MINISTRY OF EDUCATION
Te Tāhuhu o te Mātauranga

Literacy and numeracy assessments of adult English language learners

An analysis of data from the Literacy and Numeracy for Adults Assessment Tool

Literacy, language and numeracy research

This series covers research on teaching and learning in literacy, language and numeracy and analyses of international surveys on adult literacy and numeracy.

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FIGURES

TABLES

1   SUMMARY

KEY FINDINGS

Assessments of learners using the Literacy and Numeracy for Adults Assessment Tool were compared according to the learners'

- First language (English or other)

- Participation in the study of English for Speakers of Other Languages (ESOL)

- Enrolment in different types of tertiary education programme.

Assessment results for reading, writing and vocabulary consistently showed expected relationships with English language proficiency: the percentage of learners with low skills was greatest among ESOL learners, least among native English speakers, and at an intermediate level among learners with first language other than English who were not in ESOL study.

The percentage of native English speakers with low skills in reading, writing and vocabulary varied considerably between types of programme. The percentage of English language learners with low skills in reading, writing and vocabulary followed the same pattern of variation as native English speakers between types of programme.

These findings provide a strong indication that the Literacy and Numeracy for Adults Assessment Tool produces appropriate assessments of the literacy skills of those English language learners who were assessed.

However, numeracy results were variable. For some types of programme there was no difference between English language learners and native English speakers, while in others there were large differences. The pattern of variation in numeracy skills between types of programme for English language learners was somewhat different from the pattern of variation for native English speakers.

This means that it is unclear whether numeracy assessments can be used reliably with English language learners, and further investigation is needed to determine this.

On the other hand, English language learners and native English speakers showed similar rates of statistically significant gain in scores for the full range of skills, i.e. reading, writing, vocabulary and general numeracy.

English language learners (especially those in ESOL study) took longer in general to complete online versions of assessments than native English speakers, sometimes considerably longer. In so far as time taken is an indicator of effort expended in undertaking assessments, then English language learners could be said to experience greater difficulty than native English speakers.

A key limitation of the study is that large numbers of English language learners were not assessed, and it is not clear that these findings would apply to those learners who were not assessed.

The term 'English language learners' is used here to cover both learners in courses or programmes in English for Speakers of Other Languages, and learners whose first language is not English.

The Literacy and Numeracy for Adults Assessment Tool assesses skills in reading and writing in English and knowledge of English vocabulary; and the numeracy items are also expressed in

English. The main focus in the development and use of the Assessment Tool has been on the assessment of learners with English as a first language. However, a large proportion of the learners assessed have not had English as a first language, as indicated by the first language field in the Assessment Tool data.

This report is an attempt to answer questions about the extent to which the Assessment Tool can reasonably and legitimately be used to assess the literacy and numeracy of English language learners, on the basis of a descriptive study of skills (as measured by the Assessment Tool) of English language learners in comparison with learners with English as first language.

The Assessment Tool scores of English language learners, like those of native English-speaking learners, covered the full range available, but a much greater proportion of English language learners had scores at the lower end of the range in reading, writing and vocabulary. More specifically, the percentage of learners with low skills was:

- greatest among those in ESOL study
- intermediate among other-first-language learners not in ESOL study, and
- least among native English speakers.

The fact that differences according to English language proficiency were consistently found across all the data sets provides a validation of using the Assessment Tool to assess the literacy skills of English language learners. The fact that the Assessment Tool results distinguished between data sets in largely the same way for English language learners as for native English speakers strengthens this conclusion. However, the analyses in the chapter do not provide definitive proof that the Assessment Tool assesses the literacy skills of English language learners as a group as well as it does those of native English speakers, and it does not prove that an assessment of an individual English language learner is as accurate as that of a native English speaker.

In terms of numeracy, the proportion of learners with low general numeracy was somewhat greater among learners whose first language was not English than among native English speakers. However, overall there was no clear-cut relationship between general numeracy score and the different indicators of English language proficiency (namely, first language, participation in ESOL study and Assessment Tool scores for reading and writing).

English language learners and learners with English as their first language showed similar rates of statistically significant gain in reading, writing, vocabulary and general numeracy. There were slight differences: for learners with approximately the same initial assessment in reading and writing, somewhat greater percentages of learners with English as a first language showed statistically significant gain, but for vocabulary and general numeracy, somewhat greater percentages of English language learners showed significant gain. The differences for reading and writing may relate to English language learners having to overcome lower English proficiency (including lower vocabulary knowledge); but for general numeracy, lower language proficiency does not appear to be such an obstacle to learner gain.

In general, English language learners, especially those in ESOL study, took considerably longer to work through the assessments. Learners are able to complete an assessment over more than one session, with breaks in between. English language learners were considerably more likely than those with English as first language to take more than one day to complete an assessment. Part of the reason for English language learners taking longer in general to complete assessments is likely to be a greater tendency for such learners to complete assessments over multiple sessions, whether within one day or over more than one day.

The relatively long assessment durations for some English language learners, especially learners in ESOL study, on the one hand present an issue for administrators and educators in the assessing organisations in terms of the logistics and management of assessments. On the other hand, duration may be an indicator of the effort expended by learners in undertaking the assessments. If we can interpret it this way, then it appears that the lower the learners' English language proficiency, and the lower the assessed skill, the more difficult the assessment process became for learners.

What this report cannot do is comment on the literacy and numeracy skills of English language learners who were not assessed, or on the applicability of the Assessment Tool for such learners. Although the assessed learners include many who are likely to have had low proficiency in English, it is not clear that the results for assessed learners apply to those who were not assessed.

2 INTRODUCTION

The term 'English language learners' is used in this report to refer to learners who have participated in programmes or courses in English for speakers of other languages (ESOL) as well as any learners whose first language is not English.

Aim

The aim of this report is to shed light on the suitability of the Literacy and Numeracy for Adults Assessment Tool (the Assessment Tool) for assessing the literacy and numeracy skills of English language learners. In order to pursue this aim, the report provides a descriptive account of assessments of English language learners using the Assessment Tool, in comparison with learners whose first language is English.

Context

The Assessment Tool was developed as a diagnostic assessment for learners whose first language is English. However, approximately 20 per cent of learners who have been assessed using the Assessment Tool have been English language learners (see section 2.5 below). The Ministry of Education (MoE) has allocated funding for the Tertiary Education Commission (TEC) to develop an option for literacy and numeracy assessment of ESOL learners and others with particularly low skills, and the TEC has contracted the New Zealand Council for Educational Research (NZCER) to undertake this development. At the time of writing, this development is in its early stages. This report is intended to inform future discussions relating to this option among the TEC, NZCER, MoE, education providers, and educators.

2.1 The Literacy and Numeracy for Adults Assessment Tool

What is the Assessment Tool and how is it used?

The Literacy and Numeracy for Adults Assessment Tool is an online tool designed to provide robust and reliable information on the reading, writing, and numeracy skills of adults. Its primary purpose is to support educators and learners in their teaching and learning of reading, writing and numeracy. It is also designed to allow learners to track their progress over time and to enable educators and organisations to report on the progress made by groups or cohorts of learners.

The Assessment Tool was developed by a three-party consortium, led by the NZCER with the assistance of the Australian Council for Educational Research (ACER) and information technology company Fronde Systems Ltd, under direction from the TEC.

It was implemented on a pilot basis in 2010, and has been mandatory for all TEC-funded literacy and numeracy education from 2011, including literacy and numeracy education 'embedded' in vocational courses[1]. It has also been adopted in other contexts, such as the delivery of literacy and numeracy programmes within prisons.

Assessment Tool scores can be related to the Learning Progressions for Adult Literacy and Numeracy (Tertiary Education Commission 2008a, b, c), which were devised to represent learners' development of competencies in reading, writing, listening, speaking and numeracy, along a set of related continuums. These continuums can then be divided into a sequence of stages known as Steps.

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[1] 'Embedded' literacy and numeracy refers to instruction which is incorporated into courses focused on particular subject matter and/or a vocational skill, and which is aimed at developing literacy and numeracy skills relevant to that subject matter or vocational skill.

A difference between the Learning Progressions and the Assessment Tool is that there are multiple Learning Progressions for each skill of reading, writing and numeracy, representing different aspects of the learning of each skill, but in the Assessment Tool these progressions are coalesced into a single scale for each skill. For example, there are vocabulary Learning Progressions for both reading and writing, and in the Assessment Tool there is a vocabulary component in both the reading and writing assessments. However, the Assessment Tool also provides a separate vocabulary assessment with its own scale.

Assessment Tool scores are classified into six Steps within each of reading, writing and numeracy, simply called Step 1 (lowest skill) through to Step 6 (highest skill). There are three steps for the separate vocabulary assessment, called Emerging (lowest knowledge), Expanding and Extended (highest knowledge).

The Assessment Tool is designed to provide assessments of learners who have at least basic English language and reading skills. The Tertiary Education Commission (2008d) has provided guidance to educators in the form of the *Starting Points* resources, for learners who lack "basic, essential skill, knowledge and attitudes" needed for literacy development, along with a Starting Points Assessment Guide (Tertiary Education Commission, 2010).

The Assessment Tool produces numerical scores on a range from zero to 1,000. This range represents a series of levels of competence in dealing with the literacy or numeracy demands of everyday life. The numerical score can be translated into Learning Progression Steps, though the number-to-Step translation is different for each of the skills assessed. Earle (2014) has studied participants in the 2006 Adult Literacy and Life Skills (ALL) survey who have been assessed using the Assessment Tool, and found strong correlations between Assessment Tool scores and the literacy and numeracy measures used in ALL.

Since the Assessment Tool scores are based on each learner's responses to a limited number of questions, the scores are subject to some uncertainty, and this is represented by the standard error estimate which is provided along with the numerical score: the larger the standard error, the less precise the score is as a measure of skill. This means that a score from any one assessment should be seen as falling within a range rather than being a defined single point. This also means that there is some uncertainty in translating the score into a particular Learning Progression Step.

Skills assessed

The Literacy and Numeracy for Adults Assessment Tool provides assessments for four skill areas:

- Numeracy
- Reading
- Vocabulary
- Writing

The Vocabulary area is included in order to support learning in the other areas, especially as a diagnostic aid where learners have low literacy skills. Within the numeracy area the Assessment Tool provides three assessment modules, namely General Numeracy, Number Knowledge, and Number Strategies and Measurement. General Numeracy assessments include items from the two more specialised assessments. Taking into account these three numeracy skill modules, there are six skill modules to choose from when using the Assessment Tool:

- General Numeracy
- Number Knowledge

- Number Strategies and Measurement
- Read with Understanding
- Vocabulary
- Write to Communicate

Types of assessment

Assessments can be adaptive (where the Assessment Tool software alters the difficulty of subsequent questions in light of the learner's earlier answers) or non-adaptive (at a fixed level of difficulty). There is no time limit on adaptive assessments, and in fact they can be paused and resumed at a later time.

Non-adaptive assessments can be undertaken by learners online, or printed out by educators or administrators for offline use ('Non-adaptive for printing'). The levels of difficulty of non-adaptive assessments are expressed as ranges of Learning Progression Steps within which the assessments are designed to work. There are three levels of difficulty at which non-adaptive reading and numeracy assessments can be set: Steps 1-3, Steps 2-5, and Steps 4-6.

The standard or full-length adaptive assessments require 30 or more items to reach a definitive score for a learner. From February 2011, shorter length adaptive assessments for reading and numeracy also became available, which included about half as many items as a full-length adaptive assessment. Called "Snapshot" assessments, these recognise that in some circumstances a shorter assessment will provide enough information for an educator's purposes, while minimising the amount of time needed for administration. A 'non-adaptive for printing' version of the Snapshot assessment was introduced in October 2012.

The types of assessment available in 2013 varied according to the skill being assessed. For reading and numeracy assessments, all assessment types were available (adaptive online, both full-length and snapshot; full-length non-adaptive online; and both full-length and Snapshot non-adaptive for printing). For writing assessments, full-length non-adaptive for printing was the only type available, while for vocabulary the only option was full-length adaptive online.

While scoring of numeracy, reading and vocabulary assessments is automated, writing assessments currently need to be marked by human assessors before a score can be assigned.

The TEC provides guidance to organisations on using the Assessment Tool: in particular, domestic learners in relevant courses or programmes (including Intensive Literacy and Numeracy, Workplace Literacy, Youth Guarantee, Foundation-Focused Training Opportunities, Industry Training at Levels 1 to 3 of the New Zealand Qualification Framework (NZQF), and Student Achievement Component-funded programmes at NZQF Levels 1 to 3) are expected to have assessments early in courses or programmes and to be re-assessed (in 'progress' assessments) towards the end of those courses or programmes. In 2013 both reading and numeracy were minimum requirements for assessment; but learners assessed initially at Steps 4 to 6 for reading or Steps 5 to 6 for numeracy were not required to be reassessed.[2]

For more information on the Assessment Tool and its implementation, see Haggland and Earle (2012) and Lane (2012).

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[2] TEC requirements were somewhat different in 2011 and 2012: see Appendix A.

2.2 Starting Points

Starting Points refers to an approach to assessing literacy and numeracy which is an alternative to the Assessment Tool, and is intended primarily for native English speakers with very low levels of literacy (Tertiary Education Commission 2008d; 2010).

Many of the English language learners who were not assessed using the Assessment Tool between 2010 and 2012 would have been learners who were more appropriately assessed using the Starting Points framework. Starting Points-based assessments are not included in the Assessment Tool data set.

However, in 2013 the TEC introduced the use of the Assessment Tool as a method of screening learners to verify the allocation of learners to Starting Point assessments. Known as the Step 2 Threshold Assessment (STA), this involves assessing learners using a Snapshot reading assessment with a Step 2 threshold, and treating learners with scores statistically significantly below Step 2 as candidates for Starting Points assessments. STA assessments are included in the Assessment Tool data set. Analyses of reading assessments in Chapter 3 include a category for learners with assessment scores in the Starting Points range as determined by this method.

2.3 Data for analysis

Seven sets of data provide the basis for the analyses in this report:

- Literacy and Numeracy for Adults Assessment Tool data for all of 2010, 2011 and 2012, including non-adaptive for printing assessments started in each of those years but submitted in the subsequent year; with the addition of assessments submitted up to December 2013. Assessments started in 2013 but submitted in 2014 are not included. The Assessment Tool data does not include information on programmes or courses that learners are enrolled in.

- Enrolment data (matched to the Assessment Tool data) for domestic learners, mainly for 2011 and 2012, for the following types of programmes:

    o Intensive Literacy and Numeracy (ILN)

    o Workplace Literacy (and Numeracy) (WPL)

    o Youth Guarantee fees-free tertiary, for 2012 only (YG)

    o Industry Training at NZQF Levels 1 to 3 (IT)

    o programmes at NZQF Levels 1 to 3, in the period 2011 to 2013, funded through the Student Achievement Component (SAC)

    o Foundation-Focused Training Opportunities (FFTO)

There is limited information in these data sets about learner characteristics such as previous education experience, or the reasons for their selection into the specific programmes. For the purposes of analyses the data sets are treated as distinct groups of learners within which there are general similarities between the English language learners and the native English speakers. A major reason for including all these data sets is to analyse the data by looking for consistency (or lack of consistency) in Assessment Tool results across these data sets and across assessed skills, namely reading, writing, numeracy and vocabulary.

For a more detailed description of the data sets, see Appendix A, Data and Definitions, and Appendix B, Demographic characteristics of English language learners.

2.4 Identifying adult English language learners

Two approaches to identifying adult English language learners have been taken here: firstly, looking for learners in ESOL courses or programmes in tertiary enrolment data; and secondly, looking for learners whose first language is not English in the Literacy and Numeracy for Adults Assessment Tool data.

Learners in English for Speakers of Other Languages programmes
In the tertiary enrolment data there are two data sets which provide information on learners in ESOL courses or programmes.

Firstly, in the data for programmes funded through the Student Achievement Component (which is the main subsidy for tertiary students), courses and qualifications can be identified as 'English for speakers of other languages'. A learner is counted as an ESOL learner if enrolled either in an ESOL qualification or in an ESOL component of a programme which may not itself lead to an ESOL qualification. For matching with the Assessment Tool, data on these ESOL learners is available from 2010 to 2013.

Secondly, data for Foundation-Focused Training Opportunities (FFTO) programmes for 2011 and 2012 includes an indicator for learners referred to ESOL programmes. Learners in FFTO programmes include people who are unemployed or welfare beneficiaries, and who often have low or no educational qualifications.

First language in Assessment Tool data
The Assessment Tool data contains an indicator (or 'flag') for each learner as to whether the learner's first language is English or not. In the Assessment Tool data for 2010 to 2013, the value of this indicator is unspecified for only 1.4 per cent of learners. However, there is a data quality issue with the values that have been specified, as explained in Appendix A. Although this is a problem, the first-language indicator can still be used as the basis of an informative analysis.

Combining ESOL and first language indicators
For two of the analysis data sets, namely learners in SAC-funded and FFTO programmes, we can identify English language learners in terms of both first language and participation in ESOL courses/programmes. In these two data sets, it is thus possible to divide learners into three categories, which are assumed here to correspond to three levels of English language proficiency:

- learners who have been enrolled in ESOL courses or programmes, assumed to have relatively low proficiency
- other learners who are recorded in at least one Assessment Tool data set as having a first language other than English, assumed to have higher non-native proficiency
- learners who have not been enrolled in ESOL courses or programmes and who only have English recorded as their first language in the Assessment Tool data; assumed to have native English-speaking proficiency.

See Appendix A for more detailed discussion of these categories.

2.5 Summary of characteristics of the data sets used for analysis

There were considerable differences between data sets in the demographic characteristics (in terms of gender, ethnic identification and age) of the learners, as well as differences within data sets between other-first-language and English-first-language learners. Detailed demographic breakdowns for the different data sets are provided in Appendix B.

Demographic characteristics of English language learners in the different data sets, and of comparable groups of native English speakers, are summarised in Table 1. Following that, Table 2 provides information on the available data relating to the assessment of English language learners.

Table 1
Indicators of composition of data sets, by gender, ethnic identification and age

Data set	Learner status	Percentage female	Main ethnic identification(s)	Median age
All assessed learners 2010-2013	L1 not English	49	Asian, Pasifika	31
	L1 English	45	European, Māori	24
Intensive Literacy & Numeracy 2011-2012	L1 not English	61	Asian	39
	L1 English	54	Māori, European	27
Workplace Literacy (TEO-led) 2011-2012	L1 not English	43	Pasifika, Asian	41
	L1 English	44	European, Māori	41
Youth Guarantee (fees-free tertiary) 2012	L1 not English	41	Pasifika, Māori, European	17
	L1 English	46	European, Māori	17
Industry Training, domestic (NZQF[3] Levels 1-3) 2011-2012	L1 not English	36	Asian, Pasifika	33
	L1 English	31	European, Māori	30
Student Achievement Component, domestic (NZQF Levels 1-3) 2011-2013	ESOL study	68	Asian	40
	No ESOL study, L1 not English	57	European	26
	No ESOL study, L1 English	58	European, Māori	24
Foundation-Focused Training Opportunities 2011-2012	ESOL programme	52	Asian, Pasifika, Other	35
	No ESOL programme, L1 not English	59	Pasifika	30
	No ESOL programme, L1 English	50	European, Māori	23

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[3] New Zealand Qualification Framework.

Table 2

Data set characteristics: assessment rates and English language learner numbers

Data set	Subset	Percentage of enrolled learners assessed	English language learners as percentage of assessed learners	Number of assessed English language learners
All assessed learners 2010-2013[4]			17	42,000
Intensive Literacy & Numeracy 2011-2012		65	43	2,800
Workplace Literacy (TEO-led) 2011-2012		86	44	2,600
Youth Guarantee (fees-free tertiary) 2012		81	8	600
Industry Training, domestic (NZQF Levels 1-3) 2011-2012		20	16	4,500
Student Achievement Component, domestic (NZQF Levels 1-3) 2011-2013	Full data set	43	20	15,100
	ESOL study only	38	100	4,300
Foundation-Focused Training Opportunities 2011-2012	Full data set	75	19	2,400
	ESOL programmes only	61	100	700

All these data sets are used in the analyses of reading and general numeracy assessments in this report. The numbers of assessed English language learners represent the learners who were assessed at least once for some skill. The minimum TEC requirement in 2011 and 2012 was assessment of either reading or numeracy, with reading the most widely assessed skill (many learners were assessed only for reading).

For other skills, the numbers of assessed English language learners were smaller, and so the most useful data sets were mainly the larger ones, namely the set of all assessed learners (for which only the first language flag could be used to identify English language learners), and learners in SAC-funded programmes (for which English language learners could be identified both in terms of ESOL study and the first language indicator). However, the set of learners in FFTO programmes could also be used for some other skills, because of a high assessment rate. This group is also of particular value for analysis because English language learners could be identified both by first language and in terms of participation in ESOL programmes (and such learners were likely to have particularly low English language proficiency). It appears that learners with low English language proficiency were less likely to be assessed in other types of programmes.

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[4] The figures in this row are for the Assessment Tool data on its own (which does not include any enrolment information), without matching to any enrolment data; hence it is not possible to specify a percentage of enrolled learners assessed.

2.6 Limitations

Data limitations

As noted above, the Assessment Tool data set does not include all 2013 assessments. Most of the data relates to the years 2011 and 2012, and this data is complete except for the Intensive Literacy and Numeracy and Workplace Literacy data. See Appendix A for further details.

Limitations of analysis

Analysis of possible gains in the assessed skills (see Chapter 7) is based on a simple comparison of first and last assessments in each data set for the same skill, for the subset of learners who were assessed more than once. This approach does not take into account the nature, length or intensity of the educational programmes that learners were enrolled in, and is thus only a first step towards understanding the extent to which programmes may enhance learners' skills.

At this stage it is necessary to be cautious about interpreting the statistical patterns reported here. One clear reason is that not all English language learners were assessed using the Assessment Tool. All observations about English language learners in this report relate to those English language learners who were assessed. It is likely that English learners who were not assessed (such as learners assessed using the Starting Points assessment process rather than the Assessment Tool) tended to have lower English language proficiency, but it is not possible to report on such learners.

Another reason for caution is that the set of learners assessed using the Assessment Tool in each data set was a subset of all tertiary learners enrolled in that year, and it was not a representative sample of tertiary learners; that is, learners with certain characteristics, in certain types of educational provision, were more likely to be assessed than others.

A further reason for caution is that experience of the process of implementation of the Assessment Tool (see Haggland and Earle 2012) indicates that successful implementation requires understanding of the purposes of assessment and engagement with the Assessment Tool on the part of educators and especially learners. The assessment scores for learners who lacked understanding and engagement were likely to understate their skills. Changes in scores between initial and progress assessments could reflect changes in level of engagement as well as actual changes in skills.

A final reason is that first language, and participation in ESOL programmes or courses, are related in various ways to other factors including age, gender, ethnic group (see Appendix B) and educational background. Thus observed differences between learners in or not in ESOL programmes or courses, or learners whose first language is or is not English may in part be a result of these other factors; but these influences are not examined in this report.

To develop sound interpretations of the data which take into account the different characteristics of the assessed learners and of the educational programmes they participated in, would require careful multivariate statistical modelling. Such modelling might also be able to shed light on the effect of variable understanding and engagement by educators and learners. Such statistical modelling is beyond the intended scope of this report, but it is anticipated that it will be an important part of future research in the Ministry's work on literacy, language and numeracy.

2.7 Outline of report

Chapters 3 to 5 are concerned with the first assessments of learners in the periods covered by the different data sets, in the skills of reading (Chapter 3), writing (Chapter 4) and numeracy (Chapter 5). Two aspects of these assessments are covered: the distribution of Learning Progression Steps for English language learners and native English speakers, and the time taken by each group of learners to complete online adaptive assessments.

Many learners have only been assessed once for a particular skill, typically in the early stages of an educational programme. For comparability with these learners, only the first assessment for the other learners with more than one assessment is considered in the analyses in these chapters. This provides the greatest comparative base, with these comparisons generally prior to any effect of the educational programmes in which they are enrolled.

In each of Chapters 3 to 5, the assessment results are presented in the following sequence:

- Results for data sets in which the only available indicator of English language learners' status is the first language indicator from the Assessment Tool, namely (where sufficient data is available) the full Assessment Tool data set, Intensive Literacy and Numeracy, Workplace Literacy, Youth Guarantee and Industry Training; followed by
- Results for data sets in which information on ESOL study is available, namely the Student Achievement Component data and the Foundation-Focused Training Opportunities data.

Apart from the full Assessment Tool data set (which does not include enrolment information), these sets contain data for distinct groups of learners undertaking very different programmes and so they need to be analysed separately.

Chapter 6 is concerned with vocabulary assessments, in terms of learner profiles on first assessment, and also in terms of the relationships between vocabulary scores and reading, writing and numeracy assessments.

Chapter 7 presents patterns of statistically significant gain for those data sets in which sufficient numbers of learners were assessed more than once.

Chapter 8 puts forward some overall conclusions.

Appendix A provides detailed descriptions of the data used and definitions of variables used for analysis, as well as covering issues in identifying English language learners in the seven data sets. Appendix B provides detail of the demographic characteristics of the English language learners who are identified, compared with native English speakers.

3 LEARNER PROFILES ON FIRST READING ASSESSMENT

Two types of analysis are presented in this chapter for each data set, where possible: profiles of reading scores for groups of learners in terms of (modified) Learning Progression Steps; and durations of online reading assessments for the same groups of learners. The groups of learners are defined in terms of English language proficiency, either whether their first language was English or not, or a combination of first language and participation in ESOL study.

The reading assessment has been designed to assess the reading skills of native English speakers. This chapter is concerned with the question of whether it also works as an assessment of reading skills for English language learners. If so, we would expect to find

- a greater prevalence of low reading skills among learners whose first language is not English than among English-first-language learners; and
- that the prevalence of low reading skills would be greatest among learners in ESOL study, less among other-first-language learners not in ESOL study, and least among native English speakers.

If these expectations are not met in one or more of the data sets, that would be an indication that there is a problem with using the reading assessment to assess the reading skills of English language learners.

Similarly we would expect other-first-language learners to take more time to complete online reading assessments than native English speakers because they would be slower reading the assessment items, and learners in ESOL study to take longer than other-first-language learners not in ESOL study.

Once comparisons have been made within data sets, then a further check on the functioning of the Assessment Tool will be to see if it is consistent across data sets, that is, whether it distinguishes between data sets in the same way for English language learners as for native English speakers.

3.1 Modified Learning Progression Steps

For analysis of learners' reading skills, the Learning Progression Steps have been modified. This modification involves splitting Step 1 of the reading progression into two parts. Lower Step 1 refers to scores statistically significantly below the Snapshot Step 2 Threshold, i.e. the TEC proxy for Starting Points learners. The upper limit for Lower Step 1 is based on significantly Below Threshold scores in Snapshot Step 2 Threshold assessments in 2011-2013 data. And Upper Step 1 refers to scores in Step 1 but above this cut-off.

3.2 Reading in the full Assessment Tool data set

Reading profiles of learners

Figure 1 incorporates all the first reading assessments of learners from 2010 to 2013. Low reading skills (as indicated by the percentage of learners at Steps 1 and 2) were more prevalent among the other-first-language learners than the English first language learners, which is to be expected if the Assessment Tool does actually gauge reading comprehension for other-first-language learners. In fact, the percentage of other-first-language learners at Steps 1 and 2 (34 per cent) was more than twice that for English-first-language learners (15 per cent), with a small but significant proportion of the other-first-language group in Lower Step 1 (5 per cent, compared with 1 per cent of the English-first-language group).

Figure 1
First Read with Understanding assessments of learners in full 2010-2013 Assessment Tool data set: Distribution of modified Learning Progression Steps, by first language
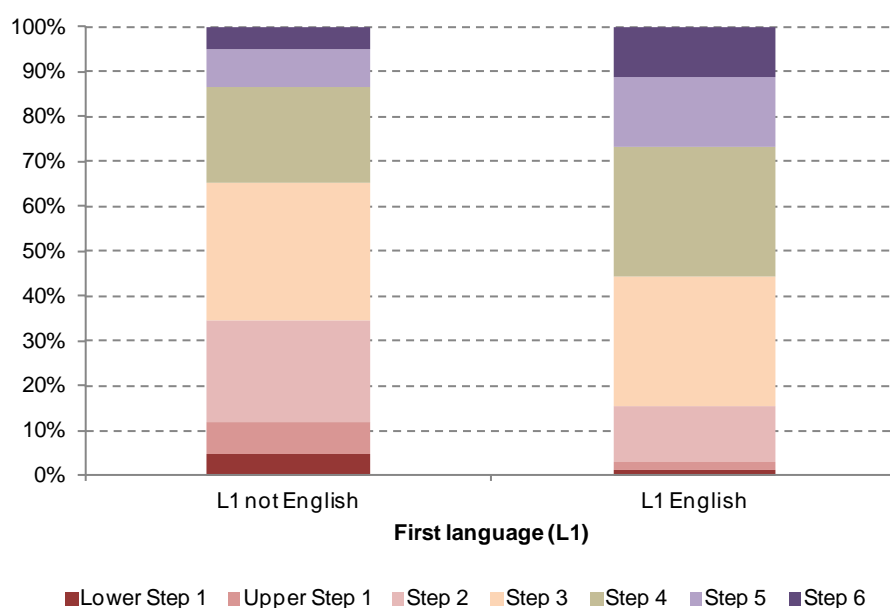
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2010-2013 of 178,000 learners with English as first language, and 37,000 learners with other first language.

