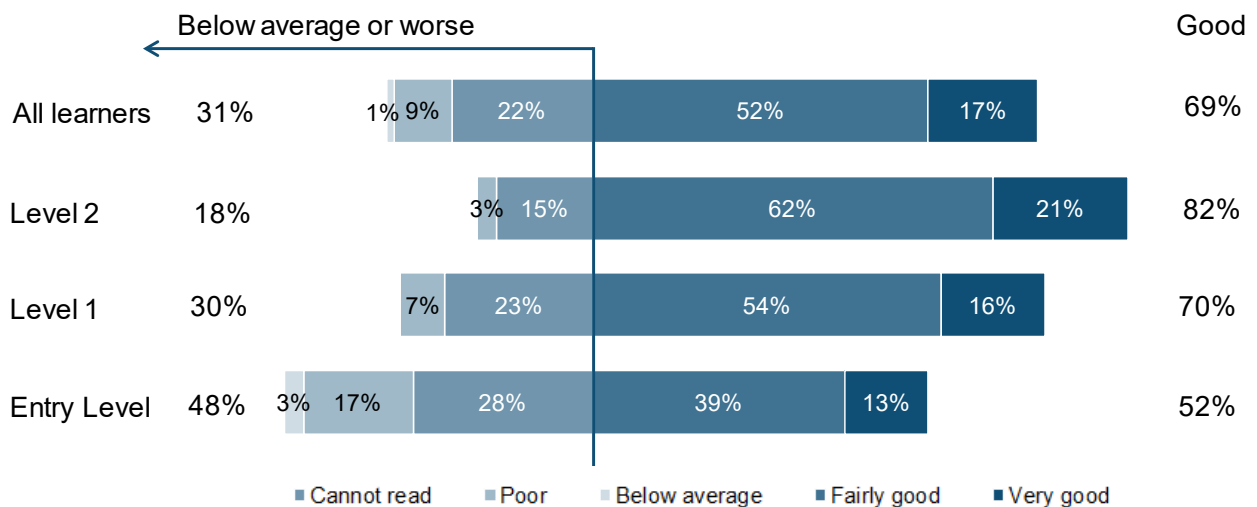
Base: Wave 1 learners who answered the question and attended: Any English course (1984); Entry Level 1-3 English course (833); Level 1 English course (586); Level 2 English course (565)

Figure 5.3: How good at speaking English (self-perception) at start of course, overall and by English course level

Below average or worse ←   Good

	Below avg or worse	Poor	Below average	Fairly good	Very good	Good
All learners	14%	2%	11%	48%	39%	86%
Level 2	7%	1%	6%	48%	45%	93%
Level 1	11%	1%	10%	52%	37%	89%
Entry Level	24%	5%	19%	42%	34%	76%

■ Poor   ■ Below average   ■ Fairly good   ■ Very good
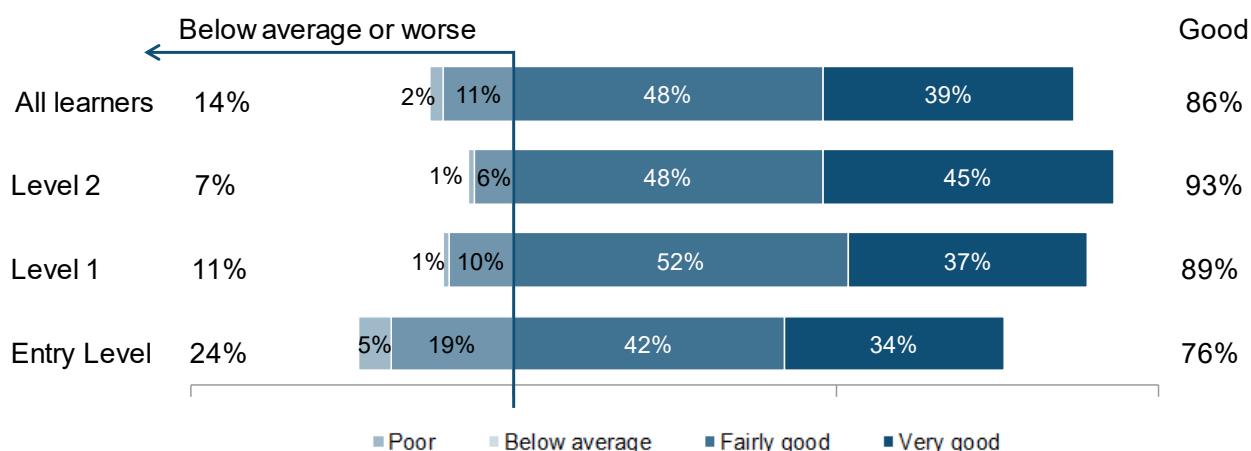
Base: Wave 1 learners who answered the question and attended: Any English course (1969); Entry Level 1-3 English course (822); Level 1 English course (591); Level 2 English course (556)

Over three-fifths of learners (63%) rated all 3 of their skills (reading, writing and speaking) as 'good'. By level this was: 44% of Entry Level learners; 64% of Level 1; and 79% of Level 2 learners. Conversely, 6% of all learners felt that their English reading, writing and speaking were 'below average' or poor, although this perception was twice as common amongst Entry Level course participants (12%).

Two-thirds of learners (67%) rated their reading and writing abilities positively, with this being more common amongst Level 2 course learners (81%). A substantial minority overall felt that their reading was 'good' but their writing was 'below average' or worse (18%). A further 13% felt that both of these skills were weak, rising to 26% of learners who lacked formal qualifications, and 28% of Entry Level learners. Self-perceptions of speaking and reading abilities were better aligned, with 78% feeling they were 'good' at both.

First language was a significant differentiator in how learners rated their English skills. Learners whose first language was something other than English were more likely than native English speakers to give a rating of 'below average' or worse for their speaking (23% and 6% respectively), reading (19% compared with 13%) and writing (36% compared with 27%).

Self-ratings varied by a number of other demographic characteristics. Learners under the age of 25 were less likely to rate their reading or writing abilities as 'below average' or worse. Indeed, only 13% described their reading and 26% rated their writing in this way (compared with 17% and 33%, respectively, of older learners). Moreover, the perception that writing skills were 'below average' or worse was more common amongst men (35%) than women (28%), and particularly men attending Level 2 English courses (22%, compared with 15% of women on the same courses).

Learners who lacked any formal qualifications were also likely to give a poor rating of their:

- writing abilities (45%, compared with 37% who held Entry Level qualifications and 23% who held higher qualifications)
- reading abilities (28% with no qualifications, compared with 13% with qualifications)
- ability to speak English (20% with no qualifications, compared with 13% with qualifications)

Figure 5.4 shows the unsurprising pattern between learners having lower perceptions of reading and writing ability and being more likely to have worries about grammar, spelling and punctuation. There was no corresponding pattern with learners' perceptions of their English speaking proficiency.

Figure 5.4 Perceived abilities of learners, by whether had concerns about grammar, spelling and punctuation
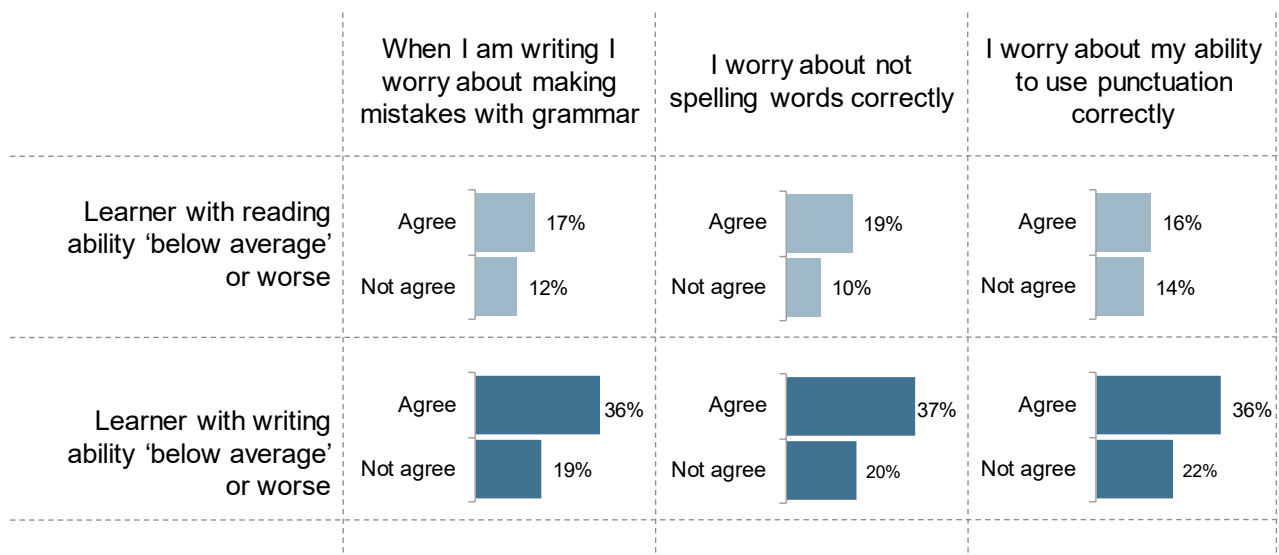
Base: English learners who at the beginning of their course rated their reading or writing ability as below average or worse who agreed (c.1387) or did not agree (c.541) with the statement 'When I am writing I worry about making mistakes with grammar'; who agreed (c.1261) or did not agree (c.633) with the statement 'I worry about not spelling words correctly'; and who agreed (c.1232) or did not agree (c.703) with the statement 'I worry about my ability to use punctuation correctly'.

Changes in self-ratings after course ended

The proportion of learners who gave a positive rating of their reading ability did not change substantially once the course had ended, although there was a rise in the proportion of learners rating their ability at the top end of the scale - 'very good' (from 34% at the start of the course to 43% at the end of the course).

Learners' perceptions of their writing and speaking skills saw a more substantial change between the beginning of the course and shortly after its completion: 69% rated their ability to write English as 'fairly good' or 'very good' when starting out, and 86% did the same regarding their ability to speak English. These proportions rose to 76% and 93%, respectively, by the end of the course.

The subsections below explore changes in learners' views of their English skills, taking each of the skills in turn. The analysis that follows looks at ratings given by individual learners in the longitudinal survey, i.e. those who completed the survey at the start of their course and shortly after the course.

Changes in reading ability (self-assessed)

Three-tenths of learners (29%) completing the longitudinal survey at the start and end of the course gave an improved assessment of their reading abilities after completing their course.[42] The majority indicated no change in their reading skills (56%). However, when interpreting these data it should be noted that overall, a fifth (22%) of English learners rated their reading skills as 'very good' at the start and end of their course and therefore, they would not have been able to give a higher rating in this particular question even if they felt their reading skills had improved. Fourteen per cent of learners gave a lower rating of their abilities at the end of the course (just 1% gave themselves a 'poor' or 'cannot read' rating at both the start and end of their course).

As shown in Table 5.1, perceived improvements in reading ability were more likely to be reported by Entry Level and Level 1 English learners than Level 2 learners (35% and 31% compared with 23% respectively), which in part reflects the larger proportion of Level 2 learners already using the top end of the rating scale at the start of the course. Over two-thirds (36%) of Level 2 learners gave the highest rating of their reading abilities, 'very good', at both the start and end of the course.

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[42] For example, rating reading skills as 'below average' at the beginning of the course, and 'fairly good' at the end of the course.

Table 5.1 Change in perceived reading ability of English learners between the start and end of the course – overall and by course level

	All English learners	Entry Level	Level 1	Level 2
	%	%	%	%
Higher rating of reading ability	29	35	31	23
Same rating of reading ability	56	48	54	65
Rated very good at start and end of the course	22	12	16	37
Lower rating of reading ability	14	17	15	11
Base (unweighted)	*904*	*349*	*259*	*296*

Learners aged 55 or over were considerably less likely than younger learners to give a higher rating of their reading skills in wave 2 (16% of learners aged 55 or over compared with 30% aged 19 to 54). Older learners were also less likely to rate their reading skills as good at the start of their course (76% compared with 87% of learners aged 24 and under).

There were no significant differences in the proportions rating their reading skills more highly by course length, gender or English as a first language.

As shown in Table 5.2, when comparing the pre- and post- course surveys, performance in the reading assessment did not necessarily correspond to the learner's rating of their reading skills.

Table 5.2 Change in perceived reading ability of English learners, by whether showed progress in their performance in the reading assessment

	Progress in reading assessment	No progress in reading assessment
	%	%
Higher rating of reading ability	24	37
Same rating of reading ability	62	50

	Progress in reading assessment	No progress in reading assessment
	%	%
Rated very good at start and end of the course	23	20
Lower rating of reading ability	14	13
Base (unweighted)	*280*	*274*

This difference between objectively assessed and perceived improvements in reading varies both by course level and by demographic profile.

The comparison between self-perception (the ratings at wave 1 and wave 2) and independently assessed progress (the survey tests at wave 1 and 2) shows:

- 23% of learners overestimated their progress in reading (gave a higher rating of their reading at the end of the course but did not show progress in the assessment)
- 35% of learners underestimated their progress in reading (gave the same or lower rating of their abilities but did show progress in the assessment)
- 43% gave a rating that matched to their progress or lack of progress in the assessment[43]

The low base sizes when looking at this by course level and excluding learners who gave the rating of their skills in both surveys means we are not able to draw statistically significant conclusions by course level. However, indicatively Entry Level learners (18%) appeared a little less likely to overestimate their progress in reading than Level 1 learners (29%) and Level 2 learners (22%).

A possible reason why some learners overestimated the change in their abilities might be due to changes in their enjoyment and ability of using English in their day-to-day lives. Learners who found aspects of reading in daily life particularly challenging or inhibitive at the start of the course were more likely to feel their reading standards had improved during their course even though this improvement was not necessarily evident in their performance in the reading assessments. This is illustrated in Figure 5.5. English learners who said at the start of their course that they did not enjoy reading newspapers and magazines; who found it difficult to read directions on items such as food labels and medicines; or who agreed that they sometimes had difficulty filling in form were more likely

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[43] As a learner who gave the highest rating at the start and end of the course would not have been able to indicate improvement in this particular question, these learners are excluded from this analysis.

than those who felt the opposite to give an improved self-assessment of their reading skills on completing the course.

Figure 5.5 Change in perceived reading ability of English learners, by whether enjoyed reading, found it easy to read, and had difficulty filling in forms at the start of the course

	I enjoy reading newspapers and magazines	I find it easy to read the directions on items such as food labels, medicines or flat-packs	I sometimes have difficulty filling in forms
Improvement	Agree 26% Disagree 44%	Agree 27% Disagree 44%	Agree 36% Disagree 21%
No change	Agree 61% Disagree 42%	Agree 59% Disagree 43%	Agree 51% Disagree 63%
Worse	Agree 13% Disagree 14%	Agree 14% Disagree 12%	Agree 13% Disagree 16%

Base: Change in perceived reading ability of English learners who at the start of the course agreed (606) or disagreed (69) with the statement ''I enjoy reading newspapers and magazines'; who agreed (688) or disagreed (72) with the statement 'I find it easy to read the directions on items such as food labels, medicines or flat-packs'; and, who agreed (378) or disagreed (326) with the statement 'I sometimes have difficulty filling in forms'.

