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Quantitative programme of research for adult English and maths

Local authority comparison report

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Chapter 1: Executive summary

Background

In 2013 the Department for Business Innovation and Skills commissioned a consortium of organisations led by Kantar Public (formerly TNS BMRB) and including NIESR, Alphaplus and Learning and Work Institute (formerly NIACE), to conduct a longitudinal programme of research. All learners included in the research attended Skills for Life-funded courses, which were funded by the government. The aim was to understand learners' experiences of Skills for Life-funded courses and explore how learners' skills develop during their course.

In this report we explore the experiences of a cohort of learners who attended English or maths courses provided by local authorities. This report compares the findings of interviews and assessments conducted with these learners with the college learners who were the subject of the longitudinal survey of adult learners research report on waves 1 and 2, although learners on local authority courses started their course one year after the learners attending college courses. All findings in this report are based on 2 surveys: one at the start and one at end of learners' courses.

In this report we compare learners who attended English courses provided by local authorities with learners who attended English courses provided by colleges. We also compare learners who attended maths courses provided by local authorities with learners who attended maths courses provided by colleges. These 4 cohorts of learners are described in this report as follows:

- Local authority English learners
- College English learners
- Local authority maths learners;
- College maths learners

Note that the sample of college learners included a small boost of learners who attended learndirect courses.¹ These learners have been downweighted in the college English learner, and college maths learner samples.²

¹ The full sample described as college learners in this report at wave 1 consists of: 2012 learners who attended college-based English courses and 109 learners who attended learndirect English courses; and: 1804 learners who attended college-based maths courses, and 127 learners who attended learndirect maths courses.

² See the programme of research for adult English and maths longitudinal survey of adult learners technical report.

Summary of findings

Understanding the different profiles and motivations of adults learners

Compared with college learners, learners on local authority courses were more likely to be female and to be older. They were less likely to have English as an additional language.

- 72% of local authority English learners were female, compared with 59% of college English learners
- 78% of local authority maths learners were female compared with 60% of college maths learners
- 60% of local authority English learners courses were aged 35 or over, and 47% of local authority maths learners. This compares with less than two-fifths of college learners being aged 35 or over (37% English and 36% maths)
- 19% of local authority English learners had English as an additional language, compared with 45%³ of college English learners
- 18% of local authority maths learners had English as an additional language compared with 28% of maths college learners

Local authority learners on English or maths courses were less likely to be working full time than college learners. Local authority maths learners were more likely to have family commitments and were particularly likely to have family motivations for taking their course compared with college maths learners⁴.

- 19% of local authority English learners were working full time compared with 26% of college English learners
- 12% of local authority maths learners were working full time compared with 21% of college maths learners
- Local authority maths learners were particularly likely to be looking after the home / family (14% compared with 8% of college maths learners). However, the same was not true of local authority English learners (8% were looking after the home / family compared to 6% of college English learners)

³ The college sample included 176 learners who were on English for Speakers of Other Languages (ESOL) courses (9% of the total sample of learners who attended college English courses). When excluding these learners, 40% of learners who attended college courses spoke English as an additional language, which is still substantially more than the 19% on local authority courses.

⁴ Note that a number of local authority learners were on a course titled, Keeping up with Children (35 of those who took their course with the aim of helping their child at school).

- The most frequently selected reason for taking their course amongst local authority English learners was 'to improve everyday reading and writing' (35%). The most common reason amongst other learners was a 'stepping stone to other training / qualifications' - college English learners (32%), local authority maths learners (37%), college maths learners (41%)
- 30% of local authority maths learners took their course with the aim of helping their child at school⁵. Just 8% of college maths learners did so (the same was true of 11% of local authority English learners and 7% of college English learners)

It was common for both local authority and college learners to have had issues that got in the way of learning when they were young, however, this was particularly prevalent amongst local authority English learners.

- Two-thirds (66%) of local authority English learners reported having an issue which got in the way of their learning when younger. The same was true for 42% of college English learners
- The most common issues amongst local authority English learners who reported an issue were a difficult family life (45%) and a learning disability (41%)
- In contrast to English learners, a consistent proportion of maths learners experienced an issue that got in the way of their learning when younger - half (48%) of local authority maths learners reported an issue and 45% of college maths learners
- Amongst local authority maths learners who reported an issue, it was most common to have had a difficult family life (53%) or mental and emotional difficulties (33%) (compared with 34% and 19% of college maths learners respectively). In contrast, college maths learners who reported an issue were more likely to say they had a learning disability (40%) than local authority maths learners (25%)

⁵ Note that a number of local authority learners were on a course titled: Keeping up with Children (35 of those who took their course with the aim of helping their child at school).

What happened to learners' skills?

Learners took part in 2 assessments, one at the start of their course and one at the end, to gain an independent measure of their change in skills during the course.

Over half of English learners demonstrated progress in their independent assessments:

- 60% of local authority English learners progressed in reading and 62% in writing. Amongst college learners 52% improved in reading and 51% in writing (these differences are not significant due to the base sizes⁶)
- 54% of local authority maths learners improved in the maths assessment.⁷ This was a lower proportion than college maths learners (66%)

The vast majority of learners felt that courses helped them to improve their skills.

- 97% of local authority English courses, and 99% of college maths learners felt their course helped them improve their skills. The same was true of 96% of college English learners and 93% of college maths learners

What wider benefits did learners perceive?

The majority of learners on both local authority and college courses felt their course had positive effects on both their personal and work life.

- Over four-fifths of learners felt their course 'helped with my own self-confidence in their day-to-day life' (84% of local authority English learners; 87% of college English learners; 86% of local authority maths learners; 82% of college maths learners)
- Over three-fifths of learners felt their course 'helped with how interested my children and family are in learning' (73% of local authority English learners; 67% of college English learners; 62% of local authority maths learners; 62% of college maths learners)
- Over half of learners felt their course 'helped my relationship with my partner, children or family' (52% of local authority English learners; 58% of college English learners; 55% of local authority maths learners; 50% of college maths learners)

⁶ The number of English learners with valid assessments at each stage for local authority courses was; reading (93); and, writing (74).

⁷ 137 local authority maths learners had a valid assessment in each survey.

Learners in employment also tended to perceive a benefit in their working life.

- Over seven-tenths of learners felt their course 'helped with my confidence at work' (85% of local authority English learners; 82% of college English learners; 79% of local authority maths learners; 72% of college maths learners)
- Over two-thirds felt their course 'helped with my ability to do my job' (78% of local authority English learners; 76% of college English learners; 68% of local authority maths learners; 67% of college maths learners)

Chapter 2: Background and objectives

Aims of the research

This report is part of the programme of research for adult English and maths, which was commissioned by the Department for Business, Innovation and Skills to explore learners' experiences of Skills for Life-funded adult English and maths courses. It is supported by the following publications as part of the full programme of research. 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.

- Programme of research for adult English and maths longitudinal survey of adult learners research report on waves 1 and 2
- Programme of research for adult English and maths longitudinal survey of adult learners final report
- Programme of research for adult English and maths longitudinal survey of adult learners technical report
- Programme of research for adult English and maths Randomised Control Trial report

The main aim of the local authority research was to ensure learners on courses run by local authorities were represented in the wider research programme. It also enables a comparison of local authority provision and college provision to see whether learners choosing to attend these courses differ in profile and experiences.

The local authority research followed a similar methodology to that followed with college learners. This section gives brief overview. Please see the relevant programme of research publications for a fuller description.

Assessment instrument design and analysis

Each survey included an assessment to independently assess learners' skills. These assessments were designed by AlphaPlus, who undertake performance analysis of assessments for UK-awarding organisations, DfE and Ofqual. The first stage of development involved designing a large bank of questions which were then trialled with learners to assess their validity. Questions were designed to cover the full range of course levels included in the survey - Entry Levels 1-3 and Levels 1-2. Following these trials, any unreliable questions were removed from the question bank.

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 – English and maths courses in Entry Levels 1, 2 and 3, Level 1 and Level 2. 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 study timescale. To this end each of the assessments contained questions at a range of levels, ensuring that learners 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 CAPI to ensure compatibility across different learner environments and the wave 1 and waves 2 survey methodologies (described below).

Learners in wave 1 completed the version of the assessment that was designed to be suitable for learners starting out on a course at each given level. In wave 2 these same learners took a version of the assessment that 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. When analysing the data, AlphaPlus used Item Response Theory (IRT) to derive a measure of performance across all of the different assessment versions.

This process is described in more detail in the other publications in this series. For information about how the local authority scores were processed, please see the technical appendix to this report.

Wave 1

The first wave of the survey was conducted using pen and paper interviewing (PAPI). Due to the short time between commissioning and fieldwork starting, local authority providers were sampled purposively, but with a view to ensuring a broad geographical spread. Recruitment was conducted by networking at suitable adult education events, as well as through Learning and Work Institute's network of contacts and via a BIS call for participants, which was issued via the HOLEX network.

Kantar Public conducted a telephone interview with all the local authorities that expressed an interest in participating. This was to check that they would have a sufficient number of students, to identify course levels and start and end dates, and to ensure that their provision was sufficiently geographically concentrated to allow the efficient administration of the survey. Contact details of a representative who would network with the research team and administer the survey were also collected.

Fieldwork for the first survey took place in the autumn and winter terms in 2014.

Paper questionnaires and guidelines for the process of the project were sent to providers. These packs included a tutor questionnaire (for tutors) and a background questionnaire and assessment for learners. Tutors were told they could help learners to complete the first section of the questionnaire, which included demographics and attitudinal questions, but the assessment should be learners' own work. Providers were asked to administer the questionnaires on the premises, as close as possible to the start of the course.

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 survey. Overall 83% of learners agreed to be re-contacted for the second interview.

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 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 learners this was at the end of the summer 2015 term. Where appropriate this report analyses data based on: i) the total sample of learners at wave 1 ii) the total sample of learners at wave 2 or iii) 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.

Weighting

The data from wave 1 were weighted to make it representative of the adult local authority 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 Appendix 1.

Chapter 3: Profile of learners

Summary

This chapter compares the demographic profile of learners who attended local authority courses and those who attended college or learndirect courses (described as college learners⁸).

Across both English and maths courses, local authority provision tends to be taken up more by women, older age groups and learners with English as a first language compared with learners attending college courses.

Age

English learners

As shown in Figure 1, the age profile of local authority English learners differed to college English learners. Local authority English learners were more likely to be aged 35+ (60%) compared with college English learners (37%). This difference was also apparent across the different course levels, with a lower proportion of learners under 35 on Entry Level local authority English courses compared with college (33% compared with 52%), Level 1 (41% compared with 66%) and Level 2 (50% compared with 69%).

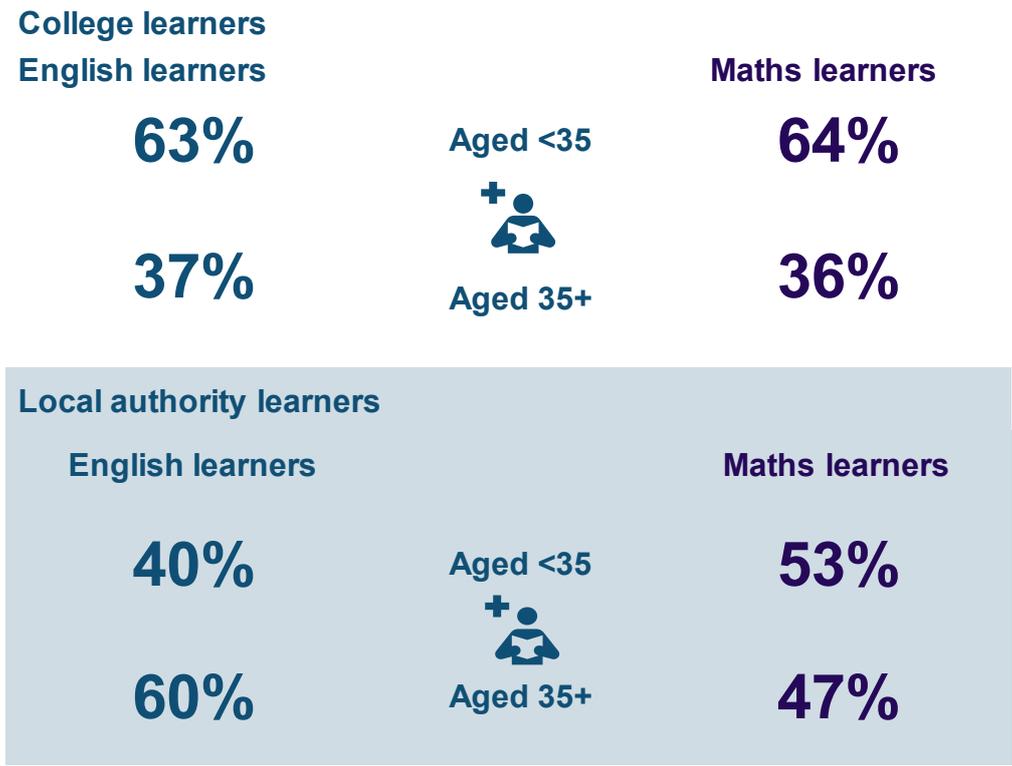
Maths learners

There was a fairly even split between age groups who attended local authority maths courses (53% were under 35 and 47% over 35).

