



MINISTRY OF EDUCATION NEW ZEALAND

*Te Tāhuhu o te Mātauranga Aotearoa*

**Summary Report**  
**Achievement Analyses**  
**2014 Programmes for Students:**  
**Accelerating Learning in Literacy (ALL)**  
**Accelerating Learning in Mathematics (ALiM)**  
**Mathematics Support Teacher (MST)**

Analysis and Research  
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## Summary of results

This report presents a summary of student achievement analysis from Programmes for Students (Pfs) 2014:

Accelerating Learning in Mathematics (ALiM), Mathematics Support Teacher (MST) and Accelerating Learning in Literacy (ALL). The initiatives aim to accelerate progress<sup>1</sup> of students below or well below the National Standards.

Overall, students participating in these programmes in 2014 made accelerated progress that met or exceeded that expected from a student over two terms. Some ALiM and ALL students reached or exceeded expected achievement levels for their year level. However, most MST students, on average, did not reach achievement norms expected for their year levels. Generally, in all three programmes (ALiM, MST and ALL), similar levels of progress were made by both male and female students, and students from all ethnic groups.

Pfs	Measure	Made accelerated progress?		Results for groups of students by gender, ethnicity and age.
		More than 2 terms progress?	Reached expected year level?	
ALiM	PAT Maths	<b>Yes.</b> All groups except Year 4 Pasifika students made at least two terms progress.	<b>For some.</b> ALiM students in Year 4 exceeded the achievement norm, and students in Years 5, 6, 7 and 8 reached or almost reached the achievement norm.	Progress was variable across ethnic and year groups.  Compared to other ethnic groups, Māori students made the most progress at Years 5, 6, 7 & 8.
	Movement on the Number Framework	<b>Yes.</b> Students made around 1.25 years of progress.	<i>Not stated in reporting</i>	Progress made during ALiM was similar for each of the demographic sub-groups.
MST1	PAT Maths	<b>Yes.</b> Students showed, on average, equivalent progress of 4 terms or more for each year level.	<b>No.</b> For students overall, the post-test level, on average, was below the students' respective year level.	There were similar patterns of progress across ethnic groups – the scale score for each ethnic group improved by 4 terms or more for all year levels.  Māori students made the most progress at Year 5 but did not have the highest PAT:Maths score after MST1 at any year level. Pasifika students made the most progress in Years 4, 6, 7 and 8 and had the highest post PAT:Maths score after MST1 in Year 8.
	Movement on the Number Framework	<b>Yes.</b> Over the course of the intervention, students made about 1.3 years of progress.	<i>Not stated in reporting</i>	Progress made during MST1 was similar for each demographic sub-groups but older year levels (Years 7 & 8) made greater gains on average than the younger students (Years 4, 5, & 6).
MST2	PAT Maths	<b>Yes.</b> All groups, on average, made accelerated progress.	<b>No.</b> For students overall, the post-test level, on average, was below the students' respective year level.	There were similar patterns of progress across ethnic groups – the scale score for each ethnic group improved by 4 terms or more for all year levels.  Māori students made the most progress in Years 4, 5 and 7 and had the highest scores after MST2 in Years 4 and 8. Pasifika students made the most progress in Year 8.
	Movement on the Number Framework	<b>Yes.</b> Over the course of the intervention, students made about 1.3 years of progress.	<i>Not stated in reporting</i>	Progress made during MST2 was similar for each demographic sub-groups but older year levels (Years 7 & 8) made greater mean gains than the younger students (Years 4, 5, & 6).

<sup>1</sup> Accelerated progress means learning progress showing: a noticeably faster, upward movement than might otherwise have been expected by the trend of an individual's own past learning; and a rate faster than classmates progressing at expected rates in order to achieve equitable outcomes; and that it brings the learner achievement level to that consistent with, or beyond, a set of benchmarks or standards. (NZ Curriculum National Standards.)

PfS	Measure	Made accelerated progress?		Results for groups of students by gender, ethnicity and age.
		More than 2 terms progress?	Reached expected year level?	
ALL	STAR	<b>Yes.</b> Students at Years 3 to 8 showed mean progress that exceeded the expected progress across three terms.	<b>For some.</b> Students in Years 3, 4 and 8 reached reading achievement norms, while students in Years 5, 6, and 7 almost reached achievement norms.	Results from STAR varied for male and female students. Groups are too small to make meaningful comments about when looking at the results by year level for students of different ethnicities. Compared to other ethnic groups, at most year levels Māori students had the lowest post programme STAR scores (with the exception of Year 7), but differences were small.
	e-asTTle Writing	<b>Yes.</b> At all year levels, students made more progress than the e-asTTle norm expectation for a year.	<b>For most.</b> Students in Years 2, 3, 4, 5, 7 & 8 reached the expected level. Students in Year 6 were just below the expected average level score.	Progress was accelerated when compared to expected progress for all New Zealand students for all demographic subgroups. On average all groups except Year 6 Māori students reached or exceeded their age equivalent level. Māori students at Year 6 almost reached their age equivalent level. Pasifika students make the most progress in Years 3, 4, 5, and 6; and have the highest post ALL score at Years 5 and 6.
	Observation Survey	Overall students aged between five and seven years made accelerated progress with an average gain of one or more stanines during the ALL intervention on four of the five measures.	<b>For some.</b> More students in older age bands reached the expected stanine. Students aged over 6.5 years reached the expected stanine in all five measures.	Females made greater mean stanine progress than males in most age groups across Letter Identification and Concepts About Print. Generally all ethnic groups in the 5.5 to 7 year age bands reach or exceed expected stanine levels with Letter Identification and Concepts About Print. The amount of progress made by the various ethnic groups varies between year levels; however, Māori students in all age bands had the lowest stanine results after ALL.

More specifically, by the end of the programmes:

- Accelerating Learning in Mathematics (ALiM)
  - On average, ALiM students in Years 4 and 7 began the initiative below National Standards and ALiM students in Years 5, 6 and 8 began the initiative well below (ie, more than one year below) National Standards. With the exception of Year 4 Pasifika students, all ethnic groups in Years 4 to 8 made accelerated progress (looking at PAT: Mathematics scores) – that is, they exceeded the expected progress that would be made over two terms by all New Zealand students.
  - Students in Years 4 to 8 generally reached or almost reached achievement norms, with most ethnic groups at each year level reaching or nearly reaching PAT:Mathematics achievement norms for their year level.
  - Students in Years 2 and 3 also made progress (measured against the stages in GloSS) but not to the same extent as older students (Years 4 to 8).
  - Students on average made 1.25 years of progress in 2014 (GloSS data).
  - Eighty-four percent of students moved up at least 1 stage on the Number Framework (GloSS data).
- Mathematics Support Teacher 1 (MST1)
  - On average, MST1 students began the initiative well below National Standards. All year groups, on average, made accelerated progress (that is, they exceeded the expected progress that would be made over two terms by all New Zealand students).
  - Judged by PAT: Mathematics scores:
    - progress of four or more terms was achieved by both male and female students
    - all ethnic groups made progress equivalent to expected progress of four or more terms at all year levels.
  - Eighty-one percent of students moved up at least one stage of the Number Framework after the MST intervention (GloSS data).
  - Although progress was made, few students, on average, reached the level equivalent to Term 1 or higher of their respective year level. Most students, on average, were less than 1 year level below expected levels following the programme.
- Mathematics Support Teacher 2 (MST2)
  - On average, MST2 students began the initiative well below National Standards. All year groups, on average, made accelerated progress (that is, they exceeded the expected progress that would be made over two terms by all New Zealand students).
  - Judged by PAT: Mathematics scores:
    - progress of three or more terms was achieved by both male and female students at all year levels
    - all ethnic groups made progress equivalent to expected progress of four or more terms at all year levels.
  - Eighty-four percent of students moved up at least one stage of the Number Framework after the MST intervention (GloSS data).

- Although progress was made, few students, on average, reached the level equivalent to Term 1 or higher of their respective year level. Most students, on average, were less than 1 year level below expected levels following the programme.

- Accelerating Learning in Literacy (ALL)

#### Writing

- Students who participated in writing programmes made accelerated progress, with students in all years making more progress than the e-asTTle writing norm expectation for their year.
- Post programme e-asTTle scale scores for students at all year levels except Year 6 were at or above expected levels. Average e-asTTle scores for students in Years 6 were just below the expected level.

#### Reading

- Students made accelerated progress in reading progress using the STAR assessment, with students in Years 3-8 showing average progress that exceeded the expected progress across three terms. Students in Years 3, 4 and 8 reached reading achievement norms, while students in Years 5, 6, and 7 almost reached achievement norms.

#### Junior Literacy

- Students aged between five and seven years made accelerated progress with an average gain of one or more stanines during the ALL intervention on four of the five measures. Students did not make accelerated progress with Recording Sounds in Words.
- In junior literacy, the expected stanine level was not met by every age group in each of the five Observation Survey measures. In each age band where students had not met expected stanine levels, the students' test average at the end of the ALL programme was less than one stanine below the expected level.
- Generally, males and females and all ethnic groups made accelerated progress in reading and writing. Female students generally had higher post test scores than male students. At most year levels Māori students had lower post test scores than students from other ethnic groups; however, differences between groups were small.



# Introduction

## Background

Programmes for Students (PfS) are targeted initiatives for primary school students achieving below and well below the National Standards for reading, writing and mathematics. The programmes provide teacher support for small groups of students in addition to classroom teaching, and are designed to be delivered by an effective mathematics or literacy teacher within a school.

There are three initiatives: Accelerating Learning in Mathematics (ALiM), Accelerating Literacy Learning (ALL) and Mathematics Support Teacher (MST). The ALL programme covers both reading and writing. The ALiM and MST programmes focus on mathematics. Schools choose their programme based on an assessment of the needs of their students.

The three initiatives aim to accelerate progress for different groups of students. The ALiM and ALL initiatives are intended for students below and well-below the expected National Standard for their year level. The MST programme is intended for students well below the expected National Standard for their year level.

Schools either self-select for the initiatives or Ministry of Education regional offices offer them to schools with input from mathematics facilitators, literacy advisors and professional learning development providers.

This report provides a summary of student achievement during the 2014 Programmes for Students. It brings together data analysis on the Progressive Achievement Test (PAT) in Mathematics and Supplementary Tests of Achievement in Reading (STAR) assessments and the Observation Survey prepared by NZCER and data analysis on the Global Strategy Stage (GloSS/Number Framework) prepared by Maths Technology.

## Information included in this report

This report presents student achievement data from Programmes for Students in 2014: ALiM, MST and ALL. For each initiative, this report presents:

- a brief description
- an explanation of how the achievement data has been analysed and what data has been included in the analysis
- the results for students in relation to how much progress they have made and whether they have reached the level expected
- where possible, comparisons with results in 2013.

## Number of schools and students with data in the student achievement analyses

All schools involved in PFS in 2014 were requested to submit pre and post programme student achievement data for each participating student. Schools entered the information for each of the assessments into databases for analysis by either NZCER (PAT, STAR, Observation Survey) or Maths Technology (GloSS/Number Framework).

Table 1 below lists the number of schools and students included in the 2014 PFS student achievement analyses.