Changes in writing ability (self-assessed)

Around a third of learners (35%) rated their writing skills more favourably after completing their course[44] compared with the start. A majority indicated no change in their writing skills (50%), although overall, 9% of English learners rated their writing skills as 'very good' at both the start and end of their course (it is not possible to infer whether these learners felt their writing skills had improved from this particular question). This compares with 22% of English learners who rated their reading skills as 'very good' at both the start and end of their course. A smaller proportion (16%) gave a lower rating of their skills at the end of the

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[44] For example, rating writing skills as 'below average' at the beginning of the course, and 'fairly good' at the end of the course.

course (and 2% gave themselves a 'poor' or 'cannot write' rating at both the start and the end of their course).

As for reading ability, improvements in perceived writing ability differed by course level (Table 5.3). Higher ratings between pre- and post-course interviews were more common amongst Entry Level and Level 1 English learners than Level 2 learners. However, as for reading assessment, learners on Level 2 courses were more likely to rate their writing skills as very good at both the start and end of the course - 17% of Level 2 learners would not have been able to give a higher rating in this particular question.

Table 5.3 also demonstrates the greater likelihood of learners on Entry Level courses to give a lower rating of their writing skills at the end of their course.

Table 5.3 Change in perceived writing ability of English learners between the start and end of the course – overall and by course level

	All English learners	Entry Level	Level 1	Level 2
	%	%	%	%
Higher rating of writing ability	35	38	36	30
Same rating of writing ability	50	39	51	58
Rated very good at start and end of the course	9	5	5	17
Lower rating of writing ability	16	23	14	12
Base (unweighted)	*899*	*345*	*258*	*296*

There were no significant differences in the proportions reporting improved writing skills by course length, gender, age or first language.

There was a degree of misalignment between learners' perceptions of whether they had improved their writing skills and objectively measured progress in the writing assessments. As Table 5.4 shows, 39% of learners who did not show progress in the tests gave a higher rating of their writing ability. Conversely, 16% of writers who showed progress in the test gave a lower rating of their writing ability at the end of the course.

Table 5.4 Change in perceived writing ability of English learners, by whether showed progress in their performance in the writing assessment

	Progress in writing	No progress in writing
	%	%
Higher rating of writing ability	30	39
Same rating of writing ability	53	46
Rated very good at start and end of the course	10	5
Lower rating of writing ability	16	15
Base (unweighted)	*231*	*185*

The comparison between rating change and assessment score shows that:

- 21% of learners overestimated their progress in writing (gave a higher rating of their writing at the end of the course but did not show progress in the assessment)
- 33% of learners underestimated their progress in writing (gave the same or lower rating of their abilities but did show progress in the assessment)
- 46% gave a rating that corresponded to their progress or lack of progress in the assessment[45]

As for reading, the proportions over- or under-estimating writing ability did not vary by age, gender, first language or course length. However, there was variation by the level of course attended: Level 2 learners were more likely than learners in all other courses to underestimate their progress (45%, compared with 31% of Entry Level and 23% of Level 1 learners).

Learners who disagreed that they 'find it easy to write to someone I know' were more likely to give a higher rating to their writing skills at the end of the course (51% compared with 31% of learners who had said that they found it easy to write to someone they know). Similarly, English learners who struggled with preparing presentations at the start of the course were more likely than others to give an improved rating of their writing skills after

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[45] Learners who gave the highest rating at the start and end of the course would not have been able to indicate improvement in this particular question, so these learners are excluded from this analysis.

completing the course (37% compared with 26% of those who disagreed with the statement 'I don't like having to prepare a presentation').[46]

Changes in ability to speak English (self-assessed)

When comparing individual learners' ratings of their English speaking abilities at the start and end of the course, 29% gave a higher rating.[47] Over half gave the same rating (56%), although overall, 27% of English learners rated their speaking skills as 'very good' at both the start and end of their course. A smaller proportion (15%) gave a lower rating of their speaking skills at end of the course (just one learner gave themselves a 'poor' rating at both the start and the end of their course).

Learners whose first language was not English were more likely than others to give a higher rating of their speaking ability after completing their course (35% compared with 24% respectively).[48] Moreover, learners who said at the start of their course that their poor English skills had held them back in life were more likely than others to give a higher rating of their everyday English speaking skills at the end of their course (37% compared with 18% who had not felt held back).[49]

There were no significant differences by gender or age, or by course level or length, in the proportions who gave a higher rating of their English speaking skills. There was also no difference between learners who showed measurable progress in their English reading skills or in their writing skills through the assessments, and those who did not.

Maths course participants' perception of their numeracy and English skills

Learners who attended maths courses were asked to rate their abilities at working with numbers, as well as reading and speaking English, 'when you need to in daily life'.

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[46] The relationships between perceived writing ability and initial wave 1 attitude statements about informal writing and preparing presentations are both still significant, even after taking account of course level using logistic regression analysis.

[47] For example, rating speaking skills as 'below average' at the beginning of the course, and 'fairly good' at the end of the course.

[48] Looking specifically at learners who were on ESOL courses, 45% rated their speaking ability higher after completing their course (note the low base of 56). When excluding learners on ESOL courses from the analysis, 34% of learners whose first language is something other than English gave a higher rating of their speaking skills at the end of the course (which is consistent with the 35% of non-native English speakers overall).

[49] This relationship is still significant, even after taking account of course level using logistic regression analysis.

Self-ratings at the start of the course

The proportion of maths learners who gave a positive assessment of their ability to work with numbers was lower than the proportion of adults in the general population who rate their numeracy positively (83% compared with 93% respectively).[50] However, the self-ratings of current learners from the 2011 Skills for Life survey were less positive (74%) than those of maths course participants recorded in this survey (83%).[51] Figures 5.6 to 5.8 show how learners who attended different levels of course perceived their abilities at the start of their course. Entry Level course participants tended to rate themselves more negatively than other learners in each of the skills.

Figure 5.6 How good at working with numbers in daily life (self-perception) at start of course, overall and by maths course level
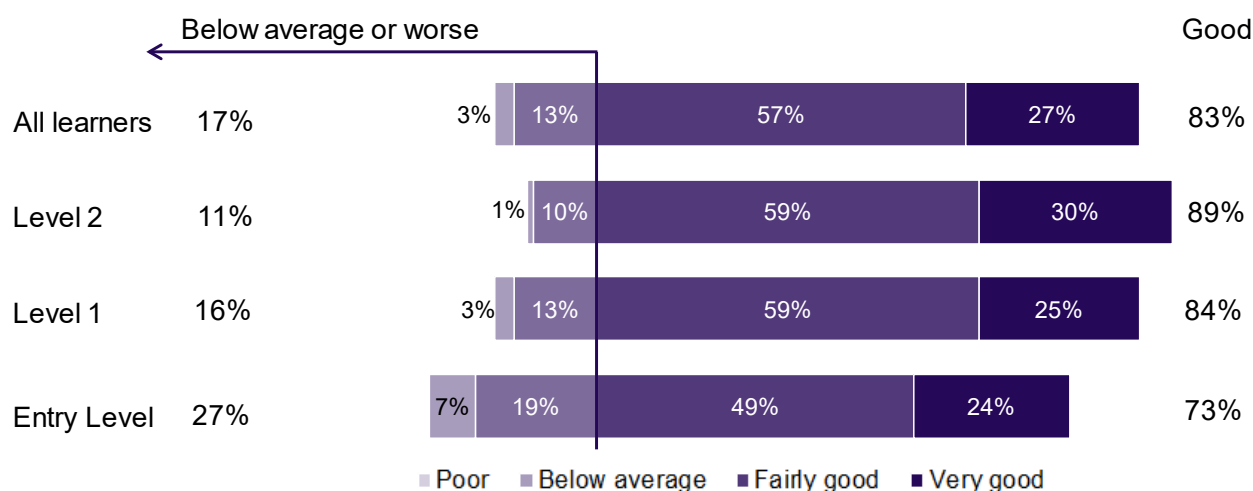
Base: Wave 1 learners who answered the question and attended: Any maths course (1762); Entry Level 1-3 maths course (653); Level 1 maths course (577); Level 2 maths course (532)

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[50] BIS Research Paper 81, 2012 "The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England": page 148.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/36000/12-p168-2011-skills-for-life-survey.pdf
[51] BIS Research Paper 81, 2012 "The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England": page .224
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/36000/12-p168-2011-skills-for-life-survey.pdf

Figure 5.7 How good at reading (self-perception) at start of course, overall and by maths course level
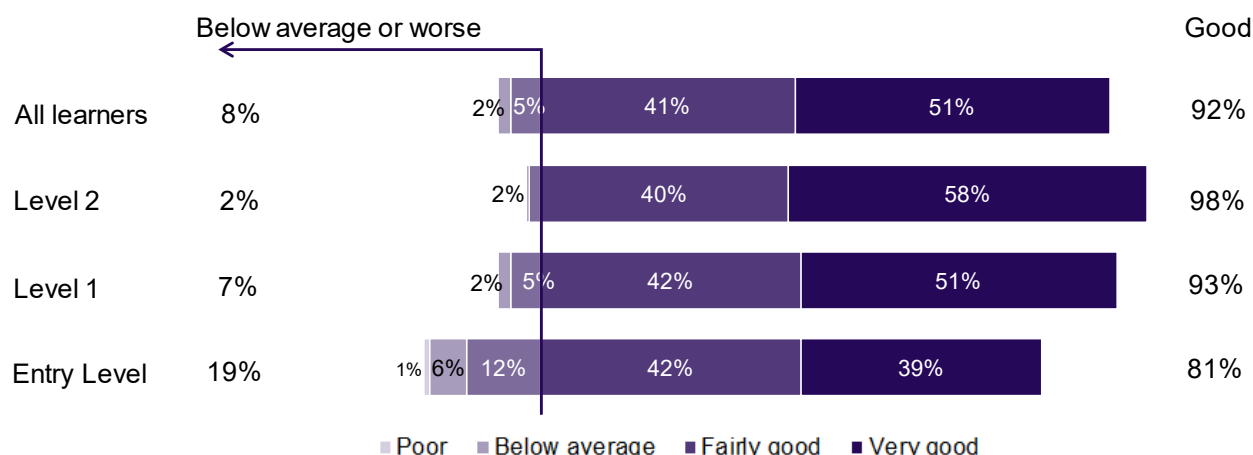
Base: Wave 1 learners who answered the question and attended: Any maths course (1779); Entry Level 1-3 maths course (664); Level 1 maths course (581); Level 2 maths course (534)

Figure 5.8 How good at speaking English (self-perception) at start of course, overall and by maths course level
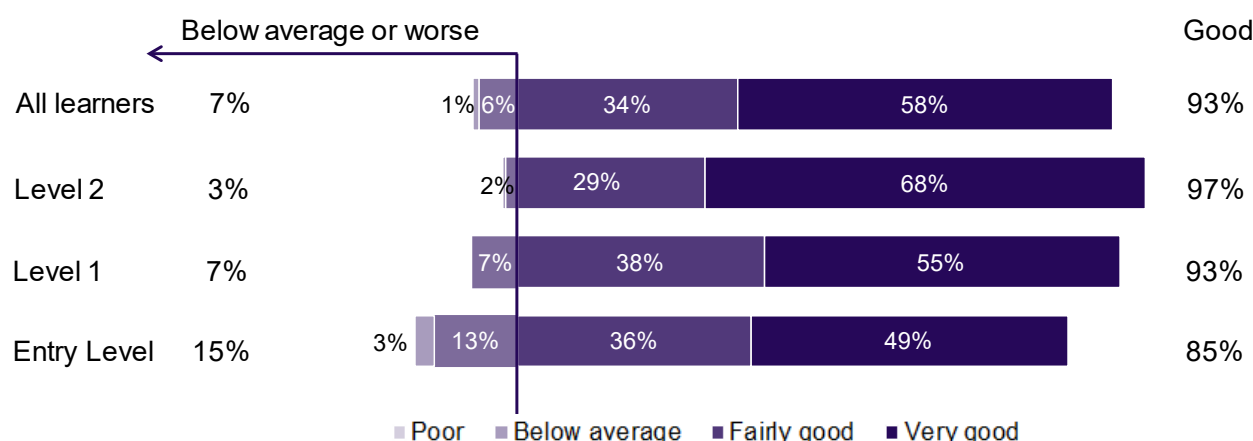
Base: Wave 1 learners who answered the question and attended: Any maths course (1768); Entry Level 1-3 maths course (658); Level 1 maths course (580); Level 2 maths course (530)

When combining the results from these 3 questions, three-quarters of maths learners (77%) rated their abilities in using numbers, reading and speaking English as 'very good' or 'fairly good', rising to 86% of Level 2 course participants.

On average, four-fifths (80%) felt that both their numeracy and reading skills were 'good', while 4% rated both their skills as 'below average' or worse. Perceived weaknesses in both skills were more common amongst Entry Level course participants: 12% gave a negative rating of both their skills.

Learners' perceptions of their competence in working with numbers varied by age and educational attainment. A fifth of under-25s (20%) rated their ability to work with numbers as 'below average' or worse, significantly more than learners aged 25 or more (14%). A negative self-assessment of numeracy skills was also disproportionately common amongst learners who either lacked any formal qualifications or were qualified only to Entry Level (23% and 21%, respectively, compared with 14% of learners who had already attained a Level 1 or higher qualification).

Changes in self-ratings after course ended

At the beginning of their maths course, only 27% of learners rated their ability to work with numbers in daily life as 'very good'. When surveyed again at the end of the courses, this had risen to 37%. The proportion of learners giving a rating of either 'very good' or 'fairly good' rose slightly from 83% to 87%. There were no comparable changes in learners' ratings of their English reading and speaking abilities.

The subsections below explore changes in learners' views of their numeracy, reading and speaking abilities, taking each of the skills in turn.

Changes in ability to work with numbers (self-assessed)

A third of maths learners (34%) gave a higher rating of their abilities with numbers after completing their course. However, the majority indicated either no change in their number skills (50%), or gave a lower rating of their skills at the end of the course (16%). It should be highlighted that 14% of maths learners rated their numerical skills as 'very good' at both the start and end of their course and therefore were not able to offer an indication of improved self-assessment. Conversely, just 4 learners gave themselves a 'poor' rating at both the start and the end of their course.

Changes in learners' perceptions of their abilities with numbers did not vary by course level or the length of course. Nor were any differences apparent between learners who made progress in their numeracy, as measured by the assessments, and learners who did not make progress.