Similar to the findings for English learners, maths learners on local authority courses tended to be older than learners on college courses (Figure 1). When looking at course level, local authority maths learners on Level 1 (51%) or Level 2 (48%) were more likely to be aged 35 or older than their college counterparts (37% and 34% respectively). Learners attending Entry Level courses also had a significantly different age profile, with 43% of local authority Entry Level maths learners being 35 years or older compared with 38% of college Entry Level maths learners.

⁸ The learndirect learners have been downweighted into the college sample to ensure the college sample is representative of the college adult learner population. For full details please refer to the, Programme of research for adult English and maths longitudinal survey of adult learners technical report.

Figure 1 Learner age profile



Base: Wave 1 learners who attended any English course and reported their age: Local authority learners (249), college learners (1949); wave 1 learners who attended any maths course and reported their age: Local authority learners (361), college learners (1732)

Gender

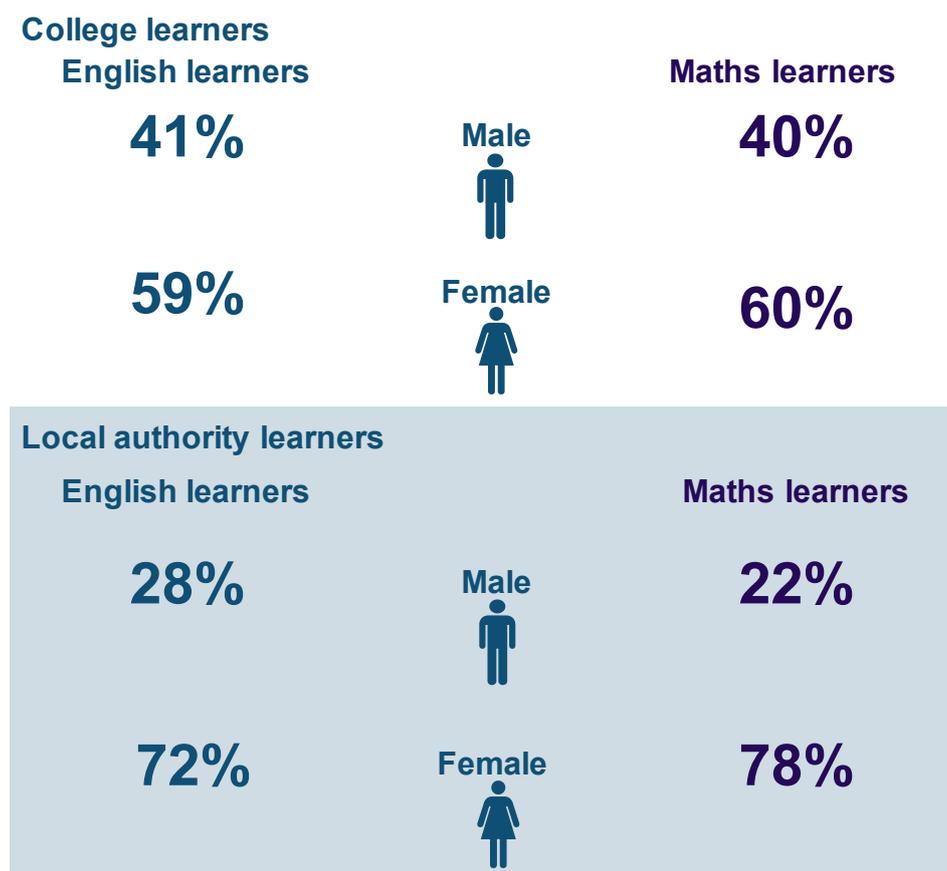
English

A larger proportion of learners on local authority English courses were female (72%), compared with college English learners (59%). This split in gender was consistent across the different local authority English course levels - Entry Level 70% female, Level 1 69% and Level 2 78%.

Maths

Women were also more likely to attend local authority maths courses (78%) compared with men (22%). This compares with 60% of college maths learners being female. However, this differed by course level – 31% of learners on Entry Level local authority maths courses were male, compared with 14% on Level 2 courses.

Figure 2 Learner gender



Base: Wave 1 learners who attended any English course and reported their gender: Local authority learners (248), college learners gender (1973); wave 1 learners who attended any maths course and reported their gender: Local authority learners (366), college learners (1748)

First language

English

Four in five local authority English learners had English as their first language (81%). This compares with 55%⁹ of college English learners (Figure 3). There were more learners with English as an additional language on Entry Level (27%) and Level 1 (22%) local authority English courses than those attending Level 2 (7%). Male local authority learners were more likely to have English as a first language (90%) than female learners (77%).

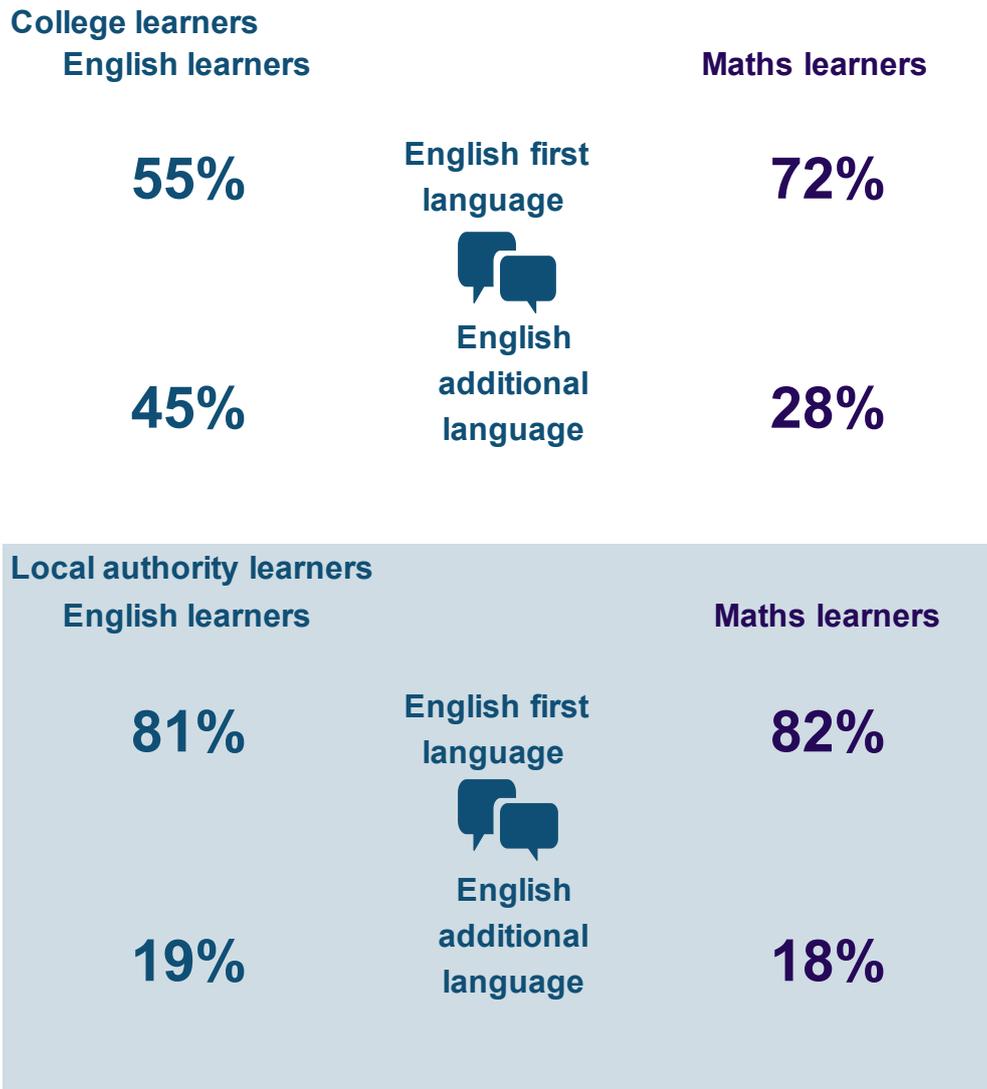
Maths

A high majority of maths learners (82%) reported that English was their first language, as with English learners. Significantly more local authority maths learners had English as a first language than college maths learners (72%).

As for English learners, there were more local authority maths learners with English as an additional language on Entry Level (26%) and Level 1 (22%) courses than those attending Level 2 (8%). This pattern is also seen amongst college learners where there is a higher proportion of learners for whom English is not their native language on Entry Level courses (40%) compared with Level 1 (29%) and Level 2 (21%).

⁹ The college sample is composed of 1877 college-based learners and 106 learners who attended Learndirect courses. The sample included 176 learners who were on ESOL courses (9% of the English learner sample). Three-quarters (74%) of Learndirect learners reported English was their first language.

Figure 3 Learners' first language



Base: All wave 1 learners who reported their first language and: attended English local authority course (246); attended English college course (1981); attended maths local authority course (368), attended maths college course (1768)

Ethnicity

English

The proportion of white learners on local authority and college courses were similar (64% and 61% respectively) (Figure 4). Amongst local authority learners, those attending Entry Level courses were more likely to come from a Black and Minority Ethnic (BME) background (47%) than those attending Level 1 (26%) or Level 2 courses (26%). Learners attending Level 1 local authority courses were less likely to come from a BME background (26%) than those attending Level 1 college courses (41%).

Maths

Learners who attended local authority and college maths courses were also had a similar proportion of white learners (69% and 68% respectively). Across local authority learners, this composition is similar for all the different levels, although local authority maths learners on an Entry Level course were less likely to come from a BME background (29%) than those attending Entry Level college courses (47%).

Figure 4 Learners' ethnicity

College learners

English learners

61%

39%

White



BME

Maths learners

68%

32%

Local authority learners

English learners

64%

36%

White



BME

Maths learners

69%

31%

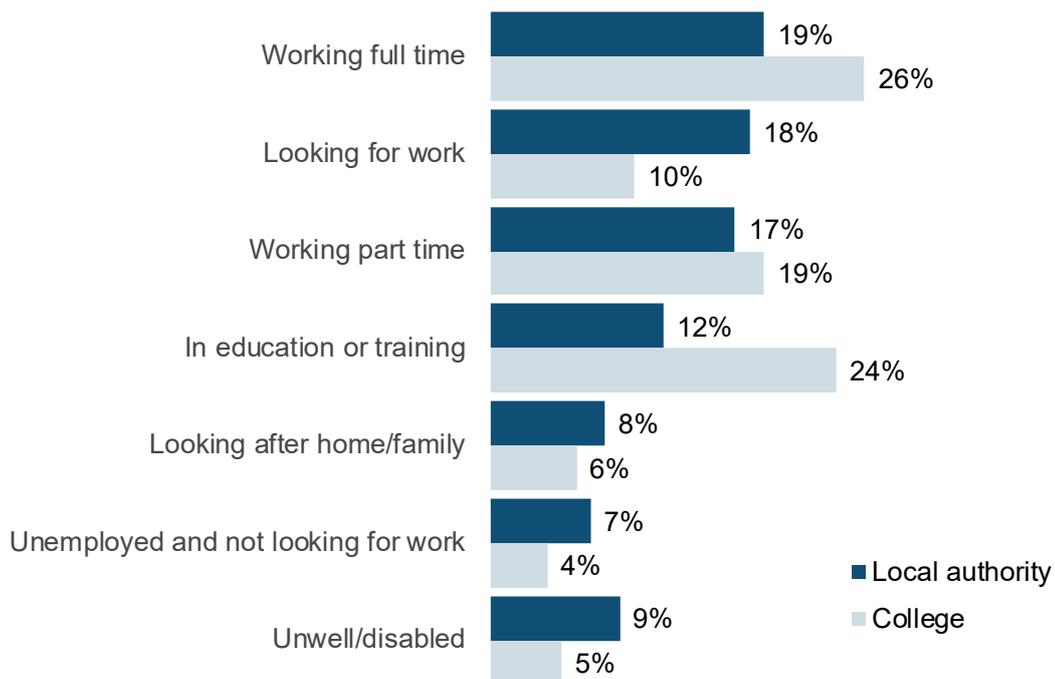
Base: All wave 1 learners who reported their ethnicity and: attended English local authority course (244), attended English college course (1899); attended maths local authority course (359), attended maths college course (1696)

Economic activity

Economic activity of English learners

A similar proportion of local authority (63%) and college English learners (56%) were not in work (Figure 5).