Duration of online reading assessments

Figures 2 and 3 show the median time taken by learners for adaptive online assessments (full-length and Snapshot) between starting assessments and submitting them to the Assessment Tool system. The median time refers to the midpoint of the range of learners' assessment durations. In other words, for each modified Learning Progression Step, half the learners in each group (other-first-language or English-first-language) took less than the median time and half longer than the median time. It is possible for a learner to stop part way through an assessment and then resume at a later time: in such situations, the duration of assessment appears to be particularly long, and it is not possible to estimate the true time taken[5] to work through the assessment. An indication of the extent to which assessments are interrupted and then resumed can be given by the percentage of assessments with durations greater than one day, that is, assessments which are started on one day and submitted on a later day.

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[5] Hence it is not possible to estimate true mean durations. However, the median duration is still meaningful as long as interrupted assessments form a minority of all assessments.

For learners scoring at the upper end of the range for reading, the median duration is almost the same for the two first-language groups. However, for lower Steps, the median duration is greater for other-first-language learners, and at Lower Step 1, the median duration for other-first-language learners is approximately twice that for English-first-language learners. The difference at lower steps is probably partly due to the other-first-language learners taking longer to read and interpret the assessment texts; but it is also probably partly due to many of the English-first-language learners being less engaged in the assessment and failing to read carefully in their attempts to complete the assessment quickly.

These differences in time taken are in line with expectations, but the extent of the differences is striking. For other-first-language learners assessed at Step 2 in full-length adaptive online assessments, the median time taken is almost 50 minutes; in other words, half of such learners take longer than this. Among other-first-language learners, 10 per cent spread their assessments over more than one day, compared with 5 per cent of English-first-language learners.

Figure 2

First Read with Understanding assessments of learners in full 2010-2013 Assessment Tool data set: Median duration of **full-length adaptive online** assessment, by modified Learning Progression Step and first language (L1)
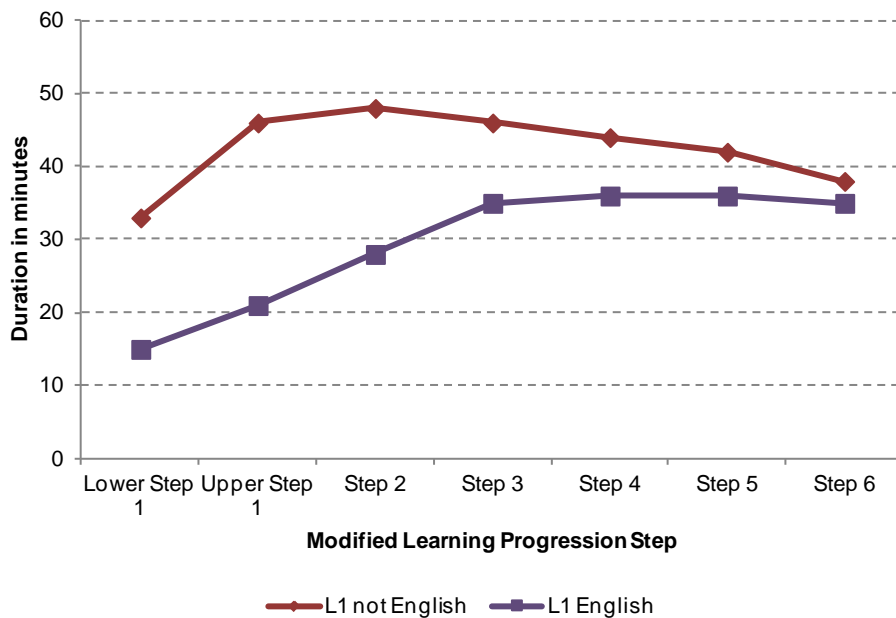
For other-first-language learners taking adaptive online Snapshot assessments, 3 per cent had assessments spread over more than one day, compared with 2 per cent of English-first-language learners.

Figure 3

First Read with Understanding assessments of learners in full 2010-2013 Assessment Tool data set: Median duration of **adaptive online Snapshot** assessment, by modified Learning Progression Step and first language (L1)

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2010-2013 of 54,000 learners with English as first language, and 10,000 learners with other first language.

3.3 Reading in Intensive Literacy and Numeracy programmes

Reading profiles of learners

Among learners in Intensive Literacy and Numeracy programmes[6], whether or not the first language was English, a large proportion had low reading scores (Steps 1 and 2): 40 per cent of the English-first-language group and 64 per cent of the other-first-language group, as shown in Figure 4. This included a noticeable minority at Lower Step 1: 5 per cent of the English-first-language group and 17 per cent of the other-first-language group. Thus, the percentages of learners with these low skills were considerably greater among learners whose first language was not English, as would be expected if the assessment does in fact measure the reading comprehension of English language learners.

Figure 4
First Read with Understanding assessments of learners in Intensive Literacy and Numeracy programmes in 2011 and 2012: Distribution of modified Learning Progression Steps, by first language
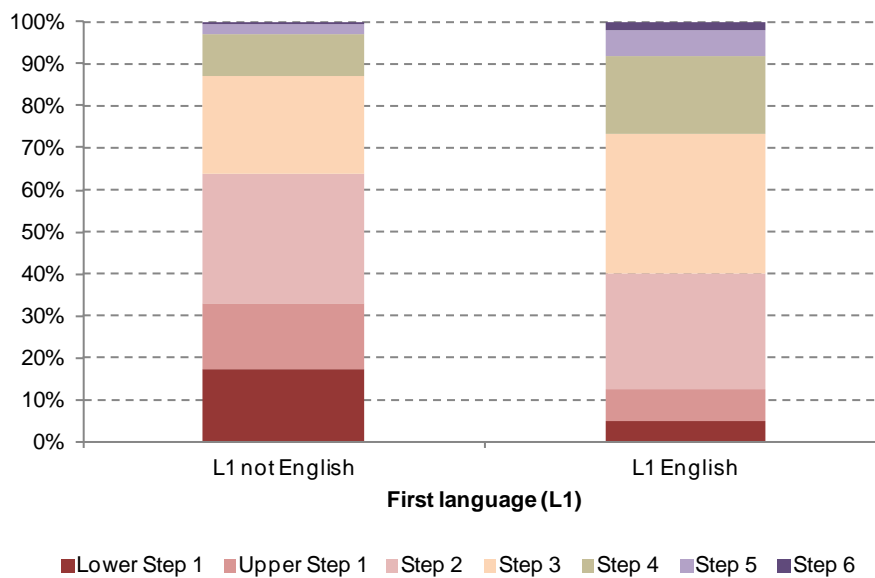
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2012 of 3,500 learners with English as first language, and 2,500 learners with other first language.

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[6] These are programmes targeted at learners with high needs for assistance in developing literacy and numeracy.

Duration of online reading assessments

There were only sufficient numbers for analysis of duration for full-length adaptive online assessments with scores in the range from unmodified Step 1 to Step 4. As can be seen in Figure 5, the median duration was considerably longer across this range for other-first-language learners than for English-first-language learners. Part of the reason for the longer median duration may be that other-first-language learners were more likely to take more than one session to complete an assessment. Among assessments of other-first-language learners, 16 per cent were spread over more than one day, while this was the case for only 8 per cent of assessments of English-first-language learners. This result is in line with expectations for the reading assessment as a measure of reading comprehension for English language learners.

Figure 5

First Read with Understanding assessments of learners in 2011-2012 Intensive Literacy and Numeracy data set: Median duration of **full-length adaptive online** assessments, by Learning Progression Step and first language
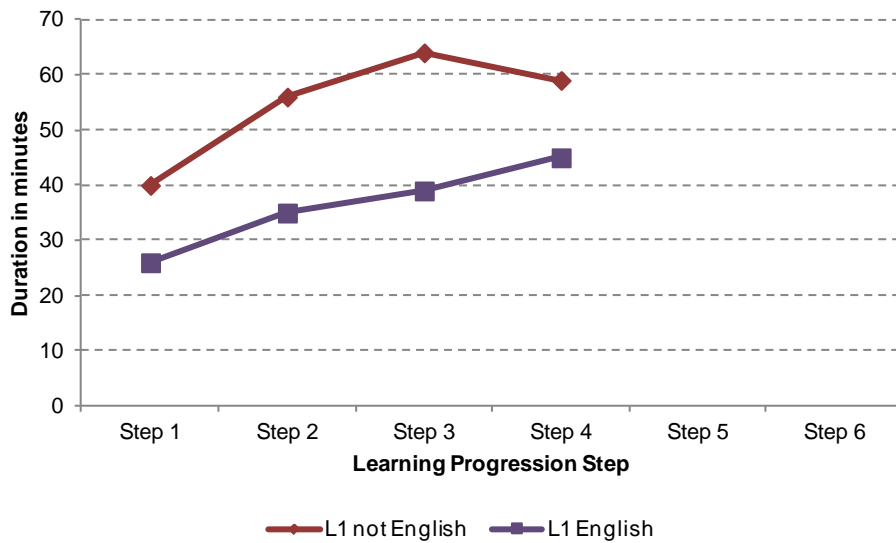
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2012 of 2,300 learners with English as first language, and 1,600 learners with other first language.

3.4 Reading in Workplace Literacy programmes

Reading profiles of learners

Among learners in Workplace Literacy programmes, the prevalence of low reading skills was greater among other-first-language learners than English-first-language learners, in line with expectations of the reading assessments as a measure of reading comprehension for English language learners. However, the percentages of learners with extremely low reading skills (i.e. Lower Step 1) were not as great as for Intensive Literacy and Numeracy, at 1 per cent of English-first-language learners and 6 per cent of other-first-language learners. On the other hand, the percentages at Steps 1 and 2 taken together were large for learners whose first language was not English (44 per cent), considerably greater than for native English speakers (18 per cent), as shown in Figure 6.

Figure 6

First reading assessments of learners in Tertiary Education Organisation-led Workplace Literacy programmes in 2011 and 2012: Distribution of modified Learning Progression Steps, by first language (L1)
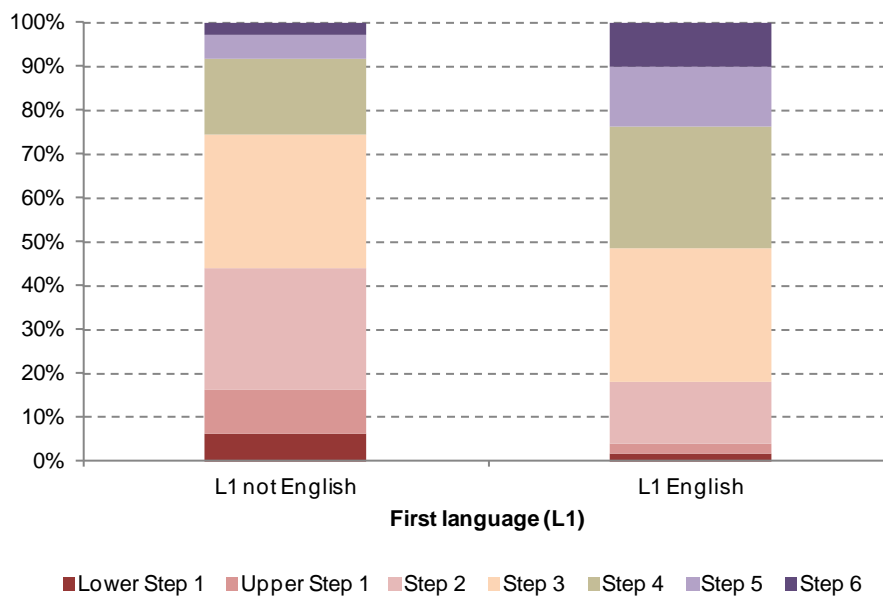
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2012 of 2,500 learners with English as first language, and 2,400 learners with other first language.

3.5 Reading in Youth Guarantee programmes

Reading profiles of learners

For learners in Youth Guarantee (fees-free tertiary) programmes in 2012, whether or not their first language was English, large proportions at Steps 2 and 3 were noticeable, as can be seen in Figure 7. Though learners whose first language was not English were more likely to be assessed at Steps 1 and 2 (48 per cent, compared with 33 per cent of English-first-language learners), the differences between the first-language groups were not as great as for Intensive Literacy and Numeracy or for Workplace Literacy.

Figure 7

First Read with Understanding assessments of learners in Youth Guarantee fees-free tertiary programmes in 2012: Distribution of modified Learning Progression Steps, by first language (L1)
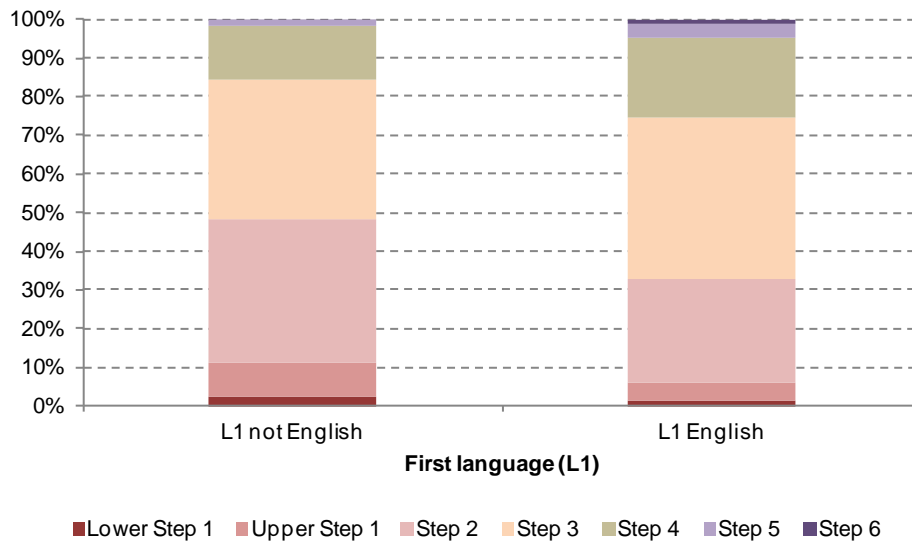
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2012 of 6,100 learners with English as first language, and 500 learners with other first language.

3.6 Reading in Industry Training

Reading profiles of learners

A drawback of the Industry Training data is that only a relatively small proportion of trainees have been assessed. In spite of this, the data does show the expected difference between first language groups. Among those assessed, a considerably greater percentage were assessed at Steps 1 and 2 among trainees whose first language was not English (27 per cent), compared with native English-speaking trainees (7 per cent), as can be seen in Figure 8.

Figure 8

First Read with Understanding assessments of learners in Industry Training at NZQF Level 1-3 in 2011 and 2012: Distribution of modified Learning Progression Steps, by first language
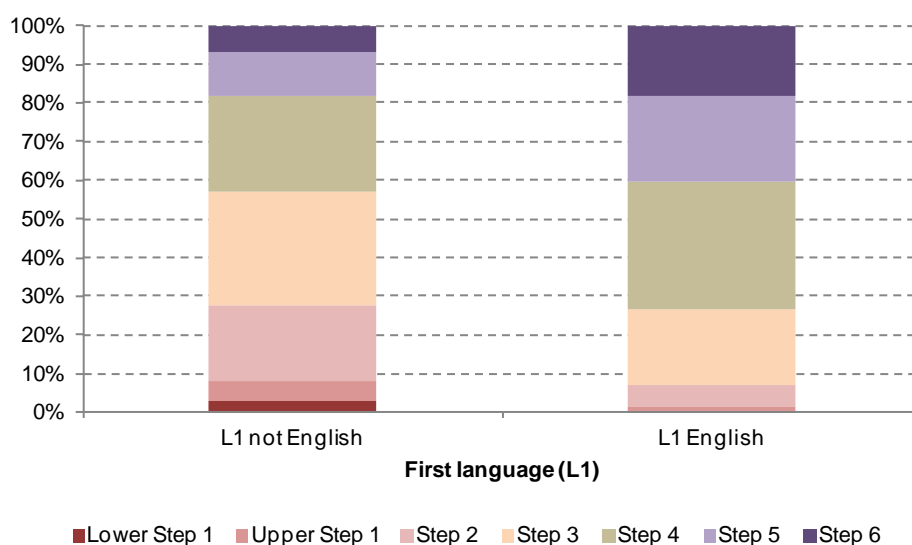
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2012 of 16,100 learners with English as first language, and 3,100 learners with other first language.

3.7 Reading in programmes funded through the Student Achievement Component

Reading profiles for learners

Among learners in SAC-funded programmes, ESOL learners can be identified by their enrolment in courses or qualifications classified as ESOL in terms of field of study. Such learners are assumed here not to have English as a first language (although in some cases their first language is recorded as English in the Assessment Tool data). This allows a three-way comparison between learners in ESOL study, other-first-language learners not in ESOL study, and English-first-language learners. A further assumption is that learners in ESOL study are likely to have lower English proficiency than other-first-language learners not in ESOL study; thus the three categories can be interpreted as representing three levels of proficiency in English (see Appendix A for more detailed discussion of this point).

There is a relatively low rate of assessment of learners in ESOL study, but on the other hand there are large numbers of learners in this category, which makes it possible to undertake statistical breakdowns within the group. The analysis here is confined to learners in programmes leading to qualifications at Levels 1 to 3 of the New Zealand Qualification Framework (NZQF), because these levels are the focus of literacy and numeracy provision and of TEC guidelines for the use of the Assessment Tool, and also because the rate of assessment of learners is generally greater at Levels 1 to 3.

In line with the assumption of a gradation in English proficiency, there is a gradation between the three groups, with the ESOL study group having the largest percentage at Steps 1 and 2 (34 per cent), the other-first-language learners not in ESOL study having an intermediate percentage (19 per cent) and the English-first-language group the smallest percentage (11 per cent), as shown in Figure 9. This is in accordance with what is to be expected if the reading assessment is in fact an appropriate measure of English language learners' reading comprehension.

Figure 9
First Read with Understanding assessments of domestic learners in SAC-funded programmes at NZQF Levels 1-3 in 2011-2013: Distribution of modified Learning Progression Steps, by ESOL study and first language
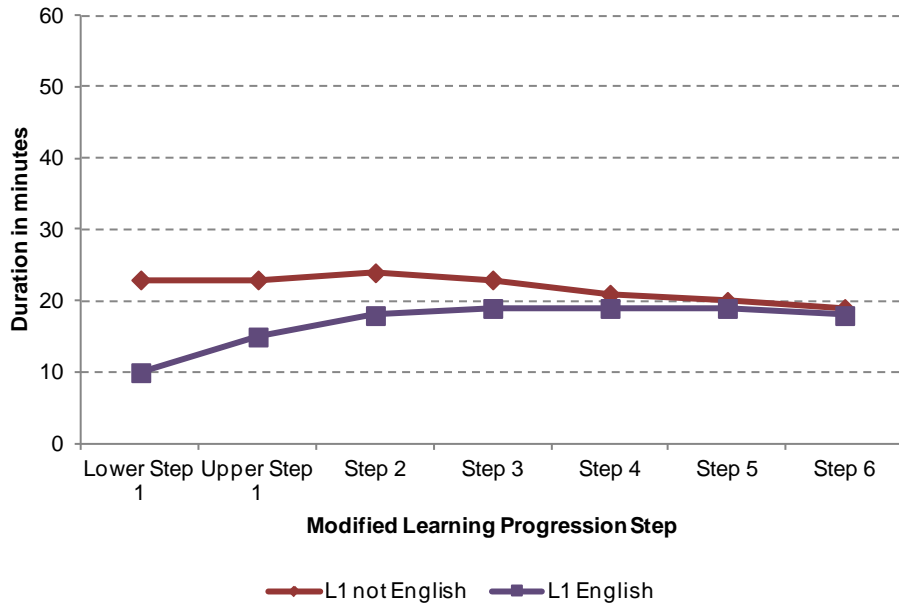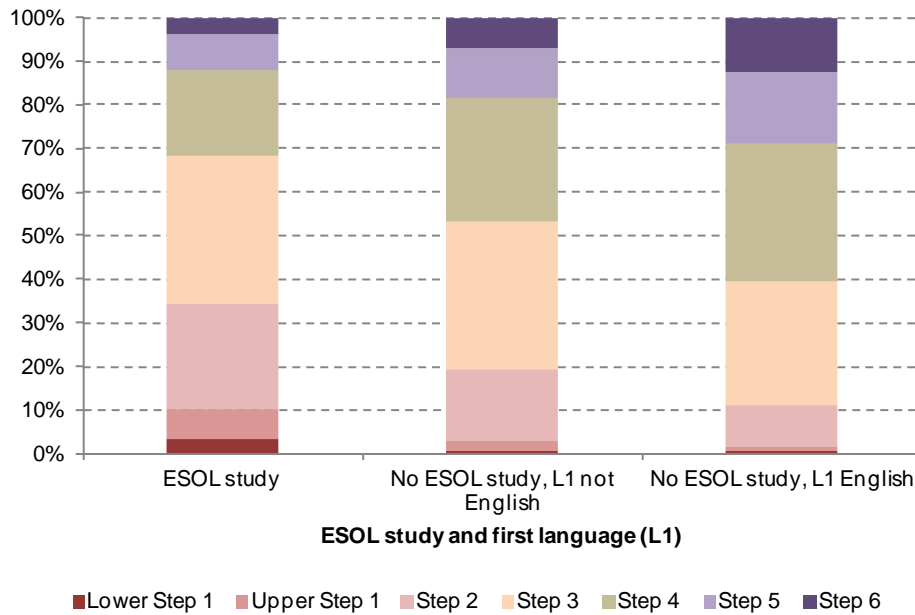

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2013 of 4,000 learners in ESOL study, 57,000 learners not in ESOL study with English as first language, and 10,000 learners not in ESOL study with other first language.

Duration of online reading assessments

Figures 10 and 11 show the median durations for online reading assessments according to English proficiency, assessment type and Learning Progression Step. The median durations for learners in ESOL study are consistently longer across all steps for both assessment types. However, the median durations are very close for learners scoring in Steps 3 to 6 for other-first-language learners not in ESOL study and English-first-language learners. On the other hand, at Step 1 the median duration is considerably longer for the other-first-language than for the English-first-language learners.

These differences in median durations are likely to be partly due to greater proportions of ESOL learners spreading their assessments across more than one session. For the full-length adaptive online assessments, 16 per cent of the learners in ESOL study spread their assessments over more than one day, compared with 4 per cent of the other-first-language learners not in ESOL study, and 3 per cent of the English-first-language learners. For the Snapshot assessments, there was not a clear-cut difference among the proficiency groups in multi-day assessments (3 per cent, 3 per cent and 2 per cent respectively).

Another factor in these differences in duration may be some disengaged English-first-language learners rushing through the assessments without reading carefully and so scoring at Steps 1 and 2.

Figure 10

First Read with Understanding assessments of learners in 2011-2013 SAC-funded programmes at NZQF Levels 1-3: Median duration of **full-length adaptive online** assessments, by Learning Progression Step, ESOL study and first language
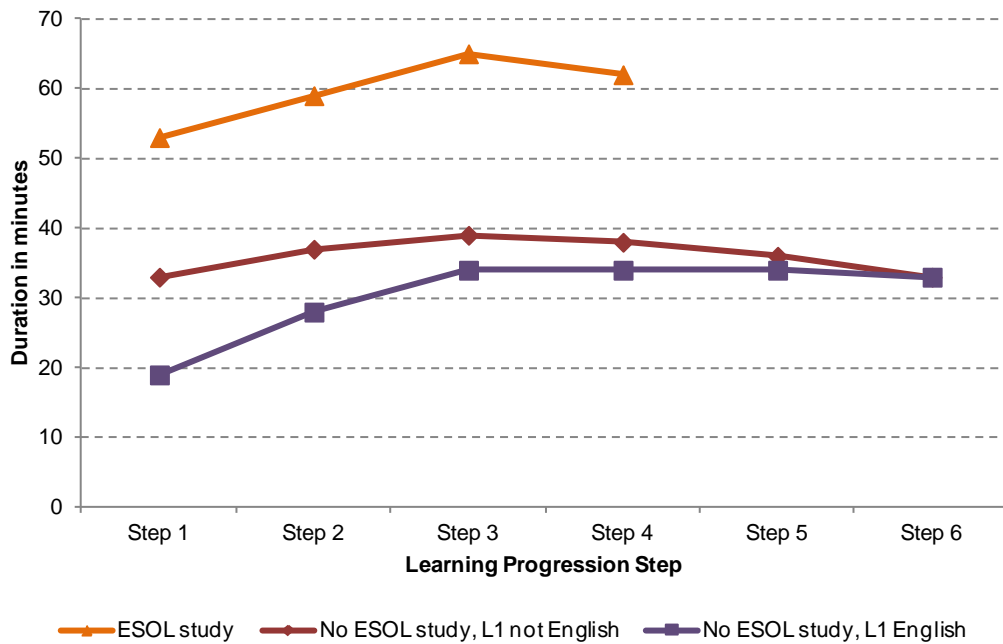
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2013 of 1,000 learners in ESOL study, 24,000 learners not in ESOL study with English as first language, and 4,000 learners not in ESOL study with other first language.

Figure 11

First Read with Understanding assessments of learners in 2011-2013 SAC-funded programmes at NZQF Levels 1-3: Median duration of **snapshot adaptive online** assessments, by Learning Progression Step, ESOL study and first language
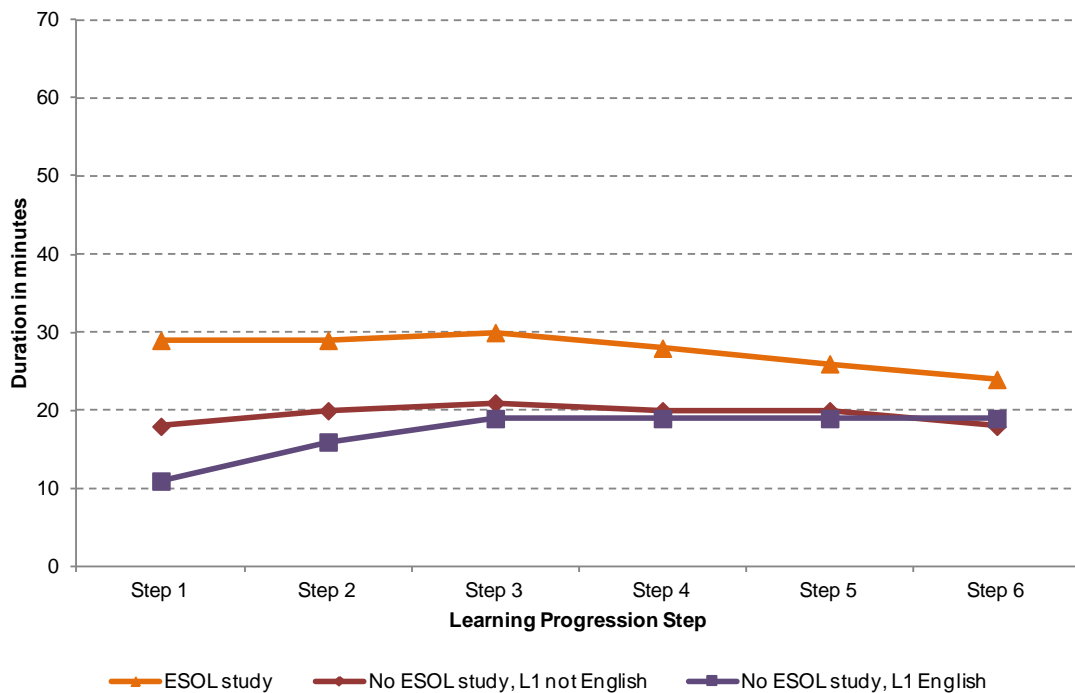
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2013 of 2,600 learners in ESOL study, 19,000 learners not in ESOL study with English as first language, and 4,100 learners not in ESOL study with other first language.

3.8 Reading in Foundation-Focused Training Opportunities programmes

Reading profiles of learners

FFTO learners in ESOL programmes had a high rate of assessment using the Assessment Tool. This makes the data set of assessed learners in FFTO programmes particularly useful for studying the assessment of ESOL learners.

As with the SAC-funded learners, it is assumed that learners in ESOL programmes are likely on average to have lower English proficiency than other-first-language learners not in ESOL programmes, so that there are three groups (learners in ESOL programmes, other-first-language learners not in ESOL programmes, English-first-language learners) representing three levels of English proficiency (see Appendix A).

In line with expectations, the prevalence of learners with low reading skills follows this proficiency gradation. FFTO learners in ESOL programmes show up as having particularly low English reading skills, with 81 per cent assessed at Lower Step 1 to Step 2, and a large subgroup assessed at Lower Step 1 (16 per cent), as shown in Figure 12. For other-first-language learners not in ESOL programmes, 47 per cent were at Lower Step 1 to Step 2, and 7 per cent at Lower Step 1. For the English-first-language group, 19 per cent were at Lower Step 1 to Step 2, and 1 per cent at Lower Step 1.