### ALiM & MST

Between 63 and 93 per cent of participating PFS schools provided matched student data that could be used in the analysis of outcomes (Table 1). The proportion of all participating students this represents is unknown.

### ALL

Schools involved in ALL chose to focus on reading or writing. It appears from the student data provided that the majority of schools focused on writing.

The total number of ALL schools was 310 but the number of schools participating in either reading or writing programmes is not known, therefore it is not possible to calculate the proportion of schools with data available for ALL.

**Table 1 Proportion of participating schools included in the analysis of outcomes**

2014	ALiM		MST1 <sup>2</sup>		MST2 <sup>3</sup>		ALL		
<b>Number of participating schools</b> [Source: MinEd PFS participation statistics 2014]	128*	294	54		51		310		
<b>Measures used in the outcome analysis</b>	PAT:Maths	Number Framework score	PAT:Maths	Number Framework score	PAT:Maths	Number Framework score	STAR reading achievement	e-asTTLe writing	Observation Survey
<b>Number of schools providing matched (pre and post) data for students</b> [Source: NZCER & NZMaths reports]	80	219	50	47	46	47	30	182	66
<b>Proportion of participating schools in the analysis of matched data</b>	63%	74%	93%	87%	90%	92%	-	-	-
<b>Number of students included in the outcome analyses</b>	769	2,485	1,079	1,363	876	1,420	280	1,961	441

\* Only intake 1 of ALiM completed PAT:Maths assessments.

<sup>2</sup> MST1 refers to those schools or students in the first year of the Mathematics Support Teacher initiative.

<sup>3</sup> MST2 refers to those schools or students in their second year of the Mathematics Support Teacher initiative.

## Results from Individual programmes

### Accelerating Learning in Mathematics (ALiM)

#### *Description*

ALiM uses teacher expertise within schools to carry out a short-term intervention to accelerate the progress of students achieving below the New Zealand Curriculum standards in mathematics. This intervention is in addition to classroom mathematics teaching. ALiM teachers work three to five times a week with a group of identified students over a 15 week period.

#### *Outcome analysis*

In the outcome analysis presented below pre and post 2014 assessment data from PAT: Mathematics data and students' GloSS movement on the Number Framework were analysed<sup>4</sup>. In this summary paper, the 2014 ALiM results have, where possible, been compared with 2013 ALiM results.

#### *Overall results of ALiM in 2014*

- Students in Years 4 to 8 made accelerated progress (with PAT: Mathematics). With the exception of Year 4 Pasifika students, all ethnic groups in Year levels 4 to 8 made accelerated progress.
- Students in Years 4 to 8 generally reached or almost reached achievement norms, with most ethnic groups at each year level reaching or nearly reaching (PAT:Mathematics) achievement norms for their year level.
- Students in Years 2 and 3 also made progress (measured against the stages in GloSS) but not to the same extent as older students (Years 4 to 8).
- Students on average made 1.25 years of progress in 2014 (GloSS data).
- Eighty-four percent of students moved up at least 1 stage on the Number Framework (GloSS data).

#### *Progress in PAT: Mathematics*

Data from 769 students in 80 schools was used in the PAT:Mathematics analysis of ALiM outcomes. Table 2 shows the characteristics of the students for whom there was data. This data comes from 63 percent of schools that participated in intake 1 of ALiM in 2014. We estimate that approximately 85 per cent of students who participated in intake 1 of ALiM in 2014 were included in the PAT:Mathematics analysis.

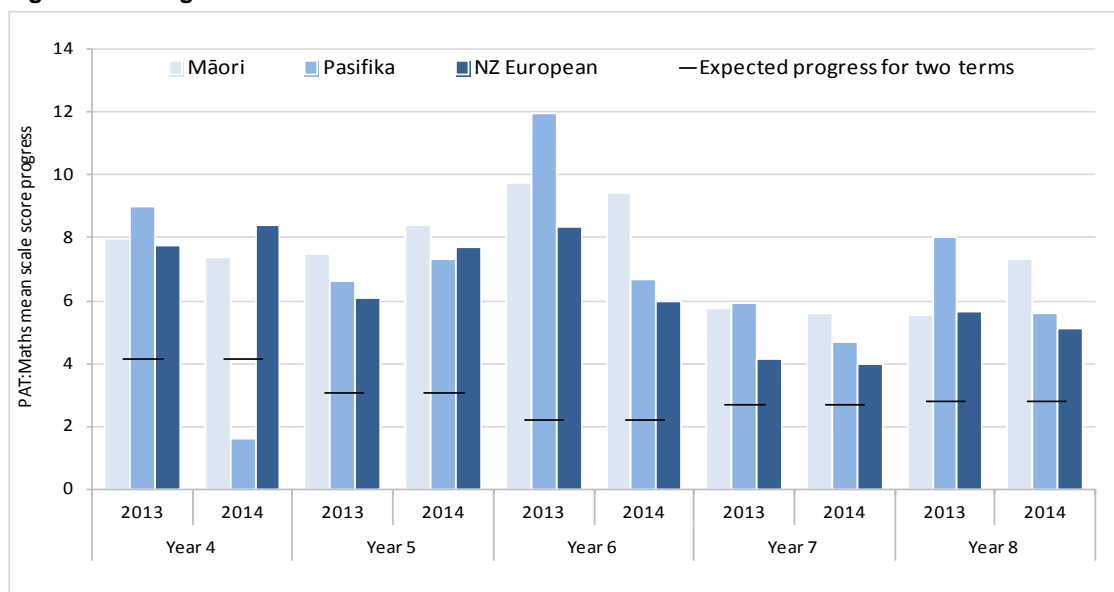
<sup>4</sup> NZCER and Maths Technology undertook the data analysis. Note that only schools participating in intake one of the ALiM programme (those who started in Term 1) were involved in the PAT:Mathematics analysis. In 2014 there were 2 intakes into ALiM.

**Table 2 Data used in PAT:Mathematics analysis of ALiM outcomes**

		<b>N</b>	<b>%</b>
<b>Gender</b>	Male	349	45%
	Female	420	55%
	<b>Total</b>	<b>769</b>	<b>100%</b>
<b>Ethnic group<sup>5</sup></b>	Māori	218	28%
	Pasifika	94	12%
	NZ European	355	46%
	Asian	36	5%
	Other	52	7%
	Unknown	14	2%
	<b>Total</b>	<b>769</b>	<b>100%</b>
<b>Year level</b>	4	176	23%
	5	193	25%
	6	141	18%
	7	113	15%
	8	146	19%
	<b>Total</b>	<b>769</b>	<b>100%</b>

Figure 1 shows that, generally, in both 2013 and 2014, ALiM students' average level of progress in PAT: Mathematics was greater than expected (from New Zealand students overall) over two terms. With the exception of Year 4 Pasifika students in 2014, this pattern of progress was shown by students across ethnic groups, in both 2013 and 2014. The amount of progress made by the different year groups and ethnicities in 2013 and 2014 varied; only at Year 5 was progress greater for all ethnic groups in 2014 compared to 2013. Pasifika students in Year 4 in 2014 made less than expected progress for two terms. Note, however the average (mean) pre-ALiM scale score for Year 4 Pasifika students' was equivalent to Term 1 Year 4. This suggests that these students were already working at the level they were expected to be and could explain why they made less than the two terms expected progress over the intervention.

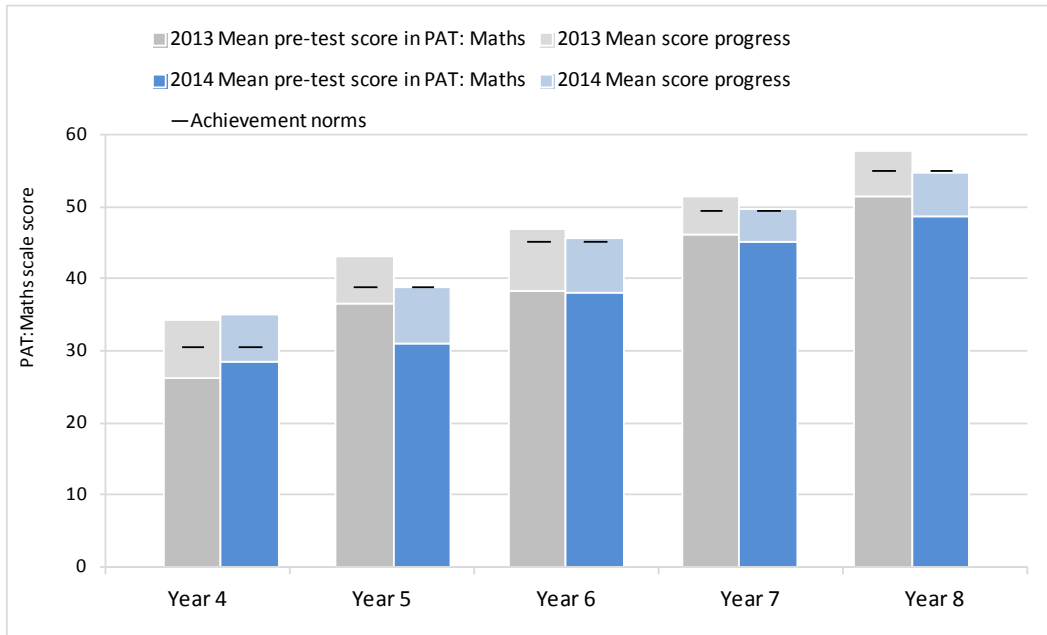
In 2014, Year 6 Māori students made the equivalent of seven terms progress. This was the only clearly statistically significant difference between scale score progress and expected progress for any ethnic group.

**Figure 1 Progress made in PAT: Mathematics after ALiM in 2013 and 2014**

<sup>5</sup> Note only one ethnicity was identified per student in this data.

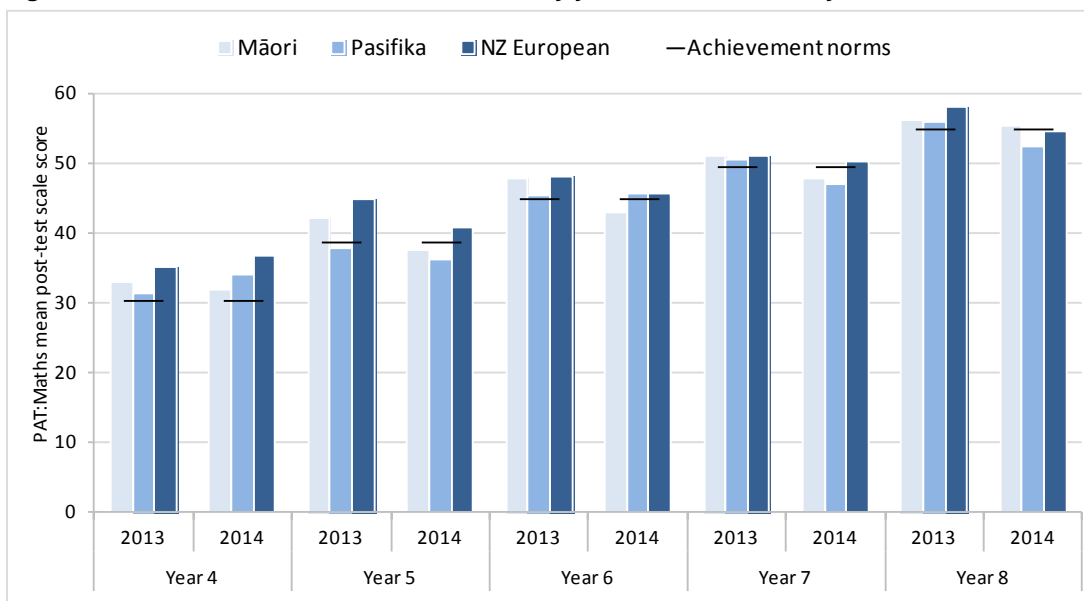
Figure 2 below shows that students on average started the ALiM intervention below PAT:Mathematics achievement norms for their year level. In 2014, ALiM students in Year 4 exceeded the achievement norm, and students in Years 5, 6, 7 and 8 reached or almost reached the achievement norm.<sup>6</sup> In 2013, the accelerated progress made by ALiM students raised every year group’s PAT:Mathematics score above achievement norms.