Figure 5 English learners' economic activity at start of course

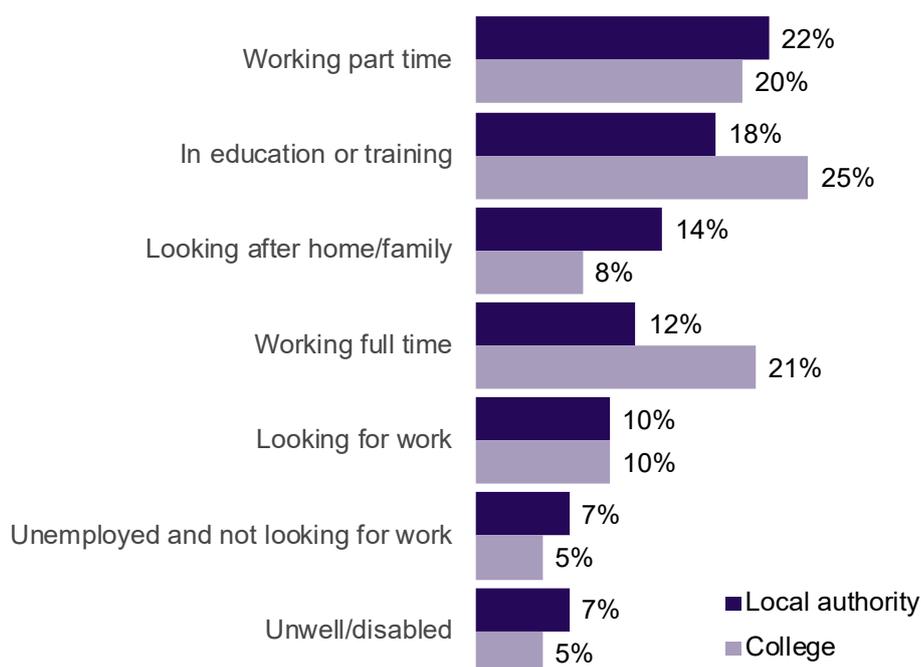


Base: All wave 1 learners who reported their economic activity and: attended English local authority course (206), attended English college course (1641)

Economic activity of maths learners

The difference between local authority maths learners and college maths learners who were not in work was significant (59% of college maths learners compared with 66% of local authority learners). Local authority learners were more likely to be looking after their home/ family (14%) than college learners (8%). They were also less likely to be working full time (12% compared with 21%) (Figure 6).

Figure 6 Maths learners' economic activity at start of course



Base: All wave 1 learners who reported their economic activity and: attended maths local authority course (316), attended maths college course (1403)

Chapter 4: Previous Experiences of Learning

Summary

This chapter explores learners' previous experiences of learning and their reasons for taking their Skills for Life-funded course.

The levels of previous qualifications learners held in English and maths were similar between English local authority and college learners; and also maths local authority and college learners. Course participation since leaving school was also broadly similar.

However, local authority English learners were more likely to have been affected by issues that got in the way of their learning when younger (66% identified 1 or more issues compared with 42% of college English learners). In contrast, similar proportions of maths learners identified one or more issue (48% of local authority maths learners and 45% of college maths learners).

Previous highest qualification in course subject

Learners were asked whether they had a previous qualification in English before they attended the course included in this survey.

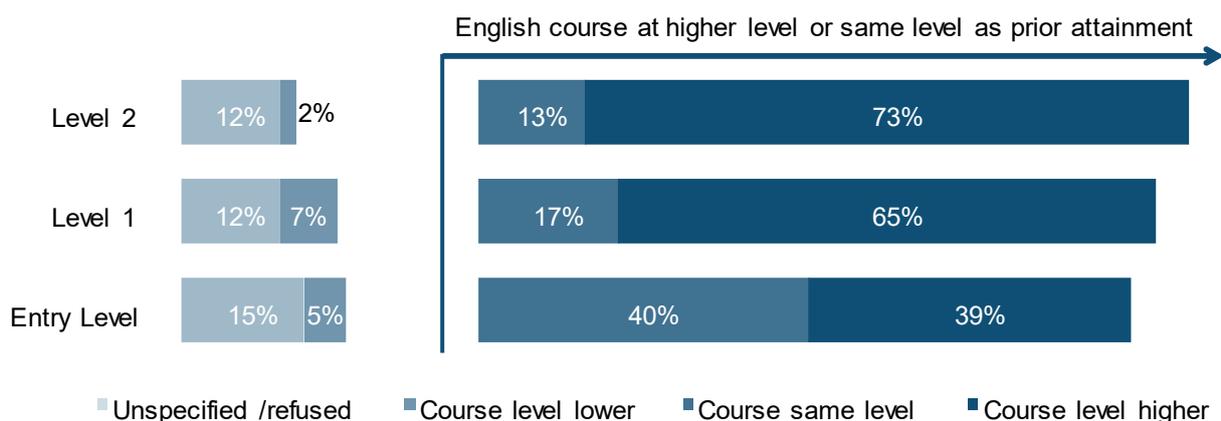
Previous qualifications in English

Local authority English learners were slightly more likely to have no previous English qualification (34% compared with 28% of college learners), and less likely to hold a previous English Entry Level qualification as their highest level (31% compared with 39% college learners) (Figure 7).

Unsurprisingly, amongst local authority English learners, Level 2 learners were more likely to have their highest previous English qualification at a level higher than Entry Level (58%) compared to Entry Level (20%) and Level 1 (21%) learners. Similarly, Entry Level learners (49%) were less likely to have a previous qualification in English compared to Level 2 learners (86%), and although not significant Level 1 learners (68%). This pattern is reflected amongst college learners, where Level 2 learners (85%) were disproportionately more likely to hold any previous English qualification than Entry Level (55%) and Level 1 learners (74%).

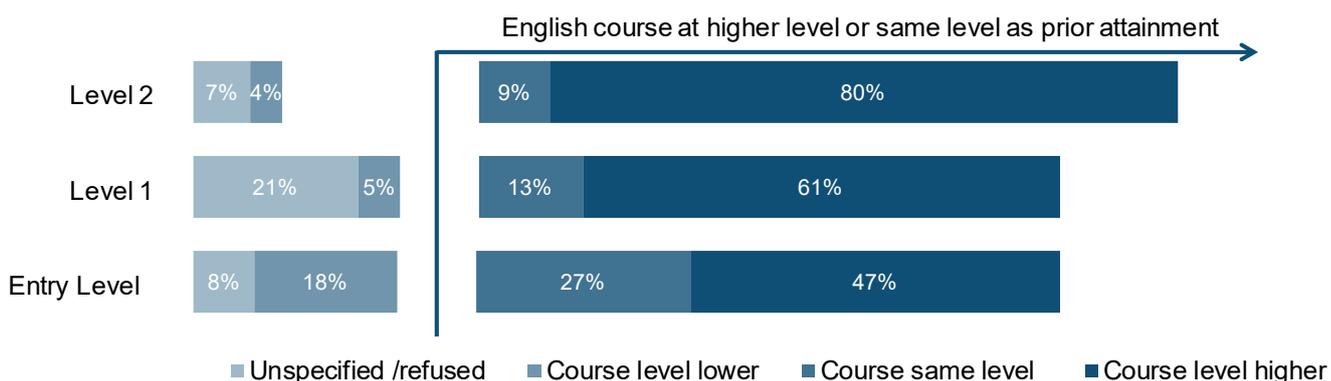
Figures 7 and 8 suggest that a large proportion of local authority Entry Level English learners were attending a course at a lower level than an existing English qualification - 18% compared with college learners (5%). However, when interpreting these data note that in the survey learners did not distinguish 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. Entry Level local authority English learners were also more likely to be on a higher course level compared with college learners (47% and 39% respectively).

Figure 7 Previous English qualifications held relative to course level – college English learners



Base: All wave 1 learners who reported a previous English qualification and attended: Entry Level 1-3 English course (771); Level 1 English course (529); Level 2 English course (528)

Figure 8 Previous English qualifications held relative to course level – local authority English learners

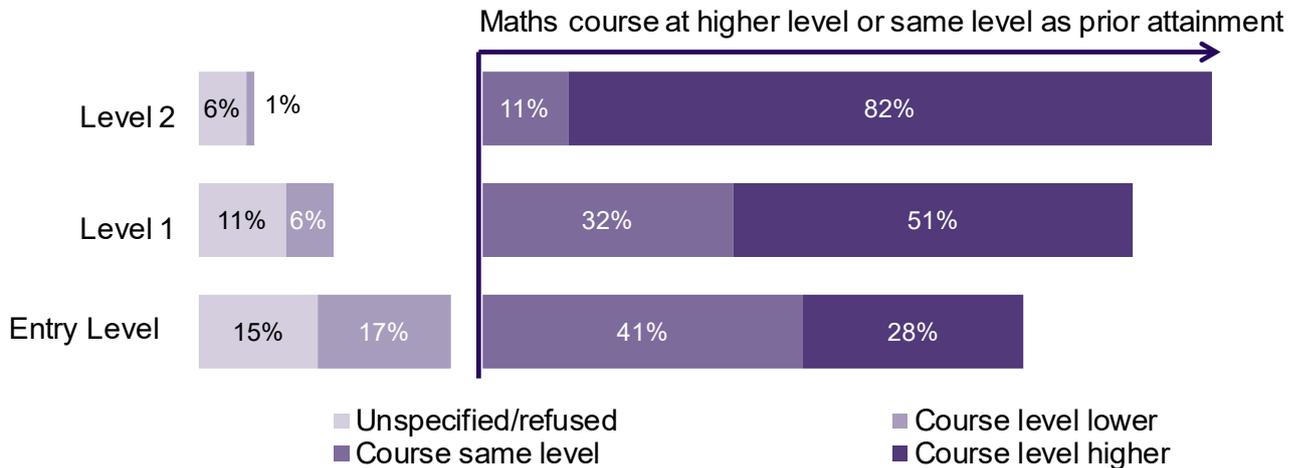


Base: All wave 1 learners who reported a previous English qualification and attended: Level 1-3 English course (91); Level 1 English course (59); Level 2 English course (78)

Previous qualifications in maths

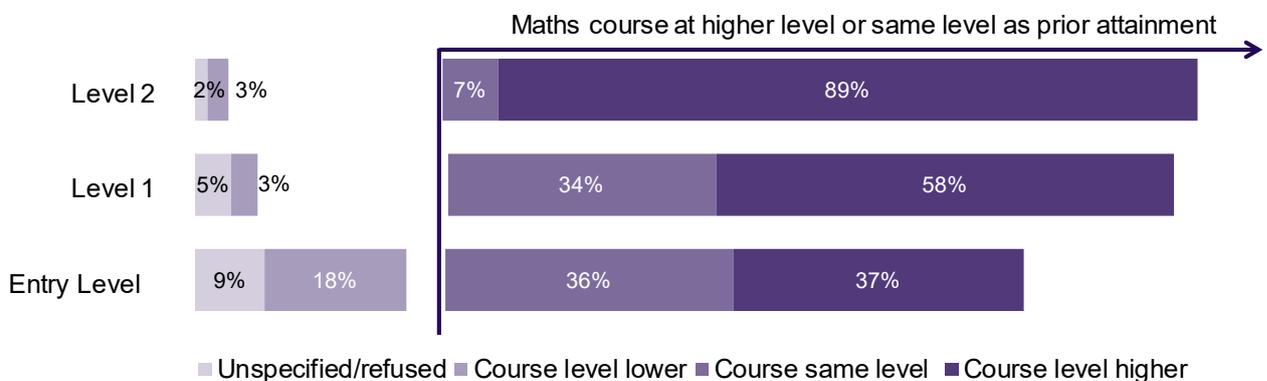
Maths learners were asked about their previous maths qualifications before they attended their current course. As Figures 9 and 10 show, a similar proportion of learners attending local authority and college maths courses either had no previous maths qualifications or a previous Entry Level qualification. There were no significant differences between the 2 cohorts in terms of the whether learners attended a higher or lower level course compared to their previous qualifications. As we'd expect, amongst local authority learners, Entry Level learners were significantly less likely to hold a previous maths qualifications (56%) compared with Level 1 (79%) and Level 2 (92%). This difference between levels was also apparent amongst college learners, where relatively fewer Entry Level learners held a previous maths qualification (68% compared with 83% of Level 1 learners and 87% of Level 2 learners).

Figure 9 Previous maths qualifications held relative to course level – college maths learners



Base: All wave 1 learners who reported a previous maths qualification and attended: Entry Level 1-3 maths course (503); Level 1 maths course (475); Level 2 maths course (471)

Figure 10 Previous maths qualifications held relative to course level – local authority maths learners



Base: All wave 1 learners who reported a previous maths qualification and attended: any maths course (306); Entry Level 1-3 maths course (109); Level 1 maths course (99); Level 2 maths course (98)

Participation in other courses since leaving school

Learners were asked whether they had attended a course, other than the one included in the survey, since leaving school.

English learners' participation in other courses

Findings for local authority English learners were comparable with college English learners:

- 24% of local authority English learners reported that they had attended another course in English since leaving school (79% of these learners had finished the previous course before the survey course)
- 29% of college English learners reported that they had attended another course in English since leaving school (88% of these learners had finished the previous course before the survey course)

Maths learners' participation in other courses

As for English learners, a consistent proportion of local authority maths learners had attended a previous course in maths than college maths learners:

- 22% of local authority maths learners reported that they had attended another course in maths since leaving school (76% of these learners had finished the previous course before the survey course)
- 25% of college maths learners reported that they had attended another course in maths since leaving school (85% of these learners had finished the previous course before the survey course)

Issues which got in the way of learning when young

Learners were asked about their previous experiences of learning and any issues which they believe had got in the way of their learning when younger.

English learners' previous experiences of learning

A larger proportion of local authority English learners reported having one or more issue which got in the way of their learning when they were younger compared with college (66% compared with 42% respectively).

As shown in Table 1, amongst local authority English learners who reported they had issues which got in the way of their learning, the most common barrier was a difficult family life (45%), followed closely by a learning disability (41%).