In terms of who was more likely to believe their abilities had improved, there were only significant differences amongst maths learners for whom English is not a first language, who were more likely than others to give a higher rating of their skills with numbers by the end of the course (41% compared with 31%). It is not clear why this was the case, as these learners were not more likely to show progress in their numeracy.

Changes in ability to read English (self-assessed)

Maths learners' self-assessed ability to read English was included in the measurements as a learner's ability to read may directly affect their comprehension of mathematical problems. However, it important to note that it was not a core component of a maths course to affect the learner's English skills. It is therefore interesting to observe that a fifth of maths learners (22%) who completed a wave 1 and wave 2 interview gave a higher rating of their reading abilities (65% gave the same rating; and 13% gave a lower rating of their English reading skills). When interpreting these data it is important to remember that many maths learners had a high level of confidence in their reading skills at the start of the course - 41% of maths learners rated their reading skills as 'very good' at both the start and end of their course. Conversely, just 1% gave themselves a 'poor' or 'cannot read' rating at both the start and end of their course.

Learners' who showed progress in their maths skills in the assessment were no more or less likely than the rest to indicate an improvement in their reading.

Changes in ability to speak English (self-assessed)

As seen in Table 5.5, while a fifth (21%) of maths learners who completed a wave 1 and wave 2 interview gave a higher rating of their speaking abilities after completing their course, 15% gave a lower rating of their skills at the end of the course.[52] This was particularly likely amongst Entry Level learners (25%). It is not clear why this might be, but it's possible that some aspect of the course experience caused them to reassess their speaking skills, perhaps relative to the skills of others. Similar to their assessment of their reading skills, a notable proportion of maths learners already used the top end of the scale at the start of the course when rating their speaking skills, with 47% rating their speaking skills as 'very good' at both the start and end of their course. Only 5 learners gave themselves a 'poor' rating at both the start and the end of their course.

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[52] For example, rating speaking skills as 'below average' at the beginning of the course, and 'fairly good' at the end of the course.

Table 5.5 Change in perceived speaking ability of maths learners between the start and end of the course – overall and by course level

	All maths learners	Entry level	Level 1	Level 2
	%	%	%	%
Higher rating of speaking ability	21	19	26	16
Same rating of speaking ability	64	56	60	75
Lower rating of speaking ability	15	25	14	9
Base (unweighted)	*752*	*265*	*270*	*217*

Men (19%) were more likely than women (12%) to give a lower rating of their speaking skills after completing their course, although there was no corresponding difference between the proportions of men and women giving a higher rating of their speaking skills.

Maths learners whose first language was not English were more likely than others to give a higher rating of their speaking ability at the end of the course (32% compared with 16%). Learners in different age bands, and learners who made measurable progress in their numeracy, were no more likely than other learners to give a higher rating of their English speaking skills.

Perceptions of ICT skills

Learners were asked to rate their abilities at using computers. The question included the examples; 'word processing, using the internet and sending emails'.

English learners' self-rating of ICT skills at the start of the course

Figure 5.9 shows the self-perceived abilities of English course participants when starting out on their course. On average, four-fifths (80%) rated their ICT skills as 'fairly good' or 'very good'. This is broadly in line with the equivalent figures for the general adult population recorded by the 2011 Skills for Life survey.[53] Learners' perceived abilities

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[53] BIS Research Paper 81, 2012 "The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England": page .203
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/36000/12-p168-2011-skills-for-life-survey.pdf

varied according to the level of the course attended, with only three-fifths (63%) of learners attending Entry Level courses describing their abilities positively.

Figure 5.9 How good at using computers (self-perception) at start of course, overall and by English course level
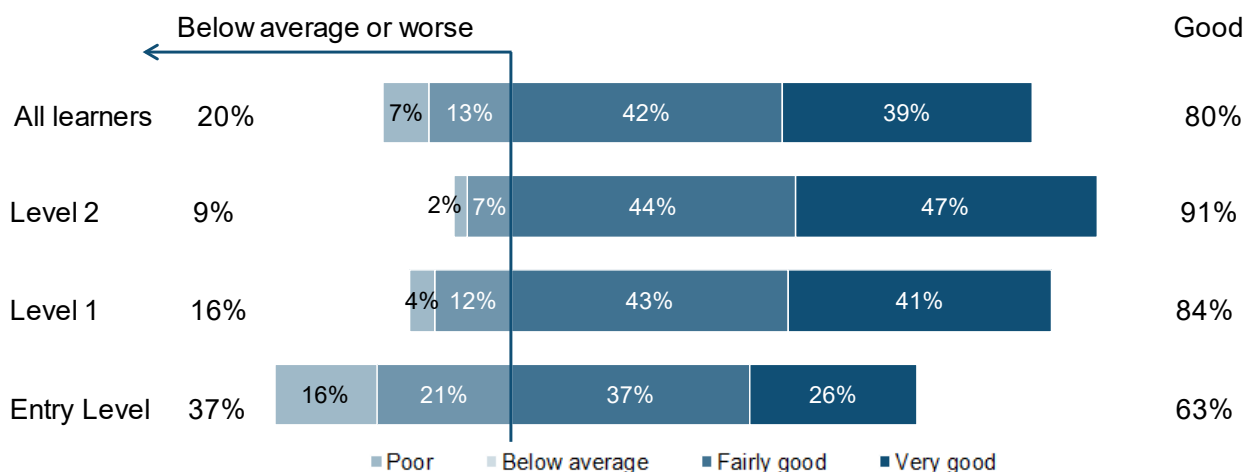
Base: Wave 1 learners who answered the question and attended: Any English course (1987); Entry Level 1-3 English course (838); Level 1 English course (592); Level 2 English course (557)

Learners under the age of 25 were less likely to give a negative assessment of their abilities (7%) than learners aged 25-34 (15%) and learners aged 35 or above (34%). A negative rating was less common amongst learners who already held a Level 1 or higher qualification at the start of the course (11%) compared with learners who held Entry Level or no formal qualifications (33%). Almost two-fifths of learners who were not in employment because they were unwell or disabled regarded their abilities as 'below average' or worse (37%, compared with 18% of other learners).

English learners who gave a negative rating of their reading were more likely to describe their ability to use computers as 'below average' or worse. While this may indicate multiple skills gaps, it is possible that their limited English skills may be hindering their comprehension of on-screen text and consequently their capacity to understand and engage with computer functions, applications and websites written in English.

Maths learners' self-rating of ICT skills at the start of the course

Figure 5.10 shows how learners who attended different levels of maths course perceived their computing abilities at the start of their course, which again shows the higher level of

confidence amongst higher level learners. Maths learners rated their ICT skills more favourably than both English learners (Figure 5.9) and the general adult population.[54]

Figure 5.10 How good at using computers (self-perception) at start of course, overall and by maths course level
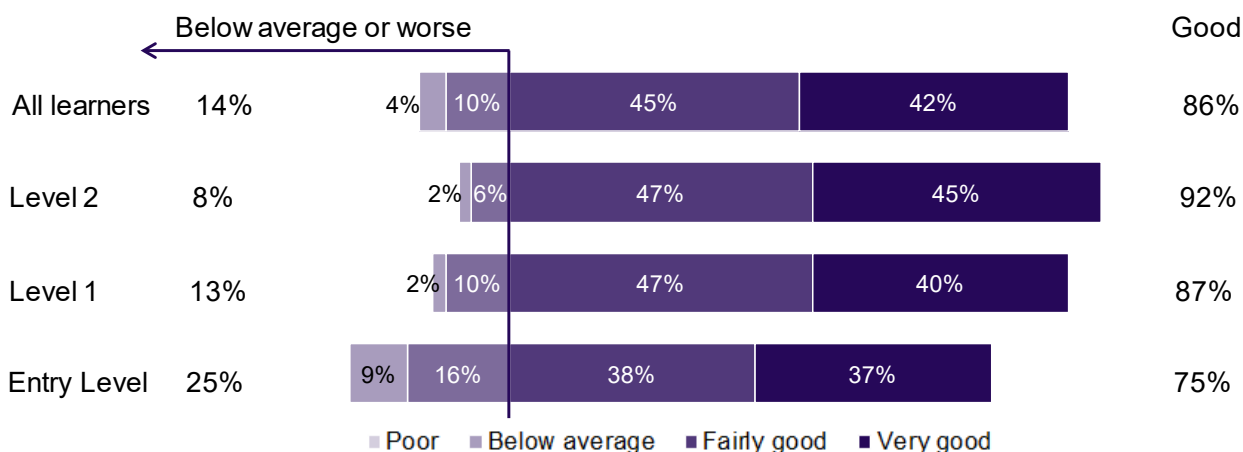
Base: Wave 1 learners who answered the question and attended: any maths course (1766); Entry Level 1-3 maths course (655); Level 1 maths course (580); Level 2 maths course (531)

There were differences in self-perceived abilities depending on the learner's age and educational attainment. A negative rating was less common amongst under-25s (5%, compared with 17% of 25 to 54 year-olds and 37% of learners aged 55 or over); and learners who had Level 1 or higher qualifications (9%, compared with 29% of those who held no qualifications and 23% with Entry Level qualifications).

English learners' changes in self-ratings of ICT skills after the course ended

At the beginning of their course, 80% of English course participants rated their ability to use computers as 'fairly good' or 'very good'. This rose slightly to 86% after the course ended. Table 5.6 shows how this breaks down by age.

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[54] BIS Research Paper 81, 2012 "The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England": page .203
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/36000/12-p168-2011-skills-for-life-survey.pdf

Table 5.6 Change in perceived ability to use computers of English learners between the start and end of the course – overall and by age

	All English learners	Under 25	25 – 34	35 – 44	45+
	%	%	%	%	%
Improvement	28	21	24	41	28
No change	58	69	63	48	45
Worse	14	10	14	11	27
Base (unweighted)	*905*	*156*	*321*	*225*	*179*

Maths learners' changes in self-ratings of ICT skills after the course ended

A fifth of maths learners (22%) gave a higher rating of their abilities with computers at the end of their course,[55] while 16% gave a worse assessment of their skills at the end of the course. In contrast to English learners, there was no pattern by age.

As shown in Table 5.7, learners who had attended more advanced maths courses were slightly more likely than Entry Level learners to give an improved rating of their computer skills after the course was complete (26% of Level 2 learners and 21% of Level 1 learners compared with 18% of Entry Level learners).

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[55] For example, rating computer skills as 'below average' at the beginning of the course, and 'fairly good' at the end of the course.

Table 5.7 Change in perceived ICT abilities of maths learners between the start and end of the course – overall and by course level

	All maths learners	Entry level	Level 1	Level 2
	%	%	%	%
Improvement	22	18	21	26
No change	63	54	64	67
Worse	16	28	15	7
Base (unweighted)	*754*	*264*	*271*	*219*

Maths learners for whom English was not a first language were more likely than others to downgrade their own assessment of their computer skills by the end of the course. While 27% gave a worse post-course rating to their computer skills compared with their initial pre-course rating, this was true for only 12% of native English speakers.

Chapter 6 Learners' attitudes towards English and maths

Summary

A series of statements was used to explore learners' attitudes towards their subject at the start of their course and identify any concerns they had in using English or maths in their everyday lives. The longitudinal survey methodology allows us to identify attitudinal shifts, although attendance on a course should not be assumed to be a causative factor.

While the majority of learners who completed both a wave 1 and wave 2 survey showed a predominantly consistent or positive shift in attitude[56] for each statement, there was also a negative shift of between 20% and 30%, as shown below. However, for many of the statements this positive or negative shift did not vary by course level, or whether the learner made progress in the assessment. This implies that for some learners it may be more the case that a negative shift indicates a heightened awareness of what they don't know as opposed to necessarily indicating lower competence.

English learners who completed a wave 1 and wave 2 interview (c.870)	Negative shift	Positive Shift	Maths learners who completed a wave 1 and wave 2 interview (c.728)	Negative shift	Positive Shift
I worry about making mistakes with grammar	22%	38%	I worry about my ability to solve maths problems	21%	41%
I worry about not spelling words correctly	23%	37%	Maths makes me feel nervous	22%	38%
I sometimes have difficulty filling in forms	24%	36%	I would like to take more maths courses	24%	36%
I find it easy to write to someone I know	23%	35%	My mind goes blank and I am unable to think clearly when doing a maths test	30%	35%

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[56] Note that learners who used the most positive rating on the scale in wave 1 would not have been able to show a more positive view in wave 2 and those who used the most negative rating would not have been able to demonstrate a more negative view.

English learners who completed a wave 1 and wave 2 interview (c.870)	Negative shift	Positive Shift	Maths learners who completed a wave 1 and wave 2 interview (c.728)	Negative shift	Positive Shift
I feel nervous when I have to take an English test	30%	34%	I get anxious during maths tests	28%	32%
I find it easy to read directions	20%	33%	I find maths challenging	21%	31%
I would enjoy improving my reading and writing skills	30%	24%	I find maths interesting	25%	25%

English course participants' attitudes towards English

Attitudes held at the start of their course

English learners were asked to rate 14 statements, which are shown in Figures 6.1 and 6.2. As seen in Figure 6.1, the vast majority of learners (88%) agreed that they would enjoy improving their reading and writing skills, although many learners already felt competent using basic English in their daily lives.