Figure 12

First Read with Understanding assessments of learners in Foundation-Focused Training Opportunities programmes in 2011 and 2012: Distribution of modified Learning Progression Steps, by ESOL programme status and first language
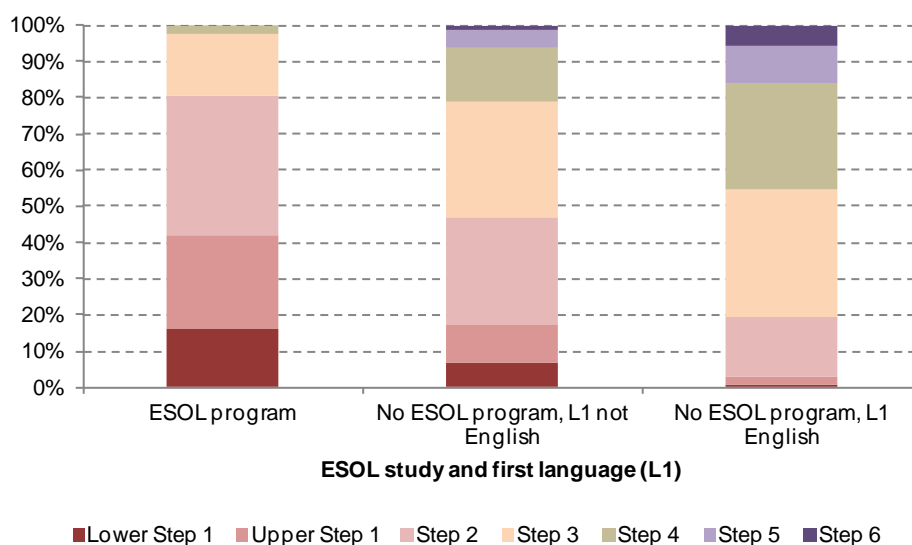
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2012 of 600 learners in ESOL programmes, 9,700 learners not in ESOL programmes with English as first language, and 1,500 learners not in ESOL programmes with other first language.

Duration of online reading assessments

Figure 13 shows the median duration of full-length adaptive online assessments for the three English proficiency groups, where there are sufficient numbers of assessments for analysis. At Steps 1 and 2 it is possible to compare the three groups, and it can be seen that other-first-language learners who were not in ESOL programmes had median durations approximately twice those of English-first-language learners, and learners in ESOL programmes had median durations over three times those of English-first-language learners. The three groups are thus in the expected order, but the scale of the differences in times taken is quite striking.

A high proportion of the learners in ESOL programmes would have taken more than one session to complete the assessments, as indicated by the percentage taking more than one day: 32 per cent of these learners spread their assessments over more than one day, compared with 13 per cent of other-first-language learners not in ESOL programmes, and 7 per cent of English-first-language learners. This tendency to spread the assessment over multiple sessions is likely to be a major reason for long median assessment duration for learners in ESOL programmes, and also partly explains the difference in median assessment durations for other-first-language learners not in ESOL programmes and English-first-language learners.

Figure 13

First Read with Understanding assessments of learners in 2011-2012 FFTO programmes: Median duration of **full-length adaptive online** assessments, by Learning Progression Step, ESOL programme participation and first language
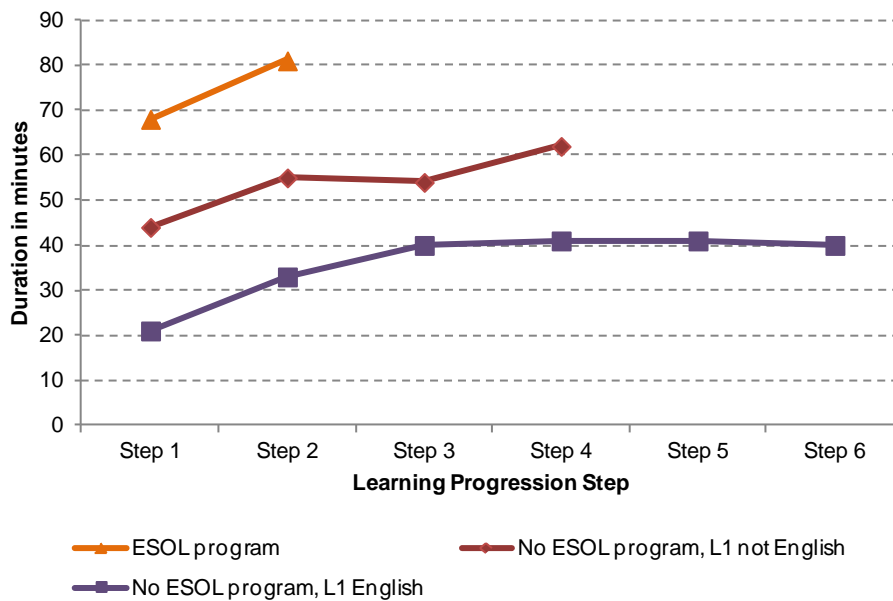
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Read with Understanding assessments in 2011-2012 of 400 learners in ESOL programmes, 7,900 learners not in ESOL programmes with English as first language, and 1,200 learners not in ESOL programmes with other first language.

3.9 Discussion

Reading profiles of learners

In the analysis of learners' reading profiles, two kinds of comparison can be made. One is within each data set, comparing the profiles of learners with different English language proficiency, as in the preceding sections. The other kind of comparison is that between data sets for learners with the same English language proficiency.

Table 3 shows two summary measures of reading proficiency (assessments at Steps 1 and 2, and assessments at Steps 1 to 3) for English-first-language and other-first-language learners in the five data sets in which first language is the only indicator of English language proficiency. The data sets are listed in the order of the percentage of English-first-language learners assessed at Steps 1 and 2.

If we compare the first language groups within each data set (horizontally) in terms of either of the two summary measures, in every case, the percentage of other-first-language learners with low reading skills is greater than the corresponding percentage of English-first-language learners. This is in line with expectations.

If we compare the percentages for each measure across data sets within each first language group (vertically), with one exception we find the same pattern: an increase in percentages as we go from the Industry Training data set to the Intensive Literacy and Numeracy data set. The one exception is the difference for English-first-language learners in the percentage at Steps 1 to 3 between the Youth Guarantee data set and the ILN data set. However, the drop here from 75 per cent to 73 per cent is only a small discrepancy in the pattern. So again the summary data is largely in line with expectations.

Table 3
Percentages of assessed learners with low reading skills on first assessment, by first language (L1) and data set

Data set	Learning Progression Steps on first reading assessment			
	Percentage of learners at Steps 1-2		Percentage of learners at Steps 1-3	
	L1 not English	L1 English	L1 not English	L1 English
Domestic learners in Industry Training at NZQF Levels 1-3, 2011-2012	27	7	57	27
Full Assessment Tool data set 2010-2013	34	15	65	44
Learners in Workplace Literacy (TEO-led) programmes 2011-2012	44	18	74	49
Learners in Youth Guarantee fees-free tertiary programmes 2012	48	33	84	75
Learners in Intensive Literacy and Numeracy programmes 2011-2012	64	40	87	73

Table 4 presents a similar summary for the two data sets in which learners in ESOL study can be identified.

For both summary measures and for both data sets, there is a regular downward progression of percentages (horizontally) from those in ESOL study, to other-first-language learners not in ESOL study, to native English speakers. And comparing the two measures (vertically) within each English language proficiency group, the percentages with low reading skills are always greater among learners in FFTO programmes than among learners in SAC-funded programmes at Levels 1 to 3. Again, this is in line with expectations.

Table 4

Percentages of assessed learners with low reading skills on first assessment, by ESOL study, first language (L1) and data set

Data set	Learning Progression Steps on first reading assessment					
	Percentage of learners at Steps 1-2			Percentage of learners at Steps 1-3		
	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English
Domestic learners in SAC-funded programmes at NZQF Levels 1-3, 2011-2013	34	19	11	68	53	40
Learners in Foundation-Focused Training Opportunities programmes in 2011-2012	81	47	19	98	79	55

These summary analyses indicate that the Assessment Tool assesses groups of learners in a way that broadly reflects differences in English language proficiency and differences between the characteristics of learners in different data sets.

Durations of adaptive online assessments

As well as the (modified) Learning Progression Step profiles for first reading assessments of English language learners and native English speakers, this chapter has also considered the time taken by learners between starting and submitting first reading assessments of the two adaptive online assessment types, the full-length and the Snapshot, according to the Step at which they were assessed.

Although it could be expected that English language learners would take longer to read the reading texts in the assessments, it was not entirely obvious how the overall durations would compare, because this would also depend on the time taken to decide on an appropriate response, and also on the learners' approaches to the assessment task.

Because of limited numbers of learners at each Step in adaptive online assessments, it was not possible to analyse duration for all of the data sets, and for those data sets where it was possible, the analysis could sometimes only be done for one assessment type, namely the full-length adaptive online type. A further effect of limited numbers is that it is only possible to make direct comparisons between data sets and between English language learners and native English speakers for learners assessed at Step 2.

Accordingly, Tables 5 and 6 show comparisons by English language proficiency and between data sets for median durations of adaptive online assessments of learners assessed at Step 2.

Table 5

Median durations of adaptive online reading assessments for learners assessed at Step 2, by first language (L1) and data set

Data set	Median duration (minutes) of first adaptive online reading assessment for learners assessed at Step 2			
	Full-length		Snapshot	
	L1 not English	L1 English	L1 not English	L1 English
Full Assessment Tool data set 2010-2013	48	28	24	18
Learners in Intensive Literacy and Numeracy programmes 2011-2012	56	35	-	-

Table 6

Median durations of adaptive online reading assessments for learners assessed at Step 2, by ESOL study, first language (L1) and data set

Data set	Median duration (minutes) of first adaptive online reading assessment for learners assessed at Step 2					
	Full-length			Snapshot		
	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English
Domestic learners in SAC-funded programmes at NZQF Levels 1-3, 2011-2013	59	37	28	29	20	16
Learners in Foundation-Focused Training Opportunities programmes in 2011-2012	81	55	33	-	-	-

Comparing the groups of learners in these tables (horizontally), it is very clear that within data sets, native English speakers had the shortest median durations. In Table 5, it can be seen that other-first-language learners had longer median durations, and in Table 6 it can be seen that learners in ESOL study had the longest median durations, while other-first-language speakers not in ESOL study had intermediate median durations (in fact, median durations closer to those of the English-first-language learners than of the learners in ESOL study).

In terms of comparisons between data sets within each group of learners, in Table 5 the ILN learners had longer median durations than the medians for the full Assessment Tool data set, and in Table 6, the learners in FFTO programmes had longer median durations than the learners in SAC-funded programmes.

Comparing Tables 5 and 6 with Tables 3 and 4, one can make the observation that the subgroups (in terms of data set and/or English language proficiency) with longer median

durations for adaptive online assessments were also the subgroups with the larger percentages of learners with low reading skills; in particular:

- ESOL learners tended to have both longer assessment durations and lower reading scores than native English speakers;
- learners in ILN programmes tended to have both longer assessment durations and lower reading scores than assessed learners generally; and
- learners in FFTO programmes tended to have both longer assessment durations and lower reading scores than learners in SAC-funded programmes.

3.10 Conclusion

As indicated in the introduction to this chapter, the reading module of the Assessment Tool was designed to assess the reading skills of native English speakers, and this chapter has been concerned with the question of whether it also works as an assessment of reading skills for English language learners. If so, we expected to find:

- a greater prevalence of low reading skills among learners whose first language is not English than among English-first-language learners; and
- that the prevalence of low reading skills would be greatest among learners in ESOL study, less among other-first-language learners not in ESOL study, and least among native English speakers.

If these expectations were not met in one or more of the data sets, that would be an indication that there is a problem with using the reading assessment to assess the reading comprehension of English language learners.

Once comparisons were made within data sets, then a further check on the functioning of the Assessment Tool was to see if it was consistent across data sets, that is, whether it distinguished between data sets in the same way for English language learners as for native English speakers.

Reading skills of learners
In fact the results for each data set were in line with the expectations listed above for differences in reading skills according to English language proficiency. There were no anomalous data sets. The fact that differences according to English language proficiency were consistently found across all the data sets provides a validation of using the Assessment Tool to assess the reading skills of English language learners. The fact that the Assessment Tool results distinguished between data sets in largely the same way for English language learners as for native English speakers strengthens this conclusion.

However, the analyses in the chapter do not provide definitive proof that the Assessment Tool assesses the reading skills of English language learners as a group as well as it does those of native English speakers, and it certainly does not prove that a reading assessment of an individual English language learner is as accurate as that of a native English speaker.

It is perhaps better to think of these analyses as providing a basis for detecting any substantial anomalies in the way the Assessment Tool assesses English language learners. The fact that there do not appear to be any such anomalies offers reassurance that the Assessment Tool does a reasonably good job of assessing the skills of English language learners.

This conclusion can only apply to those learners who were assessed. It is possible that among those not assessed are many English language learners, particularly those with very low English language proficiency, for whom the Assessment Tool would not be appropriate or accurate. In

this respect the FFTO data set is particularly interesting: it had a high rate of assessment, even of learners in ESOL programmes (see Chapter 2). The Assessment Tool results indicate that this was a set with low reading skills in general, even among English-first-language learners, but the Assessment Tool still managed to differentiate the groups of learners in line with expectations.

Assessment durations

Other-first-language learners were also expected to take more time to complete online reading assessments than native English speakers because they would be slower reading the assessment items, and learners in ESOL study were expected to take longer than other-first-language learners not in ESOL study.

Where such comparisons could be made, the results were in line with these expectations for learners with relatively low scores (Steps 1 to 3); differences in duration between learners according to English language proficiency were not so evident for learners with higher reading scores (Steps 5 and 6).

The longer median durations for English language learners appear to be partly accounted for by greater percentages of learners taking more than one session to complete an assessment (as indicated by the percentages taking more than one day between starting and submitting assessments).

The differences in duration at Steps 1 to 3 may be partly due to English language learners requiring more time to read the assessment items, but may also be partly due to some native English speakers not being fully engaged in the assessment process and tending to rush through the assessments in the shortest possible time.

The relatively long assessment durations for some English language learners, especially learners in ESOL study, on the one hand present an issue for administrators and educators in the assessing organisations in terms of the logistics and management of reading assessments. On the other hand, duration may be an indicator of the effort expended by learners in undertaking the assessments. If we can interpret it this way, then it appears that the lower the learners' English language proficiency, and the lower the assessed reading skill, the more difficult the assessment process became for learners.

4   LEARNER PROFILES ON FIRST WRITING ASSESSMENT

Writing assessments in the Assessment Tool can only be of one type, namely full-length non-adaptive for printing, that is, paper-based assessments. Thus it is not possible to estimate the time taken by learners to complete assessments, because this can only be done for online assessments. Hence the analyses in this chapter are only of learner profiles in terms of Learning Progression Steps. (Another distinctive feature of the writing assessments is that they need to be marked by human assessors, rather than being marked automatically by the Assessment Tool software as for the other skills assessed.)

Overall there were fewer writing assessments than reading and general numeracy assessments. Accordingly there were relatively small numbers of learners assessed for writing in some of the smaller data sets, and so this chapter only reports the writing profiles of learners in the full Assessment Tool data set, and in the data sets in which ESOL learners could be identified, namely the set of learners in programmes at Levels 1 to 3 funded through the Student Achievement Component, and the set of learners in Foundation-Focused Training Opportunities programmes.

As was the case with reading assessments, the question addressed in this chapter is whether the Assessment Tool can be used to appropriately assess the skills of English language learners. If so, we would expect writing assessments to distinguish among learners according to English language proficiency, with greater percentages of learners with low writing skills among ESOL learners, intermediate percentages among other-first-language learners not in ESOL study, and the smallest percentages among English-first-language learners.

4.1 Writing in full Assessment Tool data set

Comparing the English-first-language and other-first-language learners in the full Assessment Tool data set, as shown in Figure 14, a similar proportion (40 per cent) of the two groups had scores corresponding to Step 3. However, a much larger proportion of other-first-language learners were at Steps 1 and 2 (34 per cent, compared with 16 per cent of the English-first-language group). This is in line with expectations for writing assessments.

Figure 14

First Write to Communicate assessments for learners in full 2010-2013 Assessment Tool data set: Distribution of Learning Progression Steps, by first language
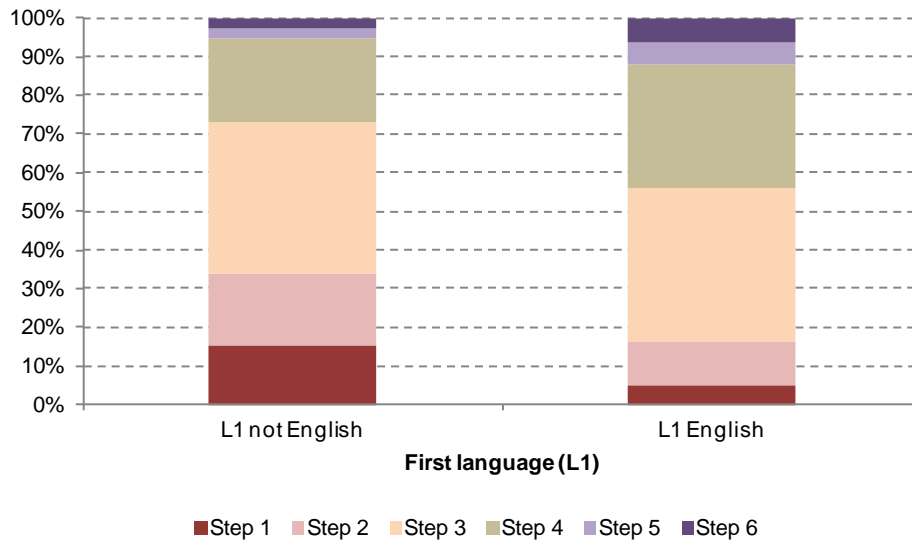
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Write to Communicate assessments in 2010-2013 of 31,000 learners with English as first language, and 11,000 learners with other first language.

4.2 Writing in programmes funded through the Student Achievement Component

Figure 15 shows a comparison of learner Step profiles among learners in SAC-funded programmes at Levels 1 to 3, according to their (assumed) English language proficiency. What is noticeable is that there is only a small difference between the profiles for English-first-language learners and for other-first-language learners not in ESOL study: in terms of low writing skills (Steps 1 and 2), this applied to 40 per cent of learners in ESOL study, 15 per cent of other-first-language learners not in ESOL study, and 11 per cent of English-first-language learners. This still shows the expected gradation across English-proficiency groups, however.

Figure 15

First Write to Communicate assessments of learners in SAC-funded programmes at NZQF Level 1-3 in 2011-2013: Distribution of Learning Progression Steps, by ESOL study and first language
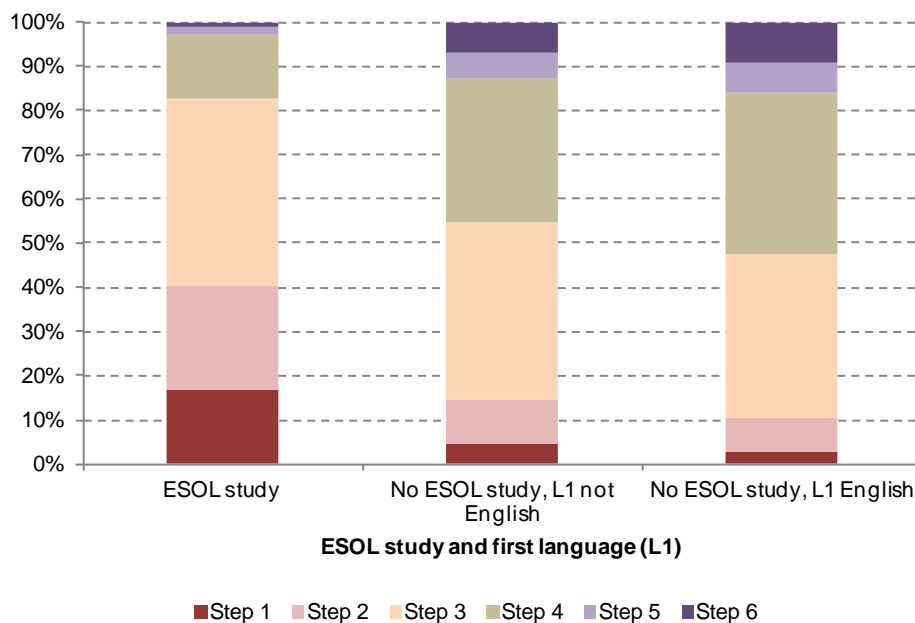
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Write to Communicate assessments in 2011-2013 of 500 learners in ESOL programmes, 4,400 learners not in ESOL programmes with English as first language, and 900 learners not in ESOL programmes with other first language.

4.3 Writing in Foundation-Focused Training Opportunities programmes

In contrast to the comparison of the English proficiency groups in SAC-funded programmes, Figure 16 shows that in the FFTO data, the learner profiles were similar for learners in ESOL programmes (with 54 per cent of learners at Steps 1 and 2), and other-first-language learners not in ESOL programmes (with 46 per cent of learners at Steps 1 and 2). The percentage of learners in this range was considerably lower among the English-first-language group (17 per cent).

Although the percentages of FFTO learners with low reading skills were considerably greater than for the corresponding English language proficiency groups in SAC-funded programmes, the FFTO learners still showed the same expected gradation of low skills from a relatively large percentage of ESOL learners to a small percentage of English-first-language learners, with an intermediate percentage of low-skilled readers among other-first-language learners not in ESOL study.

Figure 16

First writing assessments of learners in Foundation-Focused Training Opportunities in 2011 and 2012: Distribution of Learning Progression Steps, by ESOL programme participation and first language
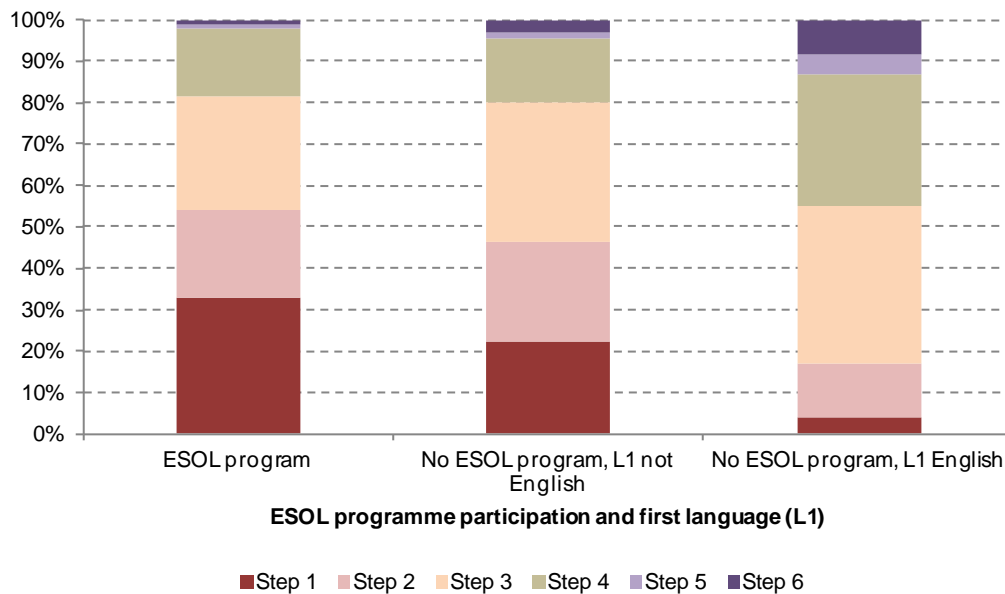
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Write to Communicate assessments in 2011-2012 of 300 learners in ESOL programmes, 2,600 learners not in ESOL programmes with English as first language, and 600 learners not in ESOL programmes with other first language.

4.4 Discussion

Table 7 provides a summary comparison of the percentages of learners with low writing skills in the data set of learners in SAC-funded programmes, and the set of learners in FFTO programmes, according to their English language proficiency group.

For both summary measures (learners at Steps 1 and 2, and learners at Steps 1 to 3) and for both data sets, there is a regular downward progression of percentages (horizontally) from those in ESOL study, to other-first-language learners not in ESOL study, to native English speakers. And comparing the two measures (vertically) within each English language proficiency group, the percentages with low writing skills are greater among learners in FFTO programmes than among learners in SAC-funded programmes at Levels 1 to 3, with one exception. Among learners in ESOL study, the percentage of learners at Steps 1 to 3 is slightly greater in the SAC-funded programmes (83 per cent) than in FFTO programmes (81 per cent). This is only a marginal anomaly, and so again, the results are largely in line with expectations, and similar to those for the first reading assessments.

Table 7

Percentages of assessed learners with low writing skills on first assessment, by ESOL study, first language and data set

Data set	Learning Progression Steps on first writing assessment					
	Percentage of learners at Steps 1-2			Percentage of learners at Steps 1-3		
	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English
Domestic learners in SAC-funded programmes at NZQF Levels 1-3, 2011-2013	40	15	11	83	55	47
Learners in Foundation-Focused Training Opportunities programmes in 2011-2012	54	46	17	81	80	55

4.5 Conclusion

The writing module of the Assessment Tool was designed to assess the writing ability of native English speakers, and this chapter has been concerned with the question of whether it also works as an assessment of writing ability for English language learners.

As was the case with reading, given that writing skill can be taken as one measure of English language proficiency, we would expect that the percentages of learners with low writing skills would decrease within each data set from other-first-language to English-first-language, or across the three English language proficiency groups from ESOL learners to native English speakers. Indeed this is exactly what is found.

Given also that learners in SAC-funded programmes in each English language proficiency group had smaller percentages with low reading skills compared with learners in FFTO programmes in the same English language proficiency group, we would expect to see the same pattern in the first writing assessments. And in fact we do find largely the same pattern.

The fact that differences according to English language proficiency were consistently found across the three analysed data sets provides some validation of using the Assessment Tool to assess the writing skills of English language learners. The fact that the Assessment Tool results distinguished between the SAC and FFTO data sets in largely the same way for English language learners as for native English speakers strengthens this conclusion.

However, this conclusion can only apply to the relatively small number of learners who were assessed for writing.

5 LEARNER PROFILES ON FIRST ASSESSMENT FOR GENERAL NUMERACY

Of the three numeracy assessment modules available in the Assessment Tool (General Numeracy, Number Knowledge, Number Strategies and Measurement), the one most commonly assessed was General Numeracy, and overall this was the second-most frequently assessed skill after Read with Understanding. The numbers of learners assessed for the other two numeracy skills were relatively small, and accordingly only General Numeracy assessments are analysed here.

Two types of analysis are presented in this chapter: profiles of general numeracy scores for groups of learners in terms of Learning Progression Steps; and median durations of online general numeracy assessments for the same groups of learners. The groups of learners are defined in terms of English language proficiency, either whether their first language was English or not, or a combination of first language and participation in ESOL study.

As was the case with reading and writing assessments, the question addressed in this chapter is: given that the Assessment Tool was developed to assess native English speakers, can it be used to appropriately assess the skills of English language learners?

The items in the numeracy assessments are often framed in English words, and so it is reasonable to expect that learners' numeracy scores would partly reflect their reading skills, and so we might expect that numeracy scores would show similar patterns to reading scores for learners with different English language characteristics. On the other hand, the New Zealand Council for Educational Research, in developing the numeracy assessments, has sought to minimise the reading difficulties of the numeracy items, so that the numeracy assessments would be largely independent of reading skills. Accordingly, what we could expect for general numeracy assessments is that there would be some differences according to English language proficiency, but that these would not be as marked as the reading differences. If these differences are small, then that would be an indication that the Assessment Tool can be used to assess the general numeracy of English language learners.

Similarly we would expect other-first-language learners to take more time to complete online general numeracy assessments than native English speakers because they would be somewhat slower reading the assessment items, and learners in ESOL study to take longer than other-first-language learners not in ESOL study. However, the reading burden should be less than for the Read with Understanding assessments, and hence we can expect that the differences in duration according to English language proficiency would be less for general numeracy than for reading.

Once comparisons have been made within data sets, then a further check on the functioning of the Assessment Tool will be to see if it is consistent across data sets, that is, whether it distinguishes between data sets in the same way for English language learners as for native English speakers.

5.1 General numeracy profiles in full Assessment Tool data set

General numeracy profiles of learners

Figure 17 shows a comparison of the Learning Progression Step profiles of English-first-language and other-first-language learners in the full Assessment Tool data set. The main observation that can be made about the comparison is that the two profiles are very similar, although the other-first-language group had a slightly greater proportion of learners at Steps 1, 2 and 3 (31 per cent, compared with 23 per cent of the English-first-language group).

Steps 1, 2 and 3 for general numeracy (which account for 24 per cent of first assessments overall) represent a similar low skill level to Steps 1 and 2 for reading (which account for 18 per cent of first assessments). In these terms, the percentage of other-first-language learners with low reading skills was 34 per cent, compared with 15 per cent for English-first-language learners (see section 3.2). Thus there is a difference according to first language in the percentage of learners with low general numeracy skills, but that difference is small in comparison with the difference for reading. This is in line with expectations.