Table 1 Issues which got in the way of learning when young amongst English learners

	All English learners		English Learners who reported an issue	
	College	Local authority	College	Local authority
	%	%	%	%
Learning disability	18	27	43	41
Difficult family life	16	30	37	45
Moves and changes in school	8	11	19	17
Mental or emotional difficulties	7	13	17	20
An illness which lasted a long time	5	13	13	20
Speech problem	5	11	12	16
Physical disability	3	7	6	11
None	58	34	-	-
<i>Base (unweighted)</i>	1889	133	813	75

Maths learners' previous experiences of learning

Similar proportions of maths local authority and college learners reported one or more issue that got in the way of learning when they were young (48% of maths local authority learners compared with 45% of college maths learners).

The most common barrier which got in the way of learning amongst local authority maths learners who reported an issue was a difficult family life (53%), followed by mental or emotional difficulties (33%).

Table 2 Issues which got in the way of learning when young amongst maths learners¹⁰

	All maths learners		Maths learners who reported an issue	
	College	Local authority	College	Local authority
	%	%	%	%
Learning disability	18	12	39	25
Difficult family life	15	26	33	53
Moves and changes in school	10	10	22	21
Mental or emotional difficulties	8	16	18	33
An illness which lasted a long time	5	4	12	8
Speech problem	4	6	9	12
Physical disability	3	2	6	4
None	55	52	-	-
<i>Base (unweighted)</i>	<i>1798</i>	<i>211</i>	<i>843</i>	<i>92</i>

¹⁰ 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 not necessarily been independently assessed.

Chapter 5: Experience of Course

Summary

This chapter looks at learners' experience of the Skills for Life course included in this survey, exploring learners' reasons for taking the course and completion rates.

Learners on local authority English courses gave similar reasons to those on college English courses for taking their course, however, they were more likely to drop out of their course than college English learners (20% compared with 7%).

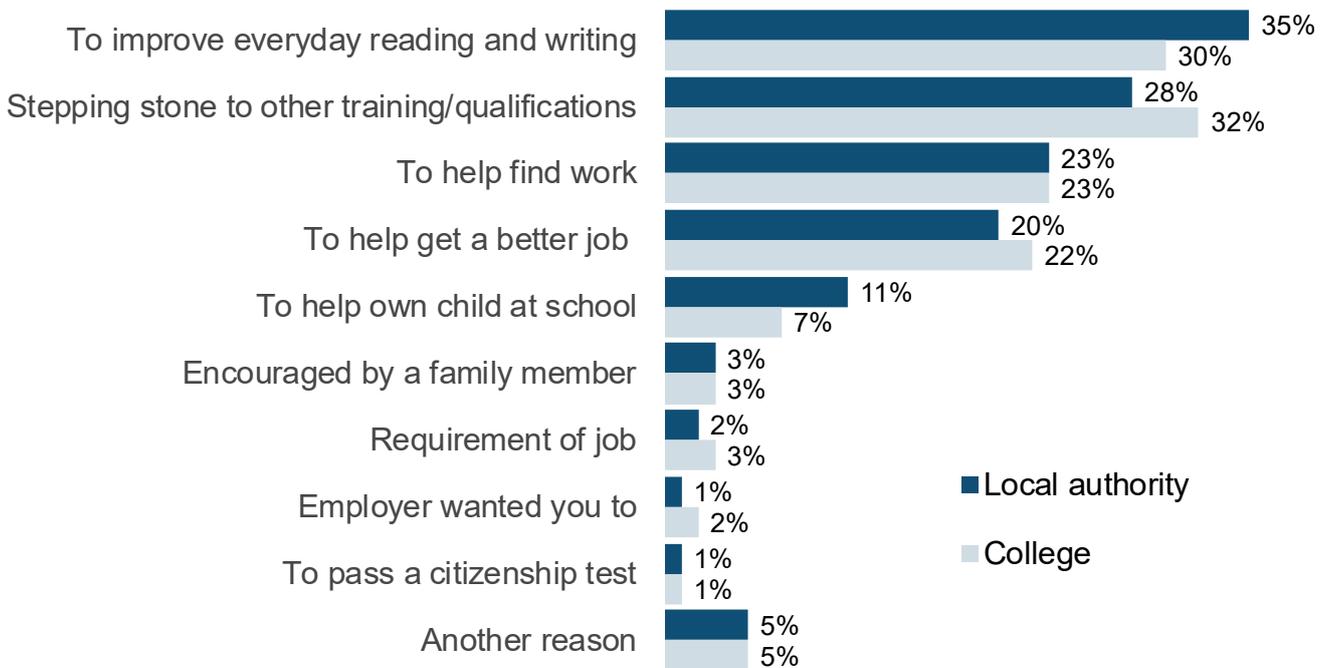
Local authority maths learners were more likely to have family motivations for taking their course compared with college maths learners. They were no more or less likely to drop out of their course than college maths learners.

Reasons for starting course

Reasons for starting an English course

Similar to college English learners, the most common reasons for starting their English course amongst local authority learners were to improve everyday reading and writing (35%) and as a stepping stone to other training/ qualifications (28%) (Figure 11).

Figure 11 Reasons English learners started an English course

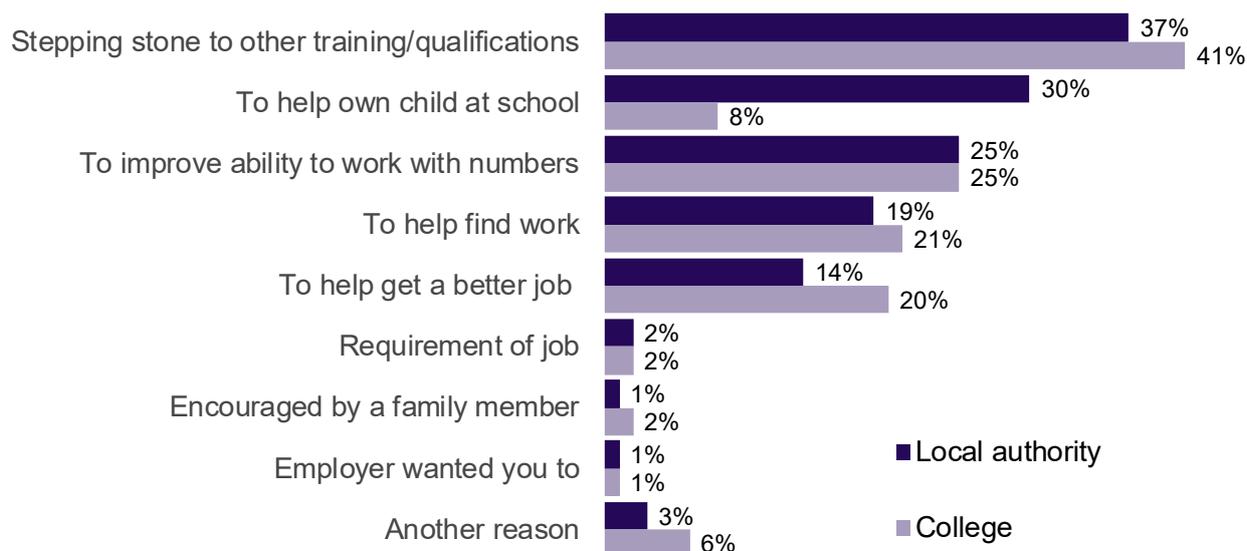


Base: All wave 1 learners who attended an English course and gave at least one reason: College (1981), local authority (249)

Reasons for starting a maths course

As shown in Figure 12, in comparison with college maths learners, local authority maths learners were particularly likely to take their course to help their child at school (30% compared with 8%). They were slightly less likely to take the course to help get a better job (14% compared with 20%).

Figure 12 Reasons maths learners started a maths course



Base: Wave 1 learners who attended a maths course and gave at least one reason: College (1743), local authority (369)

Course completion rates and reasons for non-completion

Course completion rates on English courses

Looking at course completion amongst local authority English learners, at the time of interview:

- 77% had completed their course
- 3% were still attending the course
- 20% had dropped out of their course

Significantly more local authority English learners dropped out of their course than college English learners (20% compared with 7%).

Course completion rates on maths course

Amongst local authority maths learners, at the time of interview:

- 83% had completed their course
- 7% were still attending the course
- 10% had dropped out of their course.

In contrast to English learners, a similar proportion of local authority maths learners dropped-out of their course compared to maths college learners (10% and 9%).

Chapter 6: Changes in skills between waves 1 and 2

Summary

A core objective of this study was to explore the progression of learners' skills both during their course and in the year after course completion. Assessment tools were developed for this study, with learners taking 'tests' as part of their interview at wave 1 and wave 2. In this chapter, we explore the progression of learners' skills during their Skills for Life-funded course firstly through these independent assessments, and secondly through learners' own ratings of their skills at both the start and end of their course.

Performance in the assessments can certainly be taken as indicative of learners' skills but there are broader considerations when interpreting these findings, not least whether it was the learner's objective to improve his or her skills. For example, it is feasible that some learners may have been working towards a qualification in line with an existing skills level.¹¹ As such, we should not assume that the progression of skills during or beyond their course is an appropriate outcome measure for all learners. Care should also be taken to avoid assumptions of causality - this study was not designed to be an impact evaluation and in the absence of a counterfactual we are not able to directly attribute any changes in skills to participation in the Skills for Life course.

Due to base sizes¹² there were no statistically significant differences in the proportion of English learners who showed progress in the assessments. However, local authority maths learners were less likely to show progress than college maths learners. The proportion of learners who showed progress is outlined below¹³:

- Reading: 60% of local authority English learners and 52% of college English learners
- Writing: 62% of local authority English learners and 51% of college English learners
- Maths: 54% of local authority maths learners and 66% of college English learners

¹¹ It was also necessary to draw on a mixed-method approach, with the: wave 1 assessment taking place at the course location using a pen and paper approach invigilated by the course tutor; and wave 2 in-home using a computer in the presence of a field interviewer.

¹² The number of learners with valid assessments at each stage for local authority courses were; reading (93), writing (74) and numeracy (137).

¹³ For all the assessments, those learners who made no progress, include both those who achieved a lower score in their assessment at the end of their course and those who scores remained stable. No learners achieved the same score at both reading and numeracy assessments. Three local authority learners achieved the same score at both writing assessments.

Nearly all learners across the different courses felt their course helped improved their skills.

Description of assessments

The longitudinal survey incorporated tests developed by the research team specifically for this research to assess learners' skills in a consistent and credible manner. English and mathematical skills were assessed using separate tests. The English assessment consisted of a reading component and a writing component, providing us with 2 separate measures for each learner with a valid assessment at each stage.

The English 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. 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.

Learners attending different levels of course were tested using separate assessments, although 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 published alongside the wave 2 longitudinal survey report.

Analysis of assessments

The analysis of the assessments drew on an Item Response Theory (IRT) approach to give a more nuanced understanding of learners' abilities than simply looking at the total number questions each learner got correct. This approach is widely used in psychological and educational testing. In this research, IRT was used to model learners' latent ability by looking both at each learner's overall test score, as well as which particular questions they got right.

To give an example taken from Yu (2013),¹⁴ 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 1 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.¹⁵

For this analysis we used Rasch modelling to structure this relationship.¹⁶ 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 alter 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.

¹⁴ Yu C-H. (2013) A Simple Guide to Item Response Theory (IRT) and Rasch Modeling <http://www.creative-wisdom.com/computer/sas/IRT.pdf>.

¹⁵ 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, 148-177.

¹⁶ Rasch G. (1960) Probabilistic Models for Some Intelligence and Attainment Tests. Copenhagen: Denmark's Paedagogiske Institut.

Independent assessments

English learners

English learners completed 2 assessments at the start and end of their course - one in reading and one in writing.¹⁷ The scores achieved at both assessments were then compared to find whether learners had progressed or not progressed between the start and end of their course. Three-fifths of local authority English learners showed progress in their reading and writing assessments (60% and 62% respectively). Table 3 compares the proportion of local authority and college English learners who made progress in their assessments. Indicatively local authority English learners appear more likely to have made progress in each assessment, although these findings are not statistically significant due to the low base sizes.

Table 3 Assessment score change amongst English learners

	English learners	
	College	Local authority
Reading	52%	60%
Writing	51%	62%
<i>Base (unweighted)</i>	<i>c.496</i>	<i>c.84</i>

¹⁷ For more information on the assessments and their analysis please refer to the, Programme of research for adult English and maths longitudinal survey of adult learners technical report.

Maths learners

Maths learners' numeracy skills were also assessed pre- and post- course. The proportion of learners who demonstrated progress in their assessments is shown in Table 4. A smaller proportion of maths learners who attended local authority courses made progress than those on college courses.

Table 4 Numeracy assessment score change amongst maths learners

	Maths learners	
	College	Local authority
Maths	66%	54%
<i>Base (unweighted)</i>	<i>403</i>	<i>137</i>

Self- assessment

Learners were also asked to evaluate their own skills pre- and post- course and whether they felt the course had helped to improve their skills. Learners were asked a series of statements asking them to rate their reading, writing and numeracy abilities. This section compares how learners rated their skills on these measures at the beginning and shortly after the end of their course.

Extent to which course helped skills

Extent to which course helped English learners' skills

The proportion of learners who said that the course had helped to improve their skills was comparable between the different types of learners interviewed in this study, with the majority of local authority English learners (97%) and college English learners (96%) believing the course either helped to improve their skills 'a little' or 'a lot'. Around two-thirds of both cohorts said their skills had improved 'a lot' (69% of LA learners and 66% of college learners).