**Figure 2 PAT:Mathematics score after ALiM by year level**



Looking at the mean post-test scores in PAT:Mathematics achieved by ethnicity (Māori, Pasifika and NZ European groups) in Figure 3, most groups in both 2013 and 2014, reached or nearly reached the achievement norms. Although there are not large differences between ethnic groups in 2014, Pasifika ALiM students have the lowest mean post test scores in Years 5, 7 and 8; and Māori students have the lowest mean post test scores in Years 4 and 6.

**Figure 3 PAT:Mathematics score after ALiM by year level and ethnicity**



<sup>6</sup> Note that norming data were collected in March, whereas ALiM test results were collected throughout the year. Students tested later in the year could be expected to have made more progress against the norms.

### Progress on the Number Framework

ALiM students' progress was also analysed to show movement on the Number Framework.<sup>7</sup> In this analysis, data from 2,485 students in 219 schools (74% of participating schools) was used. Table 3 below shows the characteristics of students.

**Table 3 Data used in the Number Framework analysis of ALiM outcomes**

		N	%
<b>Gender</b>	Male	1,146	46%
	Female	1,339	54%
	<b>Total</b>	<b>2,485</b>	<b>100%</b>
<b>Ethnicity</b>	Māori	796	32%
	Pasifika	365	15%
	NZ European	1,107	45%
	Other	217	9%
	<b>Total</b>	<b>2,485</b>	<b>100%</b>
<b>Year level</b>	0-1	74	3%
	2	127	5%
	3	422	17%
	4	446	18%
	5	432	17%
	6	350	14%
	7	324	13%
	8	310	12%
	<b>Total</b>	<b>2,485</b>	<b>100%</b>

In 2014, 84 percent of students moved up at least one stage (including emergent stages) of the number framework after participating in ALiM. Fifty-four per cent of the students moved between stages at the top end (that is, stages 5e to 8) where a complete stage (ie, not an emergent stage) represents approximately two years of growth.<sup>8</sup>

In this analysis, students' scale score progress was compared against expected scale score progress of about two scale points each year from school entry to the end of Year 9. (Students who are on track with National Standards are expected to gain two scale points per year.)

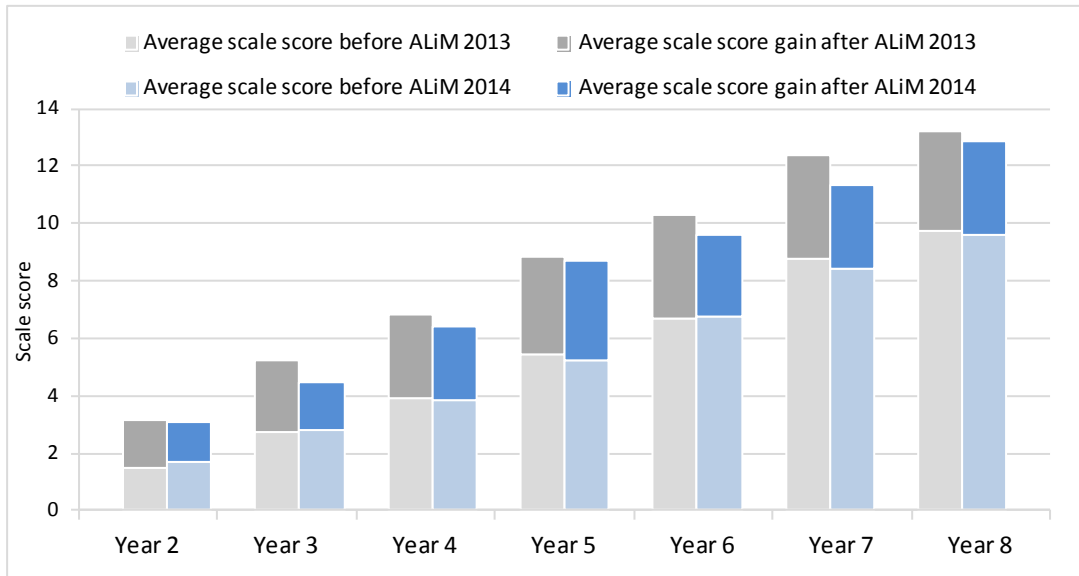
Figure 4 shows that, in 2014, at Year levels 4, 5, 6, 7 and 8, ALiM students made more than a year's progress in mathematics. Overall, this analysis suggests that, over the course of the ALiM intervention, students made, on average, around one and a quarter years of progress.

<sup>7</sup> To do this analysis a score was generated by giving a number to each of the Global Strategy Stages (GloSS). This allowed for a reference mean of movement on the Number Framework for different year levels.

<sup>8</sup> This figure includes those students at 'emergent' (e) stages that were added to the GloSS assessment at stages 5 to 8, and used in the ALiM and MST intervention data analysis for the first time in 2014.

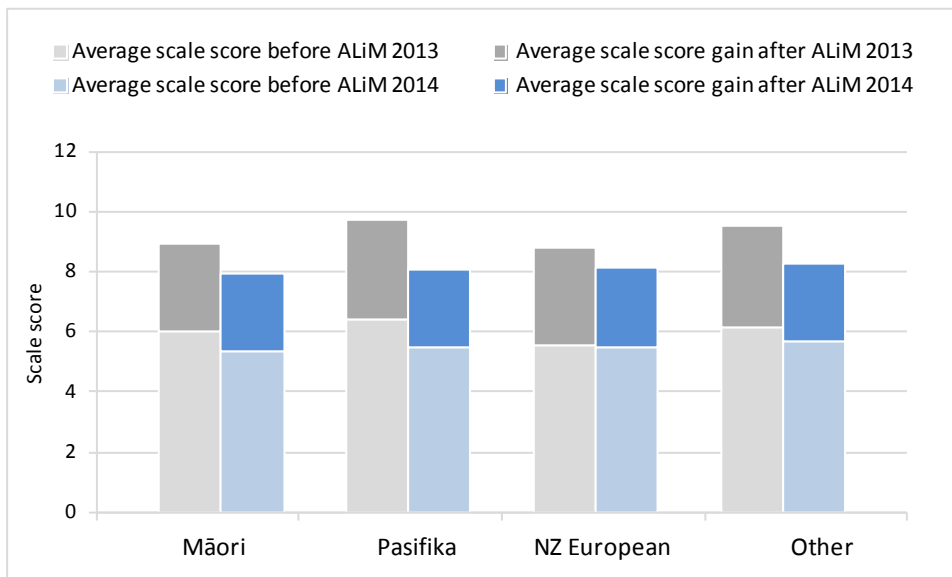
In 2013, ALiM students at almost every year level, on average, made greater gains than students in 2014.

**Figure 4 Scale score after ALiM by year level**



As shown in Figure 5, analysis of students' progress shows similar progress across ethnic groups in both 2013 and 2014 the ALiM intervention.

**Figure 5 Scale score after ALiM by ethnicity**



**Data from the end of the year**

Data was also collected at the end of 2014 from 658 ALiM students. Over the period of ALiM, these 658 students had shown a mean gain in scale score of 2.66. By the end of 2014, overall these students had gained a further 0.19 scale points. This suggests that the acceleration largely occurred over the intervention period. Of these 658 students, 163 (25%) moved up a stage of the Number Framework between the end of the intervention and the end of the year, and 115 (17%) moved down a stage between the end of the intervention and the end of the year.

*Note, the time between the assessment carried out at the end of the programme and the assessment carried out at the end of the year is not known.*

## **Mathematics Support Teacher (MST)**

### *Description*

The MST programme was introduced in 2012, following a pilot programme (Specialist Mathematics Teacher) in 2011. Schools participating in MST generally have previously participated in ALiM. The programme provides release time for a teacher to work with groups of students to provide mathematics support in addition to classroom teaching. The MST works with small groups of students who are well below the National Standard in mathematics. Programmes were expected to run for up to 20 weeks, however some were longer or shorter than this.

### *Outcome analysis*

In the outcome analysis of the MST initiative, pre and post programme student achievement data were analysed using both PAT: Mathematics data, and students' movement on the Number Framework.

Note: MST1 refers to those schools or students in the first year of the Mathematics Support Teacher initiative and MST2 refers to those schools or students in their second year of the Mathematics Support Teacher initiative. Comparison analysis between 2013 and 2014 is not included as the data in 2013 was not split between the two initiatives.

### *Overall results of MST1 in 2014*

- All year groups, on average, made accelerated progress (that is, they exceeded the average expected progress that would be made over two terms by all New Zealand students).
- Progress equivalent to expected progress of four or more terms over the initiative was achieved by both male and female students and all ethnic groups at all year levels.
- Eighty-one percent of students moved up at least one stage of the Number Framework after the MST intervention.
- Although accelerated progress was made, few students, on average, reached the level equivalent to Term 1 or higher of their respective year level. Most students, on average, were less than 1 year level below expected levels following the programme.

### *Progress in PAT:Mathematics*

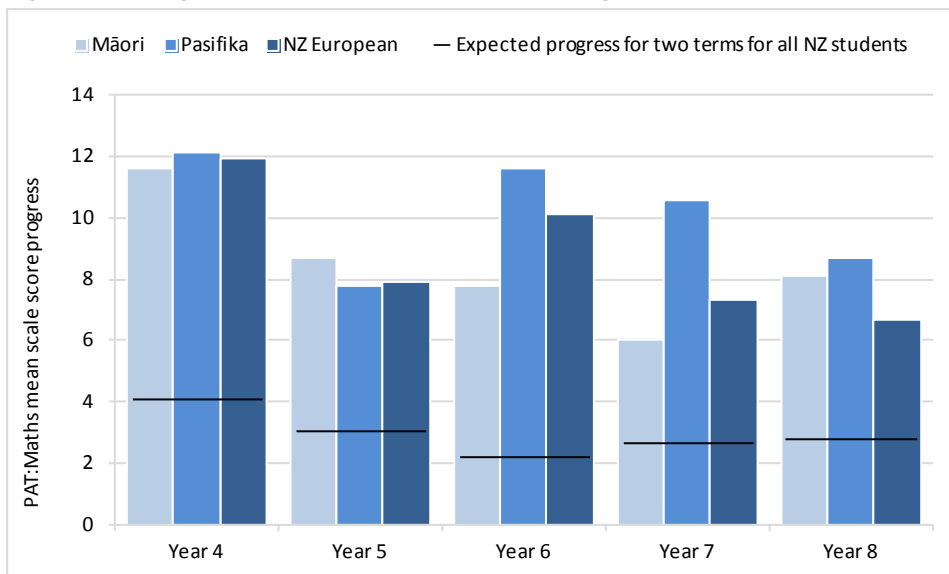
Data for 1,079 students in 50 schools was used in the PAT:Mathematics analysis of MST1 outcomes. Table 4 shows the characteristics of the students for whom data was provided. This data comes from approximately 93 percent of the schools participating in MST1 in 2014.