Figure 17

First General Numeracy assessment in full 2010-2013 Assessment Tool data set: Distribution of Learning Progression Steps, by first language
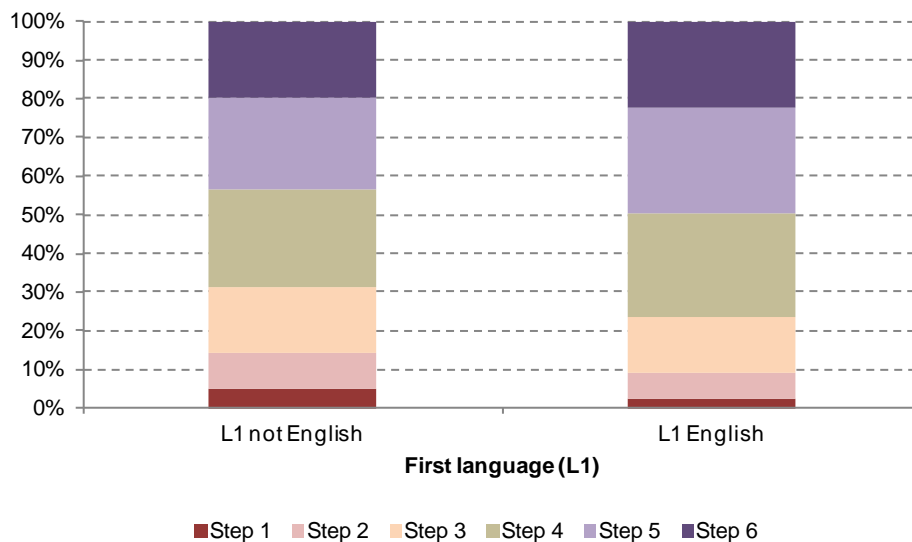
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2010-2013 of 147,000 learners with English as first language, and 28,000 learners with other first language.

Duration of online general numeracy assessments

Figures 18 and 19 show the median time taken, according to first language, for full-length and Snapshot online adaptive assessments. Although the Step profiles for the two first-language groups were similar, there was a marked difference in time taken, especially at the lower Steps, with learners whose first language was not English taking about 50 per cent longer than native English speakers among learners scoring at Step 1.

This is in line with expectations in the sense that other-first-language learners tended to take longer than English-first-language learners, and that the differences in duration were not as large as for reading. However, the extent of the differences in duration for general numeracy is somewhat surprising.

A feature of Figures 18 and 19 is the short median durations for English-first-language learners scoring at Steps 1 to 3. This pattern is similar to that for English-first-language learners scoring at Steps 1 and 2 for reading, as can be seen in Figures 2 and 3. For both reading and general numeracy this may reflect some English-first-language learners rushing the assessments and failing to carefully read and formulate responses to the assessment items. This may explain part of the differences between the two groups for both reading and general numeracy.

Figure 18

First General Numeracy assessments of learners in full 2010-2013 Assessment Tool data set: Median duration of **full-length adaptive online** assessment, by Learning Progression Step and first language
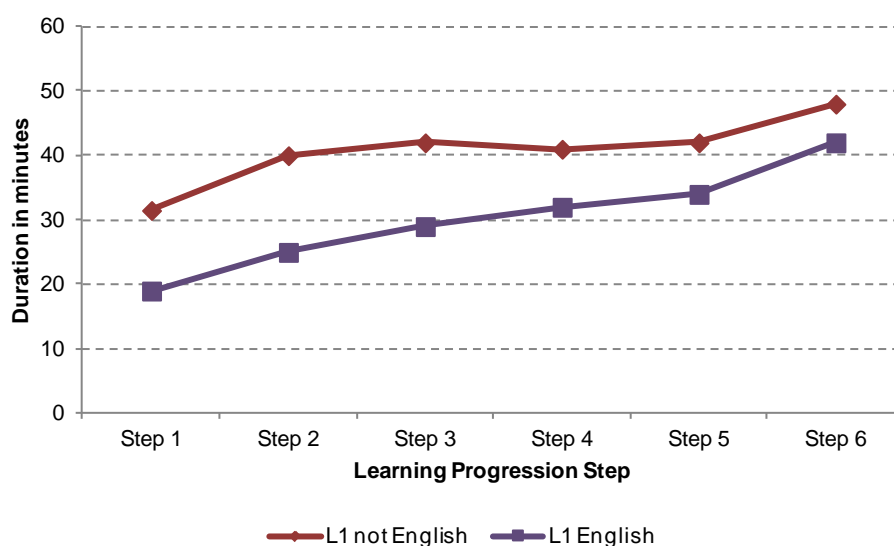
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2010-2013 of 66,000 learners with English as first language, and 11,000 learners with other first language.

Figure 19

First General Numeracy assessments of learners in full 2010-2013 Assessment Tool data set: Median duration of **adaptive online Snapshot** assessment, by Learning Progression Step and first language
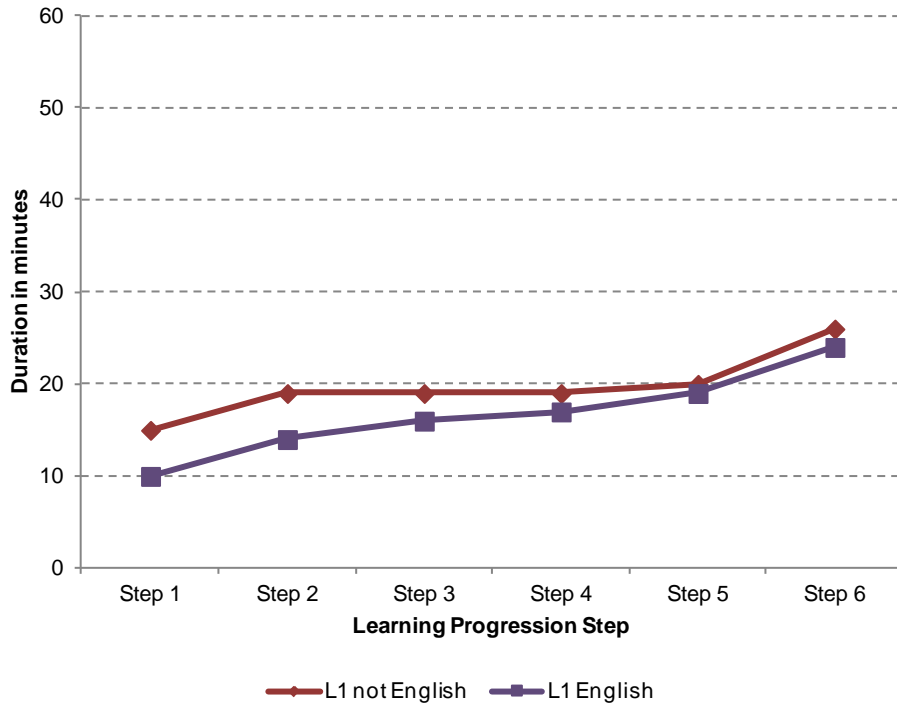
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2010-2013 of 44,000 learners with English as first language, and 8,000 learners with other first language.

5.2 General numeracy in Intensive Literacy and Numeracy programmes

General numeracy profiles of learners

The General Numeracy step profiles of ILN learners according to first language are compared in Figure 20. The two first-language groups had the same proportions at Steps 1 to 3 (51 per cent), though a greater proportion of the other-first-language group scored at Step 1 (17 per cent, compared with 10 per cent for the English-first-language group).   This is in line with expectations concerning the percentage of learners with low numeracy skills. On the other hand, a greater proportion of the other-first-language group also scored at Step 6 (12 per cent, compared with 6 per cent of the English-first-language group). Overall there is thus not a clear-cut difference between the two first-language groups.

Figure 20

First General Numeracy assessments of learners in Intensive Literacy and Numeracy programmes in 2011 and 2012: Distribution of Learning Progression Steps, by first language
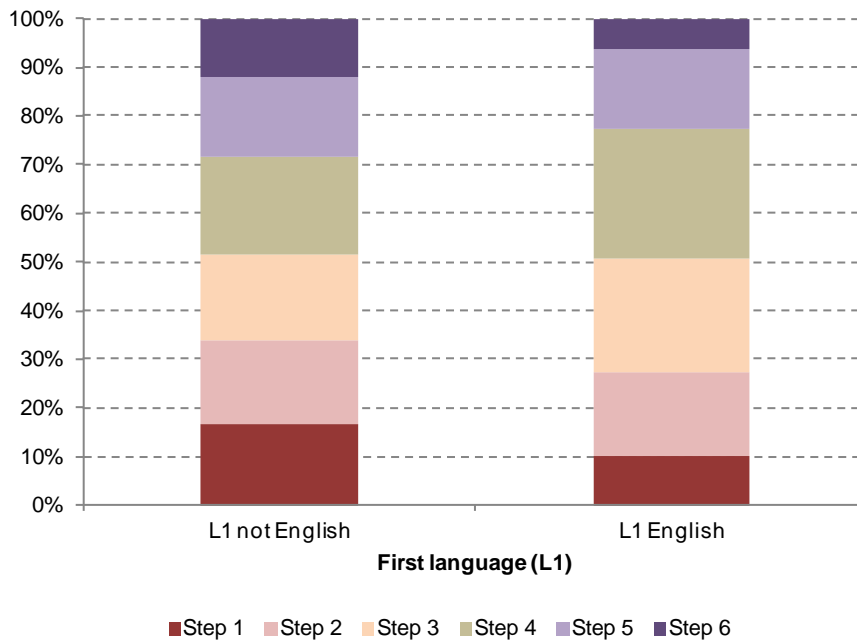
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2011-2012 of 2,900 learners with English as first language, and 1,600 learners with other first language.

Duration of online general numeracy assessments

The only assessment type with sufficient numbers of ILN learners to analyse duration was the full-length online adaptive assessment. Figure 21 shows the median assessment durations by first language for this assessment type for ILN learners. As expected, learners whose first language was not English tended to take longer than native English speakers, especially those scoring in the range from Step 2 to Step 4. The scale of the difference is unexpected though: the difference between the two language groups is in fact of the same order as for reading (compare Figure 5).

Figure 21

First General Numeracy assessments of learners in 2011-2012 Intensive Literacy and Numeracy data set: Median duration of **full-length adaptive online** assessments, by Learning Progression Step and first language

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2011-2012 of 1,900 learners with English as first language, and 1,000 learners with other first language.

5.3 General numeracy in Workplace Literacy programmes

General numeracy profiles of learners

Figure 22 shows a comparison of the Step profiles of learners in Tertiary Education Organisation-led Workplace Literacy programmes according to first language. The percentages of learners at each of Steps 1 to 3 are somewhat greater for the other-first-language group, but these differences add up to a marked difference between the two groups in terms of the number of learners with low general numeracy, i.e. scores in the range from Step 1 to Step 3 (45 per cent of other-first-language learners, compared with 23 per cent of English-first-language learners).

Thus first language does make a clear difference to General Numeracy scores among TEO-led WPL learners, in contrast to the pattern for ILN learners. This is in line with expectations in the sense that other-first-language learners tend to have lower scores, but the extent of the difference between the two first language groups is unexpected, and is in fact similar to the difference between these groups in reading (compare Figure 6).

Figure 22

First General Numeracy assessments of learners in Tertiary Education Organisation-led Workplace Literacy programmes in 2011 and 2012: Distribution of Learning Progression Steps, by first language

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2011-2012 of 1,400 learners with English as first language, and 600 learners with other first language.

There were insufficient numbers of assessments in this data set to analyse assessment durations by Step.

5.4 General numeracy in Youth Guarantee programmes

General numeracy profiles of learners

The General Numeracy step profiles of learners in 2012 Youth Guarantee fees-free tertiary programmes according to first language are compared in Figure 23. If we take the range from Step 1 to Step 3 as representing low general numeracy, then the percentage of learners with low general numeracy was in line with expectations, with only a somewhat greater proportion in the other-first-language group (53 per cent, compared with 41 per cent of English-first-language learners). In this case the difference is considerably smaller than for reading (compare Figure 7), which fits expectations.

Figure 23

First General Numeracy assessments of learners in Youth Guarantee fees-free tertiary programmes in 2012: Distribution of Learning Progression Steps, by first language
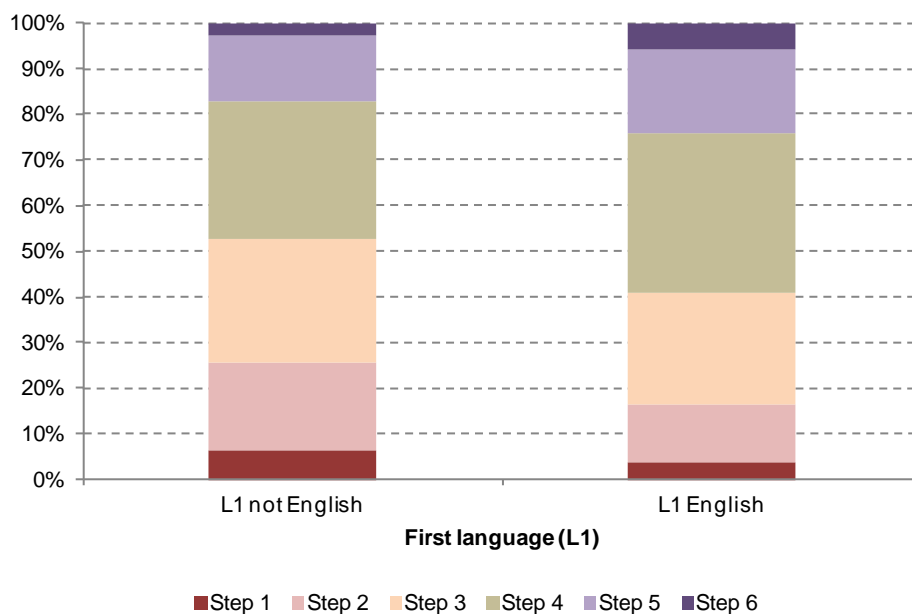
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2012 of 5,500 learners with English as first language, and 500 learners with other first language.

There were insufficient numbers of YG learners assessed using any one particular assessment type to analyse assessment duration in this data set.

5.5 General numeracy in Industry Training

General numeracy profiles of learners

Figure 24 shows a comparison of the Step profiles of learners in Industry Training according to first language. The percentages of learners at each of Steps 1 to 3 are slightly greater for the other-first-language group, but these differences add up to a noticeable difference between the two groups in terms of the number of learners with low general numeracy, i.e. scores in the range from Step 1 to Step 3 (20 per cent of other-first-language learners, compared with 10 per cent of English-first-language learners).

This difference according to first language is in the expected direction, and is not nearly as great as the difference for reading (compare Figure 8), also in line with expectations. But it is also true that first language does make a considerable difference to General Numeracy scores among Industry Trainees, like Workplace Literacy learners, and in contrast to the patterns for the full Assessment Tool data set, for ILN learners and for Youth Guarantee learners. However, it must also be remembered that only a relatively small proportion of Industry Trainees were assessed (see Table 2 in Chapter 2).

Figure 24

First General Numeracy assessments of domestic learners in Industry Training at NZQF Level 1-3 in 2011 and 2012: Distribution of Learning Progression Steps, by first language
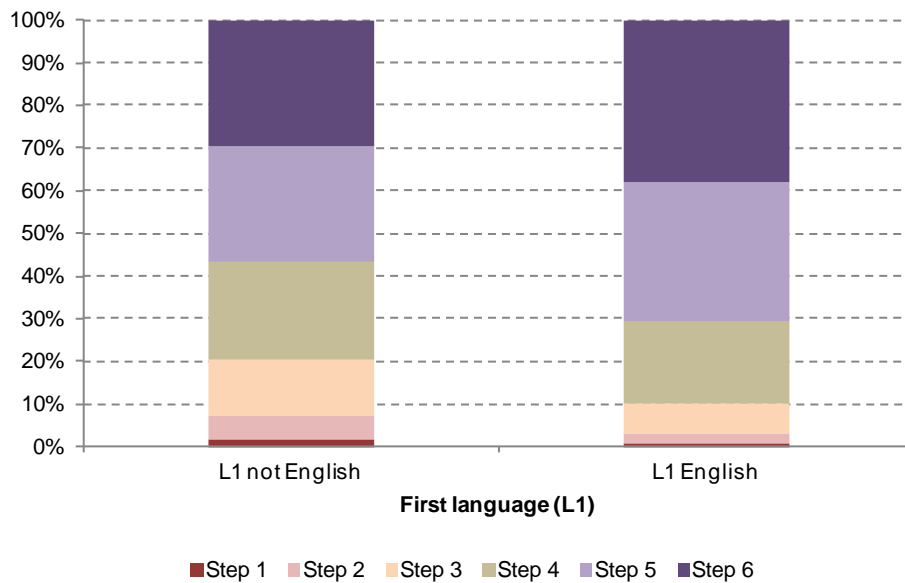
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2011-2012 of 9,900 learners with English as first language, and 1,500 learners with other first language.

5.6 General numeracy in programmes funded through the Student Achievement Component

General numeracy profiles of learners

Figure 25 shows the Learning Progression Step profiles of learners in SAC-funded programmes at Levels 1 to 3 of the New Zealand Qualifications Framework according to first language and participation in ESOL study. Overall, there are only small differences between the three English language proficiency groups. If we compare the proportion of learners with low general numeracy, i.e. at Steps 1 to 3, then the other-first-language learners not in ESOL study had a slightly higher proportion (23 per cent) than the ESOL learners and the English-first-language learners (both 21 per cent). That is, these small differences do not follow the gradation of English language proficiency, which is contrary to expectations.

Figure 25

First General Numeracy assessments of learners in SAC-funded programmes in 2011-2013: Distribution of Learning Progression Steps, by ESOL study and first language
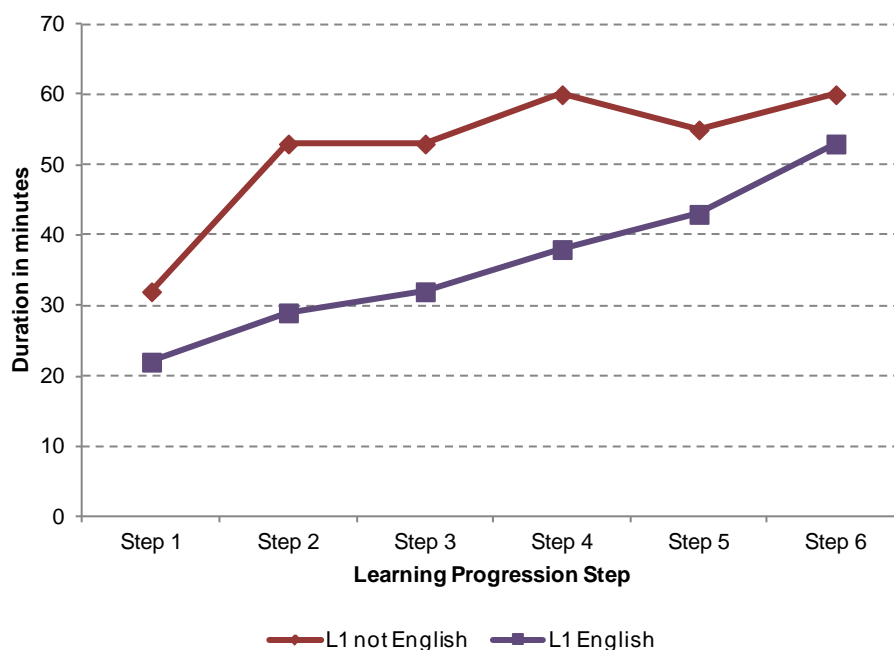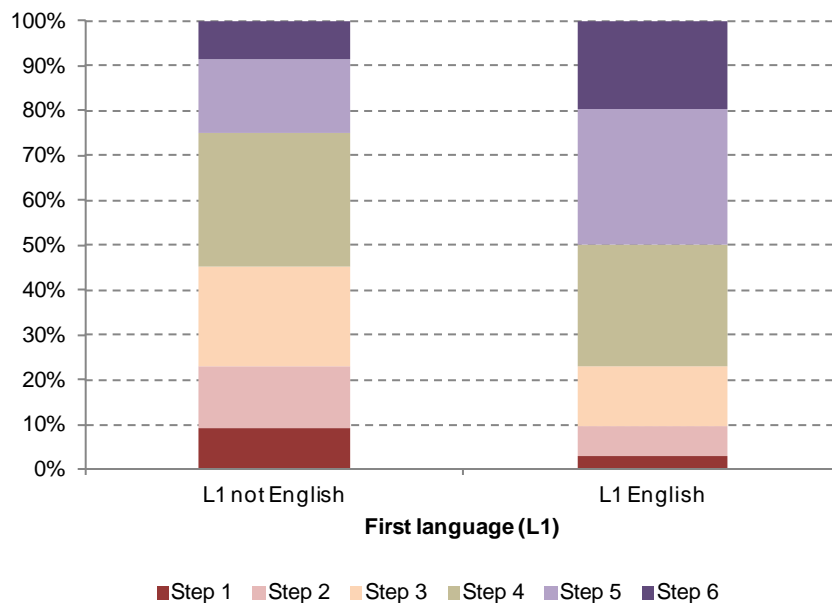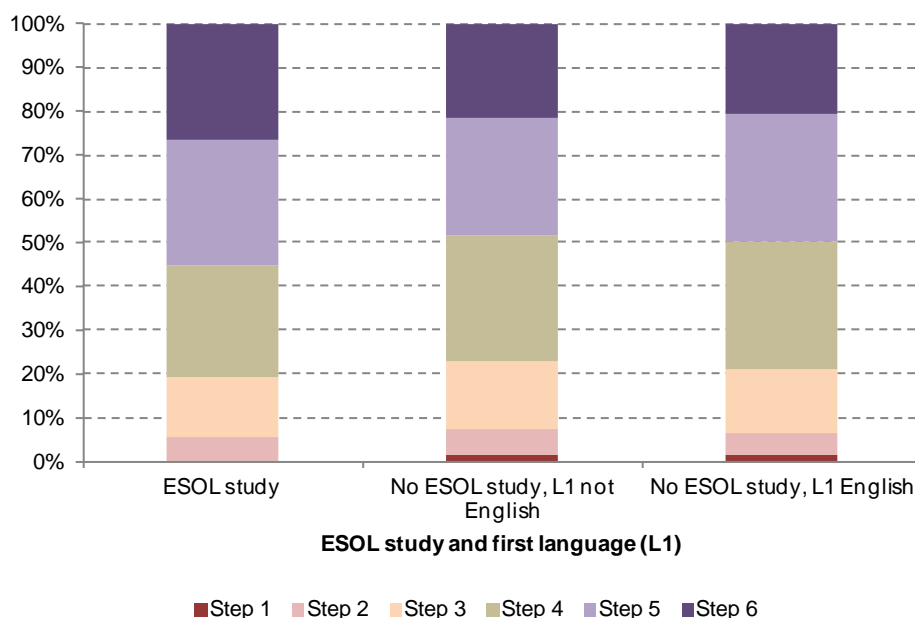

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2011-2013 of 3,000 learners in ESOL study, 43,000 learners not in ESOL study with English as first language, and 9,000 learners not in ESOL study with other first language.

Duration of online general numeracy assessments

Figures 26 and 27 show the median durations of full-length and Snapshot online assessments according to ESOL study, first language and Learning Progression Step. There were insufficient numbers to report durations at the lowest steps for learners in ESOL study or with first language other than English. In both graphs, there was little difference in time taken by English-first-language learners and other-first-language learners not in ESOL study, but in contrast the learners in ESOL study tended to take considerably longer at all Steps.

These results are in line with expectations in the sense that English language learners took longer than native English speakers. However, the large gap between learners in ESOL study and the other two groups is surprising.

Figure 26

First General Numeracy assessments of learners in SAC-funded programmes in 2011-2013: Median duration of **full-length adaptive online** assessments, by Learning Progression Step, ESOL study and first language
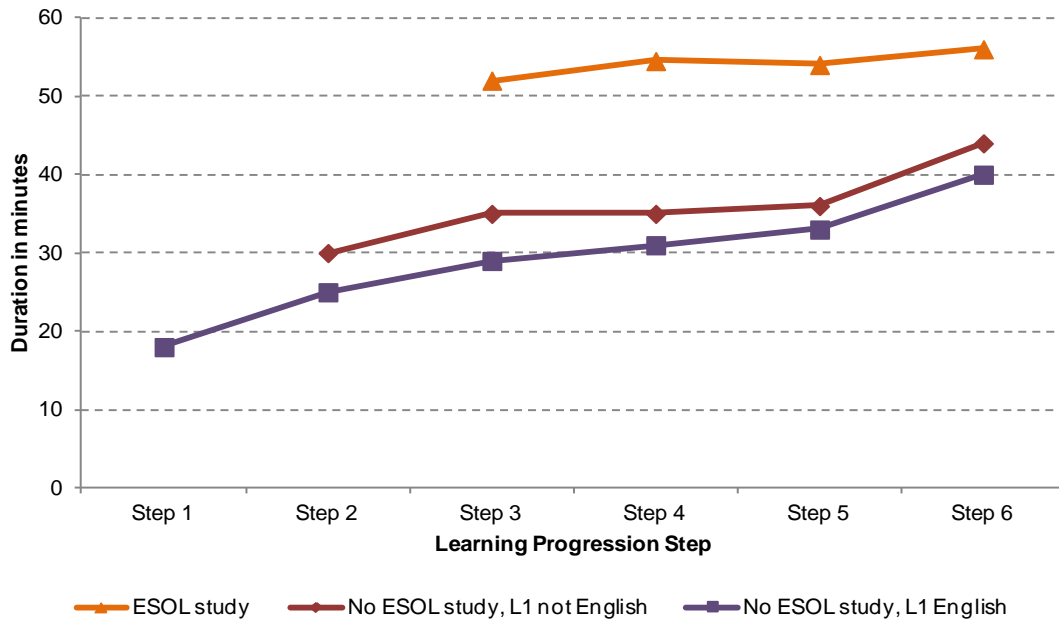
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2011-2013 of 600 learners in ESOL study, 21,000 learners not in ESOL study with English as first language, and 3,500 learners not in ESOL study with other first language.

Figure 27

First General Numeracy assessments of learners in SAC-funded programmes in 2011-2013: Median duration of **adaptive online Snapshot** assessments, by Learning Progression Step, ESOL study and first language
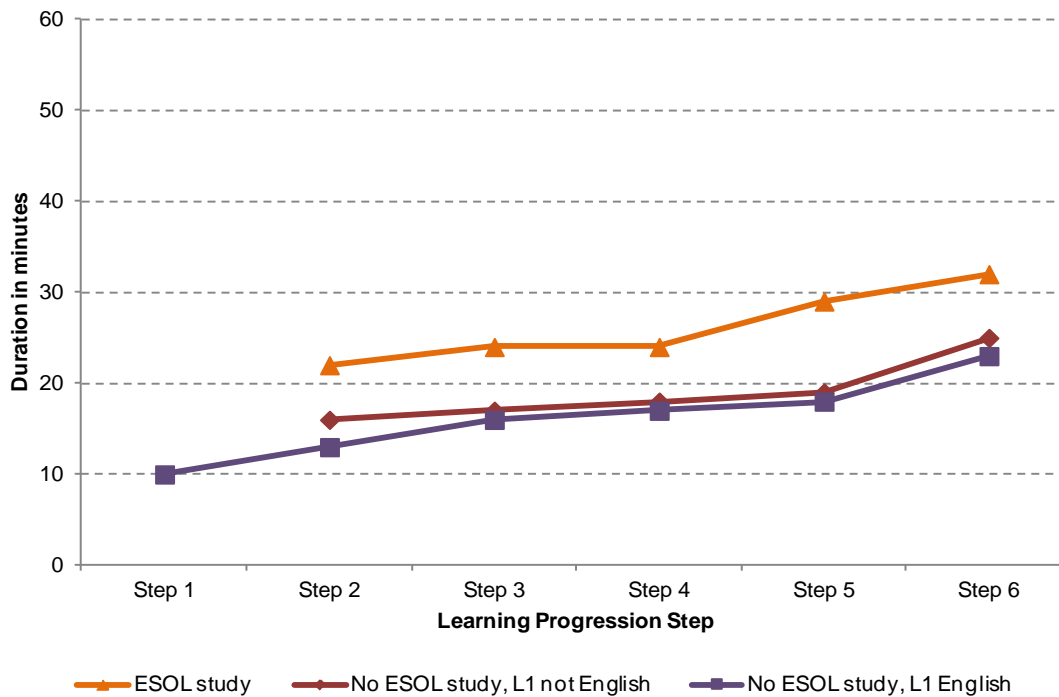
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2011-2013 of 2,200 learners in ESOL study, 14,000 learners not in ESOL study with English as first language, and 3,700 learners not in ESOL study with other first language.

5.7 General numeracy in Foundation-Focused Training Opportunities programmes

General numeracy profiles of learners

Figure 28 shows the Learning Progression Step profiles of learners in FFTO programmes according to first language and participation in ESOL programmes. In this case, there is a clear gradation according to (assumed) English language proficiency. In terms of low general numeracy, that is Steps 1 to 3, 61 per cent of those in ESOL programmes were in this range, while 32 per cent of native English speakers were in this range, with the other-first-language learners not in ESOL programmes in between, at 45 per cent. This is in line with expectations in terms of the gradation according to English language proficiency, and also in the sense that the differences between the English language proficiency groups are not as great as for reading (compare Figure 12). However, the differences between the groups for general numeracy are still considerable.