Extent to which course helped maths learners' skills

Almost all (99%) LA learners reported that the course had helped to improve their skills and even though a high proportion of college learners reported that the course had improved their skills (93%), this was still significantly lower than LA learners. LA learners were also significantly more likely to say that the course had helped their skills 'a lot' (72%) compared to college learners (62%). A quarter (27%) of Local authority maths learners said the course helped improve their skills 'a little' and only 1% said the course did not help them to improve their skills.

Change in rating of skills

Changes in English learners' self-rating of their reading and writing ability

Learners were asked at wave 1 and wave 2 to rate their reading and writing abilities.¹⁸ Table 5 shows the proportion of English learners who gave a higher or lower self-rating of their reading and writing abilities in wave 2 compared to wave 1. Similar proportions of local authority and college English learners indicated an increase or decrease in their self-rated reading and writing abilities.

Table 5 Changes in English learners' self-perceived skills ratings

		English learners ¹⁹	
		College	Local authority
Reading	Higher	29%	25%
	Lower	14%	20%

¹⁸ 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, while those 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.

¹⁹ For the reading assessment, 27% of local authority learners rated their reading ability 'Very good' both at the start and end of the course. For the writing assessment, 10% of learners rated their reading ability 'Very good' both at the start and end of the course.

		English learners ²⁰	
		College	Local authority
Writing	Higher	35%	40%
	Lower	16%	17%
	<i>Base (unweighted)</i>	<i>c.902</i>	<i>c.131</i>

Changes in maths learners self-rating of their ability with numbers

A third of local authority maths learners (35%) rated their numeracy skills more highly at the end of their course compared to the beginning. This is a similar proportion of learners to learners who attended college maths courses (34%) (Table 6).

Table 6 Changes in maths learners' self-perceived numeracy skills ratings

		Maths learners ²¹	
		College	Local authority
Maths	Higher	34%	35%
	Lower	16%	9%
	<i>Base (unweighted)</i>	<i>747</i>	<i>210</i>

²⁰ For the reading assessment, 27% of local authority learners rated their reading ability 'Very good' both at the start and end of the course. For the writing assessment, 10% of learners rated their reading ability 'Very good' both at the start and end of the course.

²¹ 13% of local authority maths learners gave the highest rating of their maths abilities at both the start and end of the course.

Changes in learners self-rating of their IT skills

Learners were also asked to rate their IT skills at the start and end of their courses. Table 2.5 below shows the change learners reported in their skills between the start and end of their course. Generally, a similar proportion of LA learners on English and maths courses rated their IT skills more highly at the end of their course as reported by college learners.

Table 7 Changes in self-perceived IT skills

		English learners ²²		Maths learners	
		College	Local authority	College	Local authority
IT Skills	Higher	28%	25%	22%	21%
	Lower	14%	10%	16%	14%
	<i>Base (unweighted)</i>	905	132	754	210

²² 18% of local authority English learners and 26% of local authority maths learners gave the highest rating of their IT skills at both the start and end of the course.

Chapter 7: Changes in learners' attitudes between waves 1 and 2

Summary

Learners were asked a series of English or maths related statements at the start and end of their course. This chapter examines the shifts in these ratings to see how learners' attitudes towards these subjects may have changed. Learners were also asked a series of questions asking them to assess the effect the course had on their family and work lives.

As for college learners, local authority learners tended to report positive outcomes on their personal and work lives. However, while local authority English learners were relatively happy at both the start (mean happiness rating of 6.7) and end of the course (mean happiness rating of 7.2); this did not represent a significant difference from the start to the end of course at an aggregate level. Local authority English learners were also less happy at the end of their course compared with college learners (mean happiness rating of 7.5).

Local authority maths learners' mean happiness rating also increased significantly from the start to the end of the course (6.9 to 7.5), compared with college learners whose happiness rating also increased compared to the end of the course (7.0 to 7.6).

These changes do not necessarily correspond to the type of provision which learners experienced, but may well reflect wider life events.

Reported changes in attitudes amongst English learners

English learners were asked a series of attitudinal statements at the beginning and end of their course to measure changes in their confidence levels. This section analyses positive and negative changes in responses to those statements amongst learners.

Positive shifts were seen across the majority of statements, with, 'I find it easy to write to someone I know (43%) and 'I worry about not spelling words correctly' (42%) being particularly high. However, 'I would enjoy improving my reading and writing skills' (28%) and 'I feel nervous when I have to take an English test' (34%) were more likely to see a negative shift than positive. This suggests that although learners' confidence in their day to day reading and writing abilities may have increased, they are still anxious about these skills being tested. Results are shown in Table 8.

Table 8 Changes in attitudes by statement – English Learners

	College English learners (c. 870)		Local authority English learners (c.130)	
	Negative shift	Positive Shift	Negative shift	Positive Shift
I worry about making mistakes with grammar	22%	38%	23%	40%
I worry about not spelling words correctly	23%	37%	27%	42%
I sometimes have difficulty filling in forms	24%	36%	30%	31%
I find it easy to write to someone I know	23%	35%	19%	43%
I feel nervous when I have to take an English test	30%	34%	34%	32%
I find it easy to read directions	20%	33%	19%	39%
I would enjoy improving my reading and writing skills	30%	24%	28%	22%

Reported changes in attitudes amongst maths learners

Maths learners were also asked a series of attitude statements at the beginning and end of their course, which were tailored to numerical skills.

Comparing the attitudes of maths learners between the start and end of their course reveals positive shifts for all of the statements, in particular, 'My mind goes blank and I am unable to think clearly when doing a maths test' (39%) and 'I worry about my ability to solve maths problems' (37%). Learners appear confident in their maths ability; both day to day and in assessment situations.

The positive and negatives shifts for each statement were fairly consistent across local authority and college maths learners, as shown in Table 9.

Table 9 Changes in attitudes by statement – maths learners

	College maths learners (c.728)		Local authority maths learners (c.203)	
	Negative shift	Positive Shift	Negative shift	Positive Shift
I worry about my ability to solve maths problems	21%	41%	24%	37%
Maths makes me feel nervous	22%	38%	20%	37%
I would like to take more maths courses	24%	36%	22%	33%
My mind goes blank and I am unable to think clearly when doing a maths test	30%	35%	26%	39%
I get anxious during maths tests	28%	32%	28%	36%
I find maths challenging	21%	31%	21%	28%
I find maths interesting	25%	25%	23%	26%

Happiness

Changes in English learners' happiness levels

The mean happiness at the start of the course reported by local authority learners was 6.7, and at the end of the course it was 7.2, which although higher is not a significant change.

Conversely, the mean happiness reported by college learners at the start of their course was 7.0 and 7.5 at the end of their course, suggesting a difference between local authority and college learners. These changes do not necessarily correspond to the type of provision which learners experienced but may reflect wider life events. As discussed earlier in this report, there were some differences in the profile of learners and their motivations for taking their course.

Figure 13 English learners' happiness score change wave 1 to wave 2²³



Base: Learners who attended an English course and gave a happiness rating at both wave 1 and 2: college (860), local authority (129)

²³ 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 – 10% of college English learners and 8% of college maths learners gave a rating of 10 in both surveys; and 13% of English LA learners and 6% of maths LA learners.

Changes in maths learners' happiness levels

At the start of the course the mean happiness reported by local authority maths learners was 6.9 and the mean happiness rating at the end of the course was 7.5. This shows a significant increase in mean happiness reported by learners.

Similarly, college learners' mean happiness score reported at the beginning of their course was 7.0 and 7.6 at the end. As cautioned in the previous section, this does not infer college learners had a different experience due to the provision they took but this may relate to external factors beyond learners' courses.

Figure 14 Maths learners' happiness score change wave 1 to wave 2



Base: Learners who attended a maths course and gave a happiness rating at both wave 1 and 2: college (719), local authority (201)

Family

Extent to which course helped family amongst English learners

While there appear to be small differences in the family outcomes shown in Figure 15 between local authority and college learners, these are not statistically significant.

Figure 15 English learners' family outcomes²⁴



Base: All wave 2 learners who answered the statement 'How interested your children or family are in learning' and felt it applied to them: college (1501), local authority (111); All wave 2 learners who answered the statement 'Your relationship with your partner/children/family' and felt it applied to them: college (1619), local authority (116)

Extent to which course helped family amongst maths learners

There were also no significant differences between local authority and college maths learners, with learners across both cohorts perceiving positive family outcomes.

Figure 16 Maths learners' family outcomes²⁵



Base: All wave 2 learners who answered the statement 'How interested your children or family are in learning' and felt it applied to them: college (1402), local authority (187); All wave 2 learners who answered the statement 'Your relationship with your partner/children/family' and felt it applied to them: college (1516), local authority (189)

²⁴ Learners were asked 'Has attending this [English/Maths] course helped with any of the following?' and shown the statements: 'How interested your children or family are in learning' and 'Your relationship with your partner/children/family'. They were asked to select whether: 'The course helped a lot with this', 'The course helped a little with this', 'The course made no difference', 'The course made this a little worse' or 'The course made this a lot worse'.

²⁵ See footnote 21.

Work

Extent to which course helped English learners at work

As Figure 17 shows, the proportion of learners who felt the course had helped their confidence and ability at work was consistently high across both local authority and college English learners.

Figure 17 English learners' work outcomes²⁶



Base: All wave 2 learners answered the statement 'Your confidence at work' and felt it applied to them: college (1012), local authority (70); All wave 2 learners answered the statement 'Your ability to do your job' and felt it applied to them: college (1018), local authority (73)

Extent to which course helped maths learners at work

Similar to English learners, the proportion of learners who felt the course had helped their confidence and ability at work was consistently high across both local authority and college maths learners (although at lower level when compared with English learners).

Figure 18 Maths learners' work outcomes²⁷



Base: All wave 2 learners answered the statement 'Your confidence at work' and felt it applied to them: college (915), local authority (108); All wave 2 learners answered the statement 'Your ability to do your job' and felt it applied to them: college (909), local authority (111)

²⁶ Learners were asked 'Has attending this [English/Maths] course helped with any of the following?' and shown the statement 'Your confidence at work' and 'Your ability to do your job'. They were asked to select whether 'The course helped a lot with this', 'The course helped a little with this', 'The course made no difference', 'The course made this a little worse' or 'The course made this a lot worse'.

²⁷ See footnote 23.

Personal confidence

Extent to which course helped personal confidence amongst English learners

A consistently high proportion of local authority and college English learners felt their course helped with their own self confidence.

Figure 19 English learners' self confidence²⁸



Base: All wave 2 learners answered the statement and felt it applied to them: college (1825), local authority learners (131)

Extent to which course helped personal confidence amongst maths learners

The majority of learners on local authority and college maths courses felt their course helped their own self confidence.

Figure 20 Maths learners' self confidence²⁹



Base: All wave 2 learners answered the statement and felt it applied to them: college (1743), local authority (208)

²⁸ Learners were asked 'Has attending this [English/Maths] course helped with any of the following?' and shown the statement 'Your own self-confidence in day to day life'. They were asked to select whether 'The course helped a lot with this', 'The course helped a little with this', 'The course made no difference', 'The course made this a little worse' or 'The course made this a lot worse'.

²⁹ Ibid.

Chapter 8: Conclusions

The overall findings of this research present a positive picture of learner experience and reported outcomes from LA learners on English and maths courses. Interestingly, while the profile and motivations of learners differs between learners attending local authority and college courses, the outcomes of courses in terms of measured progress on learners' assessments, self-perceived increases in skills, and softer outcomes such as day-to-day confidence are broadly similar.

Compared with college learners, learners on local authority courses were more likely to be female and older; and less likely to have spoken English as an additional language or be working full-time. Learners on local authority English courses were also more likely to have faced issues that got in the way of their learning when they were younger, than college learners (although the same was not true when comparing maths local authority and college learners).

Looking at course outcomes, a similar proportion of local authority and college learners gave a higher self-rating of their abilities at the end of their course. The majority of learners on both courses believed the course had helped their family and work life, and a high proportion of both groups of learners believed the course helped with their own self-confidence. However, local authority English learners were more likely to drop-out of their course than college learners (this pattern was not seen amongst maths learners).

It is difficult to identify statistically significant differences in the proportion of learners who showed progress in the assessments due to base sizes³⁰. However, similar to college learners, over half of local authority learners showed progress in the survey assessment for each of reading, writing and maths. College maths learners were more likely than local authority maths learners to show progress in the maths assessment.

We can see from the profile of learners who attended English or maths local authority courses that these courses are reaching a slightly different group of learners. However, in the absence of further research we are not able to identify the extent to which learners who attended local authority courses would have attended alternative courses if their local authority provision had not been not available.

³⁰ The number of learners with valid assessments at each stage for local authority courses were; reading (93), writing (74) and numeracy (137)

Appendix 1: Technical details

Wave 1 sampling

The local authority longitudinal survey included adult learners attending English or maths courses between Entry Level 1 and Level 2 run by local authorities.

For pragmatic reasons associated with the limited available time between the commissioning of the local authority sample and the necessary fieldwork start date, local authority providers were sampled purposively, but with a view to ensuring a broad geographical spread.