Figure 6.1 Positive attitudes towards English held by English learners
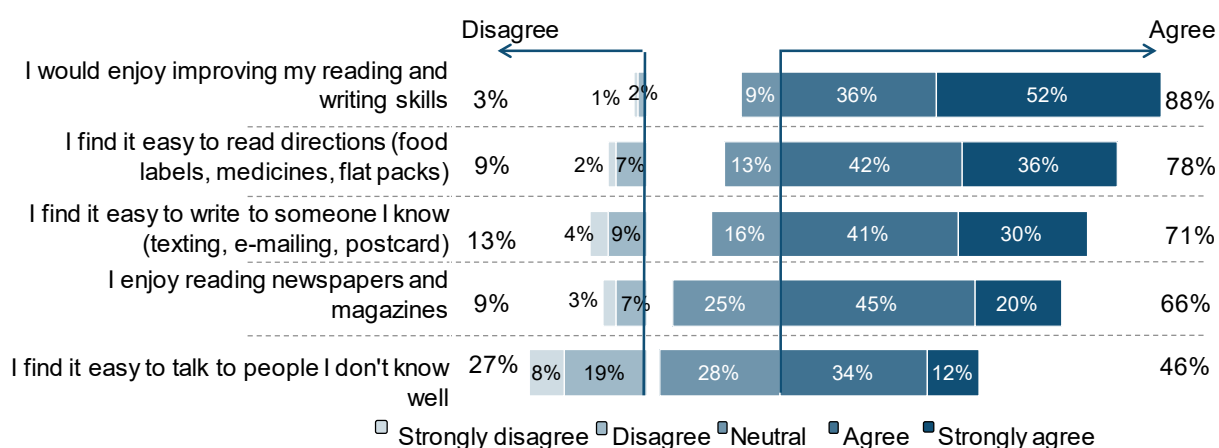
Base: Wave 1 learners who answered each question and attended an English course (c.1943) Note: those who refused to answer or said 'don't know' have been removed from the bases

Figure 6.2 shows the proportions of learners who had various concerns about using English either in daily life or for formal activities such as preparing presentations or taking English tests. The most widespread concerns had to do with the use of grammar (70%), spelling (64%) and punctuation (63%). It was less common to express discomfort with filling in forms (39%), public speaking (32%), or preparing presentations (40%), although this could partly be because fewer learners may have had any, or more than the occasional experience of these types of tasks.
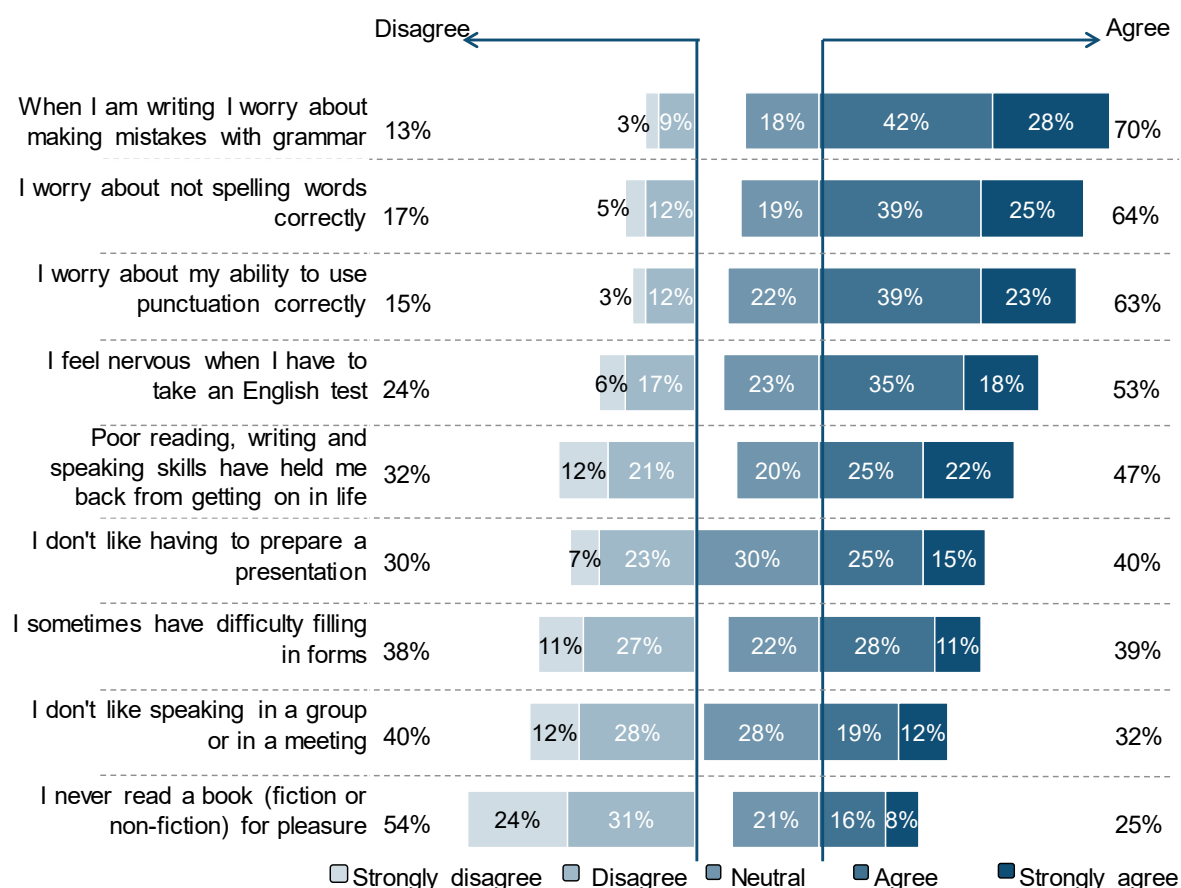
Figure 6.2 English learners' concerns regarding their use of English

|	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
When I am writing I worry about making mistakes with grammar — 13%	3%	9%	18%	42%	28%	70%
I worry about not spelling words correctly — 17%	5%	12%	19%	39%	25%	64%
I worry about my ability to use punctuation correctly — 15%	3%	12%	22%	39%	23%	63%
I feel nervous when I have to take an English test — 24%	6%	17%	23%	35%	18%	53%
Poor reading, writing and speaking skills have held me back from getting on in life — 32%	12%	21%	20%	25%	22%	47%
I don't like having to prepare a presentation — 30%	7%	23%	30%	25%	15%	40%
I sometimes have difficulty filling in forms — 38%	11%	27%	22%	28%	11%	39%
I don't like speaking in a group or in a meeting — 40%	12%	28%	28%	19%	12%	32%
I never read a book (fiction or non-fiction) for pleasure — 54%	24%	31%	21%	16%	8%	25%

Base: Wave 1 learners who answered each question and attended an English course (c.1933) Note: those who refused to answer or said 'don't know' have been removed from the bases

Changes in attitudes after course ended

Seven of the wave 1 statements were asked again in wave 2 of the survey. These longitudinal data are shown in Figure 6.3. While the majority of learners gave a consistent or higher agreement rating (described as a positive shift) at the end of the course, a notable proportion gave a lower agreement rating (described as a negative shift) for each of the statements. This ranged from 20%, to 30% who gave a lower agreement rating with the statement, 'I would enjoy improving my reading and writing skills', than had been the case at the start of the course. However, it is not possible to infer the reason for this from the data. This could imply that these learners have not enjoyed improving their skills during the course and a possible mismatch between expectations at the start of the course and their enjoyment of the course. However, it may simply be the case that they have achieved what they set out to from the course. This negative shift was more common amongst learners who showed measurable progress in their reading assessment (38%, compared with 26% of learners who showed no progress), though not amongst learners who demonstrated progress in the writing assessment.

A negative shift was also observed more frequently amongst learners who were under the age of 25 (40%, compared with 27% of their older counterparts), but was neither more nor less prevalent amongst participants of courses at different levels or of different length.

**Figure 6.3 Shifts in attitudes amongst English learners**
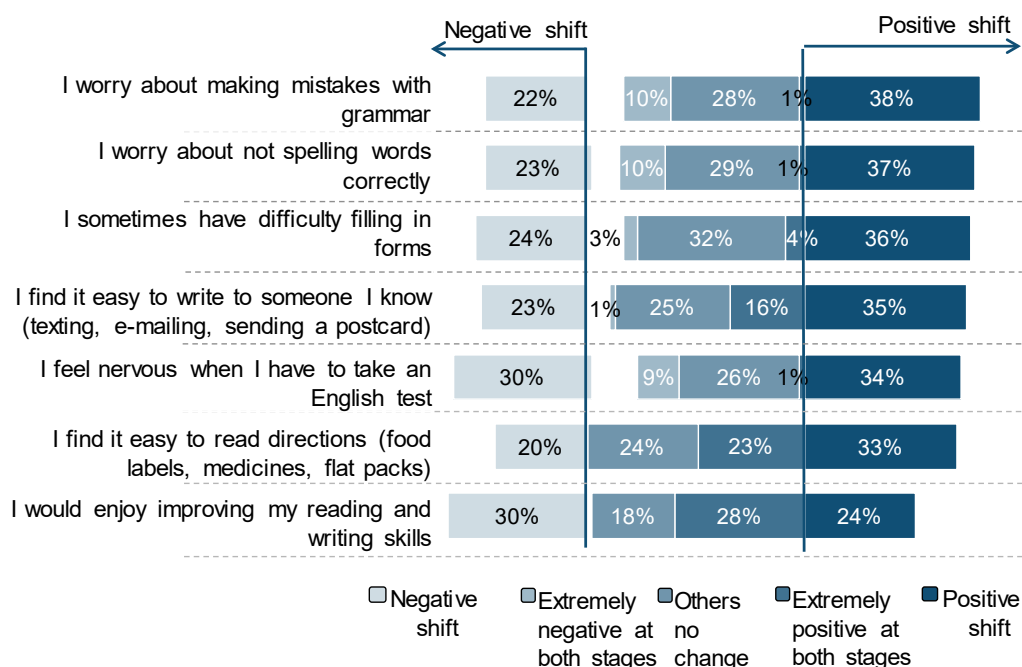
Base: Learners who answered each question at both wave 1 and wave 2 and attended an English course (c.870)

Maths course participants' attitudes towards maths

Attitudes held at the start of their course

Maths learners were asked their level of agreement with 14 maths and numeracy-related statements. This is shown in Figures 6.4 and 6.5.

Figure 6.4 Positive attitudes towards maths held by maths learners
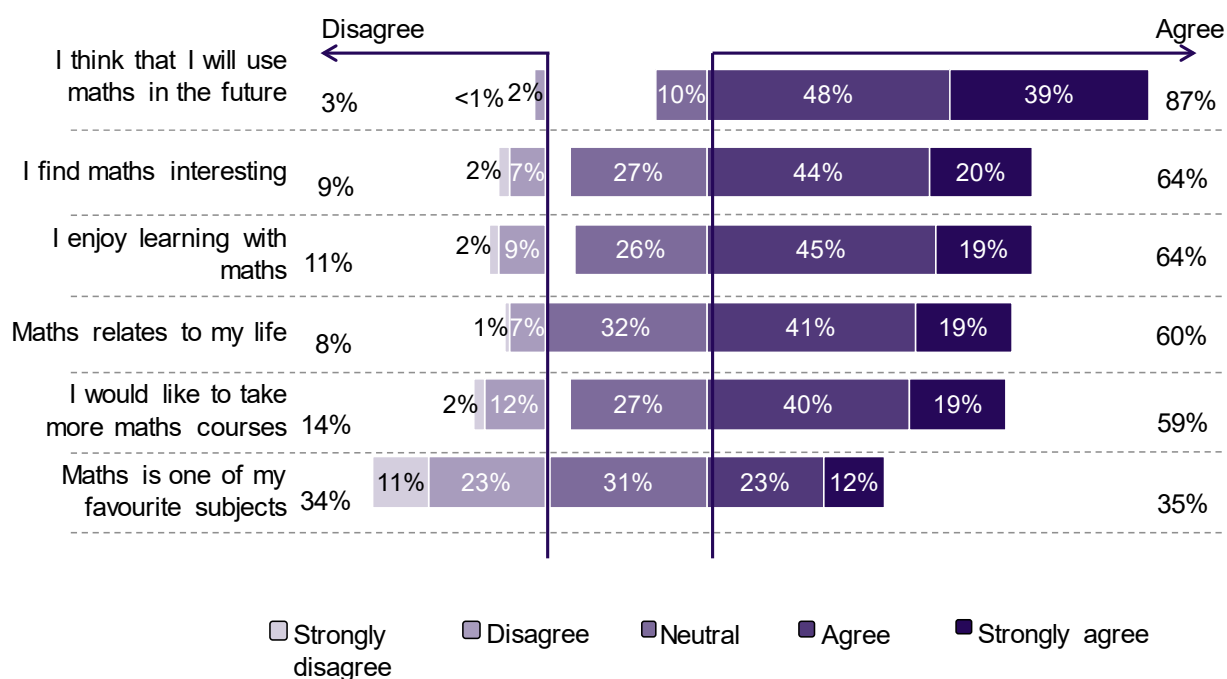
Base: Wave 1 learners who answered each question and attended a maths course (c.1726)
Note: those who refused to answer or said 'don't know' have been removed from the bases

It was less common for Entry Level learners to think that they would use maths in the future (82%) than it was for learners on more advanced courses (89%), but more common for them to consider maths a favourite subject (41% compared with 31% of Level 2 learners). Level 2 course participants were less likely (54%) than either Entry Level learners (66%) or Level 1 learners (60%) to want to take more courses in the future. As discussed in chapter 3, Entry Level learners were more likely to be unemployed and to be taking their course to help them find work.

Figure 6.5 shows the proportions of learners who had various concerns about using maths, solving problems and taking maths tests.

Figure 6.5 Maths learners' concerns regarding maths and numerical problems
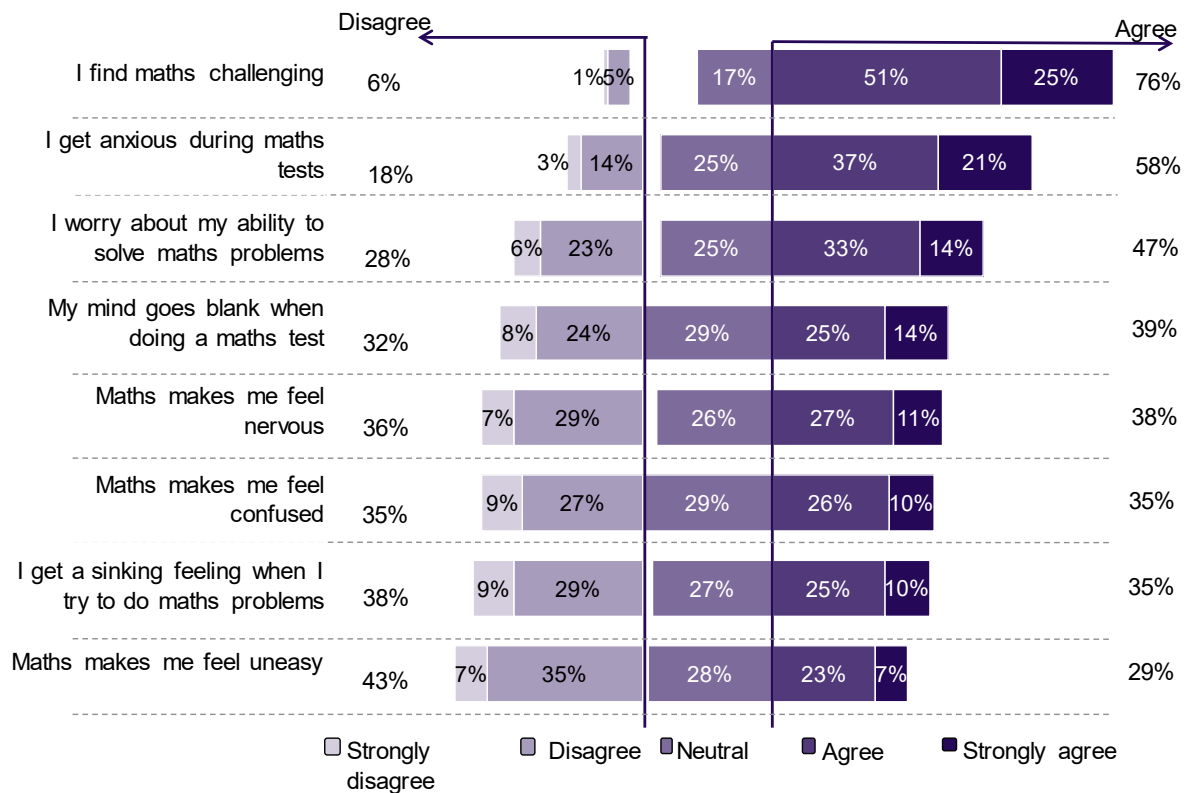

Base: Wave 1 learners who answered each question and attended a maths course (c.1719)
Note: those who refused to answer or said 'don't know' have been removed from the bases

Changes in attitudes after course ended

Seven of the statements were asked again in wave 2 of the survey. Figure 6.6 shows the proportion of learners whose attitudes changed or stayed the same. A 'positive shift' is where learners who had previously agreed that they felt concerns or anxiety, now indicated disagreement, a neutral stance, or less strong agreement with those statements. A 'negative shift' is where concerns or anxiety have intensified.