Figure 28

First General Numeracy assessments of learners in Foundation-Focused Training Opportunities in 2011 and 2012: Distribution of Learning Progression Steps, by ESOL program participation and first language
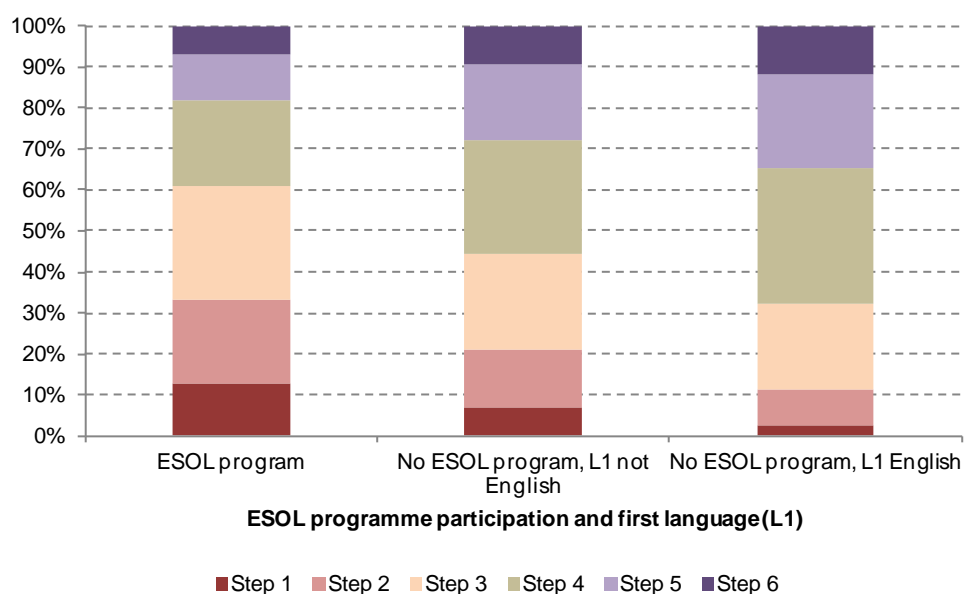
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first General Numeracy assessments in 2011-2012 of 500 learners in ESOL programmes, 8,300 learners not in ESOL programmes with English as first language, and 1,300 learners not in ESOL programmes with other first language.

There were insufficient numbers of learners in ESOL programmes at each Step for both full-length and Snapshot online assessments to adequately analyse the assessment durations for FFTO learners.

5.8 Discussion

Two types of analysis are presented in this chapter: profiles of general numeracy scores for groups of learners in terms of Learning Progression Steps; and median durations of online general numeracy assessments for the same groups of learners. The groups of learners are defined in terms of English language proficiency characteristics, either whether their first language was English or not, or a combination of first language and participation in ESOL study.

General numeracy profiles of learners

Table 8 shows two summary measures of general numeracy proficiency (assessments at Steps 1 to 3, and assessments at Steps 1 to 4) according to first language in the five data sets in which first language is the only indicator of English language proficiency. The data sets are listed in the order of the percentage of English-first-language learners assessed at Steps 1 to 3. Note that this order is the same as that for reading assessments (see Table 3).

If we compare the first language groups within each data set (horizontally) in terms of either of the two summary measures, in most cases, the percentage of other-first-language learners with low general numeracy skills is greater than the corresponding percentage of English-first-language learners. However, it is not the case at all for ILN learners, and for the full Assessment Tool data set, the differences are moderate (less than 10 percentage points).

If we compare the percentages for each measure across data sets within each first language group (vertically), with two exceptions we find the same pattern: an increase (or at least, equality) in percentages as we go from the Industry Training data set to the Intensive Literacy and Numeracy data set. The two exceptions are the differences for other-first-language learners in the percentages at Steps 1 to 3 and Steps 1 to 4 between the Youth Guarantee data set and the ILN data set. The drop for Steps 1 to 3 from 53 per cent to 51 per cent is only a small discrepancy in the pattern, but the drop for Steps 1 to 4 from 83 per cent to 72 per cent is substantial.

Thus the comparisons for general numeracy in Table 8 only partly follow the pattern for reading as shown in Table 3.

Table 8

Percentages of assessed learners with low general numeracy skills on first assessment, by first language and data set

Data set	Learning Progression Steps on first general numeracy assessment			
	Percentage of learners at Steps 1-3		Percentage of learners at Steps 1-4	
	L1 not English	L1 English	L1 not English	L1 English
Domestic learners in Industry Training at NZQF Levels 1-3, 2011-2012	20	10	43	29
Full Assessment Tool data set 2010-2013	31	23	56	50
Learners in Workplace Literacy (TEO-led) programmes 2011-2012	45	23	75	50
Learners in Youth Guarantee fees-free tertiary programmes 2012	53	41	83	76
Learners in Intensive Literacy and Numeracy programmes 2011-2012	51	51	72	77

Table 9 presents a similar summary for the two data sets in which learners in ESOL study can be identified.

For the learners in SAC-funded programmes, there is no clear difference between the English language proficiency groups: in fact, the smallest percentages of learners with low general numeracy skills are among the learners in ESOL study. For the FFTO data set however, there is a regular downward progression of percentages (horizontally) from those in ESOL study, to other-first-language learners not in ESOL study, to native English speakers.

Comparing the two measures (vertically) within each English language proficiency group, the percentages with low general numeracy skills are always greater among learners in FFTO programmes than among learners in SAC-funded programmes at Levels 1 to 3.

Table 9

Percentages of assessed learners with low general numeracy skills on first assessment, by ESOL study, first language and data set

| Data set | Learning Progression Steps on first general numeracy assessment | | | | | |
| | Percentage of learners at Steps 1-3 | | | Percentage of learners at Steps 1-4 | | |
	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English
Domestic learners in SAC-funded programmes at NZQF Levels 1-3, 2011-2013	21	23	21	46	52	50
Learners in Foundation-Focused Training Opportunities programmes in 2011-2012	61	45	32	82	72	65

These summary analyses indicate that the Assessment Tool does not consistently assess groups of learners for general numeracy in a way that reflects differences in English language proficiency, although it does partially reflect differences between the characteristics of learners in different data sets.

Durations of adaptive online assessments

As well as the Learning Progression Step profiles for first general numeracy assessments of English language learners and native English speakers, this chapter has also considered the time taken by learners between starting and submitting first general numeracy assessments of the two adaptive online assessment types, the full-length and the Snapshot, according to the Step at which they were assessed.

Although it could be expected that English language learners would take longer to read the general numeracy texts in the assessments, it was not obvious how the overall durations would compare, because the amount of text to be read is much less in the numeracy assessments than in the reading assessments, and the comparison would also depend on the time taken to decide on an appropriate response, as well as on the learners' approaches to the assessment task.

Because of limited numbers of learners at each Step in adaptive online assessments, it was not possible to analyse duration for all of the data sets, and for those data sets where it was possible, the analysis could sometimes only be done for one assessment type, namely the full-length adaptive online type. A further effect of limited numbers is that it is only possible to make direct comparisons between data sets and between English language learners and native English speakers for learners assessed at Step 3.

Accordingly, Tables 10 and 11 show comparisons by English language learner status and between data sets for median durations of adaptive online assessments of learners assessed at Step 3.

Table 10

Median durations of adaptive online general numeracy assessments for learners assessed at Step 3, by first language and data set

Data set	Median duration (minutes) of first adaptive online general numeracy assessment for learners assessed at Step 3			
	Full-length		Snapshot	
	L1 not English	L1 English	L1 not English	L1 English
Full Assessment Tool data set 2010-2013	42	29	19	16
Learners in Intensive Literacy and Numeracy programmes 2011-2012	53	32	-	-

Table 11

Median durations of adaptive online general numeracy assessments for learners assessed at Step 3, by ESOL study, first language and data set

Data set	Median duration (minutes) of first adaptive online general numeracy assessment for learners assessed at Step 3					
	Full-length			Snapshot		
	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English
Domestic learners in SAC-funded programmes at NZQF Levels 1-3, 2011-2013	52	35	29	24	17	16

Comparing the groups of learners in these tables (horizontally), it is very clear that within data sets, native English speakers had the shortest median durations. In Table 10, it can be seen that other-first-language learners had longer median durations, and in Table 11 it can be seen that learners in ESOL study had the longest median durations, while other-first-language speakers not in ESOL study had intermediate median durations (in fact, median durations much closer to those of the English-first-language learners than of the learners in ESOL study).

In terms of comparisons between data sets within each group of learners, in Table 10 the ILN learners had longer median durations than the medians for the full Assessment Tool data set.

Comparing Tables 10 and 11 with Tables 8 and 9, one can make the observation that there is a gradation in median durations according to English language proficiency even though there are little or no differences in general numeracy skill profiles according to English language proficiency, for the data sets summarised in these tables.

A general observation about assessment durations which is not captured in Tables 10 and 11 is that the longer median durations appear to be partly accounted for by greater percentages of learners taking more than one session (as indicated by the percentages taking more than one day between starting and submitting assessments).

5.9 Conclusion

The items in the numeracy assessments are often framed in English words, and so it was expected that learners' numeracy scores would partly reflect their reading skills, and that numeracy scores would show similar patterns to reading scores for learners with different English language proficiency. On the other hand, the NZCER, in developing the numeracy assessments, sought to minimise the reading difficulties of the numeracy items, so that the numeracy assessments would be largely independent of reading skills. Accordingly, we expected for general numeracy assessments that there would be some differences according to English language proficiency, but that these would not be as marked as the reading differences. If these differences were small, then that would be an indication that the Assessment Tool can be used to assess the general numeracy of English language learners.

Similarly we expected other-first-language learners to take more time to complete online general numeracy assessments than native English speakers because they would be somewhat slower reading the assessment items, and learners in ESOL study to take longer than other-first-language learners not in ESOL study. However, the reading burden should have been less than for the Read with Understanding assessments, and hence we expected that the differences in duration according to English language proficiency would be less for general numeracy than for reading.

Once comparisons were made within data sets, then a further check on the functioning of the Assessment Tool was to see if it was consistent across data sets, that is, whether it distinguished between data sets in the same way for English language learners as for native English speakers.

General numeracy profiles of learners
The results for the full Assessment Tool data set were in line with expectations: the percentage of learners with low general numeracy was somewhat greater among other-first-language learners than among English-first-language learners, and this difference was not as substantial as that for reading assessments.

However, the results for the other data sets were variable. The summary analyses in section 5.8 indicate that the Assessment Tool does not consistently assess groups of learners for general numeracy in a way that reflects differences in English language proficiency, although it does partially reflect differences between the characteristics of learners in different data sets.

In particular, there were no clear differences in general numeracy skills according to English language proficiency for learners in Intensive Literacy and Numeracy programmes and for learners in Student Achievement Component-funded programmes at Levels 1 to 3. On the other hand, there were moderate to large differences according to English language proficiency for learners in Youth Guarantee, Industry Training and Foundation-Focused Training Opportunities

programmes, though these differences were not as great as for reading assessments. The differences in general numeracy skills in Workplace Literacy programmes were large and were also comparable to the differences for reading in this data set.

Of these data sets, the SAC data set is by far the largest in terms of numbers of learners, and so this data set carries a lot of weight in determining the overall patterns of skills in the full Assessment Tool data set.

Further analysis is required to clarify these different patterns in different data sets. Unfortunately there is limited data on the characteristics of learners (such as educational background) in most of these data sets, although there is demographic information, which is outlined in section 2.5 and Appendix B. The analyses in this report have assumed that there is a similarity between English language learners and native English speakers within each data set, but this may not always be the case. In fact, in some of the data sets, there are considerable differences in the demographic characteristics of English language learners and native English speakers.

Assessment durations

Other-first-language learners were also expected to take more time to complete online general numeracy assessments than native English speakers because they would be slower reading the assessment items, and learners in ESOL study were expected to take longer than other-first-language learners not in ESOL study.

Where such comparisons could be made, the results were in line with these expectations in general but particularly for learners with relatively low scores (Steps 1 to 4) and for learners in ESOL study. Although the differences in duration according to English language proficiency were generally not as large as for reading assessments, they were still quite substantial, even where there was little difference between English proficiency groups in general numeracy skill profiles (that is, in the ILN and SAC data sets).

The longer median durations for English language learners appear to be partly accounted for by greater percentages of learners taking more than one session to complete an assessment (as indicated by the percentages taking more than one day between starting and submitting assessments).

The differences in duration may be partly due to English language learners requiring more time to read the assessment items, but may also be partly due to some native English speakers not being fully engaged in the assessment process and tending to rush through the assessments in the shortest possible time.

The relatively long assessment durations for some English language learners, especially learners in ESOL study, on the one hand present an issue for administrators and educators in the assessing organisations in terms of the logistics and management of general numeracy assessments. On the other hand, duration may be an indicator of the effort expended by learners in undertaking the assessments. If we can interpret it this way, then it appears that the lower the learners' English language proficiency, and the lower the assessed general numeracy skill, the more difficult the assessment process became for learners.

6   VOCABULARY ASSESSMENTS

6.1 Learner profiles on first vocabulary assessment

Vocabulary assessments can be regarded as supplementary to the reading, writing and numeracy assessments. The only type of vocabulary assessment available is a full-length online adaptive assessment. Vocabulary assessments provide additional diagnostic information and are likely to be used to assess learners already assessed with low scores on reading or writing assessments. Overall, the number of learners assessed for vocabulary is considerably smaller than the numbers assessed for reading, writing and numeracy. Consequently, in a particular group of learners, the distribution of vocabulary steps for those learners who were assessed for vocabulary does not necessarily represent the vocabulary skills of that group as a whole.

Because of these factors, vocabulary assessments are analysed somewhat differently from the other skills. While the distributions of vocabulary steps are analysed for three of the data sets, the duration of assessments is not analysed. However, relationships between vocabulary scores and scores for reading, writing and numeracy are analysed: see section 6.2.

Vocabulary profiles of learners in full Assessment Tool data set
Figure 29 shows the distributions of vocabulary steps according to first language for all the vocabulary assessments undertaken from 2010 to 2013. There is a clear difference between the two first-language groups, with a very small proportion (5 per cent) of the English-first-language group at the Emerging step[7] and 23 per cent at the Expanding step, while 40 per cent of the other-first-language group were assessed at the Emerging step, with 30 per cent at the Expanding step; in other words, a majority (70 per cent) of assessed other-first-language learners were at the two lower steps (compared with 28 per cent of native English speakers).

Figure 29
First vocabulary assessments of learners in full 2010-2013 Assessment Tool data set: Distribution of vocabulary steps, by first language
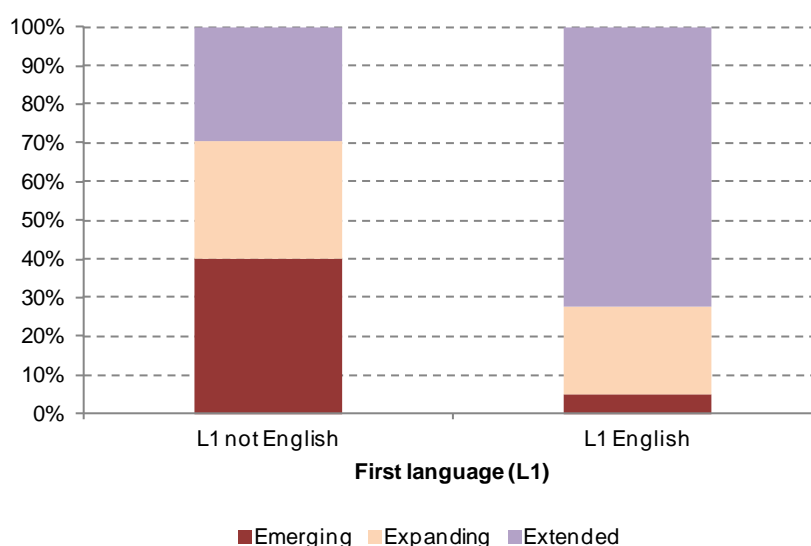
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Vocabulary assessments in 2010-2013 of 16,000 learners with English as first language, and 5,000 learners with other first language.

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[7] Many of these may in fact be other-first-language learners who have been incorrectly recorded as English-first-language learners (see Appendix A).

Vocabulary profiles of learners in programmes funded through the Student Achievement Component

The vocabulary profiles of learners in SAC-funded programmes at Levels 1 to 3 are shown in Figure 30. There is a clear gradation among the three English language proficiency groups, with the great majority (76 per cent) of learners in ESOL study in the Emerging and Expanding steps. Learners not in ESOL study but with first language other than English had an intermediate distribution, with 52 per cent at the lower two steps, compared with just 20 per cent of the English-first-language group.

Figure 30

First vocabulary assessments of learners in SAC-funded programmes in 2011-2013: Distribution of vocabulary steps, by ESOL study and first language
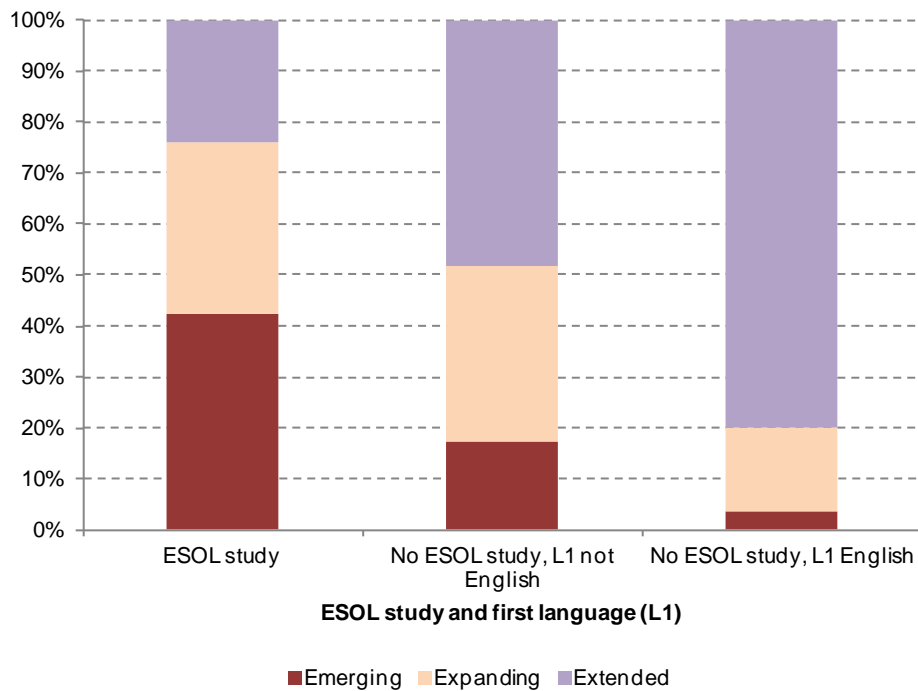
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Vocabulary assessments in 2011-2013 of 500 learners in ESOL study, 3,100 learners not in ESOL study with English as first language, and 500 learners not in ESOL study with other first language.

Vocabulary profiles of learners in Foundation-Focused Training Opportunities programmes

Figure 31 shows the distribution of vocabulary steps for the three English language proficiency groups in the FFTO data. There is a similar gradation to that in the assessments of learners in SAC-funded programmes, with the exception that a very large proportion (93 per cent) of learners in ESOL programmes were at either the Emerging or Expanding step. The proportion in the lower two steps was less (57 per cent) among the other-first-language learners not in ESOL programmes, compared with only 21 per cent of English-first-language learners in these two steps.

Figure 31

First vocabulary assessments of learners in Foundation-Focused Training Opportunities in 2011 and 2012: Distribution of vocabulary steps, by ESOL program participation and first language
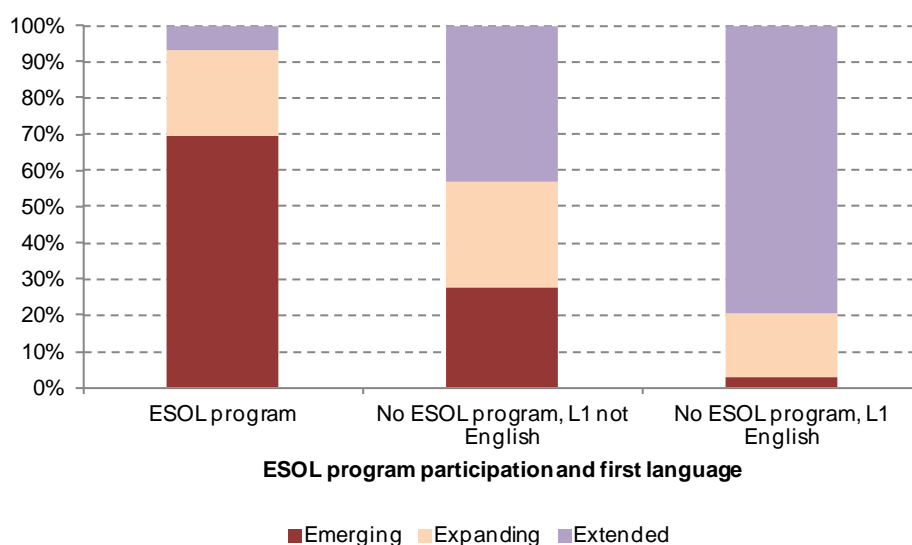
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Vocabulary assessments in 2011-2012 of 400 learners in ESOL programmes, 3,600 learners not in ESOL programmes with English as first language, and 700 learners not in ESOL programmes with other first language.

Summary of learner vocabulary profiles

Given the relatively small numbers of learners assessed for vocabulary, and the likelihood that learners assessed for vocabulary are a highly selective group, it is unclear whether we should expect the learners' profiles for vocabulary to look like those for reading and writing.

However, Figure 29 above shows that among all learners assessed for vocabulary knowledge between 2010 and 2013, a considerably greater percentage (70 per cent) of learners whose first language was not English had relatively limited knowledge (i.e. at the Emerging or Expanding step) compared with native English speakers (28 per cent).

Table 8 provides a summary comparison of the percentages of learners with low vocabulary knowledge in the data set of learners in SAC-funded programmes, and the set of learners in FFTO programmes, according to their English language proficiency group.

For both summary measures (learners at the Emerging step, and learners at the Emerging and Expanding steps) and for both data sets, there is a regular downward progression of percentages (horizontally) from those in ESOL study, to other-first-language learners not in ESOL study, to native English speakers. And comparing the two measures (vertically) within each English language proficiency group, the percentages with low vocabulary knowledge are greater among learners in FFTO programmes than among learners in SAC-funded programmes at Levels 1 to

3, with one exception. Among English-first-language learners, the percentage of learners at the Emerging step (4 per cent) is slightly greater in the SAC-funded programmes than in FFTO programmes (3 per cent). This is only a marginal anomaly, and so the results are largely in line with those for the first reading and writing assessments.

Table 12

Percentages of assessed learners with low vocabulary knowledge on first assessment, by ESOL study, first language and data set

Data set	Steps on first vocabulary assessment					
	Percentage of learners at Emerging step			Percentage of learners at Emerging and Expanding steps		
	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English	ESOL study	No ESOL study, L1 not English	No ESOL study, L1 English
Domestic learners in SAC-funded programmes at NZQF Levels 1-3, 2011-2013	42	17	4	76	52	20
Learners in Foundation-Focused Training Opportunities programmes in 2011-2012	69	28	3	93	57	21

6.2 Vocabulary in relation to literacy and numeracy assessments

This section considers learners who have been assessed for the combinations of vocabulary and reading, vocabulary and writing, and vocabulary and general numeracy, in order to investigate the relationship between vocabulary and those three skills. It is possible to do this for the full Assessment Tool data set but not the enrolment-based data sets. However, because of the relatively small numbers of learners involved, the analyses are unlikely to be representative of all the learners in the Assessment Tool data set.

Vocabulary and reading

One reason for assessing learners' vocabulary is for remedial diagnosis of learners who have been assessed as having low reading skills. Hence it is not surprising that there is a close relationship between the reading and vocabulary scores of learners who have been assessed for both. There is a high correlation between reading and vocabulary scores for such learners (r = 0.74 for other-first-language learners, r = 0.75 for English-first-language learners).

However, this relationship is not rigid: as can be seen from Figure 32, there are learners (especially other-first-language) with low vocabulary scores but middle-range reading scores, and learners (especially English-first-language) with high vocabulary scores but low reading scores.

Figure 32
First vocabulary assessments of learners also assessed for reading in the full 2010-2013 Assessment Tool data set:
Distribution of vocabulary steps, by Learning Progression Step on first reading assessment, and first language
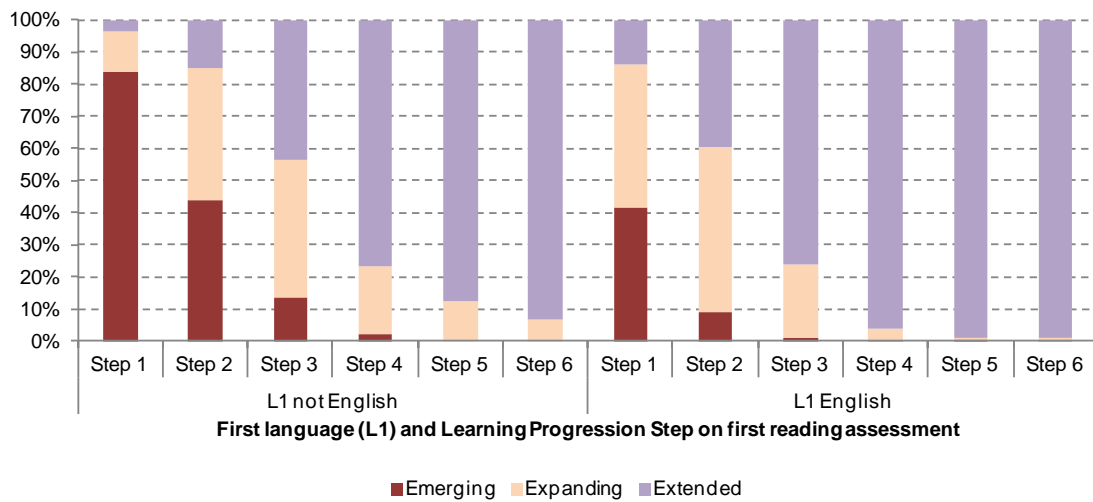
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Vocabulary and Read with Understanding assessments in 2010-2013 of 15,000 learners with English as first language, and 5,000 learners with other first language.

Vocabulary and writing

Vocabulary and writing show a similar relationship to that of vocabulary and reading, although the correlations between vocabulary and writing are only moderate (r = 0.55 for other-first-language learners, r = 0.46 for English-first-language learners). This lower correlation shows up in the fact that there are a considerable number of learners (mainly other-first-language) with low vocabulary scores but mid-range to high writing scores, as well as learners (mainly English-first-language) with high vocabulary scores but low writing scores, as can be seen in Figure 33.

Figure 33

First vocabulary assessments of learners also assessed for writing in the full 2010-2013 Assessment Tool data set: Distribution of vocabulary steps, by Learning Progression Step on first writing assessment, and first language

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Vocabulary and Write to Communicate assessments in 2010-2013 of 6,700 learners with English as first language, and 3,100 learners with other first language.

Vocabulary and general numeracy

Compared with the relationships between vocabulary and reading, and vocabulary and writing, it is less obvious that there would be a strong relationship between vocabulary and general numeracy. However the correlation is at least as strong as that for vocabulary with writing for other-first-language learners (r = 0.56), and considerably stronger for English-first-language learners (r = 0.65), although not as strong as that for vocabulary and reading. Again, although learners who score low for vocabulary also tend to score low for general numeracy, there are many exceptions, as can be seen in Figure 34. In particular, in the other-first-language group, a large proportion of those who score high for general numeracy score in the lower two vocabulary steps: at general numeracy Step 5, 54 per cent, and at Step 6, 38 per cent.

Figure 34

First vocabulary assessments of learners also assessed for general numeracy in the full 2010-2013 Assessment Tool data set: Distribution of vocabulary steps, by Learning Progression Step on first general numeracy assessment, and first language

First language (L1) and Learning Progression Step on first general numeracy assessment
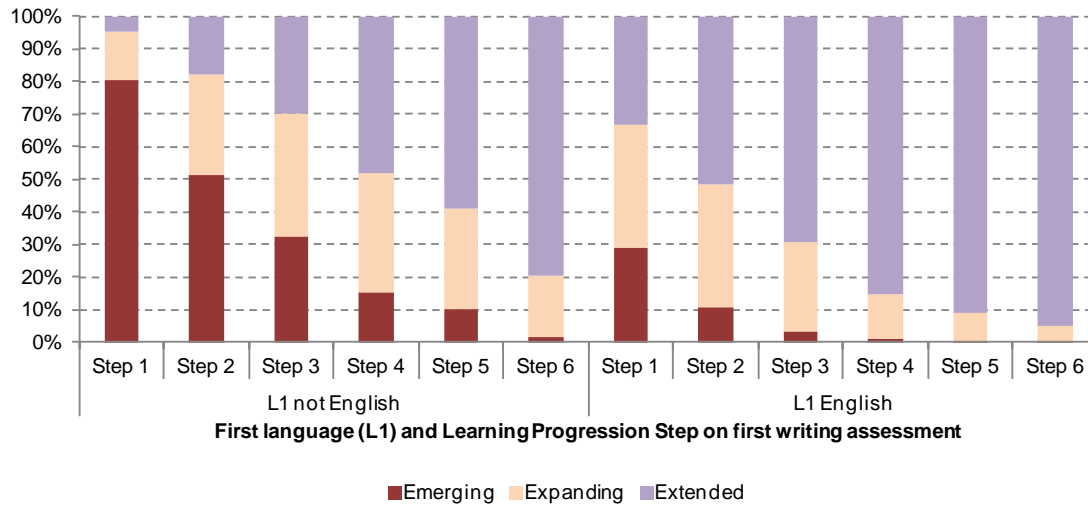
■Emerging ■Expanding ■Extended

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first Vocabulary and General Numeracy assessments in 2010-2013 of 14,000 learners with English as first language, and 4,000 learners with other first language.