While the general methodological benefits of random-probability sampling designs are acknowledged, in this research pragmatic constraints dictated the use of purposive sampling for local authority providers and quasi-random sampling for colleges. This was to achieve the required numbers of interviews cost-effectively. The sampling approaches achieved strong statistical power to detect change over time. If feasible at all, a random probability sampling approach would perhaps have been more informative with regard to the precision of the estimates derived based on the analysis; however, it would have risked achieving substantially fewer interviews with the population this study targets, at a substantially higher cost. Consequently, it would have limited the power of the analysis to detect the effects of undertaking adult education in English and maths.

Recruitment was conducted by networking at suitable adult education events, through NIACE's network of contacts and via a BIS call for participants, which was issued via the HOLEX network. Kantar Public conducted a telephone interview with all the local authorities that expressed an interest in participating to check they would have a sufficient number of students; identify course levels and start and end dates; and to ensure that their provision was sufficiently geographically concentrated for efficient survey administration.

Learners in the Local Authority sample attended courses with start dates between September and November 2015.

The original target number of completed interviews in the local authority wave 1 sample was set at c. 900 with a broadly even spread across subject and level. This figure was based on the assumption that 80% of these would agree to take part in wave 2 (giving an issued sample size of 720 at wave 2) and followed the principals applied to the main sample in terms of margins of error.

In practice, fewer local authorities were prepared to take part in the research than had been hoped for and, more problematically, some of those that did agree to take part were unable to deliver the number of complete interviews that they had originally estimated.

In total 1949 paper questionnaires were despatched to the 9 recruited local authorities - this allowed for coverage to ensuring that providers did not find themselves short of questionnaires at any level. The number of returns was substantially lower than their initial estimates had suggested, and a total of 646 completed questionnaires were received. Shortfalls were attributed to a range of factors including Ofsted inspections and staff cuts.

Wave 2 sample

The wave 2 sample was drawn from the completed wave 1 interviews and consisted of respondents who agreed to be re-interviewed at the end of their course. All wave 2 sample consisted of respondents who had taken part in wave 1 survey, excluding learners who did not provide usable contact details and indicated that they did not wish to be re-contacted after their wave 1 interview. From the 646 local authority learners who completed a wave 1 survey, 460 were reissued at wave 2.

Questionnaire design

The local authority questionnaires and assessments were the same as those used in the college-based research described in the, Programme of research for adult English and maths longitudinal survey of adult learners technical report. The questionnaires that were used in waves 1 and 2 of the longitudinal survey included:

Wave 1 questionnaire for learners on English courses - Paper and pencil Interviewing (PAPI)

Wave 1 questionnaire for learners on Maths courses (PAPI)

Wave 1 tutor questionnaire (PAPI)

Wave 2 questionnaire for both English and Maths learners - Computer Assisted Personal Interviewing (CAPI)

Wave 1 fieldwork

A member of the Kantar Public research team briefed each local authority contact on the research and its requirements either face to face or by telephone. The contact was then sent a fieldwork pack. These packs contained enough questionnaire booklets to cover entire classes of learners (with an extra 20% added to the class sizes estimated by the providers). They also contained tutor questionnaires, which were used to confirm the number of learners in each class; the name, level, start date, and end date of the course; a flow diagram outlining the process of administering the questionnaires; letters for the named contact at the college and for class tutors explaining the purpose of the research and their contribution to the task, and thanking them for their co-operation; and a note outlining the process for sending back the completed questionnaires and documents.

Learners who agreed to take part in the research were informed about the availability of an incentive upon completion of the questionnaire, which would be sent to their home address provided in the 'background questionnaire'. Respondents were posted a £5 gift voucher to thank them for their time once the paper questionnaire had been received by Kantar Public.

The questionnaire booklets were administered by class tutors to the entire class during class time. Although completion was expected to take around an hour, tutors were instructed to allow 90 minutes to cater for those who worked more slowly. The guidelines provided to tutors specified that learners should work on their own during the assessment section; that calculators should only be used in the second half of the maths assessment; and that they should try to ensure that learners did not feel intimidated by the exercise. When learners had completed their booklets the tutors collected them and stored them securely with the completed 'tutor questionnaire'.

Wave 1 fieldwork outcomes

Table 10 below outlines the questionnaire return rate for the Local Authority sample.

Table 10 Outcomes at wave 1

	N	%
Fully completed questionnaire and assessment	641	50
Partially completed questionnaire or assessment	5	<1
Blank questionnaire	637	50
Total	1283	100

Wave 2 fieldwork

Wave 2 fieldwork was conducted in-home using Computer Assisted Personal Interviewing (CAPI). Interviews were due to take place shortly after the learners had completed their course. Course end dates were estimated through the tutor questionnaire (from the tutor) and the "background questionnaire" (from learners). Courses varied in length and therefore interviews were carried out between February and November 2015.

Interviewer briefings

Interviewer briefings were conducted between January and October 2015 alongside the wave 3 longitudinal study.

Briefings lasted for half a day and covered the aims and background of the research, how interviews should be conducted and the process for accessing the assessments. The briefings also went over the Electronic Contact Sheet (ECS) the “background questionnaire” and an example assessment that respondents were asked to complete. Interviewers were given advice on how to stop other household members from ‘helping’ learners to complete the assessment, how to use the software, and how to make learners feel comfortable with the assessment. Interviewers were instructed to allow learners’ to take their time with the assessment but to advise them not to spend an overly long time on individual questions.

Advance letters were sent out to respondents a week before interviewing was due to begin. The letters advised the respondents that an interviewer would be calling on them soon to take part in the interview and reminded them of the first stage of the fieldwork they took part in. Contact details of the research team were also included in case respondents wished to find out more about the survey or to opt out.

Fieldwork was carried out in batches, with most interviews taking place between July and November 2015. Interviews took place in respondents’ home and lasted 51 minutes on average.

Interviewers sent back 2 sets of data, the assessment and background questionnaire at the end of each day. Respondents were given a £10 incentive for their time, which was conditional on them attempting the assessment. If there were technical issues during the interview which prevented them from attempting the assessment they were also given the £10 incentive (5%)

Respondents who completed 2 assessments were given an additional £20 to thank them for their additional time. Thirty-six respondents completed 2 assessments.

Wave 2 fieldwork outcomes

The outcomes for all wave 2 interviews can be found in Table 11. The response rate was 68%³¹.

³¹ The response rate is calculated as number of completed interviews, divided by the number of valid issued sample (valid issued sample = total issued sample - deadwood).

Table 11 Outcomes for wave 2 sample

	N	%
Total issued sample	460	100
Deadwood	3	1
Derelict / demolished	1	
Inaccessible	2	
Non-contact	21	5
Residential address but no contact at address	2	
No contact at address	19	
Unproductive		18
Respondent away / in hospital / ill during fieldwork	4	
Broken appointment	12	
Contact made but no appointment	6	
Respondent moved	36	
Language or learning difficulties	1	
Other unproductive	26	
Refusal	41	9
Completed interview	310	68³²

³² The response rate is calculated as number of completed interviews, divided by the number of valid issued sample (valid issued sample = total issued sample - deadwood).

Data processing and outputs

Please refer to the, Programme of research for adult English and maths longitudinal survey of adult learners technical report, for details of the procedures followed.

Weighting of local authority data

The weighting of the local authority survey data involved the following steps:

1. Estimation of key demographic distributions in the populations of local authority learners undertaking English or maths courses, which serve as weighting targets
2. Deriving post-stratification weights for the wave 1 English and maths datasets
3. Estimation of wave 1 respondents' propensity to respond to wave 2, given their characteristics recorded at wave 1
4. Deriving post-stratification weights that match the profile of the wave 2 English and maths respondents to the profile of the wave 1 English and maths respondents

The post-stratification weights compensate for patterns of nonresponse in the survey. It focused on sample profiling variables that were expected to correlate with the survey data and aligned the distributions of these variables in the interviewed samples to their distributions in the corresponding target populations (i.e. the actual populations of learners aged 19 or older undertaking local authority courses on English or maths).

Given the purposive sample selection scheme applied at wave 1 of the local authority survey, post-stratification assumed that all wave 1 respondents had a probability of being included in the interviewed sample that is equal to one.³³ With wave 2 respondents being longitudinal (i.e. respondents who were interviewed at wave 1), post-stratifications of the wave 2 datasets were designed to account for wave 1 respondents' differential probabilities to respond to the wave 2 surveys. This ensured that wave 2 respondents were up-weighted or down-weighted in proportion to their relative probability of responding at wave 2.

³³ This assumption is dictated by the fact that probabilities of selection are not known for respondents.

Estimation of weighting targets

The post-stratification of the local authority survey data used the following sample profiling variables:

- Respondent's gender (male; female)
- Respondent's age at the start of their course: 19 to 29 years old; 30 years old or older
- Level of the course that the respondent is undertaking: Entry Level; Level 1 or 2
- Region where the respondent lives: North of England (North East, North West, and Yorkshire and the Humber); Midlands (East Midlands, West Midlands, and the East of England); and South of England (London, the South East and the South West)

The population distributions of these characteristics were derived using the 2014-15 Individualised Learner Records (ILR) Aims database. The populations of English or maths learners were defined based on criteria taken from the variable BASICSKILLSTYPE. Gender was identified using the variable SEX. Age at the start of the course was computed based on the variables DATEOFBIRTH and LEARNSTARTDATE. Level was derived based on the variables OUTGRADE and NOTIONALNVQLEVEL. Finally, region was defined using the variable POSTCODE.

The ILR Aims database is structured at course level and includes multiple records for the same learner if they are undertaking more than one course. In order to 'distil' the populations of interest, the database was aggregated to obtain a file with single records for each unique combination of unique learner number (variable ULN) and subject (derived from BASICSKILLSTYPE).

Reflecting the timings of the sampling process of the local authority respondents, the 2 populations extracted from the 2014-15 ILR database excluded learners who started their course before September 2014 and learners who were under 19 years old at the start of their course (as these could not have been sampled for the local authority surveys). Table 12 shows the marginal distributions of the key profiling variables that were used in the post-stratification of the wave 1 and wave 2 English and maths datasets.

Table 12 Population distribution: Subject by gender; age at the start of the course; level of the course; and region

Variable	Category	Population proportion: Local authority English learners	Population proportion: Local authority maths learners
Gender	Male	28.5%	24.5%
	Female	71.5%	75.5%
Age at the start of course	19 to 29 years old	27.0%	29.8%
	30 years old or older	73.0%	70.2%
Level of the course	Entry level course	41.7%	28.5%
	Level 1 or Level 2 course	58.3%	71.5%
Region where learner lives	North of England	28.9%	34.3%
	Midlands	27.8%	29.6%

Post-stratification of the wave 1 English and maths datasets

Firstly, the post-stratification variables (i.e. respondent's gender; respondent's age at the start of their course; the level of the course; and the region where the respondent lives) were derived within the wave 1 datasets. The post-stratification was then implemented by means of the RIM weighting algorithm. This matched the distribution of the post-stratification variables in the achieved wave 1 English and maths samples to their distribution in their corresponding target populations (i.e. to the weighting targets).

The post-stratification weights were trimmed³⁴ so their variance and therefore the design effect due to the post-stratification was reduced, and then scaled to the achieved sample sizes (shown in Table 13). Design effects due to post-stratification are estimated at 1.65³⁵ for the English and 1.66³⁶ for the maths survey data.

Table 13 shows the weighted distributions of the post-stratification variables in the wave 1 English and maths samples against the weighting targets. Differences between the weighted distributions and the weighting targets are due to the trimming of the weighting factors.

³⁴ Weighting factors that exceeded the median weighting factor by five times were suppressed to equal five times the median weighting factor. Weighting factors that were smaller than the median weighting factor divided by five were set to be equal to the median weighting factor divided by five.

³⁵ Mean wave 1 English weight (trimmed) = 1; Standard deviation wave 1 English weight (trimmed) = 0.806, Design effect = $1 + (0.806/1)^2 = 1.65$.

³⁶ Mean wave 1 maths weight (trimmed) = 1; Standard deviation wave 1 maths weight (trimmed) = 0.811, Design effect = $1 + (0.811/1)^2 = 1.66$.

Table 13 Wave 1 weighted distributions: Subject by gender; age at the start of the course; level of the course; and region

Subject	Variable	Category	Weighting target	Weighted wave 1 distribution
English	Gender	Male	28.5%	27.9%
		Female	71.5%	72.2%
	Age at the start of course	19 to 29 years old	27.0%	24.1%
		30 years old or older	73.0%	75.9%
	Level of the course	Entry level course	41.7%	43.5%
		Level 1 or Level 2 course	58.3%	56.5%
	Region where learner lives	North of England	28.9%	30.6%
		Midlands	27.8%	26.6%
Maths	Gender	Male	24.5%	21.7%
		Female	75.5%	78.3%
	Age at the start of course	19 to 29 years old	29.8%	29.4%
		30 years old or older	70.2%	70.6%
	Level of the course	Entry level course	28.5%	31.2%
		Level 1 or Level 2 course	71.5%	68.9%
	Region where learner lives	North of England	34.3%	44.4%
		Midlands	29.6%	32.9%

Modelling response for wave 2 longitudinal respondents

The probability that a wave 1 respondent also responds to wave 2 plays an important role in the post-stratification of the wave 2 English and maths datasets (as the post-stratification weights are designed to up-weight respondents with a relatively lower probability of responding at wave 2 or down-weighting respondents with a relatively higher probability of responding at wave 2).