Figure 6.6 Shifts in attitudes amongst maths learners
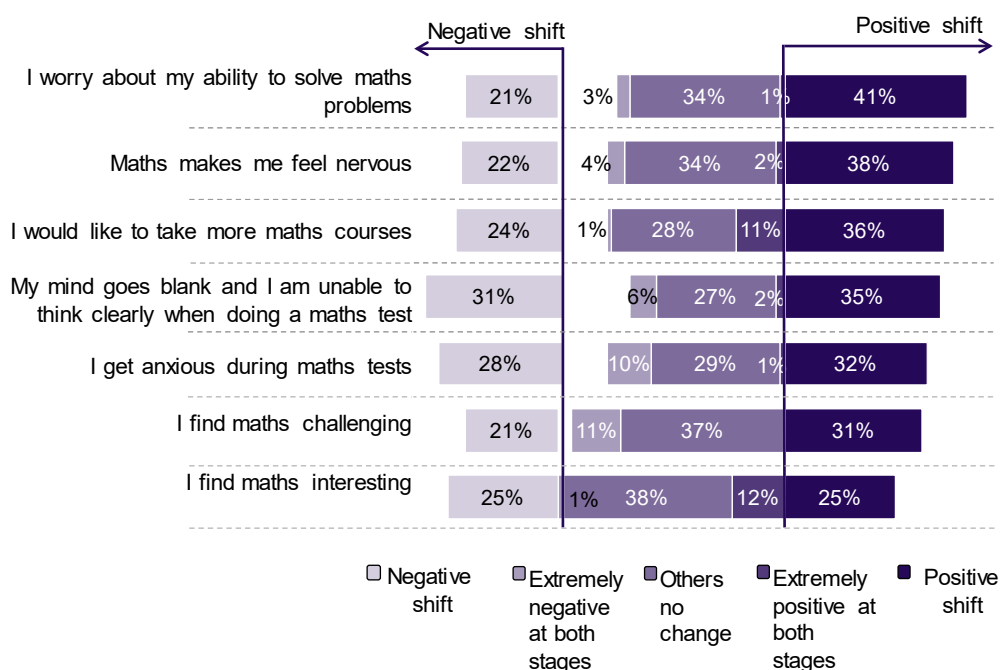
Base: Learners who answered each question at both wave 1 and wave 2 and attended a maths course (c.728)

Changes in attitudes did not seem to bear any relationship with whether or not learners showed measurable progress in their numeracy skills and, for the most part, did not differ significantly amongst learners at different course levels or learners who attended courses of different length. There were 3 exceptions to this:

- It was more common for Entry Level course participants to find maths more challenging after completing the course than when they began it (31%, compared with 16% of Level 1 learners and 18% of Level 2 learners). This may possibly result from having gained a better appreciation of the multiple ways in which numbers can be applied and put to use in daily life through participation in the course
- It was more common for Level 2 learners to indicate a reduction in their concerns about their ability to solve maths problems (48%, compared with 39% of Level 1 learners and 35% of Entry Level learners)
- The desire to take further maths courses was more likely to intensify amongst Entry Level (41%) and Level 1 learners (40%) than Level 2 learners (27%)

Chapter 7 Other outcomes for learners

Summary[57]

Learners rated their level of personal happiness at the start and close of the course. While it is possible that course participation had a bearing on any changes that took place between those 2 points, we cannot say that the course necessarily had a direct influence or causative effect.

There was a positive increase in happiness rating amongst a notable proportion of learners, although it is worth noting that there was no relationship between happiness levels and skills gain.

	Higher happiness score	Same happiness score[58]	Lower happiness score
English learners	43%	26%	30%
Maths learners	50%	21%	29%
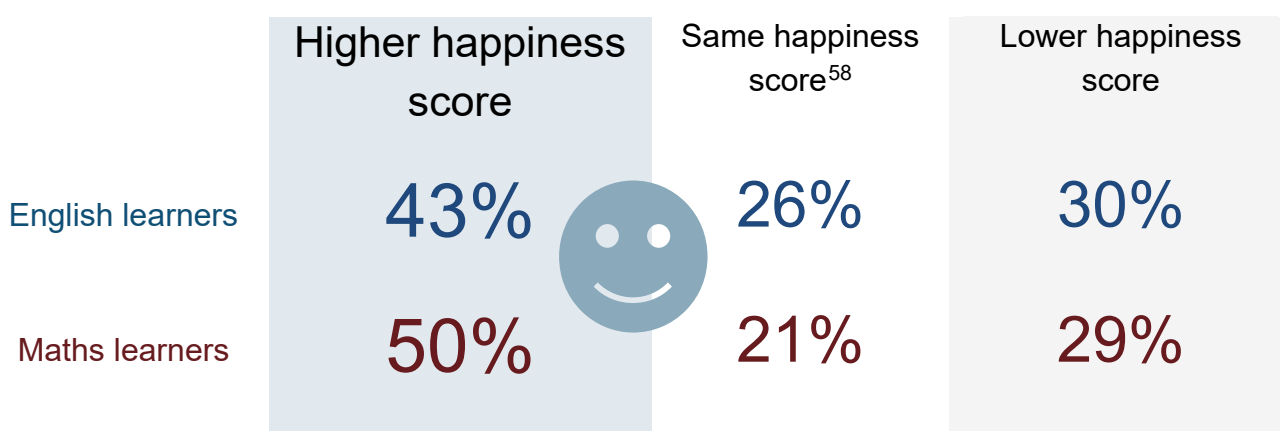
Learners were also asked their views on the effect that the course had on various aspects of their lives, including their family's engagement with learning, their relationship with family members, their work and their personal confidence. Their answers reflect their personal opinion of the direct or indirect effect of attending a course, and so may be interpreted as a perceived outcome of course participation, even in the absence of supporting evidence of change.

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[57] In this chapter, subgroup analysis has been based on the demographic information given at wave 2.
[58] Note that learners who used the top end of the scale, 10, at the start of the course would not have been able to give a higher rating at the end of the course – 9% of English learners and 8% of maths learners gave a rating of 10 in both surveys.

On the whole, English and maths courses appear to have had a positive effect on interest in learning amongst learners' families (where applicable). The data below shows the proportion of learners saying 'a lot' or 'a little' better.

	Course helped with how interested my children and family are in learning	Course helped my relationship with my partner, children or family
English learners	67%	58%
Maths learners	62%	50%
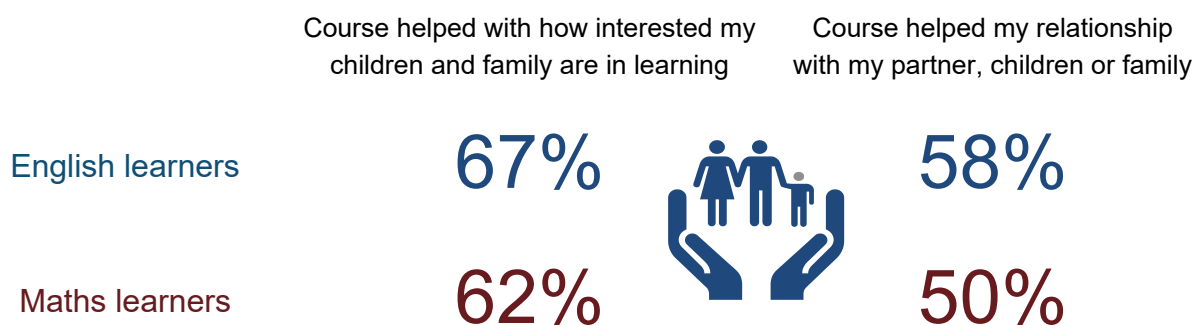
The majority of learners who were in employment at the end of the course felt the course helped their confidence at work and their ability to do their job. The data below shows the proportion saying 'a lot' or 'a little' better.

	Course helped with my confidence at work	Course helped with my ability to do my job
English learners	82%	76%
Maths learners	72%	67%

Changes in happiness levels

Learners were asked to rate their happiness on a scale of 0 (not at all happy) to 10 (completely happy) at the start of their course and again at the end of the course to explore any difference in happiness levels.

Changes in English learners' happiness levels

At the start of their course, the rating most commonly given by learners to describe their happiness was 8 (22%), and the mean happiness score was 7.0.

At the end of their course, the most common rating given by English learners to describe their happiness was 10, with an average of 7.5. The proportions giving a higher, similar, or lower happiness score did not vary significantly by the level of the course or its length, and were not associated with whether or not the learner made measurable progress in their English reading or writing skills in the assessments.

Change in happiness levels also did not vary by age or gender, although English learners whose first language was something other than English were less likely than native English speakers to give a higher happiness rating at the end of the course (35% compared with 50%), and more likely to give a lower score (39% compared with 23%). However, as discussed later in this chapter, these learners were more likely to perceive a positive effect of the course on various aspects their family and work life, as well as being more likely to feel the course had helped their self confidence in their day-to-day life.

Table 7.1 Change in happiness levels between start and end of course for English learners – overall and by first language

	All English learners	English is first language	English not first language
	%	%	%
Higher happiness score	43	50	35
Lower happiness score	30	23	39
No change in score	26	27	26
Base (unweighted)	*860*	*469*	*391*

Changes in maths learners' happiness levels

Consistent with English learners, at the start of their course, the most common happiness rating given by maths course participants was 8 (21%), and the mean happiness score amongst learners was 7.0.

At the end of their course the most common happiness rating given by maths learners was 8, with an average score of 7.6. Shortly after the end of their course half (50%) of maths learners gave a higher happiness score, 29% felt less happy, and 21% gave the same happiness score.[59] These proportions did not differ between learners who showed measurable progress in their numeracy skills and those who did not.

As was the case with English learners, changes in happiness levels only tended to vary by the learner's first language (Table 7.2). Maths learners whose first language was something other than English were more likely to give a lower happiness score in their follow-up interview at the end of the course (36% compared with 26%). As for English learners whose first language was something other than English, these learners were, however, more likely to feel the course had helped their self confidence in their day-to-day life.

Table 7.2 Change in happiness levels between start and end of course for maths learners – overall and by first language

	All maths learners	English is first language	English not first language
	%	%	%
Higher happiness score	50	52	46
Lower happiness score	29	26	36
No change in score	21	22	18
Base (unweighted)	*719*	*508*	*199*

Extent to which course helped family

After completing their course, learners were asked whether the course had helped various aspects of their daily life. Questions were asked regarding their children's or

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[59] Note that learners who used the top end of the scale, 10, at the start of the course would not have been able to give a higher rating at the end of the course – 8% of maths learners did so.

family's interest in learning and their relationship with their partner, children or family. Learners were able to answer on a scale ranging from 'the course helped a lot with this' to 'the course made this a lot worse'. Learners who were either not in relationships or did not have families were able to answer 'does not apply to me' and their responses have been removed from the analysis below.

In addition, at the end of their course, learners whose youngest child was under the age of 9 were asked how often in the last week they had 'read to or with any of your children, or [got] them to read to you;' while learners whose youngest child was aged between 5 and 15 were asked how often they had helped 'any of your children with their homework'. These questions were not asked at the start of the course, but will be asked in the wave 3 survey.

Extent to which course helped family amongst English learners

On the whole, the English course appears to have had a positive effect on the families of English learners (Figure 7.1). Two-thirds (67%) reported that the course helped with how interested their children and family were in learning, with 42% saying the course helped with this 'a lot'. Around 3 in 5 (58%) reported the course helped their relationship with their partner, children or family, with a third (35%) saying it helped 'a lot'.
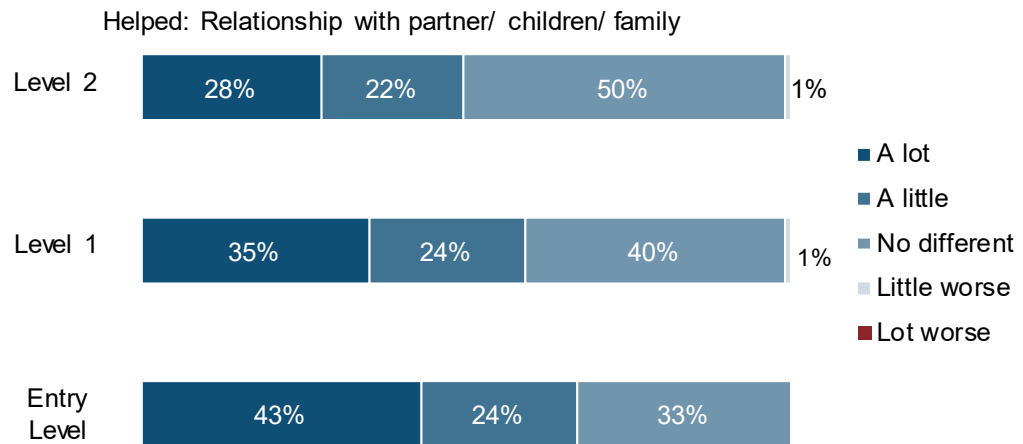
Figure 7.1 Extent to which course helped family amongst English learners
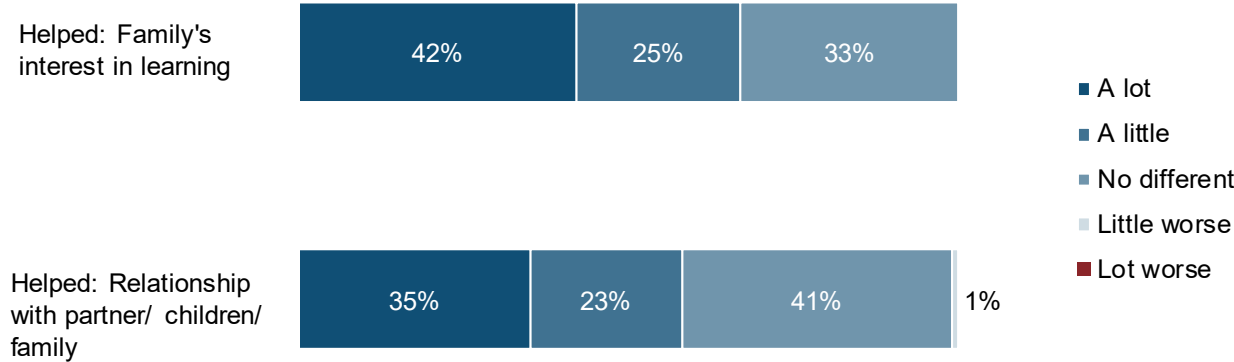
Base: All wave 2 learners who attended an English course: and had a family (1501); and had family members or a partner (1619) Note: Not applicable, don't know and refused responses removed from base

As shown in Figure 7.2, Entry Level learners were more likely than learners on more advanced courses to report an effect on their relationship with their partner, children or family (43% compared with 35% of Level 1 learners and 28% of Level 2 learners).