7   LEARNER GAIN

The measure of improvement in learners' skills used here is that of statistically significant gain between each learner's first and last assessment for a particular skill in a particular data set (see Lane 2012 for a detailed discussion of this measure). Because this requires a data set of learners who have been assessed at least twice for each skill, this measure cannot be applied consistently to the smaller data sets, and accordingly only two data sets are used for analysis of learner gain, namely the full Assessment Tool data set, and the set of learners in SAC-funded programmes at Levels 1 to 3; and the latter data set is used only for analysis of gain in reading and general numeracy.

Because Assessment Tool data does not provide enrolment information, the assessments cannot be related to the start and end dates of any particular educational programme. Using first and last assessments should allow the best chance for gain to show up. In any case, most learners who are reassessed only have two assessments. The same approach is used with the SAC data set for consistency.

The concern in previous chapters was with how well the Assessment Tool performed in assessing English language learners in a one-off assessment. The concern in this chapter is with how well the Assessment Tool performs in assessing improvement in skills for English language learners across two assessments, and in particular with the question of whether there are any anomalous results for English language learners.

7.1 Read with Understanding assessments

Reading gain for learners in the full Assessment Tool data set

Figure 35 is based on all learners assessed more than once for reading in the 2010-2013 period, and shows the percentage of learners at each initial Learning Progression Step who showed statistically significant gain between their first and last reading assessment, according to first language.

The main point to note is that the distribution of statistically significant gain is very similar for the two first-language groups. There is, however, a consistent small difference, with the gain percentages somewhat lower for the other-first-language group. This difference may be due to these learners having to overcome a greater obstacle in terms of lower English proficiency (including lower vocabulary knowledge), in order to achieve reading gain.

Figure 35

Learners reassessed for Read with Understanding in full 2010-2013 Assessment Tool data set: Percentage of these learners showing statistically significant gain between first and last assessments, by Learning Progression Step on first assessment
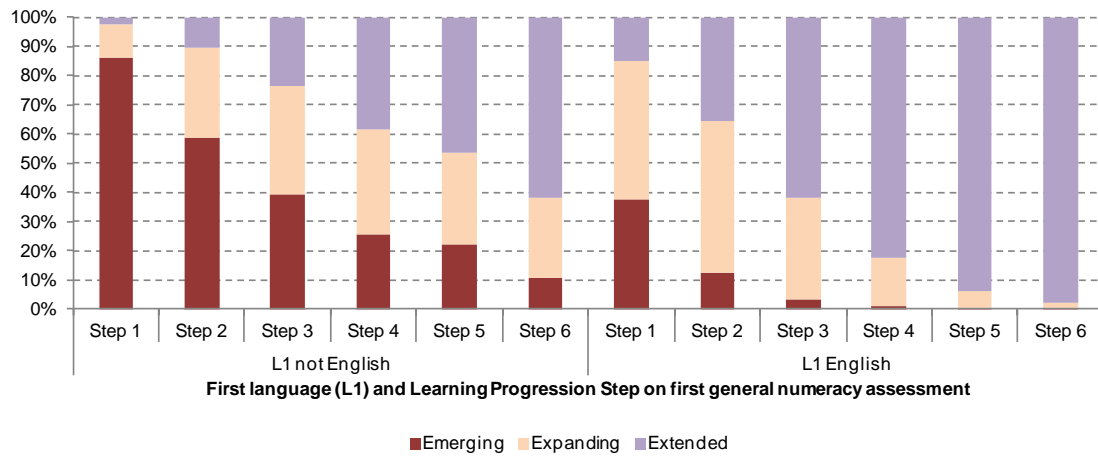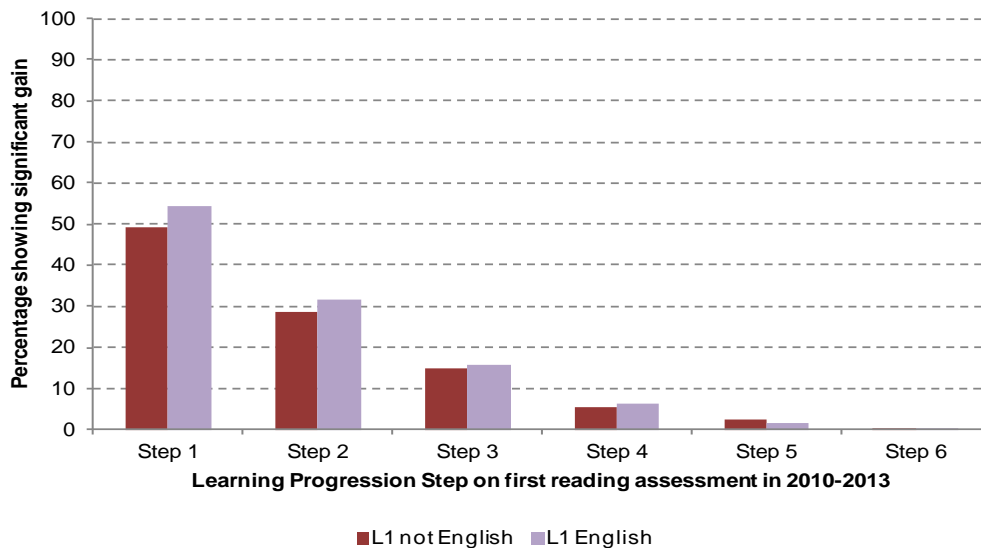

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first and last Read with Understanding assessments in 2010-2013 of 77,000 learners with English as first language, and 21,000 learners with other first language.

Reading gain for learners in programmes funded through the Student Achievement Component

Figure 36 profiles reading gain between first and last assessments in 2011-2013 for domestic learners in SAC-funded programmes at NZQF Levels 1 to 3. The patterns are similar to those in the full Assessment Tool data set, at least for learners initially assessed at Steps 1 and 2. Because the first and last assessments are not necessarily related to particular programmes, comparisons here do not provide information on the efficacy of ESOL courses or programmes. It is assumed that on average, learners in ESOL study had the lowest English language proficiency, while other-first-language learners not in ESOL study on average had intermediate proficiency and English-first-language learners had highest English language proficiency (see Appendix A for further information). In line with this assumption, learners in ESOL study at Steps 1 and 2 had the smallest percentages with statistically significant gain, which again suggests that the rate of gain is related to English language proficiency.

Figure 36

Domestic learners reassessed for Read with Understanding in SAC-funded programmes in 2011-2013: Percentage of these learners showing statistically significant gain between first and last assessments, by Learning Progression Step on first assessment
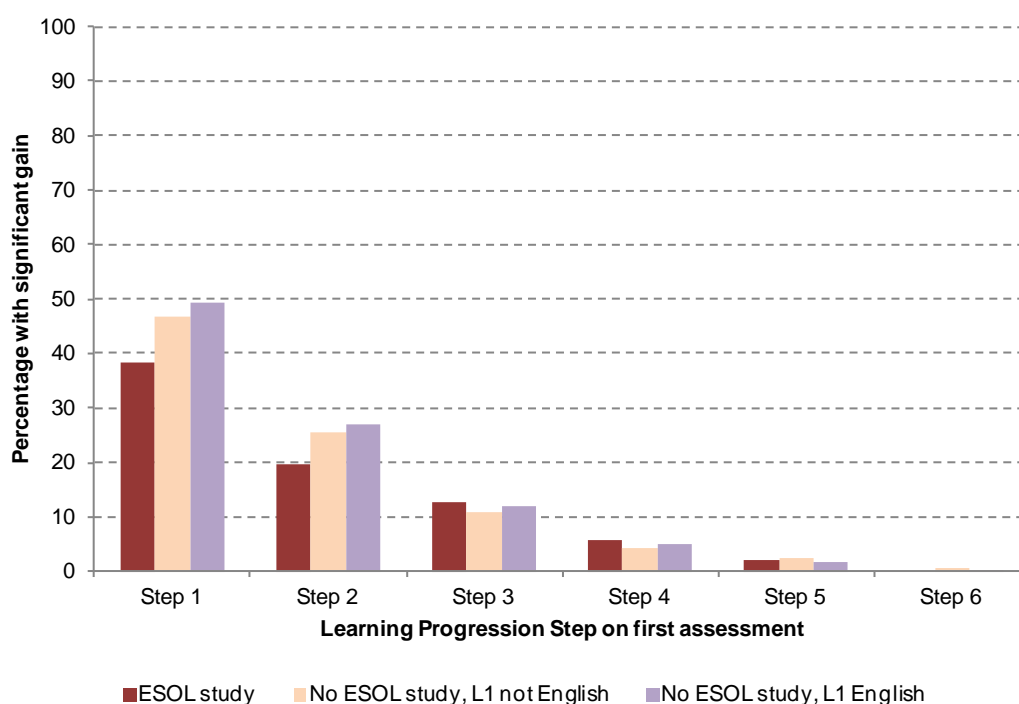
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first and last Read with Understanding assessments in 2011-2013 of 2,600 learners in ESOL study, 24,000 learners not in ESOL study with English as first language, and 5,400 learners not in ESOL study with other first language.

7.2 Write to Communicate assessments

There were insufficient numbers of learners assessed more than once for writing in the data set of learners in SAC-funded programmes at Levels 1 to 3 for analysis, and so only the full Assessment Tool data set is analysed in this section.

Writing gain for learners in full Assessment Tool data set
The profiles of statistically significant gain in writing for the English-first-language and other-first-language groups are very close, as can be seen in Figure 37. As with reading, there is a very small difference between the two first language groups, with slightly higher rates of gain for the English-first-language group, again suggesting that learners whose first language is not English may face somewhat greater obstacles to improving their writing skills, compared with native English speakers.

Figure 37

Learners reassessed for Write to Communicate in full 2010-2013 Assessment Tool data set: Percentage of these learners showing statistically significant gain between first and last assessments, by Learning Progression Step on first assessment
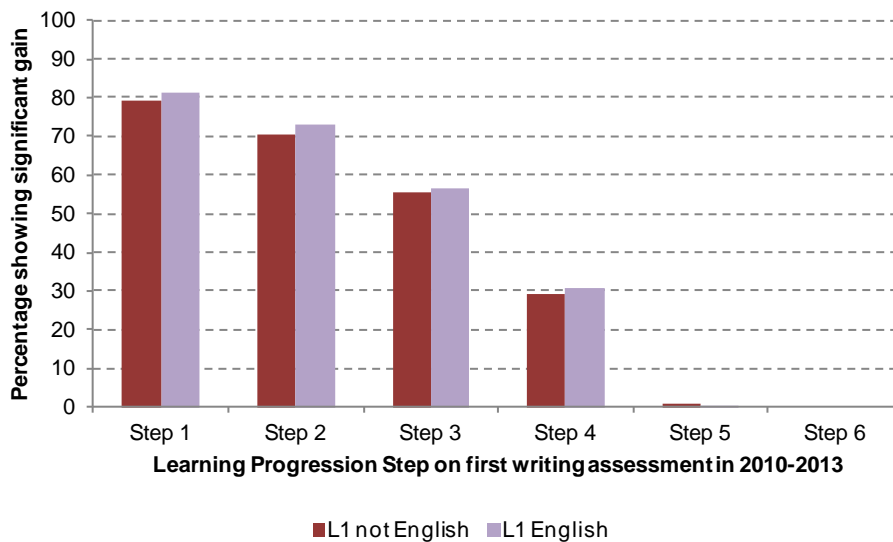
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first and last Write to Communicate assessments in 2010-2013 of 12,000 learners with English as first language, and 6,000 learners with other first language.

7.3 General Numeracy assessments

General numeracy gain for learners in full Assessment Tool data set
Figure 39 shows the rates of statistically significant gain in general numeracy according to initial Learning Progression Step and first language. The rates are very close for the two first language groups, but with a consistent small difference: the rates for the other-first-language group are slightly higher at each Step, with the exception of Step 5.

Figure 38

Learners reassessed for General Numeracy in full 2010-2013 Assessment Tool data set: Percentage of these learners showing statistically significant gain between first and last assessments, by Learning Progression Step on first assessment
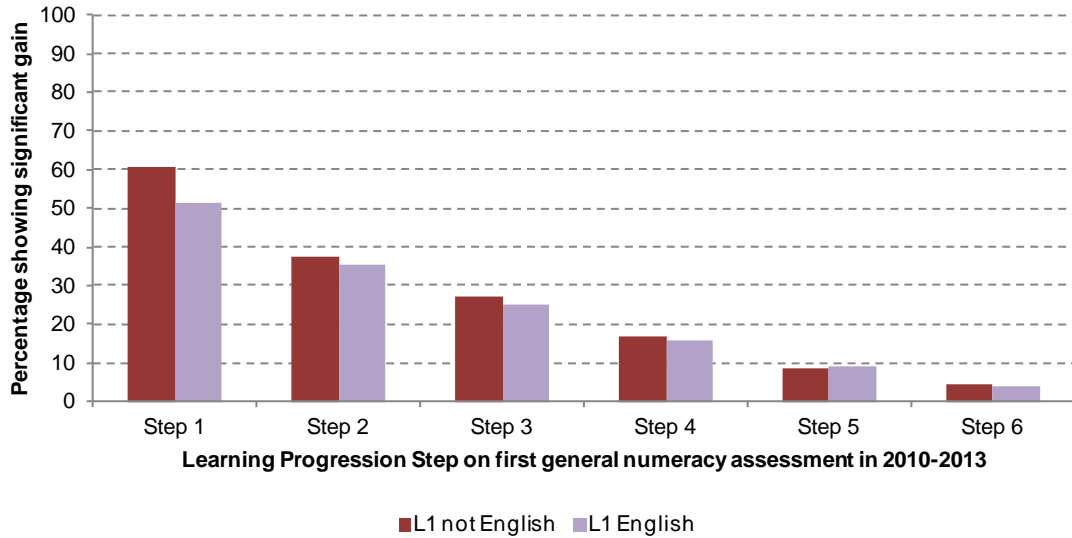
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first and last General Numeracy assessments in 2010-2013 of 12,000 learners with English as first language, and 6,000 learners with other first language.

General numeracy gain for learners in programmes funded through the Student Achievement Component

Figure 40 shows the rates of statistically significant gain in general numeracy for the three English language proficiency groups of learners in SAC-funded programmes, according to initial Learning Progression Step. Note that among learners assessed more than once with initial assessment at Step 1, there were only sufficient numbers for analysis of the English-first-language group. As with other gain profiles, the rates at each Step are similar for the three proficiency groups, with the only clear difference being that the percentage of learners showing statistically significant gain is slightly higher for learners who have been in ESOL study, at all analysable Steps except Step 3.

Figure 39

Domestic learners reassessed for General Numeracy in SAC-funded programmes in 2011-2013: Percentage of these learners showing statistically significant gain between first and last assessments, by Learning Progression Step on first assessment
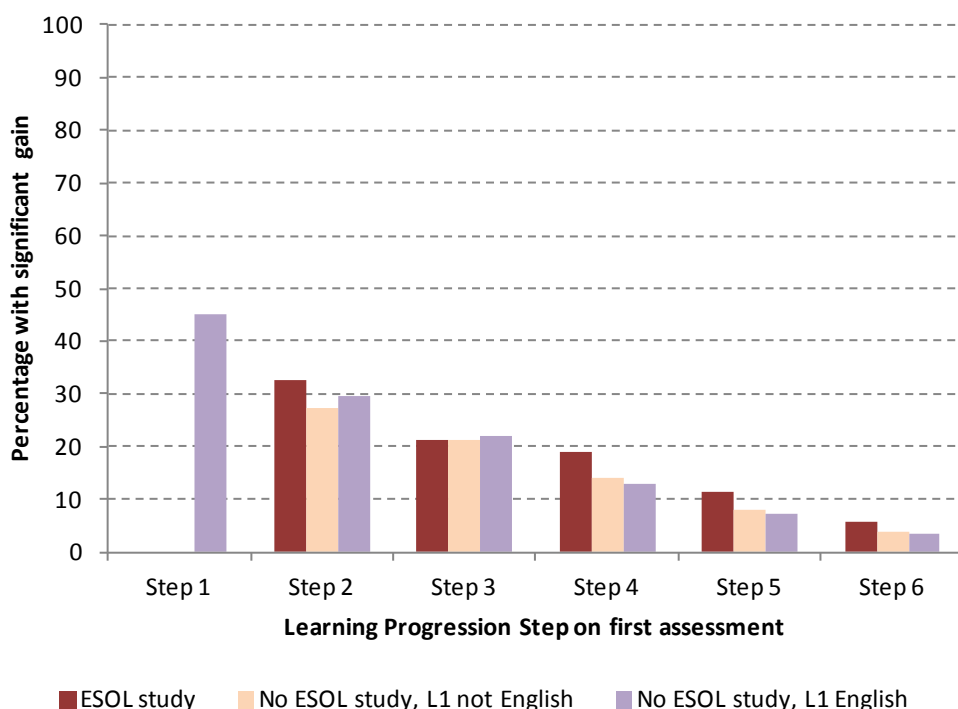
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first and last General Numeracy assessments in 2011-2013 of 1,900 learners in ESOL study, 19,300 learners not in ESOL study with English as first language, and 4,400 learners not in ESOL study with other first language.

7.4 Vocabulary assessments

There were insufficient numbers of learners assessed more than once for vocabulary in the data set of learners in SAC-funded programmes at Levels 1 to 3 for analysis, and so only the full Assessment Tool data set is analysed in this section.

Vocabulary gain for learners in full Assessment Tool data set
As can be seen in Figure 38, the rates of statistically significant gain in vocabulary scores according to initial step were very similar for the two first language groups, with slightly higher rates for the other-first-language group. Note that substantial proportions of learners in both groups whose initial vocabulary score corresponded to the Emerging or Expanding steps showed statistically significant gain: 58 per cent of other-first-language learners and 54 per cent of English-first-language first assessed at the Emerging step, and 43 per cent of other-first-language learners and 38 per cent of English-first-language learners first assessed at the Expanding step.

Figure 40

Learners reassessed for vocabulary in full 2010-2013 Assessment Tool data set: Percentage of these learners showing statistically significant gain between first and last assessments, by vocabulary step on first assessment
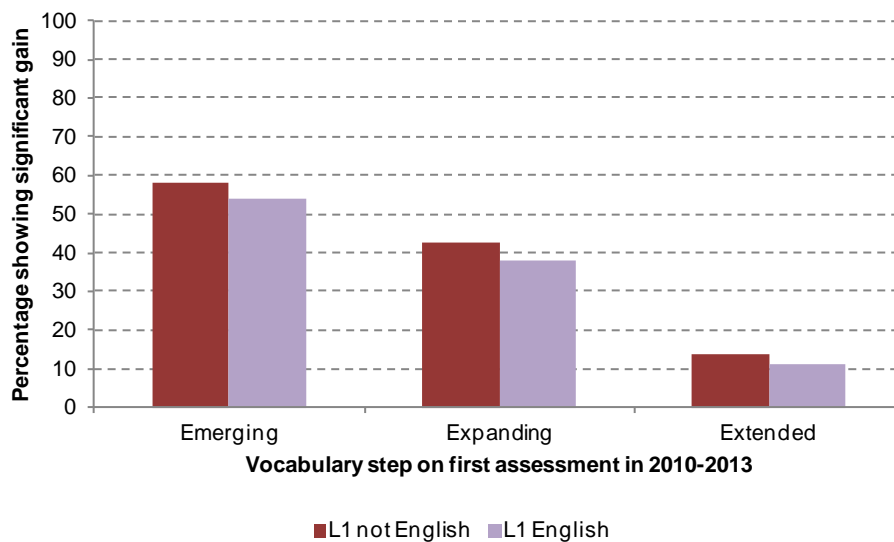
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on the first and last Vocabulary assessments in 2010-2013 of 5,900 learners with English as first language, and 2,700 learners with other first language.

7.5 Summary

For each of the skills of reading, writing, vocabulary and general numeracy, for each initial step, the percentages of learners showing statistically significant gain are almost the same for English language learners as for native English speakers. For reading and writing, these percentages tended to be slightly greater for native English speakers, while for vocabulary and for general numeracy they tended to be slightly greater for English language learners. In other words, there do not appear to be anomalous results for English language learners in terms of statistically significant gain, when compared with native English speakers.

8 CONCLUSION

8.1 Reading and writing skills and vocabulary knowledge of learners

The Assessment Tool was designed in part to assess the literacy skills and vocabulary knowledge of native English speakers, and part of this report has been concerned with the question of whether it also works as an assessment of these skills and knowledge for English language learners. If so, we expected to find:

- a greater prevalence of low literacy skills/knowledge among learners whose first language is not English than among English-first-language learners; and
- that the prevalence of low literacy skills/knowledge would be greatest among learners in ESOL study, less among other-first-language learners not in ESOL study, and least among native English speakers.

If these expectations were not met in one or more of the data sets, that would be an indication that there is a problem with using the Assessment Tool to assess the literacy skills/knowledge of English language learners.

Once comparisons were made within data sets, then a further check on the functioning of the Assessment Tool was to see if it was consistent across data sets, that is, whether it distinguished between data sets in the same way for English language learners as for native English speakers.

In fact the results for each data set were in line with the expectations listed above for differences in literacy skills/knowledge according to English language proficiency. There were no anomalous data sets. For the summary measures for reading, writing and vocabulary, and for both data sets in which ESOL learners can be identified, there is a regular downward progression of percentages of learners with low skills, from those in ESOL study, to other-first-language learners not in ESOL study, to native English speakers.

The fact that differences according to English language proficiency were consistently found across all the data sets provides a validation of using the Assessment Tool to assess the literacy skills/knowledge of English language learners. The fact that the Assessment Tool results distinguished between data sets in largely the same way for English language learners as for native English speakers strengthens this conclusion.

However, the analyses in the chapter do not provide definitive proof that the Assessment Tool assesses the literacy skills/knowledge of English language learners as a group as well as it does those of native English speakers, and it does not prove that an assessment of an individual English language learner is as accurate as that of a native English speaker.

It is perhaps better to think of these analyses as providing a basis for detecting any substantial anomalies in the way the Assessment Tool assesses English language learners. The fact that there do not appear to be any such anomalies offers reassurance that the Assessment Tool does a reasonably good job of assessing the literacy skills of English language learners.

This conclusion can only apply to those learners who were assessed. It is possible that among those not assessed are many English language learners, particularly those with very low English language proficiency, for whom the Assessment Tool would not be appropriate or accurate, for example, learners assessed using the alternative Starting Points assessment process instead of the Assessment Tool. In this respect the Foundation-Focused Training Opportunities data set is

particularly interesting: it had a high rate of assessment, even of learners in ESOL programmes (see Chapter 2). The Assessment Tool results indicate that this was a set with low literacy skills in general, even among English-first-language learners, but the Assessment Tool still managed to differentiate the groups of learners in line with expectations.

8.2 General numeracy profiles of learners

The items in the numeracy assessments are often framed in English words, and so it was expected that learners' numeracy scores would partly reflect their reading skills, and that numeracy scores would show similar patterns to reading scores for learners with different English language proficiency. On the other hand, the NZCER, in developing the numeracy assessments, sought to minimise the reading difficulties of the numeracy items, so that the numeracy assessments would be largely independent of reading skills. Accordingly, we expected for general numeracy assessments that there would be some differences according to English language proficiency, but that these would not be as marked as the reading differences. If these differences were small, then that would be an indication that the Assessment Tool could be used to assess the general numeracy of English language learners.

Once comparisons were made within data sets, then a further check on the functioning of the Assessment Tool was to see if it was consistent across data sets, that is, whether it distinguished between data sets in the same way for English language learners as for native English speakers.

The results for the full Assessment Tool data set were in line with expectations: the percentage of learners with low general numeracy was somewhat greater among other-first-language learners than among English-first-language learners, and this difference was not as substantial as that for reading assessments.

However, the results for the other data sets were variable. The Assessment Tool does not consistently assess groups of learners for general numeracy in a way that reflects differences in English language proficiency, although it does partially reflect differences between the characteristics of learners in different data sets.

In particular, there were no clear differences in general numeracy skills according to English language proficiency for learners in Intensive Literacy and Numeracy programmes and for learners in Student Achievement Component-funded programmes at Levels 1 to 3. On the other hand, there were moderate to large differences according to English language proficiency for learners in Youth Guarantee, Industry Training and Foundation-Focused Training Opportunities programmes, though these differences were not as great as for reading assessments. The differences in general numeracy skills in Workplace Literacy programmes were large and were also comparable to the differences for reading in this data set.

Of these data sets, the SAC data set is by far the largest in terms of numbers of learners, and so this data set carries a lot of weight in determining the overall patterns of skills in the full Assessment Tool data set.

Further analysis is required to clarify these different patterns in different data sets. Unfortunately there is limited data on the characteristics of learners (such as educational background) in most of these data sets, although there is demographic information, which is outlined in section 2.5 and Appendix B. The analyses in this report have assumed that there is a similarity between English language learners and native English speakers within each data set, but this may not always be the case. In fact, in some of the data sets, there are considerable differences in the demographic characteristics of English language learners and native English speakers.

8.3 Durations of adaptive online assessments

As well as the Learning Progression Step profiles for first assessments of English language learners and native English speakers, this report has also considered the time taken by learners between starting and submitting first reading and general numeracy assessments of the two adaptive online assessment types, the full-length and the Snapshot, according to the Step at which they were assessed.

Reading assessment durations
Other-first-language learners were also expected to take more time to complete online reading assessments than native English speakers because they would be slower reading the assessment items, and learners in ESOL study were expected to take longer than other-first-language learners not in ESOL study.

Where such comparisons could be made, the results were in line with these expectations for learners with relatively low scores (Steps 1 to 3); differences in duration between learners according to English language proficiency were not so evident for learners with higher reading scores (Steps 5 and 6).

General numeracy assessment durations
Similarly we expected other-first-language learners to take more time to complete online general numeracy assessments than native English speakers because they would be somewhat slower reading the assessment items, and learners in ESOL study to take longer than other-first-language learners not in ESOL study. However, the reading burden should have been less than for the Read with Understanding assessments, and hence we expected that the differences in duration according to English language proficiency would be less for general numeracy than for reading.

Where such comparisons could be made, the results were in line with these expectations in general but particularly for learners with relatively low scores (Steps 1 to 4) and for learners in ESOL study. Although the differences in duration were generally not as great as for reading assessments, they were still quite substantial, even where there was little difference between English proficiency groups in general numeracy skill profiles (that is, in the ILN and SAC data sets).

Comparing the groups of learners, it is very clear that within data sets, native English speakers had the shortest median durations. In the data sets lacking information on learners in ESOL study, other-first-language learners had longer median durations than English-first-language learners. In the data sets with information on ESOL study, learners in ESOL study had the longest median durations, while other-first-language speakers not in ESOL study had intermediate median durations (in fact, median durations closer to those of the English-first-language learners than of the learners in ESOL study).

Reading and general numeracy assessment durations
The longer median durations for English language learners appear to be partly accounted for by greater percentages of learners taking more than one session to complete an assessment (as indicated by the percentages taking more than one day between starting and submitting assessments).

The differences in duration may be partly due to English language learners requiring more time to read the assessment items, but may also be partly due to some native English speakers not being fully engaged in the assessment process and tending to rush through the assessments in the shortest possible time.

The relatively long assessment durations for some English language learners, especially learners in ESOL study, on the one hand present an issue for administrators and educators in the assessing organisations in terms of the logistics and management of assessments. On the other hand, duration may be an indicator of the effort expended by learners in undertaking the assessments. If we can interpret it this way, then it appears that the lower the learners' English language proficiency, and the lower the assessed skill, the more difficult the assessment process became for learners.

8.4 Vocabulary knowledge in relation to skills

For the small number of learners who were assessed for vocabulary as well as for reading, writing or general numeracy, their vocabulary scores were correlated with their scores for those other skills; most strongly for reading and least strongly for writing, while the correlation with general numeracy was somewhat stronger than for writing. However, there were exceptions to these general tendencies: some learners with low vocabulary scores (especially other-first-language learners) had mid-to-high range scores for the other skills; and some learners with high vocabulary scores (especially English-first-language learners) had low scores for the other skills.

8.5 Learner gain

For each of the skills of reading, writing, vocabulary and general numeracy, for each initial step, the percentages of learners showing statistically significant gain were almost the same for English language learners as for native English speakers. For reading and writing, these percentages tended to be slightly greater for native English speakers, while for vocabulary and for general numeracy they tended to be slightly greater for English language learners. In other words, there do not appear to be anomalous results for English language learners in terms of statistically significant gain, when compared with native English speakers.