**Table 4 Data used in PAT:Mathematics analysis of MST1 outcomes**

		Number of students	% of students
<b>Gender</b>	Male	535	50%
	Female	544	50%
	<b>Total</b>	<b>1,079</b>	<b>100%</b>
<b>Ethnic group</b>	Māori	319	30%
	Pasifika	238	22%
	NZ European	452	42%
	Asian	28	3%
	Other	42	4%
	<b>Total</b>	<b>1,079</b>	<b>100%</b>
<b>Year level</b>	4	193	18%
	5	253	23%
	6	212	20%
	7	165	15%
	8	256	24%
	<b>Total</b>	<b>1,079</b>	<b>100%</b>

Figure 6 shows the progress made in PAT:Mathematics after MST1 by Māori, Pasifika and NZ European students in Years 4 to 8. At all year levels, the mean PAT: Mathematics progress scale score for each ethnic group was equivalent to expected progress of four terms or more.

**Figure 6 Progress made in PAT: Mathematics progress after MST1**

Although each ethnic group improved by four terms or more only Year 4 NZ European students, on average reached a level equivalent to Term 1 or higher of their respective year level. Most students, on average, were less than one year level below expected. Māori students at Years 7 and 8 and NZ European students at Year 8 were more than one year level below the expected level, as listed in Table 5.

**Table 5 PAT: Mathematics equivalent progress after MST1**

	Māori		Pasifika		NZ European	
	<i>Equivalent progress</i>	<i>Equivalent post-test level</i>	<i>Equivalent progress</i>	<i>Equivalent post-test level</i>	<i>Equivalent progress</i>	<i>Equivalent post-test level</i>
Year 4	+6 terms	Year 3 Term 4	+6 terms	Year 3 Term 4	+6 terms	Year 4 Term 2
Year 5	+6 terms	Year 4 Term 2	+5 terms	Year 4 Term 2	+5 terms	Year 4 Term 3
Year 6	+6 terms	Year 5 Term 1	+9 terms	Year 5 Term 1	+8 terms	Year 5 Term 3
Year 7	+4 terms	Year 5 Term 1	+7 terms	Year 6 Term 1	+5 terms	Year 6 Term 1
Year 8	+6 terms	Year 6 Term 3	+6 terms	Year 7 Term 3	+4 terms	Year 6 Term 4

### *Progress on the Number Framework*

Data from 1,363 students in 47 schools were used in analysing the Number Framework progress of MST1 students. Table 6 shows the characteristics of the students involved in this analysis. This data comes from approximately 87 percent of schools participating in MST1 in 2014.

**Table 6 Data used in the Number Framework analysis of MST1 outcomes**

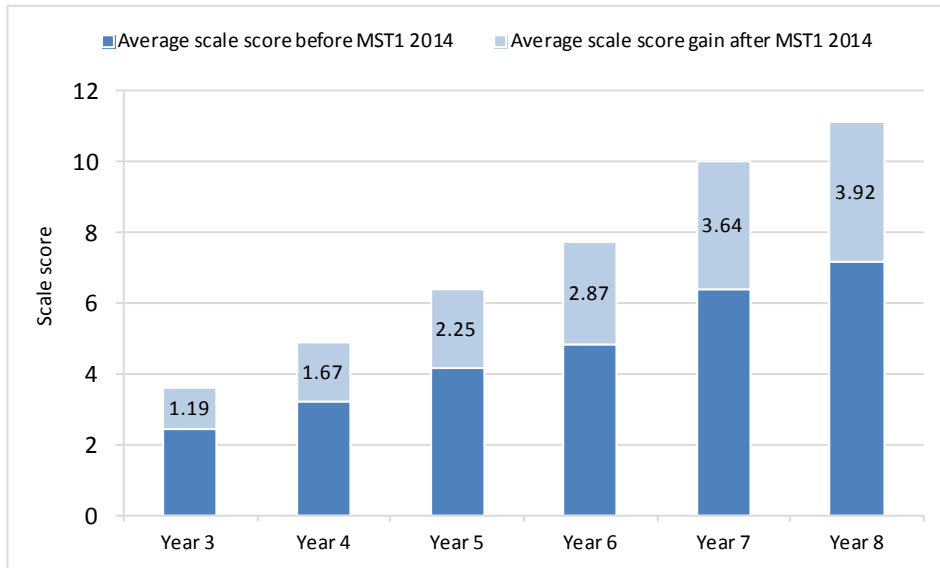
		<b>N</b>	<b>%</b>
<b>Gender</b>	Male	650	48%
	Female	713	52%
	<b>Total</b>	<b>1,363</b>	<b>100%</b>
<b>Ethnicity</b>	Māori	449	33%
	Pasifika	281	21%
	NZ European	527	39%
	Other	106	8%
	<b>Total</b>	<b>1,363</b>	<b>100%</b>
<b>Year level</b>	2	34	2%
	3	163	12%
	4	198	15%
	5	262	19%
	6	204	15%
	7	249	18%
	8	253	19%
	<b>Total</b>	<b>1,363</b>	<b>100%</b>

In 2014, 81 per cent of the 1,363 MST1 students moved at least one stage of the Number Framework. Students' average scale score (indicating movement on the Number Framework) increased by 2.69 scale points during the MST1 initiative. Students who are on track with National Standards gain two scale points per year, therefore these results suggest that, over the course of the intervention, students made about 1.3 years of progress.

The length of the MST intervention for all students is not known, however, it was expected to be up to 20 weeks and could have been a maximum of nine or ten months.

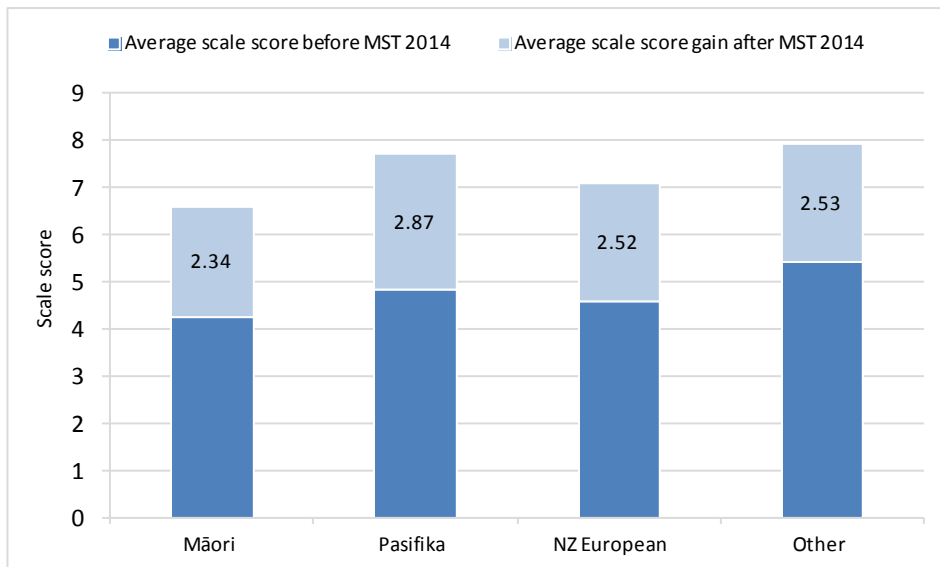
As shown in Figure 7, on average, students in Years 7 and 8 made greater progress than younger students in 2014. The number on the bars is the amount of scale score progress.

**Figure 7 Scale score after MST1 by year level**



As shown in Figure 8, students of different ethnicities in the 2014 MST1 intervention made similar gains. Male and female students made the same sized gains of 2.69 (not depicted).

**Figure 8 Scale score after MST1 by ethnicity**



### *Data from the end of the year*

Number Framework data at the end of 2014 was provided for 567 MST1 students. Over the initiative these 567 students had shown a mean gain in scale score of 2.52. By the end of 2014, overall these students had gained a further 0.73 scale points. This increase of 3.25 scale points in total between starting MST and the end of the year represents approximately 1.6 years progress. Of these 567 students, 74 (13%) were at a lower stage of the Number Framework between the end of the MST1 intervention and the end of the year.

Note, the time between the assessment carried out at the end of the programme and the assessment carried out at the end of the year is not known.

### Overall results of MST2 in 2014

- All year groups, on average, made accelerated progress (that is, they exceeded the average expected progress that would be made over two terms by all New Zealand students).
- All ethnic groups made progress equivalent to expected progress of four or more terms at all year levels.
- Eighty-four percent of students moved up at least one stage of the Number Framework after the MST2 intervention.
- Although progress was made, few students, on average, reached the level equivalent to Term 1 or higher of their respective year level. Most students, on average, were less than one year level below expected levels following the programme.

### Progress in PAT:Mathematics

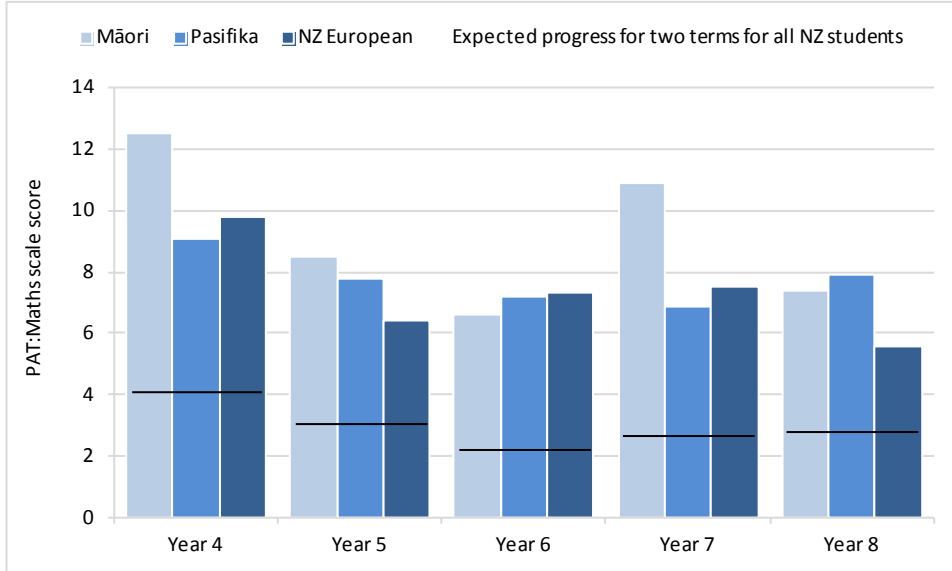
Data for 876 students in 46 schools was used in the PAT:Mathematics analysis of MST2 outcomes. Table 7 shows the characteristics of the students for whom data was provided. This data comes from 90 percent of the schools participating in MST2 in 2014.