To estimate the probability that a wave 1 respondent also responds to wave 2, Kantar Public used a logistic regression model. This technique predicts the outcome of either obtaining or not obtaining a wave 2 interview from a wave 1 respondent, given respondent characteristics recorded at wave 1.

Variables providing information about wave 1 respondents' characteristics were inspected and a set of candidate predictor variables from the local authority questionnaire was selected for the logistic regression model.³⁷ A total of 17 candidate variables were tested as possible predictors of whether a wave 2 interview was obtained by a wave 1 respondent. A 'stepwise' logistic regression process (that eliminates uninformative candidate predictor variables using the likelihood ratio test statistic) was employed to construct the final model.

The predictors in the final model are: (a) respondents' gender; (b) respondents' age at the start of the course; (c) level of the course; (d) respondents' ethnic background; (e) the region where respondents live; and (f) the post-stratification weight applied in wave 1.

Table 14 shows the main parameters of the model. The odds ratios reveal the relationship between a certain sample group's odds of responding to wave 2³⁸ and the odds of a reference group. For example, the odds of response is 1.593 times higher for respondents who live in the Midlands compared to respondents who live in the South. The lower and upper bounds of 95% odds ratio confidence intervals (C.I.) indicate the range of values that are most probable for the population odds ratios. Finally, p-values for the coefficients that are under 0.05 indicate statistical significance of the predictor.³⁹

³⁷ Variables with substantial proportions of missing values were excluded from the set of candidate predictors, to avoid suppressing the statistical power of the model. Also, depending on their frequency distributions, some categorical variables were re-coded in order to merge low frequency categories together.

³⁸ The odds of responding to wave 2 represent the ratio of the probability of responding to wave 2 to the probability of not responding.

³⁹ Some variables have been forced into the model even though they do not appear as statistically significant in Table 14. Given that the objective of this model is to predict response probabilities rather than explain what drives response, there are no negative side-effects from including the specific predictors in the final model.

Table 14 Predictive model of response probability to wave 2: model parameters

Predictor	Category [vs. reference category], if predictor is categorical	Odds Ratio	Lower bound of odds ratio (95% C.I.)	Upper bound of odds ratio (95% C.I.)	p-value for coefficient
Respondents' gender	Male [vs. female]	0.698	0.443	1.101	0.122
Respondents' age at the start of the course	19 to 29 [vs. 30 or older]	0.658	0.447	0.968	0.034
Level of respondent's course	EL [vs. L1 or L2]	0.928	0.638	1.350	0.696
Region where respondent lives	North [vs. South]	4.441	0.573	34.419	0.154
	Midlands [vs. South]	1.593	0.805	3.152	0.181
Respondents' ethnic background	Non-white or unknown [vs. white]	0.495	0.325	0.755	0.001
The post-stratification weight applied in wave 1		1.840	0.599	5.656	0.287
Constant		0.306			0.374

Post-stratification of the wave 2 English and maths datasets

Prior to the post-stratification of the wave 2 English and maths datasets, base-weights were calculated. The base-weights were equal to the wave 1 post-stratification weights respectively (see paragraph C) divided by the probability that a wave 1 respondent will take part in wave 2. This probability was estimated based on respondent characteristics recorded at wave 1 (see paragraph D).

Following the application of the base-weights, the post-stratification was implemented by means of a RIM weighting algorithm.⁴⁰ The algorithm matched the distribution of the post-stratification variables (i.e. respondent's gender; respondent's age at the start of their course; the level of the course that the respondent is undertaking; and the region where the respondent lives) in the achieved wave 2 English and maths samples to the weighting targets.

The wave 2 English and maths weights were trimmed⁴¹ to suppress the variance of the weighting factors and therefore limit the design effects due to the longitudinal weights, and then scaled to the size of the longitudinal sample of English and maths learners in wave 2. The design effects are estimated at 1.82⁴² for the longitudinal English and 1.63⁴³ for the longitudinal maths survey data. Table 15 shows the weighted distributions of the wave 2 English and maths respondents⁴⁴ against the weighting targets.

⁴⁰ The post-stratification was implemented to account for small disparities between the weighting targets and the wave 2 sample profiles, following the application of the base-weights (which were designed to account for nonresponse bias between wave 1 and wave 2 (see section D).

⁴¹ Weighting factors that exceeded the median weighting factor by five times were suppressed to equal five times the median weighting factor. Weighting factors that were smaller than the median weighting factor divided by five were set to be equal to the median weighting factor divided by five.

⁴² Mean wave 2 English weight (trimmed) = 1; Standard deviation wave 2 English weight (trimmed) = 0.904, Design effect = $1 + (0.904/1)^2 = 1.82$.

⁴³ Mean wave 2 maths weight (trimmed) = 1; Standard deviation wave 1 maths weight (trimmed) = 0.791, Design effect = $1 + (0.791/1)^2 = 1.63$.

⁴⁴ Differences between the weighted distributions and the weighting targets are due to the trimming of the weighting factors.

Table 15 Wave 2 Weighted distributions: Subject by gender; age at the start of the course; level of the course; and region

Subject	Variable	Category	Weighting target	Weighted wave 2 distribution
English	Gender	Male	28.5%	25.9%
		Female	71.5%	74.1%
	Age at the start of course	19 to 29 years old	27.0%	25.6%
		30 years old or older	73.0%	74.4%
	Level of the course	Entry level course	41.7%	40.0%
		Level 1 or Level 2 course	58.3%	60.0%
	Region where learner lives	North of England	28.9%	30.6%
		Midlands	27.8%	28.2%
		South of England	43.3%	41.2%
Maths	Gender	Male	24.5%	30.2%
		Female	75.5%	69.8%
	Age at the start of course	19 to 29 years old	29.8%	31.0%
		30 years old or older	70.2%	69.1%
	Level of the course	Entry level course	28.5%	32.2%
		Level 1 or Level 2 course	71.5%	67.8%
	Region where learner lives	North of England	34.3%	56.1%
		Midlands	29.6%	31.4%
		South of England	36.0%	12.5%

Appendix 2: Calibrated results for particular sets of tests

Introduction

Please refer to the ‘Programme of research for adult English and maths longitudinal survey of adult learners technical report’ for full details on the methods used in the assessments for this programme of research. For reading and maths tests, the Rasch model of item response theory (IRT) was used; and a hybrid approach was used for the writing tests.

The only exception to this was for the IRT-based elements. The items in the local authority sample were deemed to take their difficulty from their administration in wave 2. This was a way of ensuring that ability estimates in the local authority administration could be understood within the same ‘universe of interpretation’ as the wave 2 ability estimates. It also confirms the tactic – used during the project – of treating wave 2 as the ‘fulcrum’ about which other waves pivot.

Measurement quality within local authority sample

The statistics produced demonstrate the quality of the test administration data for those sets of tests linked by IRT (reading and maths) and those using a hybrid approach (writing) are different, reflecting the different methods used to calculate scores.

For the IRT equates, we take Rasch person reliability to denote consistency of measurement, and model fit to evaluate how well data fit the assumptions of the Rasch model. For the writing equate, we show KR-21 coefficients for the individual components of the writing test, a correlation coefficient showing the association between scoring on the 2 components and a composite reliability index in relation to the overall (composite) writing score.

Table 16 Reliability and model fit for longitudinal: local authority reading and maths equate

Subject	No. of persons	No. of items	PERSON REL	INFIT		OUTFIT	
				IMNSQ (MEAN)	IMNSQ (SD)	OMNSQ (MEAN)	OMNSQ (SD)
Reading	372	68	0.69	1.02	0.25	1.08	1.18
Maths	508	109	0.88	1.07	0.37	1.07	0.67

Table 17 Reliability statistics for overall scores in longitudinal: local authority writing equate

KR-21 coefficients for standardised and scaled scores	
Ex W	0.577
SPAG	0.579
Composite test reliability statistics	
Correlation: EX W: SPAG	0.499
Composite reliability	0.718
SEM and 95 per cent confidence intervals	
SEM	2.75827
Mean score	16
Lower bound of 95 per cent CI around mean	10.59378
Upper bound of 95 per cent CI around mean	21.40622

For the reading tests, the reliability measure of the local authority data is on the boundary of the 'questionable' and 'acceptable' ranges. The mean infit and outfit measures are very good, and although the infit SD is low, the outfit SD measure is unusually high. This may be a result of the very small numbers in this sample (in particular, participation in this part of the programme was skewed towards the higher levels, there were small sample sizes for Entry Level 1 and Entry Level 2).

For the maths tests, the reliability index is good and although the mean infit and outfit measures are large, they are not worryingly high. However, the SD of both measures are fairly high, considerably more so for the outfit, a possible result of the small local authority sample size.

In respect of writing, results vary. The KR-21 reliability coefficient for both individual components could be considered 'unacceptable'. Nonetheless, the correlation between SPAG and Ex W scores is moderate, and the composite reliability is in the 'good' range.

Intuitiveness of 'steps' between levels

It seems intuitive to us (and stakeholders) that we ought to be able to estimate the ability of learners on successively 'higher' tests as being in fact higher. As discussed in the, Quantitative programme of research for adult English and maths: Technical report of the longitudinal survey of adult learners, published alongside the main report. there are reasons why such a seemingly self-evident finding might not be so.

Nonetheless, we consider it prudent to check whether the abilities of learners do indeed ascend in association with 'higher level tests'. Once again, our means of doing this differs depending upon our different approaches to estimating ability. For the wholly IRT approach, we produce boxplots, whereas for the tests that we analysed using composite analysis (the writing), we produce separate graphics and tables showing the 'stepping' of the discrete components.

Figure 21 Abilities of learners from different source tests in longitudinal: local authority reading equate

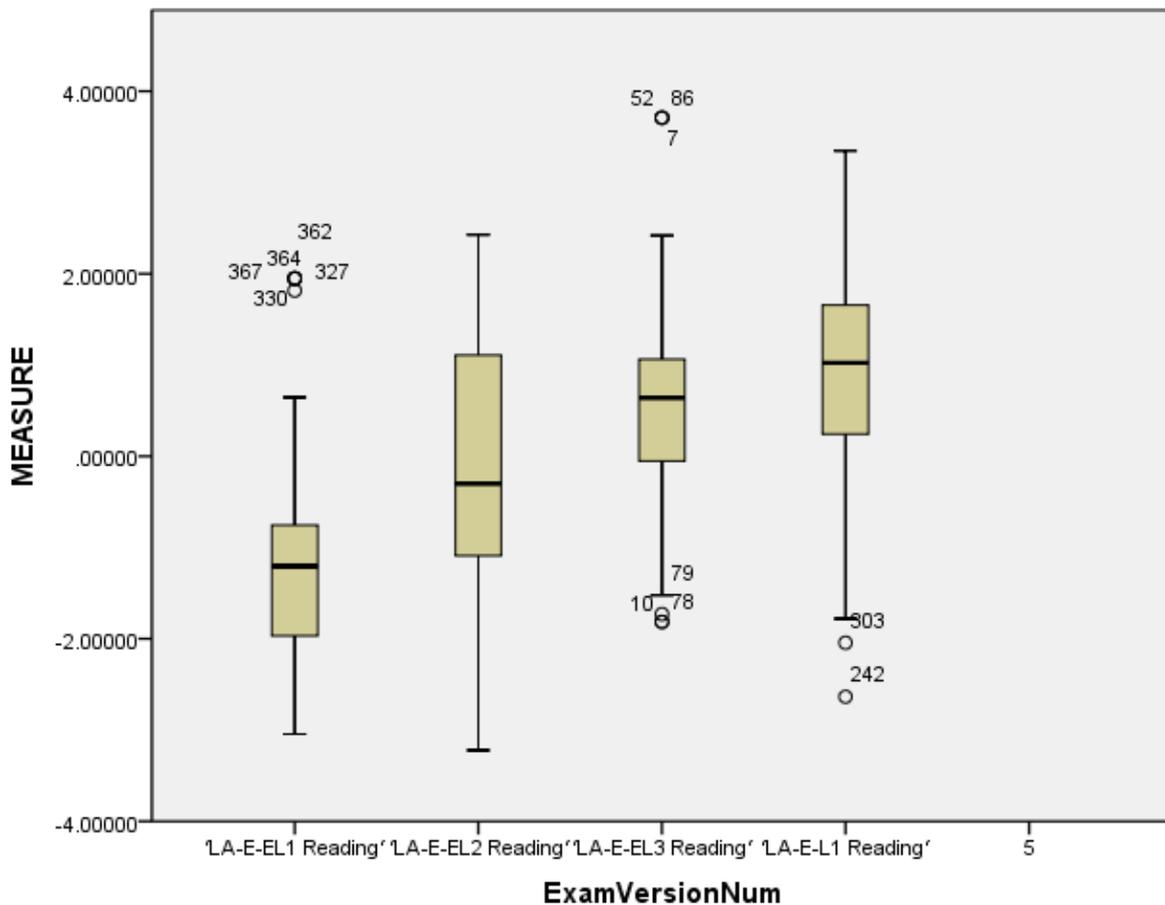
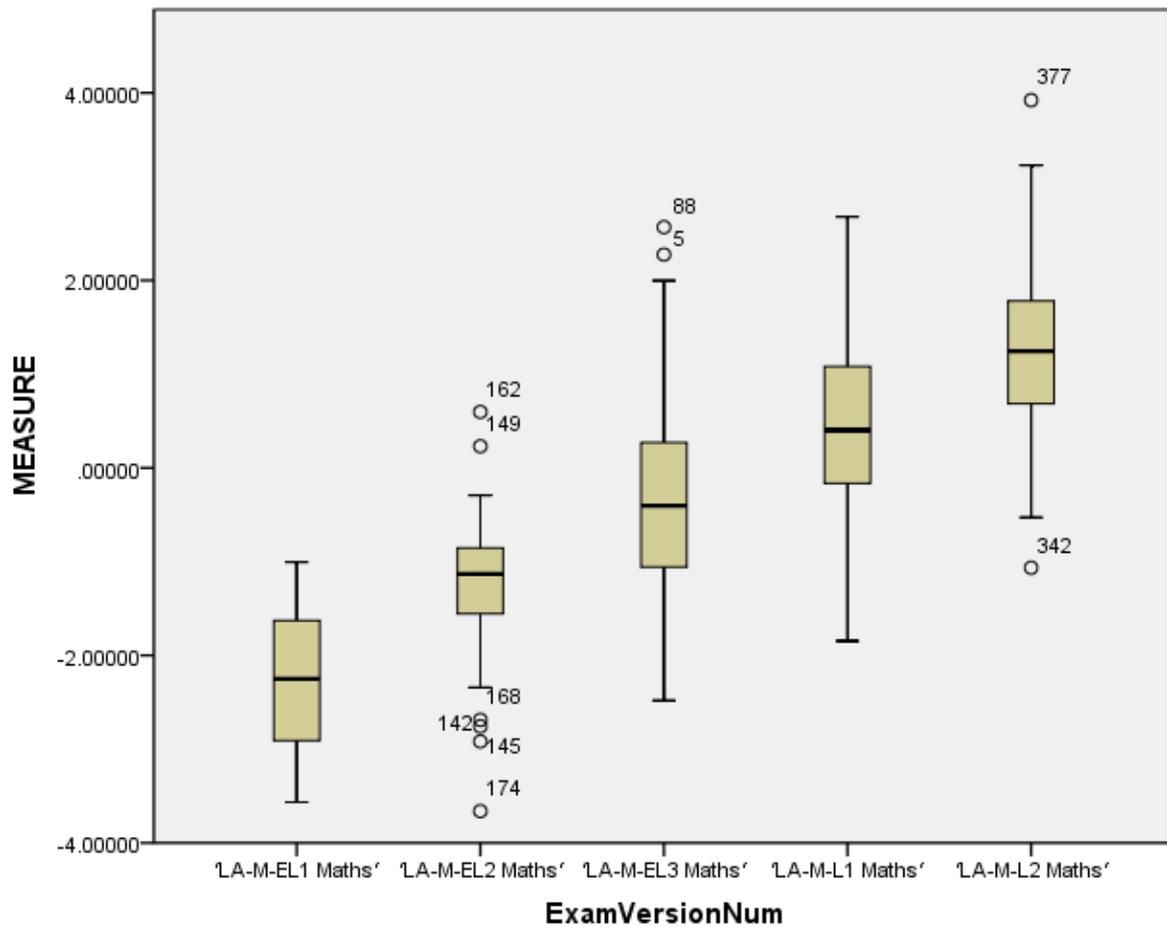