APPENDIX A   DATA AND DEFINITIONS

Acronyms and Abbreviations

ESOL   English for Speakers of Other Languages

FFTO   Foundation-Focused Training Opportunities

ILN   Intensive Literacy and Numeracy

IT   Industry Training

LLN   Literacy, language and numeracy

NSN   National Student Number

NZQF   New Zealand Qualification Framework

NZSCED   New Zealand Standard Classification of Education

SAC   Student Achievement Component (this is the main tertiary tuition fee subsidy)

STA   Snapshot step 2 Threshold Assessment in reading (Starting Points proxy)

TEC   Tertiary Education Commission

TEO   Tertiary Education Organisation

WPL   Workplace Literacy

YG   Youth Guarantee fees-free tertiary places scheme (for 16 and 17-year-olds)

Data sets

Seven sets of data provide the basis for the analyses in this report:

- Literacy and Numeracy for Adults Assessment Tool data for all of 2010, 2011 and 2012, including non-adaptive for printing assessments started in each of those years but submitted in the subsequent year; with the addition of assessments submitted up to December 2013. Assessments started in 2013 but submitted in 2014 are not included. The data set contains one record for each assessment for each learner. Each learner is identified by a National Student Number (NSN). An Assessment ID identifies a batch of assessments of a particular skill and assessment type, set up by an organisation at a particular time for a particular group of learners, typically members of a class or programme. The date of assessment is taken as the setup date in the case of non-adaptive for printing assessments, or otherwise as the date on which the assessment is completed online and submitted to the Assessment Tool database. Each assessment is identified by the learner's NSN, the Assessment ID number and assessment date. The Assessment Tool data does not include enrolment information such as programmes or courses learners are enrolled in, or the organisations providing those programmes or courses (which are not necessarily the organisations recorded in the Assessment Tool data as submitting the assessments).

- Enrolment data (matched to the Assessment Tool data, by using learner NSNs and programme dates to find relevant assessments) for domestic learners, mainly for 2011 and 2012, for the following types of programmes:

    o Intensive Literacy and Numeracy (ILN)

    o Workplace Literacy (and Numeracy) (WPL)

    o Youth Guarantee fees-free tertiary, for 2012 only (YG)

    o Industry Training at NZQF Levels 1 to 3 (IT)

    o programmes at NZQF Levels 1 to 3, in the period 2011 to 2013, funded through the Student Achievement Component (SAC)

    o Foundation-Focused Training Opportunities (FFTO)

Limitations

Data limitations

As noted above, the Assessment Tool data set does not include all assessments with an assessment date in 2013. Most of the data relates to the years 2011 and 2012, although the Assessment Tool data includes most but not all of the 2013 assessments, and the SAC data set includes incomplete data for 2013 (Level 1 and 2 competitive and planned process funded programmes are not included). The Intensive Literacy and Numeracy and Workplace Literacy enrolment data for 2011 is incomplete, in that it only covers the period January to July, and the Workplace Literacy data for 2012 covers Tertiary Education Organisation-led programmes, but not Employer-led or Employee-targeted programmes. For consistency the Workplace Literacy 2011-2012 data set includes only TEO-led programmes.

Changes in requirements over time

The TEC provides guidance to organisations on using the Assessment Tool: in particular, domestic learners in relevant courses or programmes (including Intensive Literacy and Numeracy, Workplace Literacy, Youth Guarantee, Foundation-Focused Training Opportunities, Industry Training at NZQF Levels 1 to 3, and Student Achievement Component-funded programmes at NZQF Levels 1 to 3) are expected to have assessments early in courses or programmes and to be re-assessed (in 'progress' assessments) towards the end of those courses or programmes. At least one of reading or numeracy needed to be assessed in 2011 and 2012, but by 2013 both reading and numeracy were minimum requirements for assessment. In 2011 and 2012, learners did not need to be reassessed if their scores on initial assessment corresponded to Steps 5 and 6 for reading and writing, and Step 6 for numeracy. In 2013, these exemptions were extended: learners assessed initially at Steps 4 to 6 for reading or Steps 5 to 6 for numeracy were not required to be reassessed.

Learners in English for Speakers of Other Languages programmes

In the tertiary enrolment data it is possible to identify learners in ESOL courses or programmes in three data sets, before matching with Assessment Tool data.

Firstly, in the data for programmes funded through the Student Achievement Component (which is the main subsidy for tertiary students), courses and qualifications can be identified by the New Zealand Standard Classification of Education (NZSCED) code for 'English for speakers of other languages'. A learner is counted as an ESOL learner if enrolled either in an ESOL qualification or in an ESOL component of a programme which may not itself be an ESOL qualification. For matching with the Assessment Tool, data on these ESOL learners is available from 2010 to 2013. A learner is counted as an ESOL learner if enrolled in an ESOL programme

or course at any point in this period. This is because the category of ESOL learner in used in this report as a proxy for a second-language speaker of English with relatively low proficiency.

Secondly, data for Foundation-Focused Training Opportunities programmes for 2011 and 2012 includes an indicator for learners referred to ESOL programmes. Learners in FFTO programmes include people who are unemployed or welfare beneficiaries and who often have low or no educational qualifications.

A third potential set of data on ESOL learners was that of learners funded through a specific ESOL stream of the Intensive Literacy and Numeracy fund. However, in the ILN data set the ESOL stream was not consistently identified, and the number of learners specifically identified as funded this way in the available data was too small to allow statistical analysis.

First language in Assessment Tool data

The Assessment Tool data contains an indicator (or 'flag') for each learner as to whether the learner's first language is or is not English. In the Assessment Tool data for 2010 to 2013, the value of this indicator is unspecified for only 1.4 per cent of learners. However, there is a data quality issue with the values that have been specified.

Variation in recorded first language

At any particular time, the Assessment Tool database holds a single set of information about each learner, including the current value of the first language indicator. That current value can be changed, for example when the learner enrols with a new provider. When a data set is extracted from the database, the value of the first language indicator for each learner is the current value at the time of data extraction. This may not be the same as the value of the first language indicator at an earlier time when the learner was assessed.

The Assessment Tool data used for this report consists of three data sets, the first extracted in early 2012, covering assessments from 2010 and 2011, the second extracted in early 2013, consisting of assessments from 2012, and the third extracted in early 2014, covering assessments from 2013. There is a degree of instability in the first language indicator which can be seen by comparing the three Assessment Tool data sets.

Firstly, comparing the 2010-2011 and 2012 data sets: a total of 172,000 learners were assessed across the three years 2010-2012. Of these, 10 per cent (17,200) appeared in both data extracts and had specified values for first language. There were 3,900 of these learners (23 per cent of 17,200) who were recorded in at least one data extract as having a first language other than English: 2,700 (69 per cent of 3,900) were recorded as having a first language other than English in both extracts, while for the other 1,200 (31 per cent) the value of the first language flag changed from 'not English' to 'English' or vice versa between the two data extracts.

Comparison of the 2012 and 2013 data sets produces a similar pattern of variability. A total of 191,000 learners were assessed across the two years 2012-2013. Of these, 11 per cent (21,500) appeared in both data extracts and had specified values for first language. There were 4,300 learners (20 per cent of 21,500) recorded in at least one of the two data sets as having a first language other than English. Of these, 3,100 (73 per cent) were recorded as having a first language other than English in both data sets, while the remaining 1,200 (27 per cent) changed the value of the first language flag between the two data sets.

These changes are likely to occur when learners change their programmes, or change the organisations at which they are enrolled, or even on re-enrolling in the same programme, where their personal details are re-entered into the Assessment Tool system, and unfortunately either the old or the new details are incorrect in respect of first language. First language is a piece of

information which is less likely to be routinely collected by organisations, and this may be why its value appears to be more volatile than other learner data.

This issue with the first language flag does not rule out the possibility of research on English language learners in the Assessment Tool data. The flag identifies a group of learners whose first language is not English. Those English language learners who have been misclassified as first-language speakers of English are a small group compared with the overall group with English as a first language. The misclassification of these English language learners will slightly reduce the apparent differences between learners with and without English as a first language. Thus if there are differences between learners whose first language is and is not recorded as English, these differences will still provide useful information.

For the purposes of research it is also possible to use multiple points in time, and count as an English language learner a learner who was recorded as having a first language other than English at any one of those points in time. This approach is likely to identify some of those English language learners who have been misclassified at other times.

Although this approach improves the identification of English language learners somewhat, it is likely that a large number of English language learners remain unidentified in the Assessment Tool data. Some of these can be identified through their enrolment in ESOL courses or programmes, even though their first language is recorded as English.

First language of ESOL learners

Thus we have two possible indicators to identify English language learners in these data sets. One is to identify learners enrolled in ESOL programmes or courses. The other is to identify learners who are recorded as not having English as a first language in the Assessment Tool data.

These two indicators can be compared for learners in ESOL study who were assessed using the Assessment Tool. International students were not required to be assessed, and their rate of assessment was very low. The assessment rate was considerably better for domestic students, so the analysis is confined to domestic students. Because of the relatively low rate of assessment, at least three years of data are needed to find enough learners in ESOL study to undertake the analysis. The levels of study with the strongest focus on literacy and numeracy are at Levels 1 to 3 in the New Zealand Qualification Framework (NZQF), and accordingly analysis of programmes funded through the Student Achievement Component is confined to these qualification levels.

Of assessed domestic students enrolled at some point from 2010 to 2013 in SAC-funded ESOL qualifications or courses in programmes at NZQF Levels 1-3, 42 per cent were recorded in at least one of the Assessment Tool data sets as not having English as a first language, meaning that 58 per cent were recorded as having English as a first language. This would seem to indicate either that some qualifications or courses have been mislabelled as ESOL, or that a large number of learners whose first language is not English have been recorded in the Assessment Tool data as having English as a first language. Given that comparison of different Assessment Tool data sets has shown considerable variability in the recording of first language, the second explanation appears more likely.

In the 2011-2012 data for ESOL learners in Foundation-Focused Training Opportunities, the match between participation in ESOL programmes and first language was considerably better: 88 per cent of learners in ESOL programmes were recorded in at least one of the Assessment Tool data sets as not having English as a first language.

Given the variability in the recorded first language in the Assessment Tool data, it is assumed here for the purposes of analysis that all learners who have taken ESOL courses or programmes at any point in the 2010-2013 period have a first language other than English.

For learners in SAC-funded and FFTO programmes, it is then possible to divide learners into three categories: first of all, learners who have been enrolled in ESOL courses or programmes; secondly other learners who are recorded in at least one Assessment Tool data set as having a first language other than English; and thirdly learners who have not been enrolled in ESOL courses or programmes and who only have English recorded as their first language in the Assessment Tool data. These three groups are assumed here to correspond to three levels of English language proficiency; the first to relatively low proficiency, the second to higher non-native proficiency, and the third to native English-speaking proficiency.

In the Adult Literacy and Life Skills (ALL) Survey 2006, respondents were asked for their first language, and also for the main language they spoke at home. From this it was possible to estimate that for the population aged 16-24 whose first language was not English, 29 per cent spoke mainly English at home, and for those aged 25-65 whose first language was not English, 33 per cent spoke mainly English at home. Those who spoke mainly English at home had considerably higher literacy and numeracy scores than those who did not.

It seems reasonable to assume that those who spoke mainly English at home would be less likely to enrol in ESOL courses or programmes, while those who mainly spoke a language other than English would be more likely to enrol in ESOL courses or programmes. Accordingly, the three groups of assessed learners in SAC-funded and FFTO programmes can be approximately identified with groups in the ALL survey data as follows:

- the ESOL learner group corresponds approximately to those whose first language and main home language are both not English, the group in ALL with lowest literacy and numeracy scores;
- the group of other-first-language learners not enrolled in ESOL study corresponds approximately to those whose first language is not English but main home language is English, the group in ALL with intermediate literacy and numeracy scores; and
- the English-first-language group corresponds to those whose first and main home languages are both English, the group in ALL with the highest literacy and numeracy scores.

# APPENDIX B   DEMOGRAPHIC CHARACTERISTICS OF ENGLISH LANGUAGE LEARNERS

There were considerable differences between data sets in the demographic characteristics of the learners, as well as differences within data sets between other-first-language and English-first-language learners. This appendix provides a picture of the demographic characteristics of English language learners compared with native English speakers in the different data sets, in terms of gender, ethnic identification and age.

Learners in full Assessment Tool data set

Gender
Of all learners assessed using the Assessment Tool from 2010 to 2013, 55 per cent were male. This was also the male percentage of English-first-language learners who were assessed, while only 51 per cent of the assessed other-first-language learners were male, as shown in the Figure 41.

Figure 41

Learners in full 2010-2013 Assessment Tool data set, by first language: Breakdown by gender
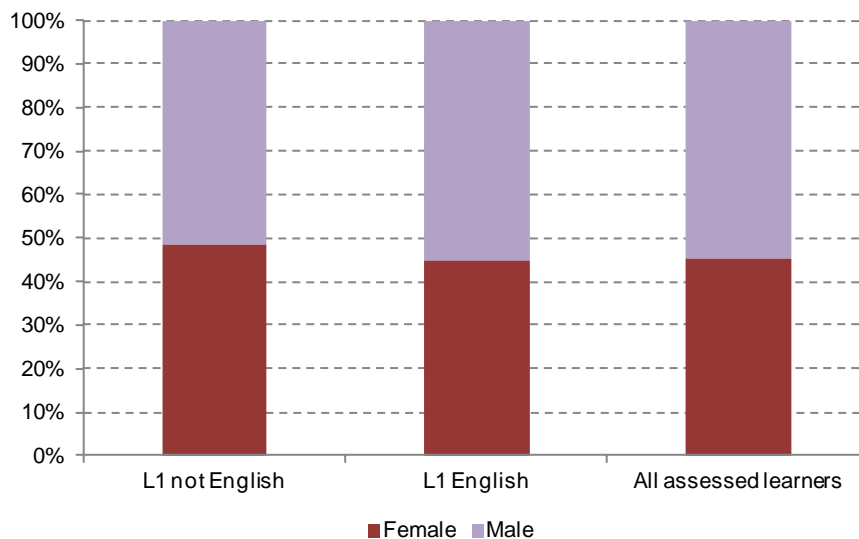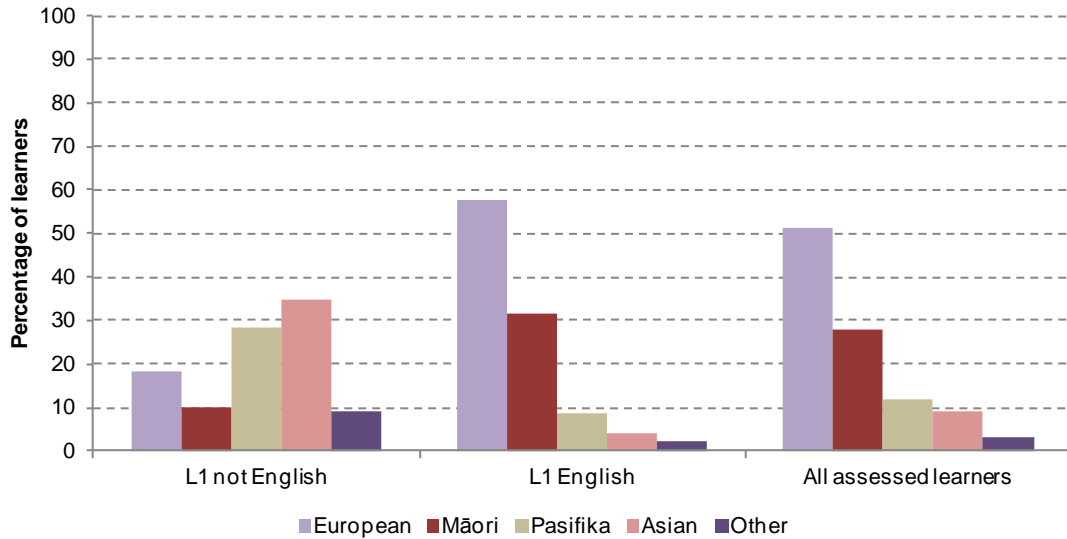

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 210,000 learners with English as first language, and 42,000 learners with other first language.

Ethnic group

Among assessed learners whose first language was English, the largest ethnic groups were European and Māori, as was also the case for assessed learners overall. However, among learners whose first language was not English, the largest groups were Asian and Pasifika, as can be seen in Figure 42. The European group made up the third-largest other-first-language group, because although only a small proportion of Europeans had a first language other than English, the European group was by far the largest overall.

Figure 42

Learners in full 2010-2013 Assessment Tool data set, by first language: Ethnic identification (total response)

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 210,000 learners with English as first language, and 42,000 learners with other first language.

Age

There was a noticeable difference between assessed English-first-language learners and other-first-language learners in age distribution, particularly in the proportion of assessed learners who were aged 16 to 24 at their first assessment in 2010-2013, as can be seen in Figure 43. This proportion was 51 per cent for the English-first-language learners, but only 34 per cent for the other-first-language learners (although this percentage was still greater than for each of the older age groups).

The median age of assessed English-first-language learners was 24, while the median age of assessed other-first-language learners was 31.

Figure 43

Learners in full 2010-2013 Assessment Tool data set, by first language: Age at first assessment (five age groups)
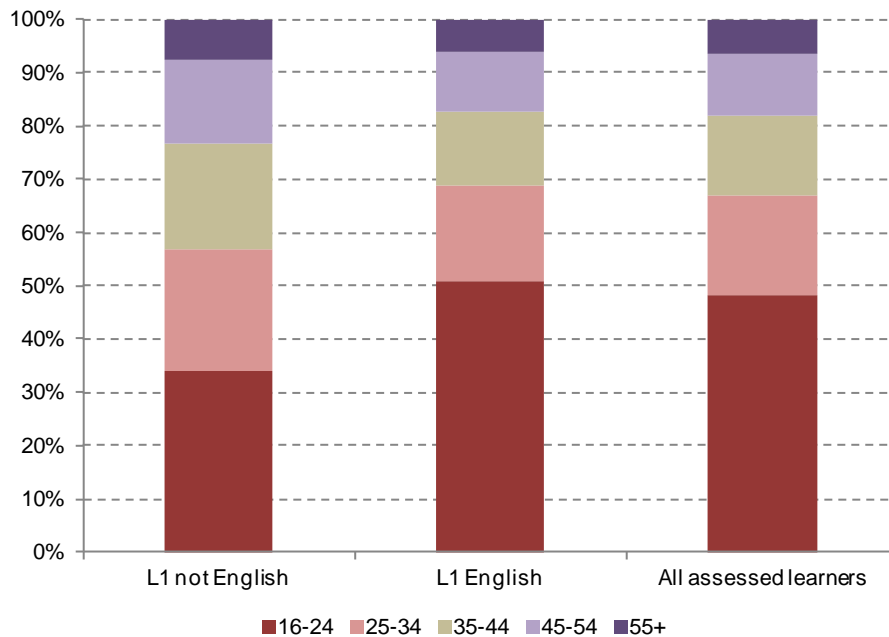
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 210,000 learners with English as first language, and 42,000 learners with other first language.
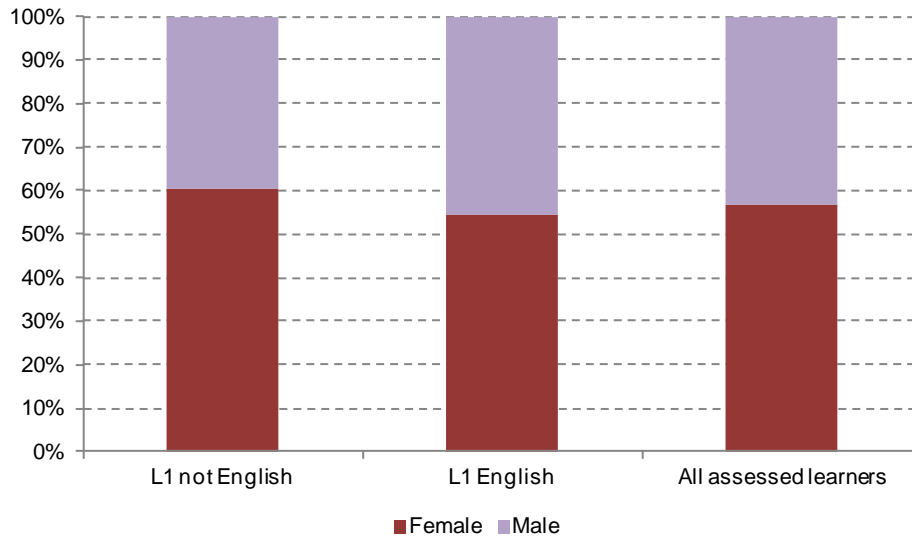
Learners in Intensive Literacy and Numeracy programmes

Gender

The majority of assessed learners in ILN programmes in 2011 and 2012 were female, especially among other-first-language learners, 61 per cent of whom were female, compared with 54 per cent of English-first-language learners, as shown in Figure 44.

Figure 44

Assessed learners in Intensive Literacy and Numeracy programmes in 2011 and 2012, by first language: Breakdown by gender
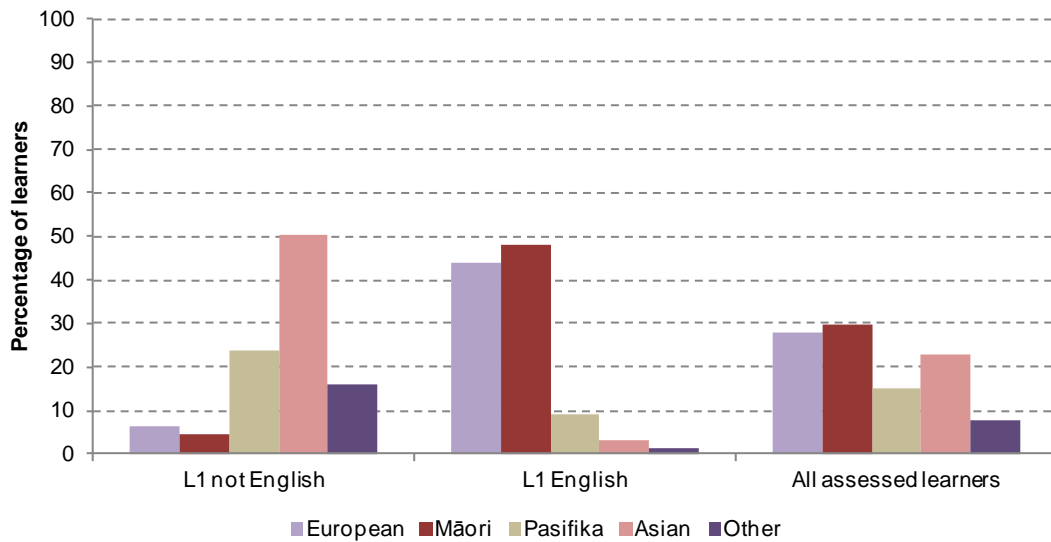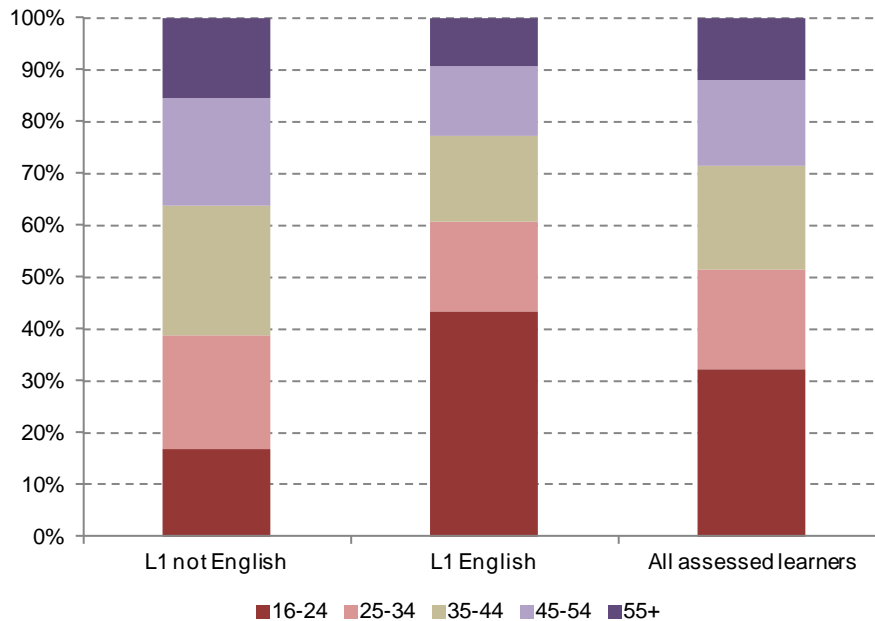

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 3,800 learners with English as first language, and 2,800 learners with other first language.

Ethnic group

The main ethnic identifications among English-first-language learners in Intensive Literacy and Numeracy programmes were Māori and European, while among other-first-language learners the main identifications were with Asian, Pasifika and Other ethnic groups, as can be seen in Figure 45.

Figure 45

Assessed learners in Intensive Literacy and Numeracy programmes in 2011 and 2012, by first language: Ethnic identification (total response)

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 3,800 learners with English as first language, and 2,800 learners with other first language.

Age

There was a considerable difference in age distribution between other-first-language and English-first-language learners, as can be seen in Figure 46. Only 17 per cent of the other-first-language learners were in the 16-24 age-group at first assessment, compared with 44 per cent of the English-first-language learners. The median age of the other-first-language learners was 39, compared with 27 for the English-first-language learners.

Figure 46

Assessed learners in Intensive Literacy and Numeracy programmes in 2011 and 2012, by first language: Age at first assessment (five age groups)

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 3,800 learners with English as first language, and 2,800 learners with other first language.
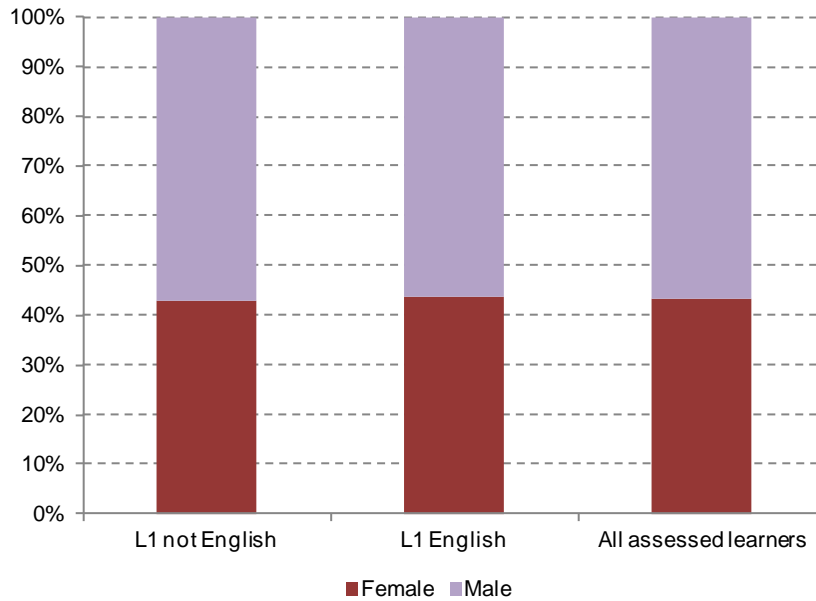
Learners in Workplace Literacy programmes

Gender

There was a majority of males among learners in Workplace Literacy programmes in 2011 and 2012, with little difference in gender proportions between other-first-language (57 per cent male) and English-first-language (56 per cent male) learners, as shown in Figure 47.

Figure 47

Assessed learners in Tertiary Education Organisation-led Workplace Literacy programmes in 2011 and 2012, by first language: Breakdown by gender
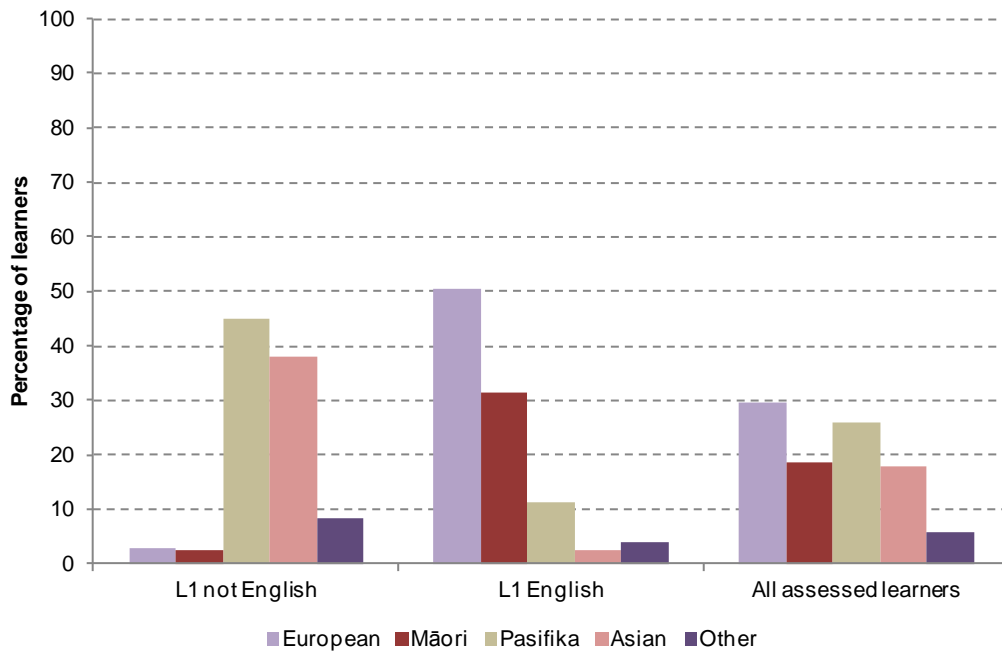

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 3,300 learners with English as first language, and 2,600 learners with other first language.

Ethnic group

There was a broad spread of ethnic identifications among learners in Workplace Literacy programmes; but when split by first language, the main identifications among other-first-language learners were Pasifika and Asian, while the main identifications among English-first-language learners were European and Māori, as can be seen in Figure 48.