**Table 7 Data used in PAT:Mathematics analysis of MST2 outcomes**

		Number of students	% of students
<b>Gender</b>	Male	446	51%
	Female	430	49%
	<b>Total</b>	<b>876</b>	<b>100%</b>
<b>Ethnic group</b>	Māori	256	29%
	Pasifika	165	19%
	NZ European	350	40%
	Asian	40	5%
	Other	65	7%
	<b>Total</b>	<b>876</b>	<b>100%</b>
<b>Year level</b>	4	231	26%
	5	237	27%
	6	218	25%
	7	62	7%
	8	128	15%
	<b>Total</b>	<b>876</b>	<b>100%</b>

The mean PAT: Mathematics progress scale score improved by four terms or more for each ethnic group at all year levels. Figure 9 shows the progress made in PAT:Mathematics after MST2 by Māori, Pasifika and NZ European students in Years 4 to 8.

**Figure 9 Progress made in PAT: Mathematics progress after MST2**



Although each ethnic group improved by four terms or more, only Year 7 New Zealand European students, on average, reached Term 1 or higher of their respective year level. Most students, on average, were less than one year level below expected. Māori students at Years 6 and 7 and Pasifika students at Year 7 were more than one year level below the expected level, as shown in Table 8.

**Table 8 PAT: Mathematics equivalent progress after MST2**

	Māori		Pasifika		NZ European	
	<i>Equivalent progress</i>	<i>Equivalent post-test level</i>	<i>Equivalent progress</i>	<i>Equivalent post-test level</i>	<i>Equivalent progress</i>	<i>Equivalent post-test level</i>
Year 4	+6 terms	Year 3 Term 4	+4 terms	Year 3 Term 3	+4 terms	Year 3 Term 3
Year 5	+6 terms	Year 4 Term 1	+5 terms	Year 4 Term 2	+4 terms	Year 4 Term 3
Year 6	+5 terms	Year 4 Term 4	+6 terms	Year 5 Term 1	+6 terms	Year 5 Term 3
Year 7	+7 terms	Year 5 Term 4	+5 terms	Year 5 Term 2	+5 terms	Year 7 Term 2
Year 8	+5 terms	Year 7 Term 4	+5 terms	Year 7 Term 4	+4 terms	Year 7 Term 4

### Progress on the Number Framework

Data from 1,420 students in 47 schools were used in analysing the Number Framework progress of MST2 students. Table 9 shows the characteristics of the students for whom data was provided.

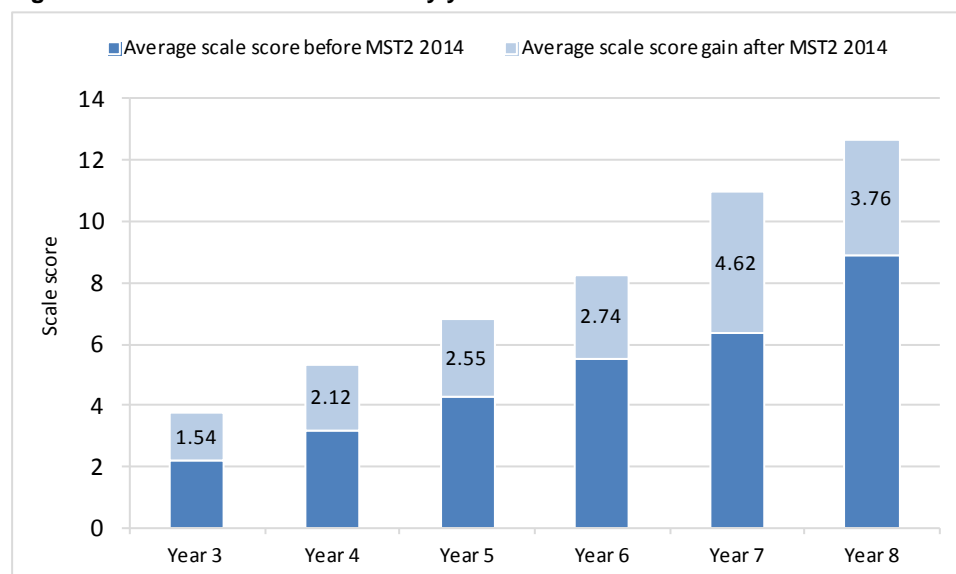
**Table 9 Data used in the Number Framework analysis of MST2 outcomes**

		N	%
<b>Gender</b>	Male	690	49%
	Female	730	51%
	<b>Total</b>	<b>1,420</b>	<b>100%</b>
<b>Ethnicity</b>	Māori	482	34%
	Pasifika	209	15%
	NZ European	570	40%
	Other	159	11%
	<b>Total</b>	<b>1,420</b>	<b>100%</b>
<b>Year level</b>	2	22	2%
	3	138	10%
	4	368	26%
	5	329	23%
	6	262	18%
	7	128	9%
	8	173	12%
	<b>Total</b>	<b>1,420</b>	<b>100%</b>

In 2014, 84 per cent of MST2 students moved at least one stage of the Number Framework. Students' average scale score (indicating movement on the Number Framework) increased by 2.69 scale points during the MST2 initiative. Students who are on track with National Standards gain two scale points per year, therefore these results suggest that, over the course of the intervention, students made about 1.3 years of progress. The length of the MST intervention for all students is not known, however, it was expected to be up to 20 weeks and could have been a maximum of nine or ten months.

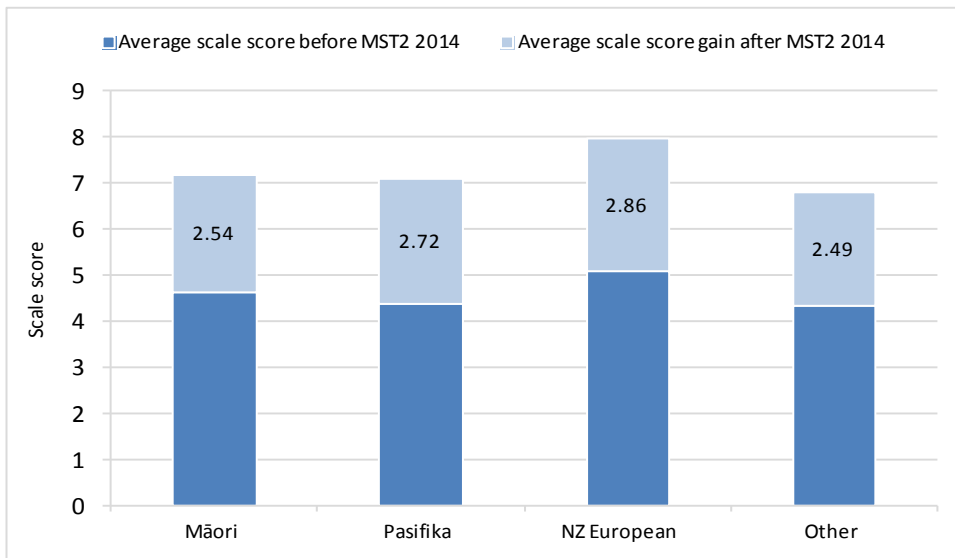
As shown in Figure 10, on average, students in Years 7 and 8 made greater progress than younger students in 2014. (The number on the bars is the amount of scale score progress.)

**Figure 10 Scale score after MST2 by year level**



As shown in Figure 11, students from each of the ethnic groups in the 2014 MST2 intervention made similar scale score gains. Male and female students made similarly sized gains of 2.63 and 2.74 respectively (not depicted).

**Figure 11 Scale score after MST2 by ethnicity**



**Data from the end of the year**

End of 2014 Number Framework data was provided for 502 MST2 students. Over the initiative these 502 students had shown a mean gain in scale score of 2.46. By the end of 2014, overall these students had gained a further 0.83 scale points. This increase of 3.29 scale points in total between starting MST2 and the end of the year represents approximately 1.6 years progress. Of these 502 students, 54 (11%) were at a lower stage of the Number Framework between the end of the MST2 intervention and the end of the year.

Note, the time between the assessment carried out at the end of the programme and the assessment carried out at the end of the year is not known.



## **Accelerating Learning in Literacy (ALL)**

### *Description*

ALL uses expertise within schools to carry out a short-term intervention to accelerate the progress of students achieving below or well below the New Zealand Curriculum standards in reading and writing. This intervention is in addition to classroom teaching. ALL teachers work three to five times a week with a group of identified students over a 15 week period. Schools were able to choose to focus on reading or writing, with most focusing on writing.

### *Outcome analysis*

In 2014, 316 schools participated in ALL. Information about how many schools focused on reading, writing or both is not known. Therefore it is not possible to determine the proportion of schools (or students) involved in the analysis.

Outcomes for ALL students were assessed using one of five standard measures, depending on the focus of the programme and the age of the targeted students. The outcome analysis was undertaken with three of these measures.

In this section the 2014 ALL results have, where possible, been compared with the 2013 results.

### *Overall results of ALL in 2014*

- Students who participated in writing programmes made accelerated progress, with students across all years making more progress than the e-asTTle writing norm expectation for their year.
- Post programme e-asTTle scale scores for students at all year levels except Year 6 were at or above expected levels. Average e-asTTle scores for students in Years 6 were just below the expected average scale score.
- Students made accelerated progress in reading (STAR), with students in Years 3-8 showing average progress that exceeded the expected progress across three terms. Students in Years 3, 4 and 8 reached reading achievement norms, while students in Years 5, 6, and 7 almost reached achievement norms.
- In junior literacy, students aged between five and seven years made accelerated progress with an average gain of one or more stanines during the ALL intervention on four of the five Observation Survey measures. On average, students did not make accelerated progress in the Recording Sounds in Words measure.
- In junior literacy, the expected stanine level was not met by every age group in each of the five Observation Survey tests; however, in each age band where students had not meet expected stanine levels, the students' test average stanine at the end of the ALL programme was less than one stanine below the expected level.
- Generally, males and females and all ethnic groups made accelerated progress in reading and writing. Differences between groups were small; however, female students generally had higher post test scores than male students; and at most year levels Māori students had lower post test scores than students from other ethnic groups.

## Writing

In the e-asTTle writing analysis of ALL outcomes, data were available for 1,961 students from 182 schools. Table 10 shows the characteristics of the students for whom data were provided. Students were concentrated in Years 3 to 7; and almost two thirds of students were male.

E-asTTle writing data supplied from the schools was compared to the expected norm scale scores listed in the 2012 e-asTTle writing (revised) manual and based on the entire norming data set. This means that in the following tables, all sub-groups are being compared to norms for the wider population, instead of being split by demographic characteristics such as gender or ethnic group.

It is important to note that the norming data used was collected in Quarter 3, whereas e-asTTle writing test results were collected at different times during the year. Students tested earlier (or later) in the year could be expected to have made less (or more) progress against the norms.