Figure 7.2 Extent to which course helped relationship with family amongst English learners, by course level

Helped: Relationship with partner/ children/ family

	A lot	A little	No different	Little worse	Lot worse
Level 2	28%	22%	50%	1%	
Level 1	35%	24%	40%	1%	
Entry Level	43%	24%	33%		

Base: All wave 2 learners who attended an English course (1619)
Notes: Not applicable, don't know and refused responses removed from base

Learners whose native language was not English were most likely to feel the course helped their family. Learners in this category were more likely to say that the English course increased their family's interest in learning (76% compared with 59% of native English speakers) and report that the course helped their relationship with their partner, children or family (68% compared with half of native English speakers).

As shown in Table 7.3, learners who felt that the course had helped to improve their skills 'a lot' as a result of attending a course were the most likely to report that the course had helped 'a lot' with their family's interest in learning (50%) and their relationship with their partner or family members (45%).

Table 7.3 Whether course helped family amongst English learners – by perception of whether course helped to improve skills

	Skills not improved at all	Skills improved a little bit	Skills improved a lot
	%	%	%
Course helped 'a lot' with how interested your children of family are in learning	14	27	50
Course helped 'a lot' with your relationship with your partner/children/family	7	15	45
Base (unweighted)	*c.35**	*c.428*	*c.1096*

* Low base

Figure 7.3 shows how regularly English learners read with their children or helped them with homework at the end of the course. These data will be tracked one year on from the end of the course in the final report to explore any differences.

Figure 7.3 Frequency of reading with children and helping children with homework amongst English learners
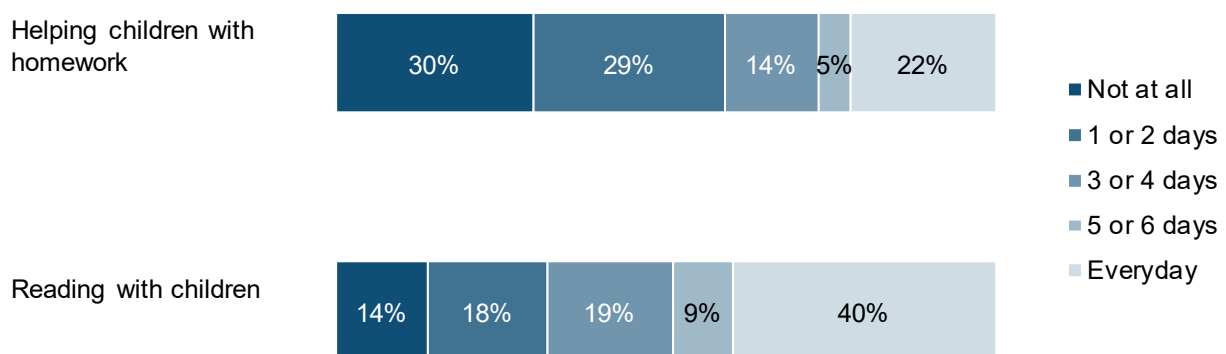
Base: All wave 2 learners who attended an English course: whose youngest child was aged 5-15 (679) (Helping children with homework); whose youngest child was aged 0-9 (487) (Reading with children)

Two-thirds (68%) of English learners with children up to 9 year olds reported that they read with their children for at least half the week (3 nights or more), while 41% of English learners with children aged 5 to 15 said they helped their children with homework at least 3 nights a week. Just 6% of learners who had children aged 5 to 9 said they neither read with their children nor helped them with their homework.

Learners in BME groups were more likely to help their children with homework: only 21% said they never provided this help, compared 41% of white learners.

Extent to which course helped family amongst maths learners

A third of maths learners (33%) reported that their relationship with their partner, children or family had improved 'a lot' and over a quarter (27%) said their family's interest in learning had improved 'a lot' as a result of the course. This is shown in Figure 7.4.

Figure 7.4 Effect of course on family amongst maths learners
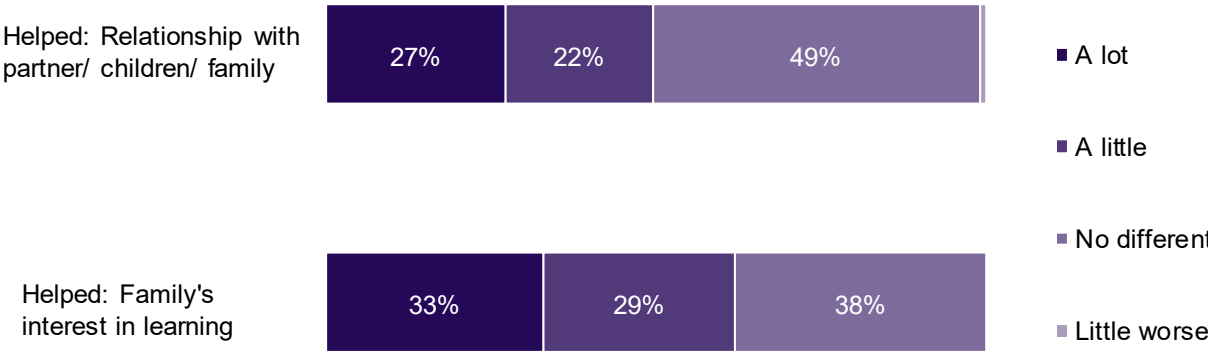
Base: All wave 2 learners who attended a maths course: and had a family (1402); and had family members or a partner (1516). Note: Not applicable, don't know and refused responses removed from base

Two-fifths (38%) of Entry Level learners reported that their course had helped 'a lot' with their family's interest in learning (compared with 31% of Level 1 learners and 32% of Level 2 learners). There were also differences between those who showed measurable progress in their numeracy skills and those who did not: 30% of learners who showed progress reported that their course helped to improve their family's interest in learning, 'a lot' compared with 22% of learners who showed no progress. Learners on courses lasting longer than 3 months were more likely to say that the course had helped 'a lot' with their family's interest in learning (34%) compared with learners on courses which lasted less than 3 months (25%).

There were further differences by learners' employment status. Two-thirds (67%) of those who were not in employment at the end of their course, including those in education or training, reported that the course had increased their family's interest in learning; the equivalent figures amongst learners who were employed at the end of their course was only 57%. Learners not in employment were also more likely to report that the course helped their relationship with their partner, children or family (57% compared with 43% of employed learners).

Maths learners who felt that the course had helped to improve their skills 'a lot' were the most likely to report that the course had helped 'a lot' with their family's interest in learning (40%) and their relationship with their partner or family members (35%), as shown in Table 7.4.

Table 7.4 Whether course helped family amongst maths learners – by perception of whether course helped to improve skills

	Skills not improved at all	Skills improved a little bit	Skills improved a lot
	%	%	%
Course helped 'a lot' with how interested your children of family are in learning	10	22	40
Course helped 'a lot' with your relationship with your partner/children/family	10	16	35
Base (unweighted)	*c.878**	*c.462*	*c.920*

* Low base

Figure 7.5 shows how frequently maths learners helped their children with homework or read with them. These are broadly similar to those relating to English learners, although reading with children under the age of 9 on a daily basis was more common amongst maths learners (49%) than English learners (40%).

Figure 7.5 Frequency of reading with children and helping children with homework amongst maths learners
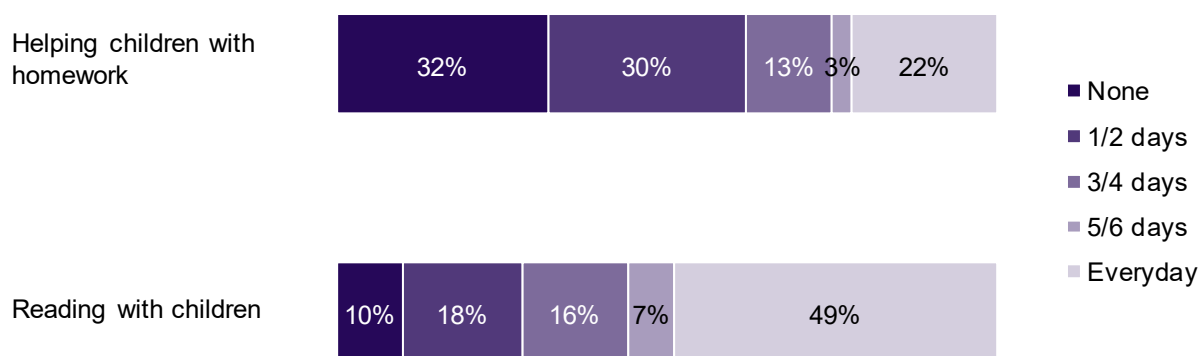
Base: All wave 2 learners who attended a maths course: whose youngest child was aged 5-15 (571) (Helping children with homework); whose youngest child was aged 0-9 (409) (Reading with children)

Learners whose first language was something other than English were more likely to help their children with their homework every day (28%) than native English speakers (18%). The likelihood of reading daily with children did not differ by first language.

Extent to which course helped learners at work

After completing their course, learners were asked 2 questions about the extent to which the course had helped in their work: one concerning their work confidence and the other their ability to do their job. Response options ranged from 'the course helped a lot with this' to 'the course made this a lot worse'. The analysis in this section only includes the responses of learners who were in work at the time of the second interview (at the end of their course).

Extent to which course helped English learners at work

Overall, English courses seem to have a very positive effect on learners' confidence at work, with half of those who were in employment at the end of their course reporting the course helped 'a lot' with their confidence, and a similar proportion (48%) saying the course helped 'a lot' with their ability to do their job (Figure 7.6). There were no significant differences in response based on the level of course attended.

Figure 7.6 Extent to which course helped English learners at work
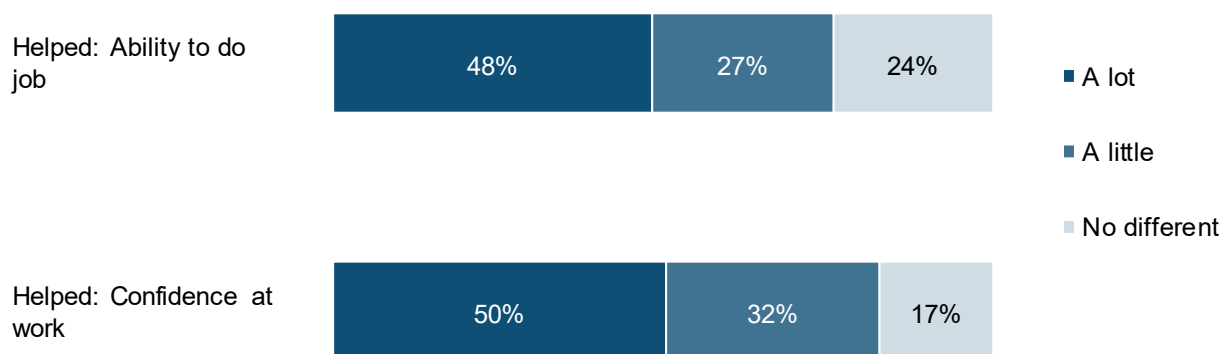
Base: All wave 2 learners who attended an English course and felt the question was relevant to them (1018; 1012) Note: Not applicable, don't know and refused responses removed from base

It was more common for learners whose first language was something other than English to feel these benefits: more learners in this subgroup reported that the course helped 'a lot' with their work confidence (59%) and competence at their job (58%) than learners whose first language was English (41% and 38% respectively).

Learners who felt that their skills had been helped 'a lot' by the course were far more likely to report that the course had helped their competence and confidence at work than learners who perceived little or no change in their skills (Table 7.5). There were no significant differences in response by level of course the learner was attending.

Table 7.5 Extent to which course helped English learners at work – by perception of whether course helped to improve skills

	Skills not improved at all	Skills improved a little bit	Skills improved a lot
	%	%	%
Course helped 'a lot' with ability to do job	13	25	62
Course helped 'a lot' with work confidence	15	27	64
Base (unweighted)	*c.33**	*c.309*	*c.673*

* Very low base

Extent to which course helped maths learners at work

Figure 7.7 shows maths learners' responses to questions regarding the extent to which the course helped their competence and confidence at work. Seven-tenths (72%) reported that the course helped with their confidence, and two-thirds (67%) said it helped their ability to do their job.

Figure 7.7 Extent to which course helped maths learners at work

	A lot	A little	No different
Helped: Ability to do job	33%	33%	33%
Helped: Confidence at work	38%	35%	27%
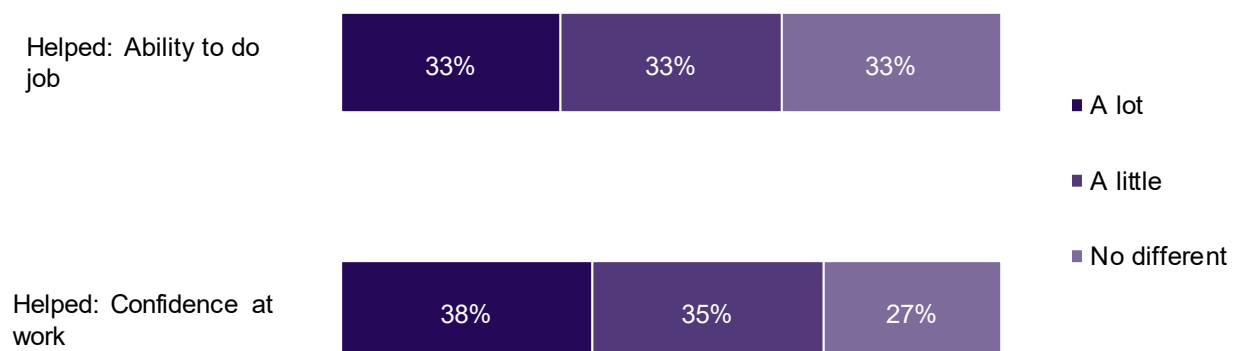
Base: All wave 2 learners who attended a maths course and felt the question was relevant to them (9099; 915). Note: Not applicable, don't know and refused responses removed from base

Maths learners who attended Entry Level courses were more likely (53%) than Level 1 learners (37%) or Level 2 learners (31%) to report that their work confidence was helped 'a lot'. It was also more common for this group to report that the course helped their ability to do their job 'a lot' (50%, compared with 30% of Level 1 learners and 28% of Level 2 learners).