Figure 22 Abilities of learners from different source tests in longitudinal: local authority maths equate



For the reading tests, the stepping of ability estimates is largely intuitive, with ability estimates ascending by levelled test. The rate of increase in ability estimate does appear to decrease for higher level tests (a slight 'ceiling effect'), a feature experienced on other equates too. For maths also, the stepping of tests by level ascends intuitively in a linear way.

Figure 23 Abilities of learners from different source tests in longitudinal: local authority SPAG equate

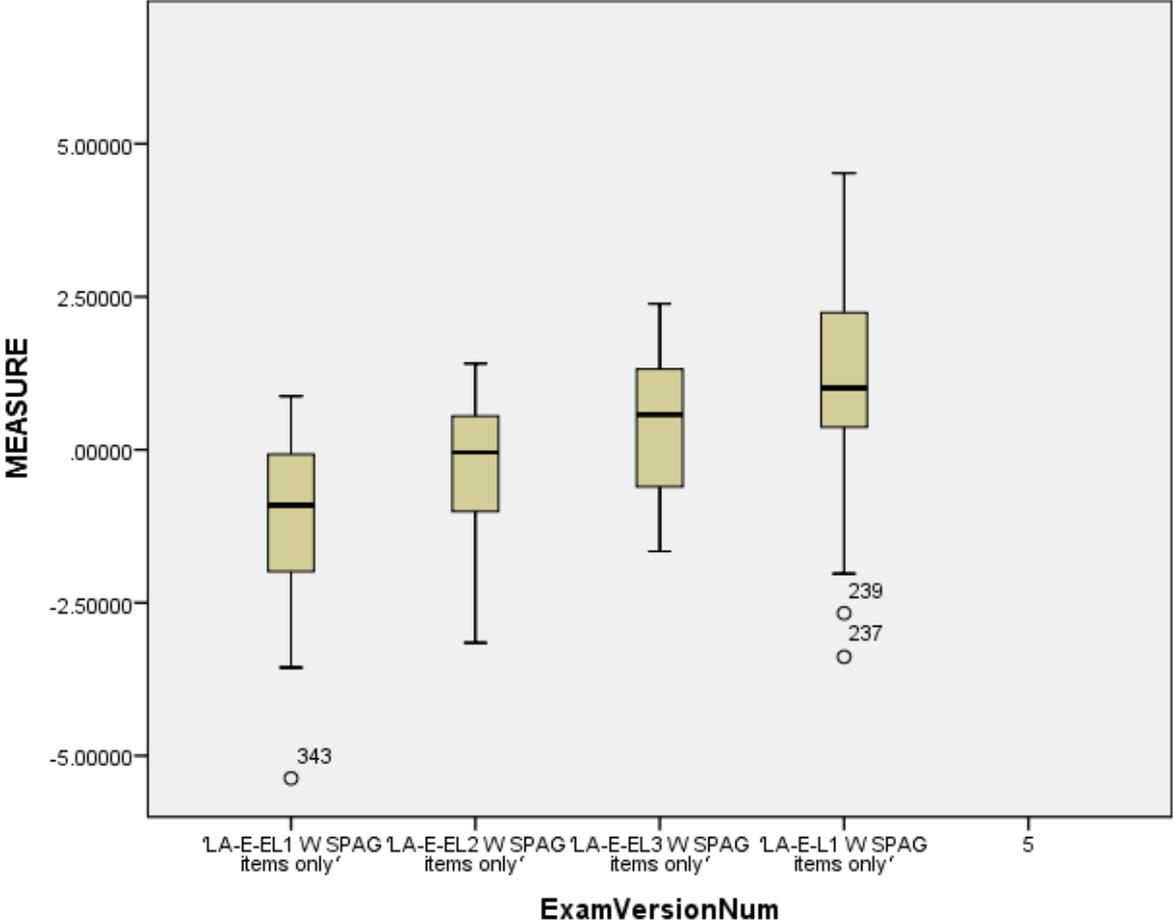


Table 18 Summary information for longitudinal: local authority extended writing tests

Source test name	N	Score information		
		Min	Mean	Max
EL1	39	0	3.00000	9
EL2	69	0	3.46377	6
EL3	86	0	4.73256	9
L1	143	0	5.76923	11
Grand Total	337	0	4.71217	11

The stepping on the longitudinal local authority sample SPAG tests seems intuitive; with estimated ability ascending, in line with test level entered.

The extended writing scores tend to ascend with the test level entered as well. Mean score is clearly higher for each subsequent test level entered.

Comparison of local authority sample and wave 2 scoring

Matching up scoring from pre and post-learning tests on the local authority equate⁴⁵ and checking to see the extent to which learners have either improved or regressed is an important sense check in this research.

We produce 2 sets of tables to do this:

One set provides some range and central tendency statistics for the differences between wave 2 and the pre-learning (local authority sample) tests.

The other set of tables counts the numbers of learners whose ability estimates are lower or higher after learning.

It is worth noting that this data set was rather small (especially at the lower levels) and these tables are based on raw counts of test takers, and/or the absolute nature of their ability estimates. Given the small sample size, measurement error will be substantial, and evaluations of progress made should be treated carefully.

Tables of results are given for each subject, and commentary follows the tables for each particular subject.

⁴⁵ We use the term 'equate' here (as a noun) to mean: a set of processes to derive an empirical understanding of the relative difficulty of a set of tests, and by extension, the relative abilities of a group of persons who sat different tests.

Reading

Table 19 Minimum, mean average and maximum values of post-learning minus pre-learning reading subtractions

Local authority sample test ID first, then wave 2	<i>N</i>	Min of Wv2 Reading minus local authority sample Reading	Average of Wv2 Reading minus local authority sample Reading	Max of Wv2 Reading minus local authority sample Reading
LA-E-EL1				
E-E1-RW	5	-1.50224	0.30807	1.49013
E-E2-RW	17	-3.47534	-0.46873	1.47174
	19			
LA-E-EL2				
E-E3-RW	16	-1.83179	-0.07080	2.25835
	14			
LA-E-EL3				
E-L1-RW	19	-1.81225	-0.11459	1.40172
	26			
LA-E-L1				
E-L2-RW	38	-2.09669	0.24893	2.14338
	31			

Table 20 Count of numbers of wave 2 minus local authority sample pluses and minuses for reading

Local authority sample test ID first, then wave 2	Count of Number of pluses and minuses			Grand Total
	minus	plus	#N/A	
LA-E-EL1				
E-E1-RW	2	3		5
E-E2-RW	8	9		17
#N/A			19	19
LA-E-EL2				
E-E3-RW	8	8		16
#N/A			14	14
LA-E-EL3				
E-L1-RW	11	8		19
#N/A			26	26
LA-E-L1				
E-L2-RW	15	23		38
#N/A			31	31
Grand Total	44	51	90	185

In the reading tests taken by the local authority learners, those taking a pre-learning Level 1 test, on average, improved in ability. However, learners taking other levelled pre-learning test, on average, had lower ability estimates on their post-learning test. The exception to this is for those taking Entry Level 1 tests before and after learning. However, the sample size here is quite small.

There appears to be an even spread of both 'plus' and 'minus' counts, suggesting an equal number of students improved as well as regressed in ability.

Writing

Table 21 Minimum, mean average and maximum values of wave 2 minus wave 1 writing subtractions

Local authority sample test ID first, then wave 2	<i>N</i>	Min of Wv2 Writing minus local authority sample Writing	Average of Wv2 Writing minus local authority sample Writing	Max of Wv2 Writing minus local authority sample Writing
LA-E-EL1				
E-E1-RW	5	5	5.500	6
E-E2-RW	17	-5	3.692	17
	19			
LA-E-EL2				
E-E3-RW	16	-5	4.231	14
	14			
LA-E-EL3				
E-L1-RW	19	-10	3.588	16
	26			
LA-E-L1				
E-L2-RW	38	-27	-0.500	18

Table 22 Count of numbers of wave 2 minus local authority sample pluses and minuses for writing

Local authority sample test ID first, then wave 2	Count of Number of pluses and minuses		Total (N)
	Minus	Plus	
LA-E-EL1			
E-E1-RW		2	2
E-E2-RW	4	9	13
LA-E-EL2			
E-E3-RW	5	8	13
LA-E-EL3			
E-L1-RW	5	12	17
LA-E-L1			
E-L2-RW	18	12	30
Grand Total	32	43	5

By and large, the majority of students showed better performance, on average, on their post-learning test. There was, however, one counter-intuitive result. Students taking a Level 1 test followed by a Level 2 test appeared to regress in their post-learning test.

Maths

Table 23 Minimum, mean average and maximum values of wave 2 minus local authority sample maths subtractions

Local authority sample test ID first, then wave 2	<i>N</i>	Min of Wv2 Maths minus local authority sample maths	Average of Wv2 Maths minus local authority sample maths	Max of Wv2 Maths minus local authority sample maths
LA-M-EL2				
ME2W2	11	-0.62083	0.35348	2.03188
	7			
LA-M-EL3				
ME3W2	38	-2.38012	0.07702	1.63739
	24			
LA-M-L1				
ML1W2	42	-2.27664	0.08445	3.11008
	30			
LA-M-L2				
ML2W2	46	-2.48439	-0.24661	1.91796
	11			
Total	209			

Table 24 Count of numbers of wave 2 minus local authority sample pluses and minuses for maths

Local authority sample test ID first, then wave 2	Count of Number of pluses and minuses			Grand Total
	minus	plus	#N/A	
LA-M-EL2				
ME2W2	4	7		11
#N/A			7	7
LA-M-EL3				
ME3W2	17	21		38
#N/A			24	24
LA-M-L1				
ML1W2	22	20		42
#N/A			30	30
LA-M-L2				
ML2W2	30	16		46
#N/A			11	11
Grand Total	73	64	72	209

Learners who took a maths test between Entry Level 2 to Level 1 all showed progress, on average, on their post-learning tests. Of these learners, the greatest improvement was seen in those taking an entry Level 2 test at both stages.

Those taking Level 2 test however appear to regress at the post-learning stage, by approximately 0.25 of a logit, a somewhat counterintuitive result.



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