**Table 10 Data used in e-asTTle analysis of ALL outcomes**

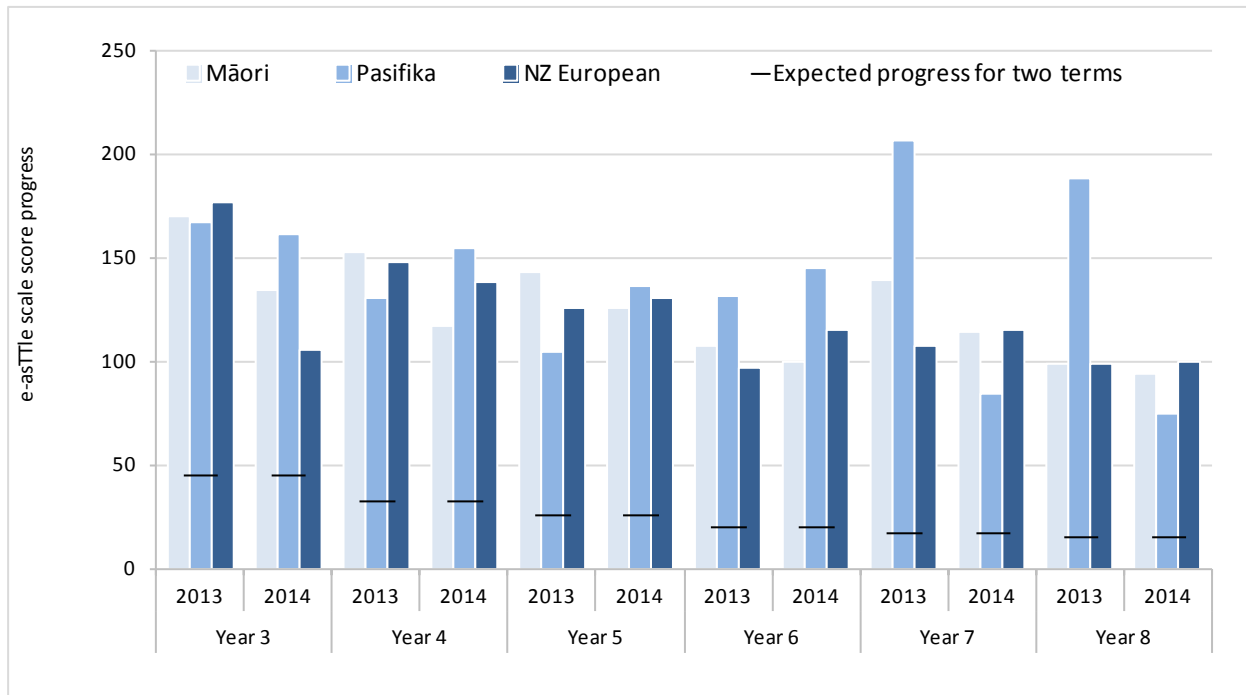
		Number of students	% of students
<b>Gender</b>	Male	1,253	64%
	Female	707	36%
	Unknown	1	0%
	<b>Total</b>	<b>1,961</b>	<b>100%</b>
<b>Year level</b>	1	15	1%
	2	73	4%
	3	344	18%
	4	414	21%
	5	373	19%
	6	319	16%
	7	259	13%
	8	164	8%
	<b>Total</b>	<b>1,961</b>	<b>100%</b>
<b>Ethnic group*</b>	Māori	626	32%
	Pasifika	223	11%
	NZ European	966	49%
	Asian	18	1%
	Other	136	7%
	Unknown	1	0%
	<b>Total</b>	<b>1,961</b>	<b>100%</b>

\* Some students reported multiple ethnicities.

Figure 12 shows that students in all years made more progress than the e-asTTle norm expectation for two terms. Students in Year 2 made the greatest score gains overall. Students in Years 7 and 8 made the greatest progress relative to the norm expectation for two terms.

Pasifika students made the greatest progress in Years 3, 4, 5 and 6 in 2014 and in Years 7 and 8 in 2013.

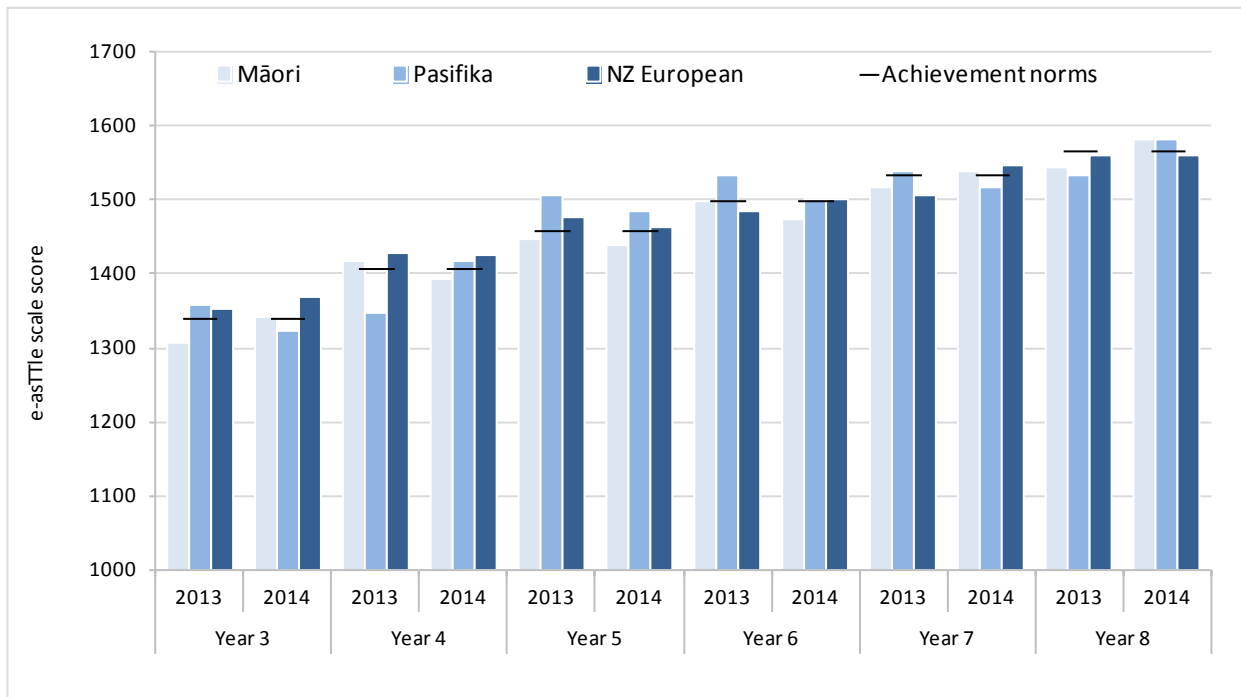
**Figure 12 Progress made in e-asTTle writing after ALL**



Average e-asTTle writing scale scores for students after ALL were close to or above what was expected by year level for students. Students in Year 6 were just below the expected average scale score. However, as shown in Figure 13, across the year levels there was variable achievement amongst the different ethnic groups. (Note that there were few Year 2 Pasifika students in the data.) In 2013 only Year 4 Māori students reached achievement norms, while in 2014 Māori students at Years 3, 7 and 8 reached achievement norms. Pasifika students met achievement norms in Years 3, 5, 6 and 7 in 2013 and in Years 4, 5, 6, and 8 in 2014. New Zealand European students in all years except Year 8 met achievement norms in 2014. In 2013 New Zealand students in Years 3, 4 and 5 met achievement norms.

Male and female students across all year levels achieved a post-test e-asTTle writing level that was within their respective year or higher, especially girls in Year 8 (not depicted).

Figure 13 E-asTTle score after ALL



With the exception of Year 6 Māori students, at all year levels, Māori, Pasifika and NZ European students met their respective age equivalent year level. Year 6 Māori students almost reached the expected level. Pasifika students at Years 2, 5, and 8 and Māori students at Year 8 exceeded the (Quarter 3) expectation for their year.

Table 11 E-asTTle writing age equivalent progress after ALL

	Māori		Pasifika		NZ European	
	Equivalent progress	Equivalent post-test level	Equivalent progress	Equivalent post-test level	Equivalent progress	Equivalent post-test level
Year 2	Year 2 Term 4	+5 terms	Year 3 Term 4	+6 terms	Year 2 Term 3	+4 terms
Year 3	Year 3 Term 3	+ 6 terms	Year 3 term 2	+6 terms	Year 3 Term 4	+5 terms
Year 4	Year 4 term 2	+6 terms	Year 4 term 3	+8 terms	Year 4 Term 4	+8 terms
Year 5	Year 5 Term 1	+8 terms	Year 6 term 1	+10 terms	Year 5 Term 3	+9 terms
Year 6	Year 5 Term 4	+7 terms	Year 6 Term 3	+11 terms	Year 6 Term 3	+10 terms
Year 7	Year 7 Term 3	+11 terms	Year 7 Term 1	+8 terms	Year 7 Term 4	+12 terms
Year 8	Year 9 Term 1	+12 terms	Year 9 Term 1	+10 terms	Year 8 Term 2	+11 terms

## Reading

Data were available for 280 students from 30 schools that participated in ALL in 2014. Table 12 shows the characteristics of the students for whom data was available.

**Table 12 Data used in STAR Reading Achievement analysis of ALL outcomes**

		Number of students	% of students
<b>Gender</b>	Male	163	58%
	Female	117	42%
	<b>Total</b>	<b>280</b>	<b>100%</b>
<b>Year level*</b>	3	50	18%
	4	46	16%
	5	23	8%
	6	32	11%
	7	69	25%
	8	60	21%
	<b>Total</b>	<b>280</b>	<b>100%</b>
<b>Ethnic group</b>	Māori	103	37%
	Pasifika	30	11%
	NZ European	119	43%
	Asian	10	4%
	Other	15	5%
	Unknown	3	1%
	<b>Total</b>	<b>280</b>	<b>100%</b>

In 2014 reading achievement, STAR scale scores showed average progress that exceeded the expected progress for two terms for all year groups (see Figure 14). In fact, students in all years exceeded the expected progress for three terms. Students in Years 4, 5 and 8 made progress that exceeded expected progress for four terms (equivalent to one year). Students in Years 6 and 7 achieved progress of five or more terms.<sup>9</sup>

In 2013 students from all year groups made progress that exceeded expected for both two and three terms.

<sup>9</sup> Due to the STAR norming data ending at Year 9 Term 1, which is equivalent to four terms of expected progress at Year 8, we are unable to accurately calculate the total equivalent progress for Year 8 students whose mean scale score progress extends beyond this point. We do know that these students achieved equivalent progress of at least 4 terms.