Learners who felt that their skills had been helped 'a lot' by the course they attended were far more likely to believe that their competence and confidence at work had been helped than learners who perceived little or no change in their skills (Table 7.6).

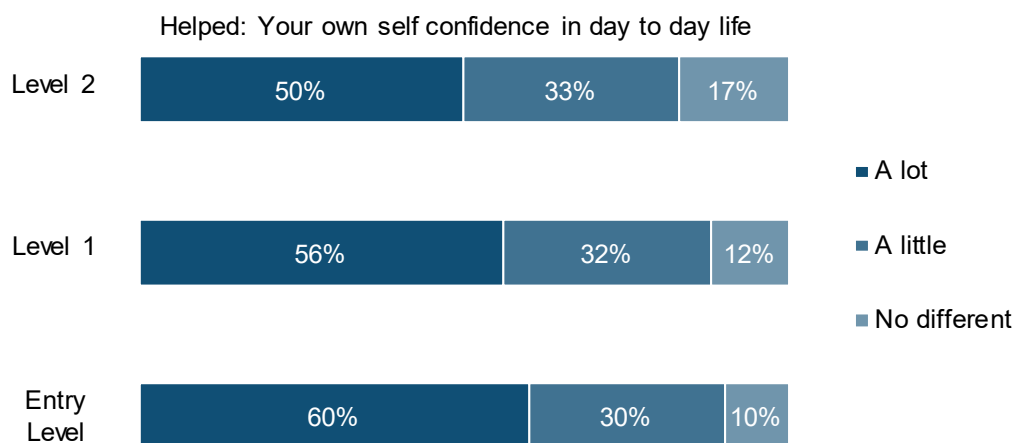**Table 7.6 Extent to which course helped maths learners at work – by perception of whether course helped to improve skills**

	Skills not improved at all	Skills improved a little bit	Skills improved a lot
	%	%	%
Course helped 'a lot' with ability to do job	9	13	45
Course helped 'a lot' with work confidence	13	14	51
Base (unweighted)	*c.52*	*c.275*	*c.586*

Extent to which course helped personal confidence

A further question was used to establish learners' views of the extent to which the course helped their personal confidence, as shown in Figure 7.8.

Figure 7.8 Extent to which course helped on own self confidence, by course level

Helped: Your own self confidence in day to day life

Course level	A lot	A little	No different
Level 2	50%	33%	17%
Level 1	56%	32%	12%
Entry Level	60%	30%	10%

Base: All wave 2 who attended an English course (1825) Note: Not applicable, don't know and refused responses removed from base
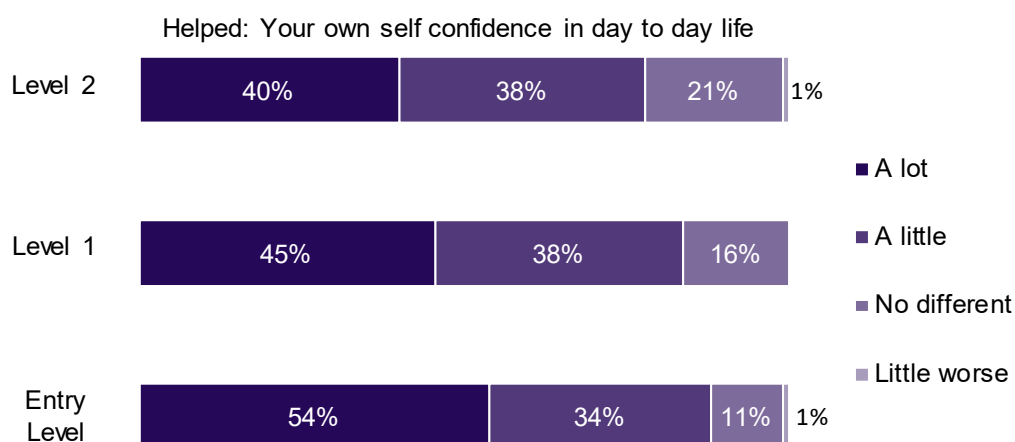
Close to nine-tenths (87%) of English learners felt that their personal confidence had been helped by the course, with 55% saying that the course had helped 'a lot'. A further 13% said that the course made no difference, while just 3 people believed the course had a negative effect on their confidence.

Learners who attended a Level 2 English course were less likely than other learners to say that their confidence had been helped 'a lot' (50% compared with 58% on lower course levels), as were male learners (50% compared with 58% of female learners) and those in full-time employment (50% compared with 57% of learners whose main activity after the course ended was something else). Conversely, a boost in confidence was more widespread amongst learners whose first language was something other than English (65% compared with 47% of native English speakers).

An uplift in confidence was no more common amongst learners who believed that their abilities in English reading, writing, or speaking had improved (as revealed through comparison of their self-ratings at the start and end of the course), than learners who did not perceive these improvements. There was also no difference between learners' progress in either their reading skills or their writing skills (as measured by their performance in the assessments) compared to those who did not show progress.

Extent to which course helped personal confidence amongst maths learners

Figure 7.9 Extent to which course helped own self confidence by course level

Helped: Your own self confidence in day to day life

	A lot	A little	No different	Little worse
Level 2	40%	38%	21%	1%
Level 1	45%	38%	16%	
Entry Level	54%	34%	11%	1%

Base: All wave 2 who attended a maths course (1743) Note: Not applicable, don't know and refused responses removed from base

Four-fifths of maths learners (82%) experienced a boost in their personal confidence as a result of the course they attended, with 45% saying that their confidence had been helped 'a lot', while 17% felt that the course made no difference in this respect. Just 1% felt that the course had a negative effect on their confidence.

Almost two-thirds (64%) of learners whose main activity at the end of the course was 'looking after family or home' reported that their confidence had been helped 'a lot'. They were more likely to say this than other learners who were not in employment (50% of those looking for work, 47% of those in education, 45% or learners who were unwell or disabled, and 44% of those not looking for work), and far more likely than those who were in employment (38% of full-time workers and 39% of part-time workers).

Other learners who were more likely to say that their personal confidence had been helped 'a lot' were: Entry Level course participants (54%, compared with 45% of Level 1 and 40% of Level 2 learners); learners who had English as an additional language (58%, compared with 40% of native English speakers); and to a lesser extent, female learners (47%, compared with 42% of male learners). Maths learners under the age of 25 were the least likely to feel their confidence had been helped 'a lot' by the course (35%, compared with 51% of older learners).

Three-fifths (61%) of the maths learners who said that the course they attended had helped improve their skills 'a lot' believed that the course had helped their confidence 'a lot'. By contrast, only a fifth (20%) of learners who believed their skills had improved 'a little bit' and 14% of learners who felt their skills were unaffected felt the same. However, as with English, the relationship between confidence and skills gain is unclear. There is no evidence that a growth in confidence was more common amongst learners who believed there was an improvement in their everyday numeracy, or their English reading and speaking (as revealed through comparison of their self-ratings at the start and end of the course). Learners who showed progress in their maths skills (as measured by their performance in the assessments) were no more likely to report a boost in their confidence than learners who did not show progress.

Chapter 8 E-learner profile

The longitudinal survey included a boost sample of learners attending e-learning classes, defined as classes where the learning is primarily software-guided rather than teacher-led. These participants were recruited through learndirect centres. This chapter compares the profile of e-learners and classroom-based learners.

There were 109 English learners and 126 maths learners in the e-learner sample and 1920 English learners and 1699 maths learners in the classroom-based sample.

English learners   Maths learners

There was a similar age profile of e-learners on English and on maths courses compared to learners on classroom-based courses.

E-learners	59%	Aged <35	58%
Classroom-based	64%		65%
E-learners	41%	Aged 35+	42%
Classroom-based	36%		35%

The proportion of male and female learners on English courses was similar between classroom and e-learning courses.

The gender profile of e-learners on maths courses was the inverse of classroom-based courses, with a greater proportion of female learners.

E-learners	51%	Male	58%
Classroom-based	40%		39%
E-learners	49%	Female	42%
Classroom-based	60%		61%

English learners

There was a lower proportion of learners for whom English was an additional language attending English e-learning courses.

Maths learners

There was a similar proportion of native English speakers compared to those speaking English as an additional language on e-learner and classroom-based courses.[60]

E-learners	**74%**	**English first language**	**79%**
Classroom-based	**53%**		**71%**
E-learners	**26%**	**English not first language**	**21%**
Classroom-based	**47%**		**29%**

Internet access at home was broadly consistent between e-learners on English courses and e-learners on classroom-based courses than the classroom-based learners.

E-learners	**7%**	**No internet access at home**	**2%**
Classroom-based	**10%**		**6%**

English e-learners and maths e-learners were no more likely to rate their IT skills as 'good' at the start of the course than their classroom-base counterparts.

E-learners	**85%**	**Self-rated IT skills as 'good' at start of course**	**94%**
Classroom-based	**80%**	**@**	**86%**

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[60] The difference of 8% is not statistically significant, although indicatively there appears to be a slightly lower proportion of learners on maths e-learner courses compared to those on classroom-based courses.

English learners   **Maths learners**

E-learners on English courses and e-learners on maths courses were significantly less likely to be in employment than their counterparts on classroom-based courses. English e-learners and maths e-learners were also more likely to cite 'finding a job' as a reason for starting their course. Partly, these differences may be because the e-learners who took part in this study were contacted through Learndirect, who run courses for jobseekers referred through Jobcentre Plus.

E-learners	**81%**	£	**Not in work**	**76%**
Classroom-based	**54%**			**57%**

E-learners	**55%**	**Reason for starting course: 'find work'**	**47%**
Classroom-based	**21%**		**19%**

English learners on e-learning courses were more likely to rate their English reading skills as 'good' compared with English learners on a classroom based course.

Maths learners on e-learning courses were no more or less likely to rate their English reading skills as 'good' compared to classroom-based maths learners.[61]

E-learners	**94%**	**Rated reading skills as 'good' at start of course**	**96%**
Classroom-based	**83%**		**92%**

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[61] The difference of 5% is not statistically significant, although indicatively there appears to be a slightly higher proportion of learners on maths e-learner courses who rated their reading skills as 'good' compared to those on classroom-based courses.

Chapter 9 Conclusions

This interim report has explored the profile of learners attending skills for life courses, and how their skills and confidence developed during their course. The longitudinal survey of adult learners final research report includes findings from a third wave of interviewing one year after course completion to explore learners' skills progression and broader outcomes in more depth.

In general, courses tended to be attended by younger learners (around two-thirds of attendees of both English and maths courses were aged under 35). Nevertheless, around 5% of learners on both English and maths courses were aged 55 or older. As such, adult courses do engage, to some extent, with a broad range of ages and have to be designed accordingly. Courses were also more widely attended by women than men, with women making up around three-fifths of both English and maths learners.

It is also clear that adult courses are particularly important to learners who do not have English as a first language. This highlights the challenges in raising the skill levels of learners in ways that cut across cultural differences and language barriers, including the very different grammatical structures that are the basis of many other languages.

Another challenge faced by the sector is that many learners attending adult education courses have had to deal with difficult life circumstances which negatively impacted on their earlier achievement in education. These circumstances ranged from physical and mental disability through to difficulties with their family life or frequent changes in school. Courses must re-engage learners who faced barriers during their initial experience of education.

Reflecting the government's view that adult skills training can play a valuable role in getting people back to work, a significant proportion of adult learners were not currently in work, and many learners gave work-related reason for taking their course. This was particularly true of learners on Entry Level English courses. In general, English and maths learners on lower levels of course were more likely to have work-related reasons for taking their course, or wanted to improve their skills; while those on Level 2 courses were more likely to see their course as a stepping stone to further qualifications.

By comparing assessment data from the pre-course and post-course assessments, it is possible to identify the learners whose skills improved significantly in the statistical model created for this research. Overall, there was a statistically significant increase in skill levels for around half of English learners (48%) and two fifths of maths learners (62%). Progress appeared to be more widespread amongst learners attending higher level courses, particularly amongst maths learners.

Alongside the improvement in skills, many learners felt their course improved their day-to-day confidence. Such increases in confidence are likely to result in skills being used more regularly in daily life, which may bring about further improvement in skill levels. The vast majority of English and maths learners felt the courses had helped with their skills in general. There was also an increase on English learners rating their writing skills as very good; and maths learners rating their maths skills as very good.

However, the increases in confidence did not correlate directly with measurable improvements in skill levels. As such, in many cases there was a benefit in terms of confidence even when the statistical model did not identify a significant increase in the learner's skills.

These interim findings underline the very real challenges that the sector faces when it comes to raising skill levels. There are many external factors which serve to make the effective delivery of adult learning challenging and it appears that courses may be working more successfully with some groups than others. In particular, male learners and younger learners on English courses showed a higher level of progress than their female and older counterparts. It also appears that there may be an under-representation of older and male learners on these courses, in spite of efforts made to cut through to these groups.[62]

The longitudinal survey final report explores these themes in more detail.

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[62] For example with adult literacy advertising campaigns such as 'Gremlins' (2004), run by the Department for Education and Skills.

Appendix 1: Using learner assessments to measure skills gain

One of the main objectives of the programme of research for adult English and maths was to develop rigorous and valid psychometric test instruments for research. The design process involved Alphaplus developing a large bank of questions at a range of different levels. These were then trialled with learners to ensure their validity, and included at waves 1 and 2 in the longitudinal survey of adult learners (and the RCT, which forms part of the programme of research for adult English and maths). This enabled the research team to identify whether learners had made progress between these 2 survey points.

This appendix offers an overview of the assessments to aid comprehension when reading this report. Please refer to the separate technical report for a fuller description of the design and analysis.

Background

In this research the aim was to identify how much English or maths ability learners gained at different points in time. This gain is conceptualised in simple terms, as follows:

Ability in English or maths at point 2 – ability in English or maths at point 1 = ability acquisition/skills gain, etc.

Put into words, if we subtract learners' abilities at wave 1 from their ability[63] at wave 2, we will get a measure of their progress (their skills gain).