Figure 48

Assessed learners in Tertiary Education Organisation-led Workplace Literacy programmes in 2011 and 2012, by first language: Ethnic identification (total response)

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 3,300 learners with English as first language, and 2,600 learners with other first language.

Age

In general, as shown in Figure 49, learners in Workplace Literacy programmes were relatively old in comparison with assessed learners overall. There was a fairly even spread of ages among English-first-language learners, with 70 per cent aged 25 to 54, while among other-first-language learners there were relatively few in the youngest and oldest age groups; rather, 83 per cent of learners were in the range 25 to 54.

The median age was 41 for both other-first-language learners and English-first-language learners.

Figure 49

Assessed learners in Tertiary Education Organisation-led Workplace Literacy programmes in 2011 and 2012, by first language: Age at first assessment (five age groups)
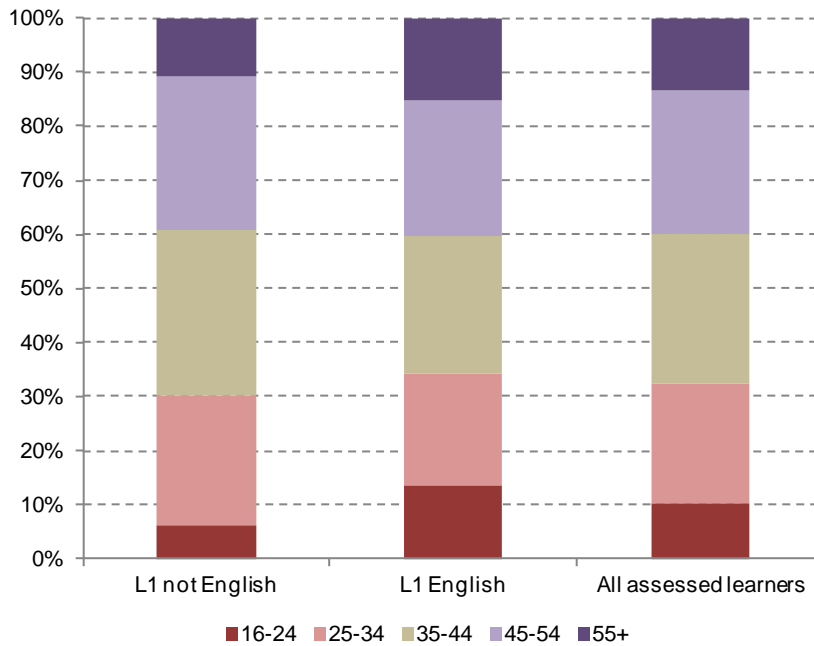
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 3,300 learners with English as first language, and 2,600 learners with other first language.

Learners in Youth Guarantee fees-free programmes

Gender

There was a male majority in Youth Guarantee fees-free tertiary programmes in 2012, and this was particularly so for other-first-language learners, of whom 59 per cent were male, compared with 54 per cent of English-first-language learners, as shown in Figure 50.

Figure 50

Assessed learners in Youth Guarantee fees-free tertiary programmes in 2012, by first language: Breakdown by gender
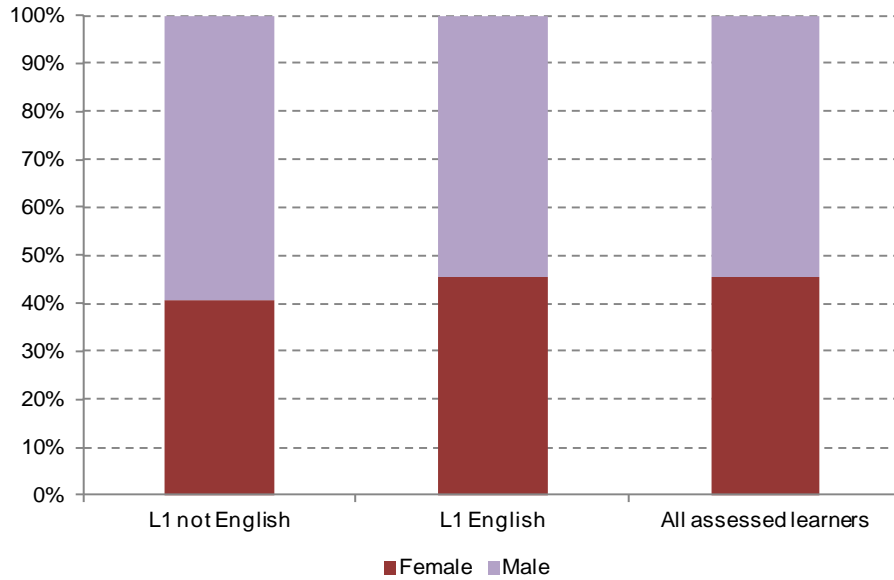
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 6,500 learners with English as first language, and 600 learners with other first language.

Ethnic group

There were very few Youth Guarantee learners in 2012 who identified as Asian or Other, and consequently these two groups do not figure greatly in either the English-first-language or the other-first-language groups. Among the English-first-language learners, the main identifications were with European and Māori groups, while among the non-English learners, Māori and European identifications were also prominent, but the largest group was Pasifika, as can be seen in Figure 51.

Figure 51

Assessed learners in Youth Guarantee fees-free tertiary programmes in 2012, by first language: Ethnic identification (total response)
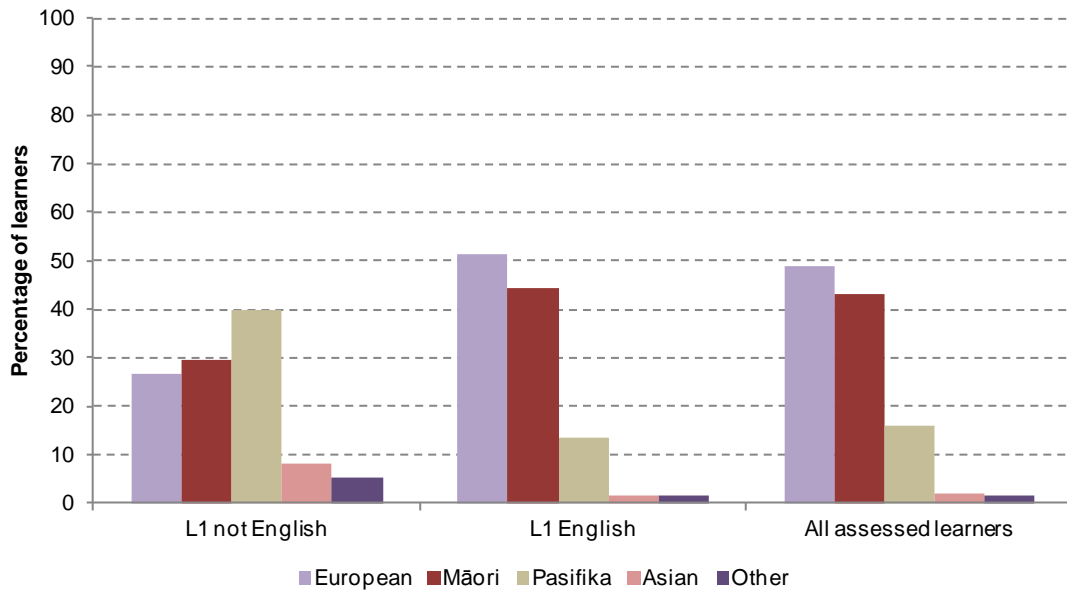
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 6,500 learners with English as first language, and 600 learners with other first language.

Age

The target age group for Youth Guarantee programmes in 2010 to 2013 was 16-17 years. Accordingly all Youth Guarantee learners fell into the 16-24 age group.

Learners in Industry Training

Gender

Among assessed learners in Industry Training in 2011 and 2012, there was a clear male majority, and this was particularly so among the English-first-language learners, of whom 69 per cent were male, compared with 64 per cent of the other-first-language learners, as can be seen in Figure 52.

Figure 52

Assessed learners in Industry Training at NZQF Level 1-3 in 2011 and 2012, by first language: Breakdown by gender
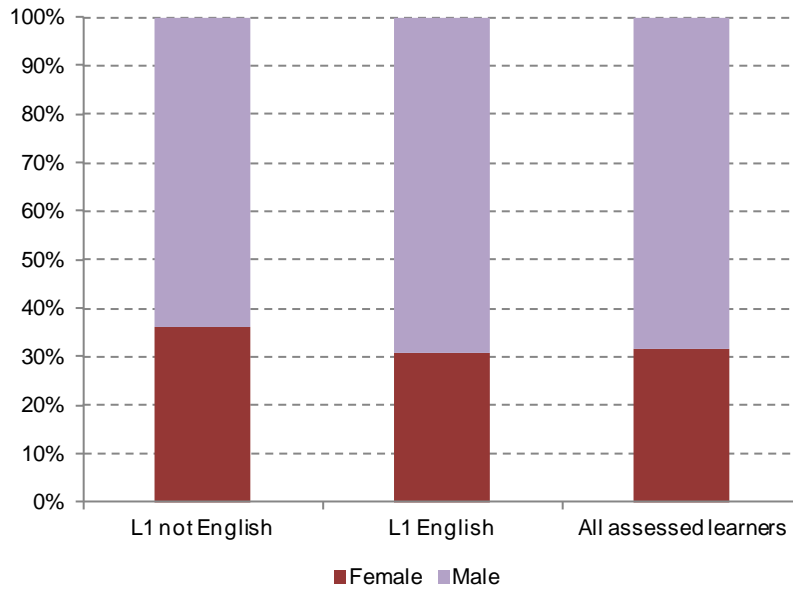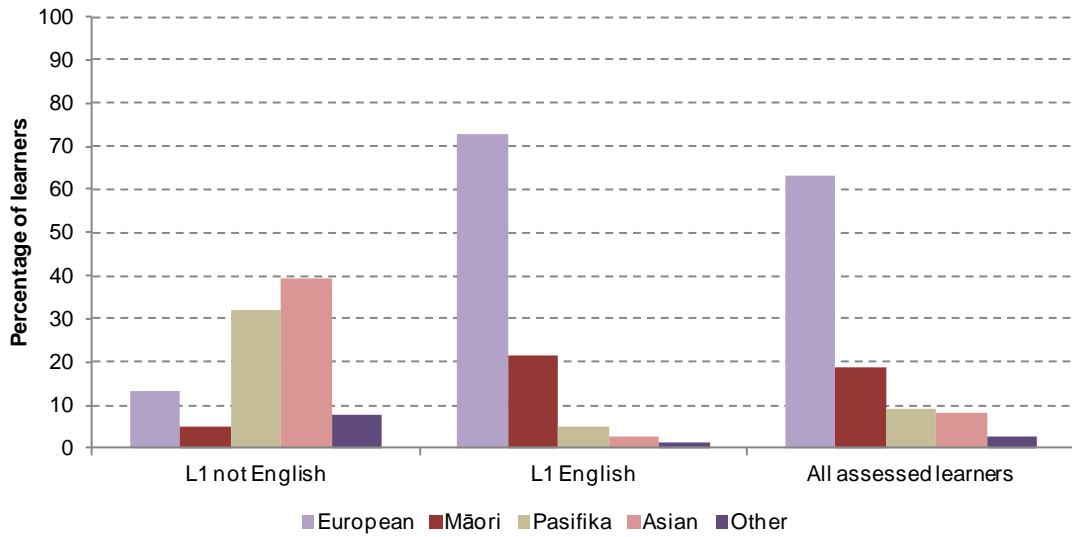

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 23,800 learners with English as first language, and 4,500 learners with other first language.

Ethnic group

Among the other-first-language learners in Industry Training, the main ethnic identifications were with the Asian and Pasifika groups, while among English-first-language learners, the main identifications were with European and Māori groups, as can be seen in Figure 53.

Figure 53

Assessed learners in Industry Training at NZQF Level 1-3 in 2011 and 2012, by first language: Ethnic identification (total response)
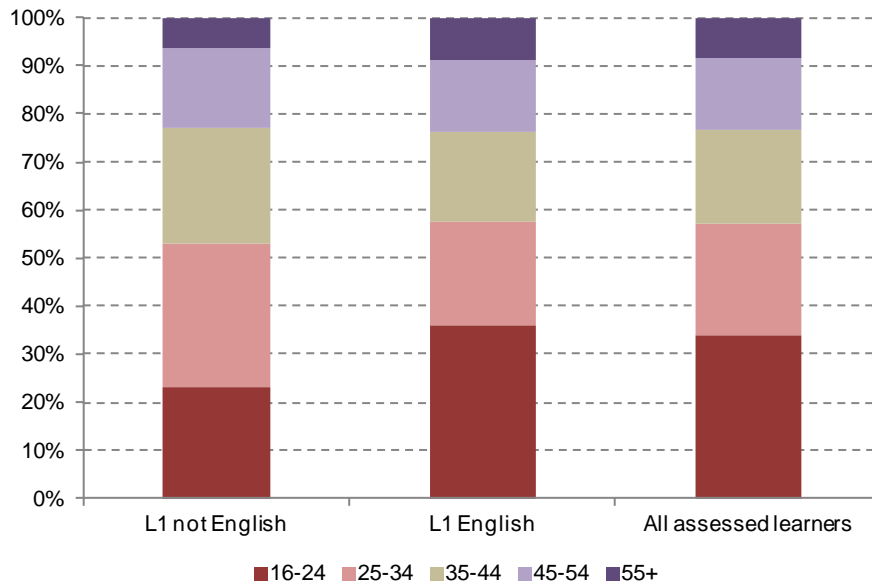

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 23,800 learners with English as first language, and 4,500 learners with other first language.

Age

The majority of assessed Industry Trainees were relatively young, that is, aged 16 to 34, but there was a larger proportion aged 16-24 among the English-first-language learners (36 per cent) than among the other-first-language learners (23 per cent), as shown in Figure 54. The median age of English-first-language trainees was 30, while that of other-first-language trainees was 33.

Figure 54

Assessed learners in Industry Training at NZQF Level 1-3 in 2011 and 2012, by first language: Age at first assessment (five age groups)

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 23,800 learners with English as first language, and 4,500 learners with other first language.

Learners in Student Achievement Component-funded programmes

Gender

Among assessed domestic learners in SAC-funded programmes at NZQF Levels 1-3, the majority (58 per cent) were female, as shown in Figure 55. The female predominance was even greater for such learners who had participated in ESOL programmes, or who had included an ESOL course in their study, with women making up 68 per cent of such learners. The gender proportions were close to the overall proportions for other-first-language learners without ESOL study (57 percent female) and for English-first-language learners (58 per cent).

Figure 55

Assessed domestic learners in SAC-funded programmes at NZQF Levels 1-3 in 2011- 2013, by first language and participation in ESOL programmes: Breakdown by gender
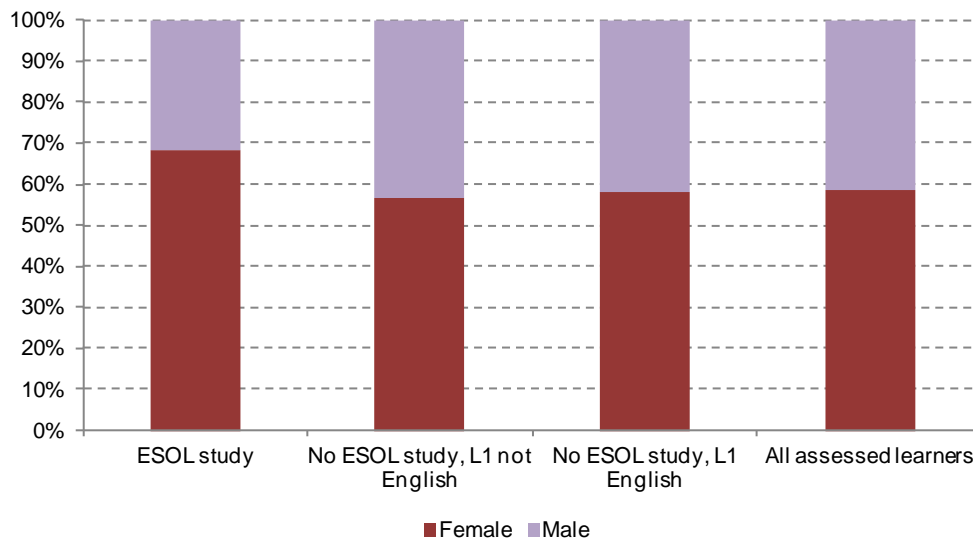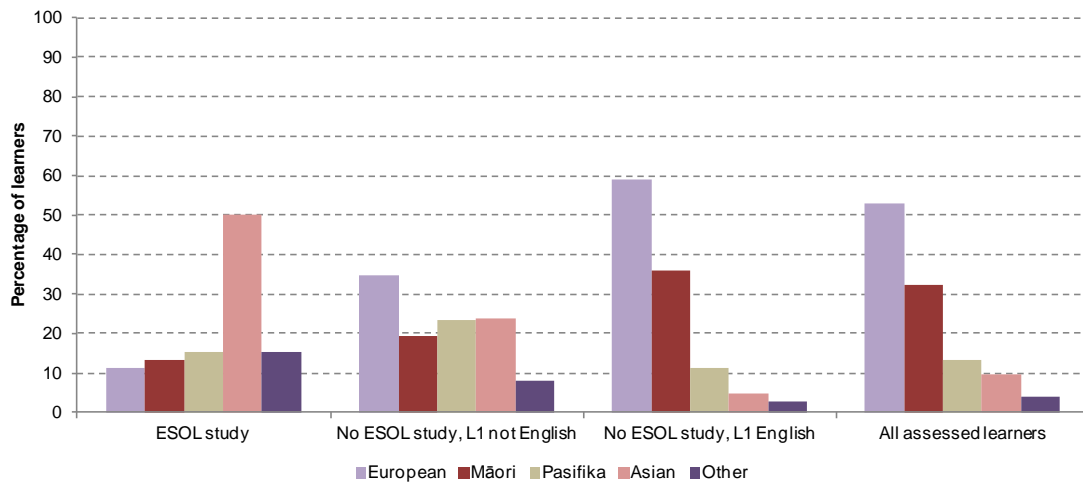

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 4,000 learners in ESOL study, 64,000 learners not in ESOL study with English as first language, and 11,000 learners not in ESOL study with other first language.

Ethnic group

In the data set of assessed domestic learners in SAC-funded programmes at NZQF Levels 1-3, the largest numbers of learners identified as European and Māori, while there were few learners in the Other group; the same pattern was also evident among the English-first-language learners. Among learners who had participated in ESOL study, the largest group was Asian, while the other-first-language learners who had not participated in ESOL study were spread across all ethnic groups apart from Other, with European as the most common ethnic identification, as can be seen in Figure 56.

Figure 56

Assessed domestic learners in SAC-funded programmes at NZQF Levels 1-3 in 2011- 2013, by first language and participation in ESOL programmes: Ethnic identification (total response)

Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 4,000 learners in ESOL study, 64,000 learners not in ESOL study with English as first language, and 11,000 learners not in ESOL study with other first language.

Age

Learners in ESOL study in general tended to be older than those not in ESOL study (whether or not their first language was English). Of learners in ESOL study, only 18 per cent were in the age range 16-24; of other-first-language learners not in ESOL study, 46 per cent were aged 16-24, and of English-first-language learners, 52 per cent were aged 16-24, as shown in Figure 57.

The median age of learners in ESOL study was 40; the median age of other-first-language learners not in ESOL study was 26, and the median age of English-first-language learners was 24.

Figure 57

Assessed domestic learners in SAC-funded programmes at NZQF Levels 1-3 in 2011- 2013, by first language and participation in ESOL study: Age at first assessment (five age groups)
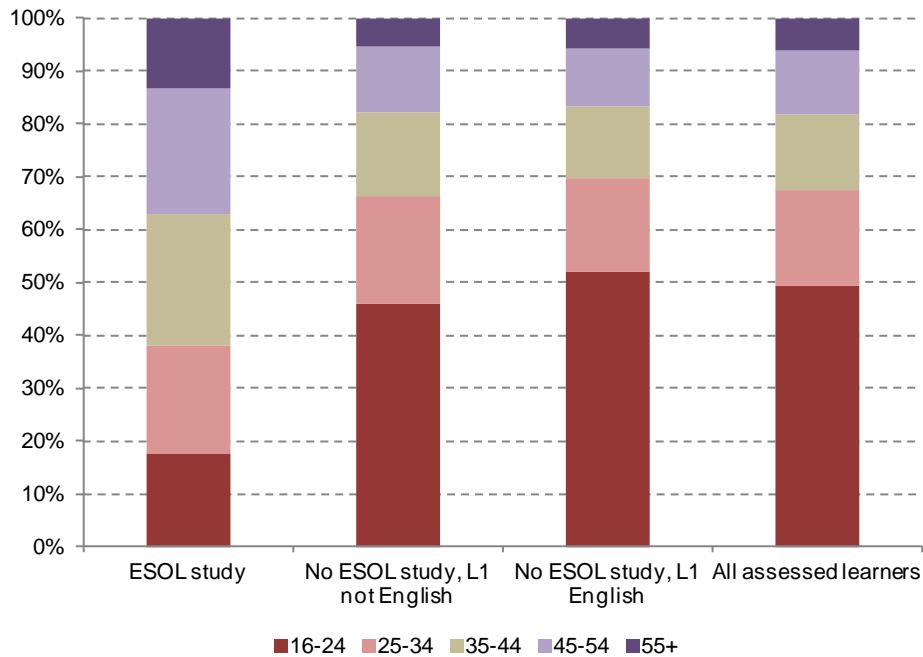
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 4,000 learners in ESOL study, 64,000 learners not in ESOL study with English as first language, and 11,000 learners not in ESOL study with other first language.

Learners in Foundation-Focused Training Opportunities programmes

Gender

In general, in FFTO programmes in 2011 and 2012, there was an even gender balance. In particular, 52 per cent of assessed learners were female, 50 per cent of assessed English-first-language learners were female and 52 per cent of learners in ESOL programmes were female, as shown in Figure 58. However, there was a clear female majority (59 per cent) among other-first-language learners who were not in ESOL programmes.

Figure 58

Assessed learners in Foundation-Focused Training Opportunities programmes in 2011 and 2012, by first language and participation in ESOL programmes: Breakdown by gender
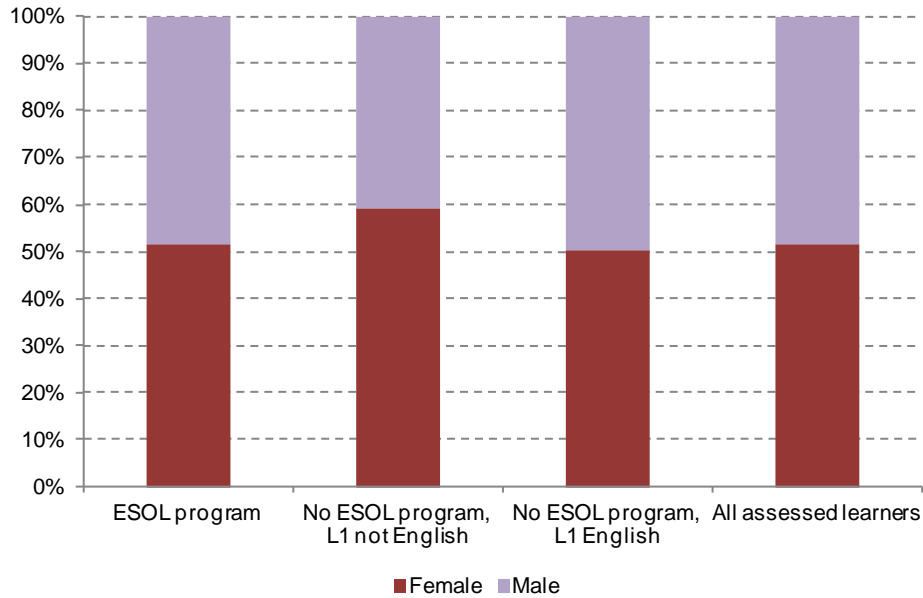
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 700 learners in ESOL programmes, 10,300 learners not in ESOL programmes with English as first language, and 1,700 learners not in ESOL programmes with other first language.

Ethnic group

The most common ethnic identifications among assessed English-first-language learners (and among assessed learners in general) in the FFTO data set were European and Māori, while among learners in ESOL programmes, the largest group was Asians, followed by Pasifika and Other. However, among other-first-language learners not in ESOL programmes, the largest group was Pasifika, as can be seen in Figure 59.

Figure 59

Assessed learners in Foundation-Focused Training Opportunities programmes in 2011 and 2012, by first language and participation in ESOL programmes: Ethnic identification (total response)
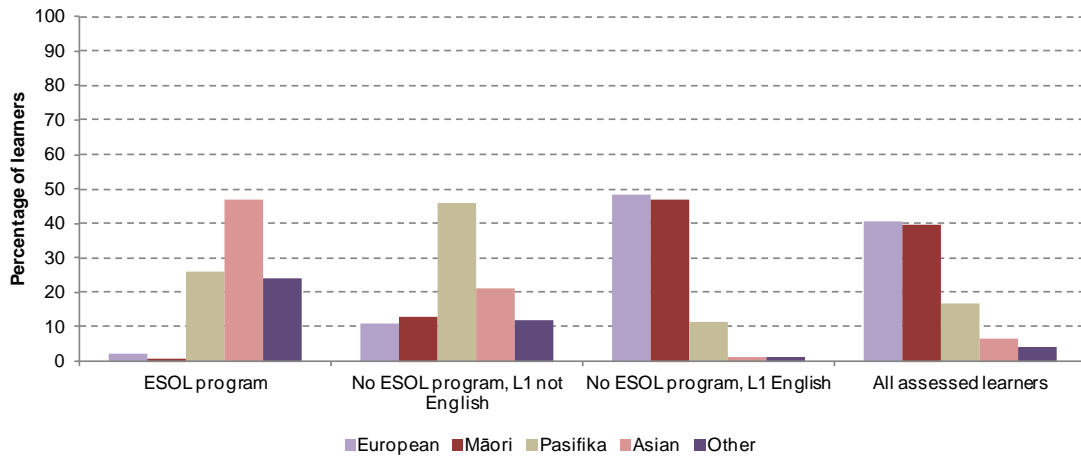
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 700 learners in ESOL programmes, 10,300 learners not in ESOL programmes with English as first language, and 1,700 learners not in ESOL programmes with other first language.

Age

Learners in FFTO programmes in 2011 and 2012 tended to be young, with 52 per cent of assessed learners aged 16-24 at first assessment. This tendency was particularly pronounced among English-first-language learners, with 56 per cent aged 16-24. Learners in the other-first-language groups tended to be not quite so young: among those not in ESOL programmes, 39 per cent were aged 16-24, while among those in ESOL programmes, only 26 per cent were aged 16-24, as shown in Figure 60.

The median age of learners in ESOL programmes was 35; the median age of other-first-language learners not in ESOL programmes was 30, and the median age of English-first-language learners was 23.

Figure 60

Assessed learners in Foundation-Focused Training Opportunities programmes in 2011 and 2012, by first language and participation in ESOL programs: Age at first assessment (five age groups)
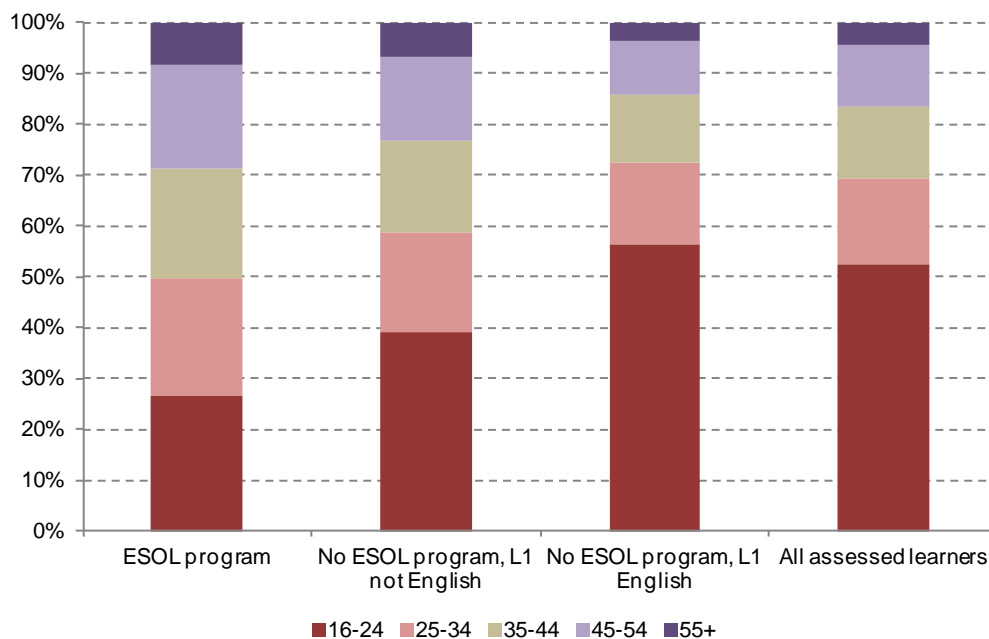
Source: Tertiary Education Commission data, and Ministry of Education calculations, based on data for 700 learners in ESOL programmes, 10,300 learners not in ESOL programmes with English as first language, and 1,700 learners not in ESOL programmes with other first language.

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