**Figure 14 Progress made in STAR after ALL**

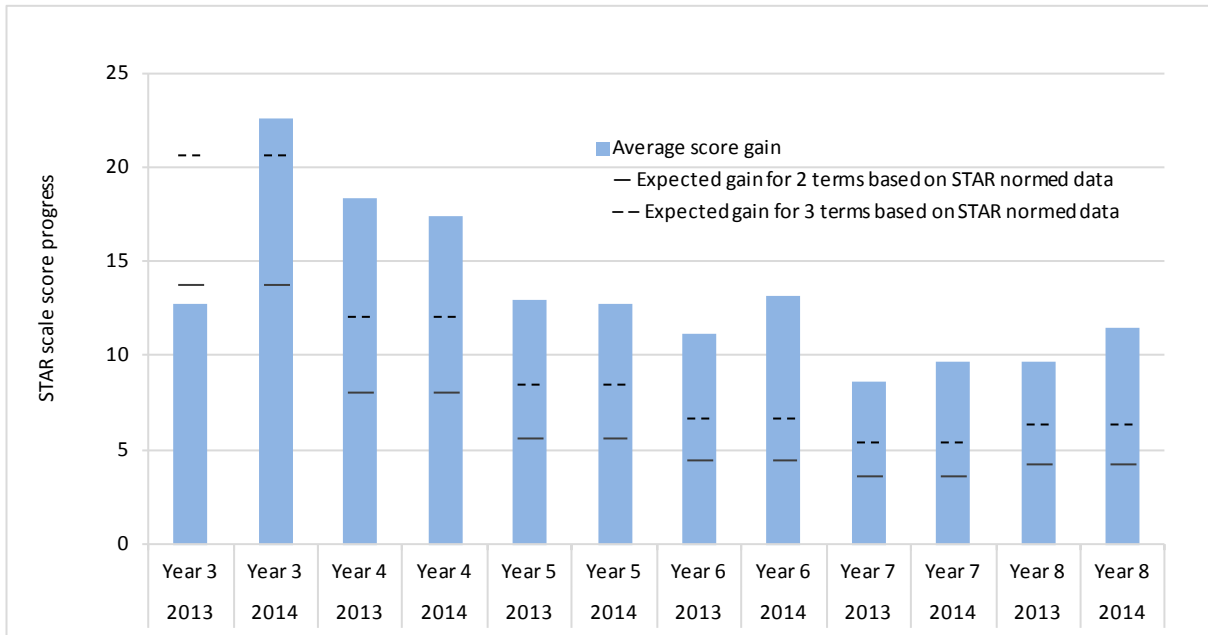
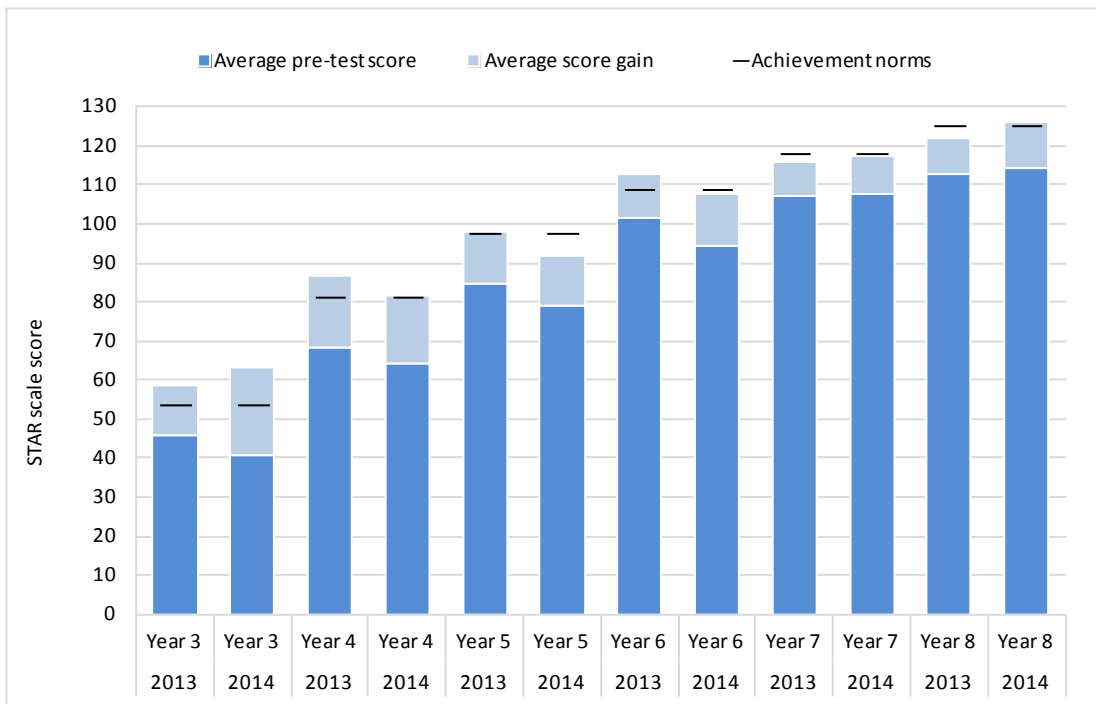


Figure 15 shows that students in Years 3, 4 and 8 reached reading achievement levels (ie, the expected Term 1 scale score for their respective year level), while students in Years 6 and 7 almost reached achievement levels. The biggest overall gain was made by Year 3 students. In 2013 Years 3 to 6 reached or slightly exceeded reading achievement levels while students in Years 7 and 8 almost reached achievement levels. The biggest overall gain was made by students in Year 4 in 2014 and students in Year 3 in 2013.

**Figure 15 STAR score after ALL**



Results from STAR varied for male and female students in both 2014 and 2013. In terms of age equivalent year level, in 2014 female students in Years 3, 6, 7 and 8 reached their respective achievement level; as did male students in Years 3, 4, and 8. When looking at results by year level for students of different ethnicities, the groups are too small to make meaningful comments. Māori students in 2014 were generally the lowest scoring ethnic group (with the exception of Year 7), but differences were small.

### *Junior literacy*

Data for 441 students from 66 schools were used in the Observation Survey<sup>10</sup> analysis of Junior Literacy ALL outcomes. The students included in the analysis of Observation Survey data were aged between five and seven years, with 91 per cent of the students aged between 5.5 and 7 years. Two-thirds of the students were male (see Table 13).

**Table 13 Data used in Observation Survey analysis of ALL outcomes**

		Number of students	% of students
<b>Gender</b>	Male	285	65%
	Female	156	35%
	<b>Total</b>	<b>441</b>	<b>100%</b>
<b>Age group</b>	5.00-5.50	40	9%
	5.51-6.00	111	25%
	6.01-6.50	156	35%
	6.51-7.00	134	30%
	<b>Total</b>	<b>441</b>	<b>100%</b>
<b>Ethnic group</b>	Māori	121	27%
	Pasifika	51	12%
	NZ European	236	54%
	Asian & Other	33	7%
	<b>Total</b>	<b>441</b>	<b>100%</b>

<sup>10</sup> The Observation Survey involves five subtests: Letter Identification, Concepts About Print, Clay Word Reading, Writing Vocabulary, and Hearing And Recording Sounds in Words.

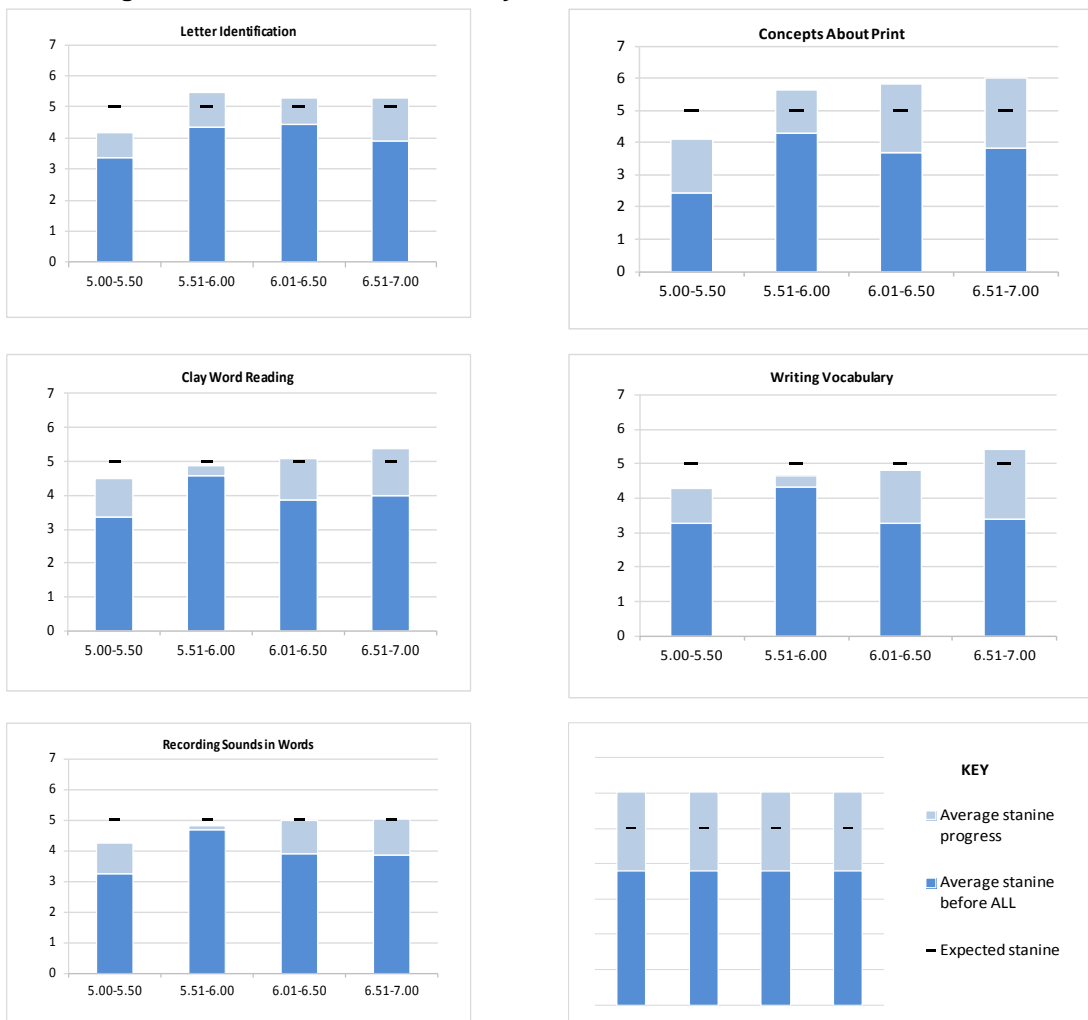
On average, students made progress of at least one stanine during the ALL intervention in every subtest except Recording Sounds in Words (in which the average progress across all age groups was 0.865) in 2014 and in every subtest in 2013. Stanines are age standardised, thus an increase in stanine suggests accelerated progress, although it is hard to quantify this in terms of progress in years. As shown in Figure 16, some age groups of students reached the expected stanine in the various subtests. The 6.51-7.00 age group reached the expected stanine in all five subtests.

The expected stanine level was not met by every age group in each of the five Observation Survey tests; however, in each age band where students had not meet expected stanine levels, the students’ test average at the end of the ALL programme was less than one stanine below the expected level.

Just under half (46%) of the students stayed within the same age group for their pre- and post-test, while the rest (54%) moved up to an older age group.

Results are not broken down by ethnicity and gender due to the small sample sizes.