The need for an advanced measurement approach

Consider 4 test scores:

- 15 marks on a 20-mark Entry Level 3 test
- 17 marks on a 25-mark Entry Level 3 test
- 6 marks on a 20-mark Level 1 test
- 8 marks on a 25-mark Level 1 test

A consideration of the above shows it is not easy to tell the relative value of scores on easier/harder, and/or longer/shorter tests. Therefore, we need a more advanced measurement approach if we are to interpret scores from different tests within a common universe (i.e. to make meaningful comparisons). Item Response Theory (IRT) is an
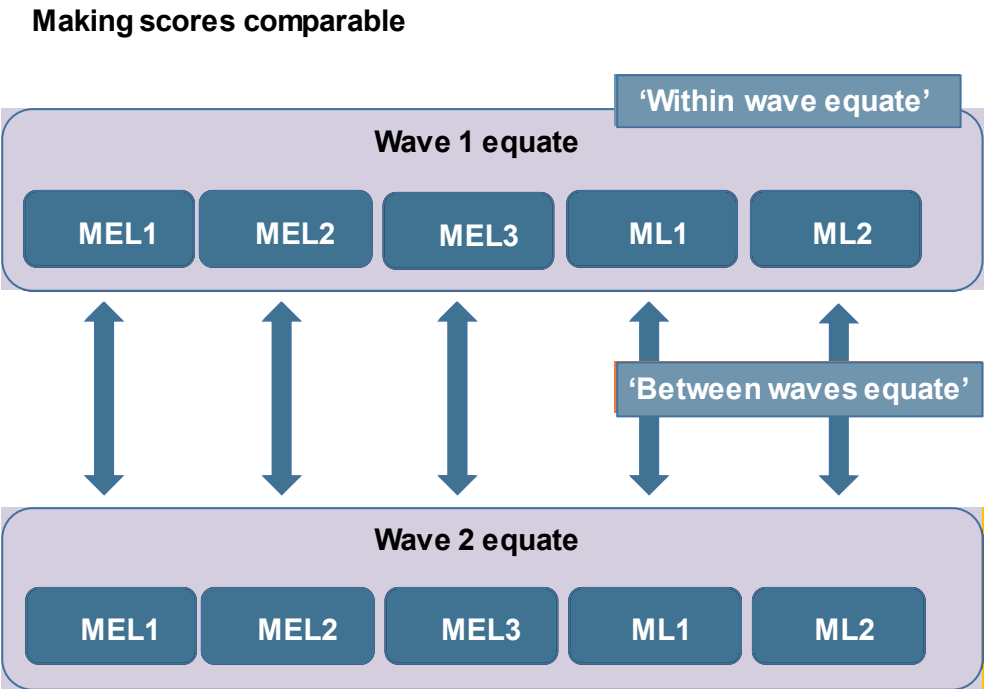
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[63] In this study, the term 'ability' is used as this is consistent with the item response theory (IRT) literature. One might also refer to 'skills' in the context of adult learning. A debate about the difference between skills and abilities is outside the scope of this paper.

industry standard way of providing such an advanced measurement approach. Furthermore, the Rasch one-parameter model is a credible form of IRT, which is widely used, particularly in the United Kingdom. The Rasch model of IRT was used to equate scores from tests in this project.

Equating and linking

This project seeks to measure the abilities of learners from Entry 1 up to Functional Skills/QCF level 2. It also seeks to measure their abilities across points in time (e.g. wave 1 to wave 2, wave 2 to wave 3, etc.). To do this, it is necessary to equate scores on different tests. This is illustrated in Figure A1.1.

Figure A1.1 Equating and linking design for maths tests

Making scores comparable

'Within wave equate'

Wave 1 equate

| MEL1 | MEL2 | MEL3 | ML1 | ML2 |

'Between waves equate'

Wave 2 equate

| MEL1 | MEL2 | MEL3 | ML1 | ML2 |

Key:
Maths Entry Level 1 (ML1)
Maths Entry Level 2 (ML2)
Maths Entry Level 3 (ML3)
Maths Level 1 (ML1)
Maths Level 2 (ML2)

This figure illustrates the case of mathematics (the same principle applies in English reading). Firstly, tests within a wave (e.g. wave 1 or wave 2) are equated to each other. At the end of this process, one can (for example) interpret the meaning of a score on a maths Entry Level 3 test to a score on a maths level 1 test (and so on). Next, we equate the scores 'between waves'. Then, scores on (for example) a maths Entry Level 3 wave 1 test can be compared meaningfully to scores on (say) a maths Level 1 wave 2 test.

As such, this is a powerful technology, which can provide results suitable for this project.

Assumptions and limitations

As with many techniques, this technique comes with some assumptions:

- Need for reliability/error-free measurement. Reliability is a complex concept, but essentially we are saying that scoring on the tests needs to be rigorous and consistent. If not, too much random variance will affect results and we would not be able to be confident of results
- Model fit: The Rasch model of IRT is said to have 'strong assumptions', in particular that data interpreted via the Rasch model fit its assumptions. In practical terms, this most often means that scoring amounts to a single dimension of ability. For example, if scoring in maths is strongly influenced by some other ability (say reading ability), then model fit might be lowered
- Sample size: IRT approaches to measurement have been said to require large samples of learners to provide accurate measure (an ideally long tests as well). But how many learners is sufficient in a sample?

Michael Linacre, the US Rasch specialist, has written the following article about necessary sample sizes: http://www.rasch.org/rmt/rmt74m.htm. He has also produced an estimate of how many test takers are needed for accurate measurement with Rasch IRT. A simplified version of Linacre's table is given in Table A1.1.

Table A1.1 recommended sample sizes for item calibrations

Item Calibrations stable within	Confidence	Sample size for most purposes
± 1 logit*	95%	30 (minimum for right/wrong questions)
± 1 logit	99%	50 (minimum for multi-mark questions)
± ½ logit	95%	100
± ½ logit	99%	150
Definitive or High Stakes	99%+ (Items)	250
Adverse Circumstances	Robust	500

* 'Logit' stands for 'log odds ratio'; this is the unit of measurement within Rasch methodology. In this project, it has turned out that one logit approximates to one level of test.

This table is difficult to interpret,[64] but one may take the following from it (tentatively). With very small sample sizes (typically less than 100 persons on each item) 'calibrations of items' difficulties become inaccurate. Correspondingly, estimates of a persons' ability, given those items, become very inaccurate. Generally speaking one needs a bigger sample for a multi-mark item than for right/wrong items (because – for instance – in a 4-

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[64] Readers are encouraged to consult the web link above for more detail.

mark item, 100 people would be spread 5 ways, [65] rather than just 2 ways in a right/wrong item).

- Treatment of blank data: an analyst working with test data has a choice of (at least) 2 approaches to dealing with blank data. Firstly, s/he could consider any blank response as 'wrong' (evidence that the learner did not know this part of the curriculum). Alternatively, one might consider a blank response as simply missing data. In this project, we have taken the latter approach; we have considered that 'absence of evidence is not evidence of absence'. Equally, coding missing responses as incorrect in voluntary test such as this one might be misleading in that learners who are not highly motivated might be 'negatively marked', and their ability might be underestimated.

Selected results

Measurement properties of the tests

First of all, tests within waves 1 and 2 were equated to each other (see 'within wave equate' in Figure A1.1, above). The measurement properties of these tests were evaluated, and are summarised in table A1.2.

Table A1.2 Measurement properties of reading and mathematics equated tests

Wave	Subject	Person reliability	Infit	Outfit
1	Reading	0.71	1.01	0.96
	Mathematics	0.84	1.02	1.17
2	Reading	0.79	1.00	0.97
	Mathematics	0.89	1.01	1.01

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[65] Scores of zero, one, two, three and four.

The interpretation of the indices in this table can be supported by the following tables:

Table A1.3 Rule of thumb for interpreting person reliability values

Range of reliability values	Interpretation
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Table A1.4 Interpretation of Rasch model parameter-level mean-square fit statistics

Misfit statistics	Interpretation
>2.0	Distorts or degrades the measurement system.
1.5 – 2.0	Unproductive for construction of measurement, but not degrading.
0.5 – 1.5	Productive for measurement.
<0.5	Less productive for measurement, but not degrading. May produce misleadingly good reliabilities and separations.

As such, we can see that these tests were providing high quality measurement. Reliability was 'acceptable' at lowest (reading wave 1), but more often was in the range typically considered as 'good'. Model fit tended toward 1, which is usually considered as 'productive for measurement'.

However, it did appear that there were some issues in terms of the whether learners appeared to be making credible amounts of progress. For some of the tests, learners appeared to not have made progress at all between waves 1 and 2. This was particularly so at entry levels. The causes for this were not immediately obvious but we may make some suppositions, supported by 2 figures.

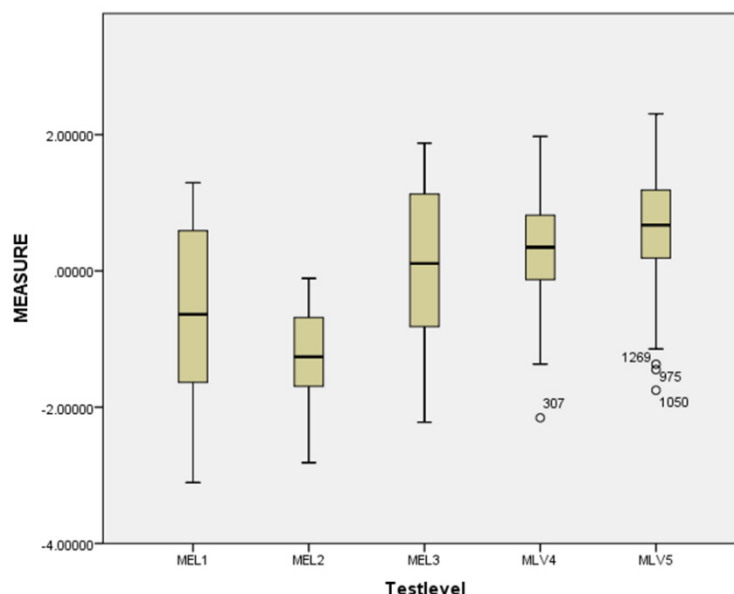**Figure A1.2 Boxplot of learners' estimated abilities in maths wave 1**

Figure A1.2 shows the distribution of learners' estimated abilities for maths wave 1.[66] The thick black line in the middle of the boxplot represents the median score for learners sitting a particular test. The ends of the box are the first and third quartiles respectively. In an equate that was working well, we would expect the boxes to ascend from bottom left to top right.

This plot tends to suggest that learners entered for maths Entry Level 1 and Entry Level 3 test are scoring quite highly. Indeed, it appears that maths entry 1 are scoring more highly (on median average) than Entry Level 2. Similarly, the scoring of Entry Level 3 learners is almost as high as that of Level 1. We can dig deeper into this phenomenon when we look at Figure A1.3.

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[66] There are corresponding figures for reading, which we leave out to save space.

Figure A1.3 Count of persons and items against logit (ability/difficulty) scale in maths Entry Level 1, wave 1 test
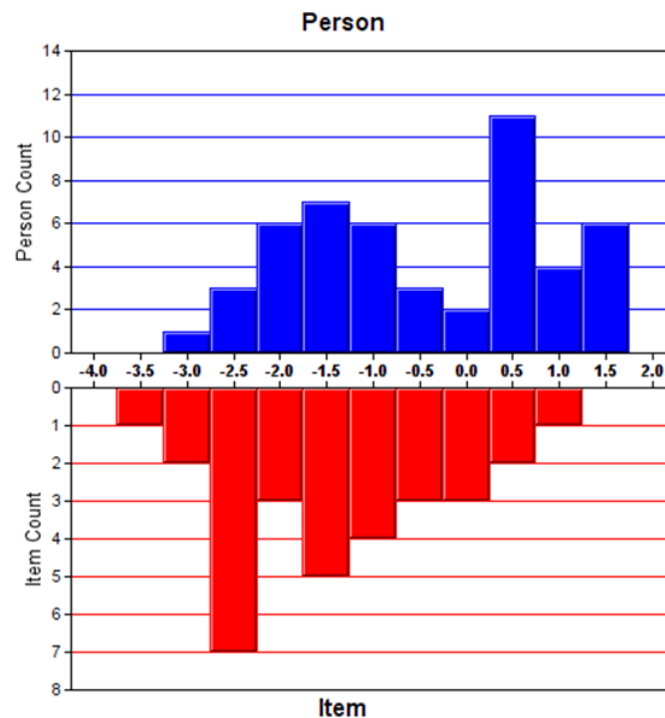
The figure counts the numbers of persons (blue/top half) against the number of items (red/bottom half). The horizontal scale is 'logits' which is a measure that puts persons' ability and items' difficulty on the same scale. Items to the right of the scale are harder (more difficult), and persons to the right have more ability.

We can see that the blue (persons) distribution is 'bimodal' (has 2 peaks), and that there is a group of persons at 0.5 logits or above who are 'above' (more able than) the items in the test.

Discussion

- The project has made some tests, and has calibrated results from these using an industry-standard measurement model
- These tests display good measurement properties (reliability and model fit)
- There are some counter-intuitive results, in which learners appear to make no progress at all. This occurs both in reading and in mathematics. This phenomenon occurs at Entry Levels, but its instantiation is different across Entry Levels and between mathematics and reading
- In so far as there is a problem with the scaling of the tests, it would appear that the issue is in wave 1, and that the wave 2 scaling is more intuitive
- Digging deeper into the data has shown some features, but we have not been able to establish any definitive cause for apparent lack of progress

Whilst we do not have definitive evidence to show why 'lack of progress' has occurred, we might make some suppositions.

- It may be that this is a feature of small samples (such as random variance influencing results unduly)
- Equally, the sample of learners responding to wave 1 tests may have been skewed in some systematic way; for example, Entry Level 1 classes may have contained unusually able learners for some reason
- As discussed in chapter 2 of this report, a notable proportion of learners held an English or maths qualification at the same level of the course they were assigned to. Therefore, one must consider if it would be fair to expect their skills to improve in this assessment
- It may be that the curriculums for entry levels are not psychometrically validated. We are assuming that there is inherently some form of equal interval scale between Entry Level 1, Entry Level 2 and Entry Level 3. In fact, there may not be. Progression at such low levels might not be straightforward; and/or the curriculum between the entry levels might not be highly discriminating in terms of level of difficulty. Rather, it might prioritise other principles (allowing learners who have not been successful in school to feel a sense of progress, for example)
- It is possible that some feature of learners' performance inflated their wave 1 scores. For example, they may have gained encouragement from working amongst their peers. Or, this relatively low-stakes tests might not have been closely invigilated
- It is possible that the treatment of non-response is associated with higher scoring at Entry Level wave 1. It could be that we could 'deflate' Entry Level wave 1 scoring by treating all non-responses as wrong. But, in a complex design such as the current one, we might cause problems elsewhere. For example, we might simultaneously deflate wave 2 Levels 1 and 2 scoring. Also, it is of course unconscionable to amend one's analytical method simply to provide 'more palatable' results

As such, we may conclude by observing some concern about how progress has (or has not) been captured between waves 1 and 2. However, the substantial amount of work undertaken should give us some confidence that wave 2 to wave 3 results could prove interesting for the project.

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