**Figure 16 Progress made in Observation Survey after ALL**



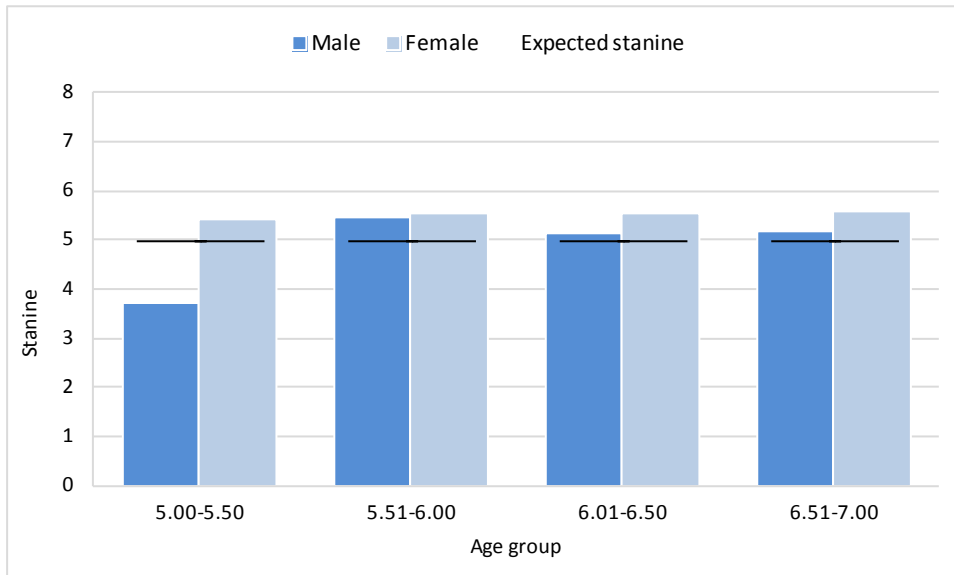


## Results by ethnicity and gender

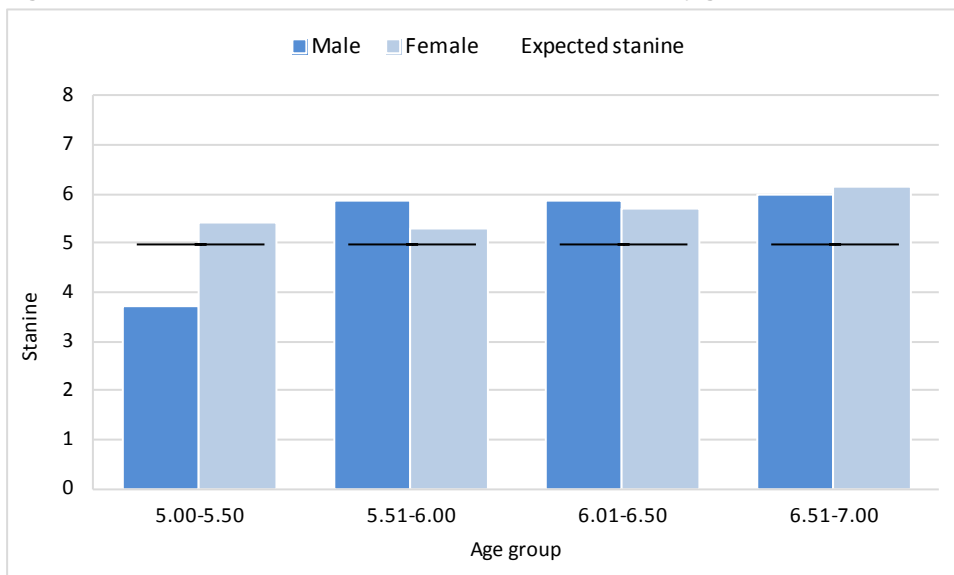
Results are broken down by ethnicity and gender for the Letter Identification and Concepts About Print subtests only due to the amount of data available.

As shown in Figure 17 and Figure 18, female students achieved higher post-test stanine scores than male students across all age groups for Letter Identification and in the youngest and oldest age groups for Concepts About Print.

**Figure 17 Letter Identification after ALL - achievement by gender**

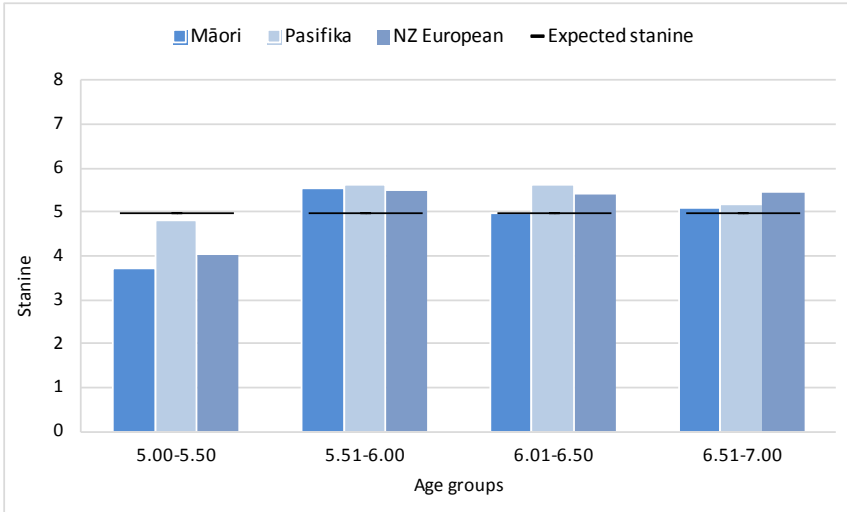


**Figure 18 Concepts About Print after ALL - achievement by gender**

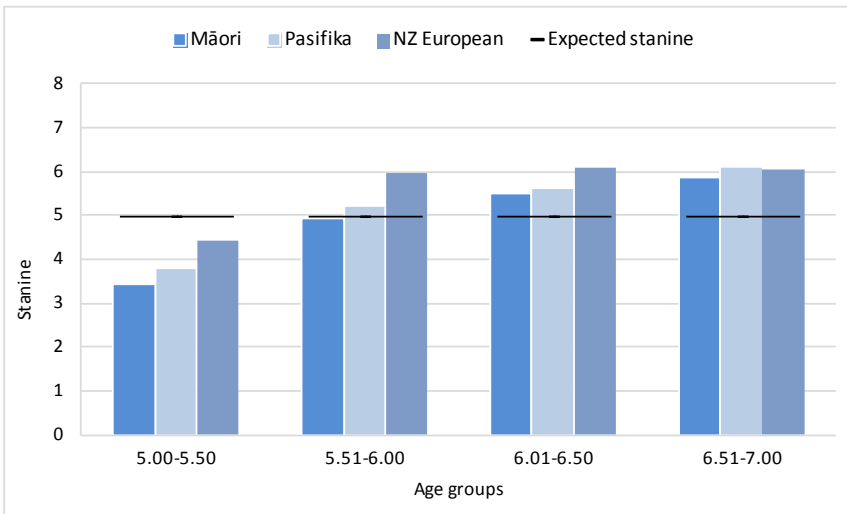


All ethnic groups in the 5.5 to 7 year age bands reached or exceeded expected stanine levels with Letter Identification and Concepts About Print, with the exception of Māori students aged 5.5 to 6 years who almost reached the expected stanine level for Concepts About Print. The post-test stanine scores for Letter Identification and Concepts About Print by the various ethnic groups varies between year levels; however, Māori students in almost all age bands have the lowest post-test stanine results for both measures.

**Figure 19 Letter Identification after ALL - achievement by ethnicity**



**Figure 20 Concepts About Print after ALL - achievement by ethnicity**



## Appendix 1 Summary of student achievement in Programmes for Students in 2013

The table below presents a summary of student achievement from Programmes for Students in 2013. Overall, students participating in these programmes in 2013 made accelerated progress that met or exceeded that expected from a student over two terms. ALiM and ALL students generally reached expected achievement levels for their year level. However, MST students, on average, did not reach achievement norms expected for their year levels. Generally, in all three programmes (ALiM, MST and ALL), similar levels of progress were made by both male and female students, and students from all ethnic groups.

**Appendix table 1 Summary of student achievement in Programmes for Students 2013**

PFS	Measure	Made accelerated progress?		Results for groups of students by gender, ethnicity and age.
		More than 2 terms progress?	Reached expected year level?	
ALiM	PAT Maths	<b>Yes</b>	<b>Yes.</b> Students, on average, ended at a level equivalent to Term 2 or Term 3 of their respective year level.	All year levels, ethnic groups and both genders, on average, ended at a level equivalent to Term 2 or Term 3 of their respective year level (although Pasifika students were slightly lower ie ended at term 1 of their respective year level).
	Movement on the Number Framework	<b>Yes.</b> Students made around 1.5 years of progress	<i>Not stated in reporting</i>	Progress made during ALiM was similar for each of the demographic sub-groups.
MST	PAT Maths	<b>Yes.</b> Students showed, on average, equivalent progress of 3 terms or more for each year level.	<b>No.</b> For students overall, the post-test level, on average, was below the students' respective year level.	Similar patterns of progress across ethnic groups - scale score for each ethnic group improved by 3 terms or more for most year levels. In particular, Pasifika students in Years 4-6 made good progress, although the number of students was small.
	Movement on the Number Framework	<b>Yes.</b> Over the course of the intervention, students made about 1.5 years of progress	<i>Not stated in reporting</i>	Progress made during the MST intervention was similar for each demographic sub-groups but older year levels (Years 7 & 8) made greater mean gains than the younger students (Years 4, 5, & 6). In 2013 gains by ethnicity were significantly higher than those in 2012.
ALL	STAR	<b>Yes.</b> Students at Years 4 to 8 showed mean progress that exceeded the expected progress across three terms.	<b>For some.</b> Students in Years 3 to 6 reached or slightly exceeded achievement norms. Students in Years 7 and 8 almost reached achievement norms.	Results for male and female students varied by year level. Generally, results for ethnic groups followed the same pattern as those for year level: Māori students were generally neither the highest nor the lowest scoring ethnic group at each year level. Results for Pasifika students varied by year level.
	e-asTTle Writing	<b>Yes.</b> All students made more progress than the e-asTTle norm expectation for a year.	<b>For some.</b> Students in Years 2, 4, 5 & 6 reached expected level. Students in Year 3 were just below the expected average scale score. Students in Years 7 and 8 were a little below the expected average scale score.	Progress was accelerated when compared to norm expectation. Results in terms of meeting the expected level varied by gender and ethnicity: These ethnic groups made accelerated progress: <ul style="list-style-type: none"> <li>– Māori students at Years 2 &amp; 4</li> <li>– Pasifika students at Years 3, 5, 6 &amp; 7</li> <li>– NZ European/Pākehā students at Years 1 to 5.</li> </ul>
	Observation Survey	<b>Yes,</b> results suggest accelerated progress	<b>For some.</b> Students in most age bands reached (or were close to) the expected stanine.	In Letter Identification, Concepts About Print, Word Reading and Reading Sounds in Words most students reached (or were close to) the expected stanine. Only students aged over 6.5 years reached the expected stanine in Writing vocabulary.

## Appendix 2 Progress made in Observation Survey after ALL in 2013

