

Launching into Learning Longitudinal Study

Progress Report 2013

30 June 2014

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I Executive summary

This report continues the longitudinal study of the *Launching into Learning* (LiL) program that began with an initial evaluation of the 2007 cohort of students who participate in the program. The report focuses on examining the results from the 2011 cohort and the progression of the results since 2007. For the first time the National Assessment Program: Literacy and Numeracy (NAPLAN) results of children who participated in LiL are available. The results of an analysis of this data, for children who attended LiL in 2008 and sat NAPLAN Year 3 in 2013, are presented in this report.

This latest analysis continues to show that regular participation in LiL consistently and significantly improves educational outcomes for reading and numeracy performance measures:

- The proportion of students who achieved all markers on Kindergarten Development Check (KDC) continues to be higher for LiL students (students who participated in LiL regularly¹) than it is for non-LiL students².
- The number of LiL students scoring below expected standards on the Preparatory (Prep) assessments Performance Indicators in Primary Schools (PIPS) is lower for LiL students compared to non-LiL students for both reading and maths.
- A higher proportion of LiL students were above NAPLAN National Minimum Standard (NMS) than non-LiL students.

Data analysed for 2013 Prep students show that 1382 students from 122 Tasmanian government schools regularly attended LiL in 2011. The following results were observed:

1. The percentage of LiL students below the expected standard (in the *Below* range) in reading on PIPS first assessment was 9.9 per cent, about half that of non-LiL students (20.0 per cent), an improvement of 10.1 percentage points³.
2. The percentage of LiL students below the expected standard (in the *Below* range) in maths on PIPS first assessment was 11.4 per cent compared to 18.1 per cent for non-LiL students, an improvement of 6.7 percentage points.
3. A greater proportion of LiL students performed at the highest level (in the *Well Above* range) on PIPS first assessment than non-LiL students (9.2 and 7.1 percentage points more in reading and maths respectively).
4. The proportion of students who achieved all KDC second assessment developmental markers was 8.1 percentage points higher for LiL students when compared to non-LiL students (69.0 per cent for non-LiL compared to 77.1 per cent for LiL).
5. The observed improvements in performance for the LiL cohort are sustained when the results are disaggregated by Aboriginality. This has occurred for all previous LiL cohorts.
6. On average, students from higher socioeconomic ⁴ backgrounds had greater participation rates in 2011 LiL than those from lower socioeconomic backgrounds.
7. Students from all socioeconomic backgrounds made significant gains in educational performance from regular participation in LiL (Fig 1.1 Page 4). However, students from disadvantaged socioeconomic backgrounds benefited most.

¹ Regular participation is defined as attendance at 75 per cent or more of available LiL sessions in the year.

² Prep 2013 children who attended schools that offered LiL in 2011 but did not participate in LiL regularly.

³ The size of improvement is calculated from full precision values. Number rounding may produce small apparent differences.

⁴ Socioeconomic status is defined by the highest educational level achieved by the student's parents. See section 4.6

NAPLAN data collected shows there were 1058 LiL students who sat the NAPLAN Year 3 test in 2013. The following results were derived for the 2008 LiL cohort (Fig I.3 Page 6).

8. The NAPLAN reading results show that 6 per cent of students who participated in LiL obtained results below NMS in Year 3 Reading, compared with 7 per cent of non-LiL students in the same schools.
9. For students from low socioeconomic backgrounds, the percentage of LiL students below NMS in Year 3 Reading in NAPLAN (9 per cent) was smaller compared with the percentage of non-LiL students in the same schools (12 per cent).
10. For students from low socioeconomic backgrounds, the percentage of LiL students below NMS in Year 3 Numeracy in NAPLAN (6 per cent) was smaller compared with the percentage of non-LiL students in the same schools (12 per cent).

Figure I.1 shows how participation in LiL improves student reading outcomes, particularly for lower socioeconomic status (SES) students.

The graph compares the results of children who participated in the 2011 LiL program to those at the same schools who did not participate in LiL. For all levels of SES, when compared to non-LiL students, a higher proportion of LiL students are performing at or above the expected standard on PIPS first assessment for reading.

Figure I.1

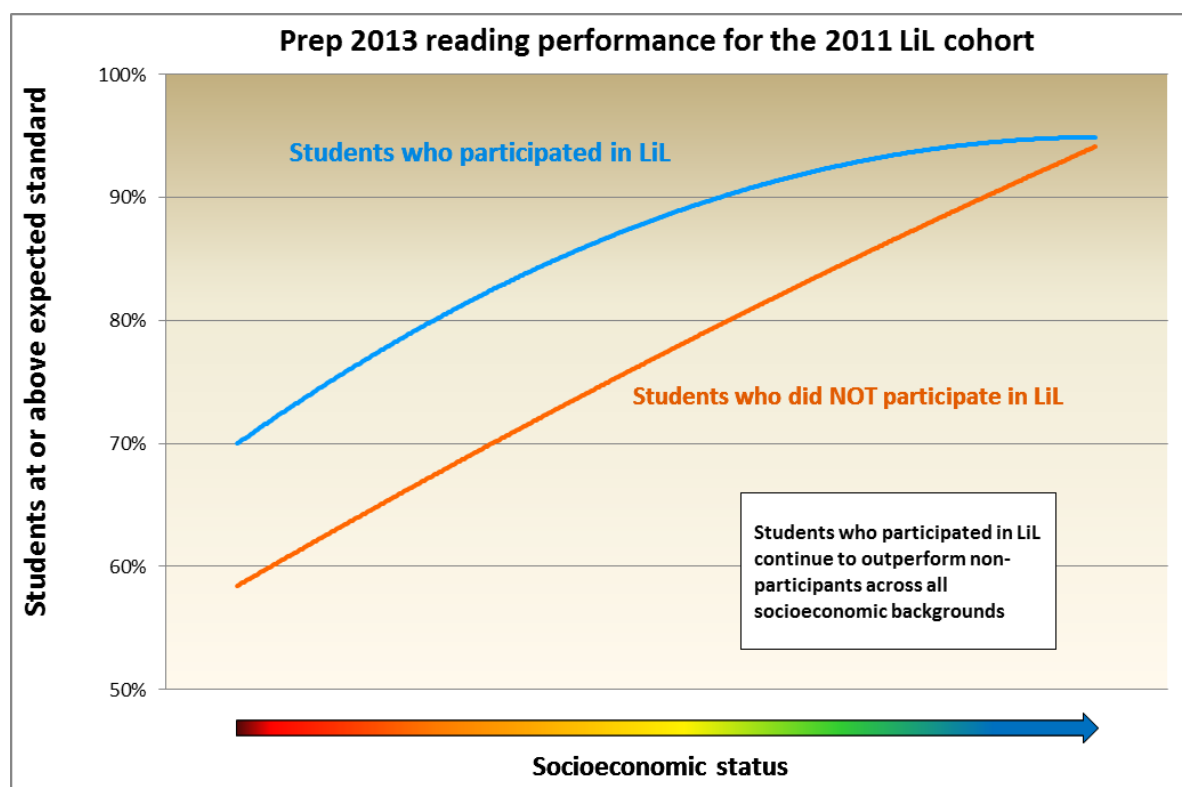


Figure 1.2 shows the longitudinal correlation between the introduction of LiL programs in 2007 and the improvement in reading performance for Prep students across Tasmanian government schools.

Since 2009, when the first LiL cohort entered Prep the proportion of students achieving expected standards has increased by about four percentage points. The graph shows the percentage of students at government schools who achieved PIPS first assessment reading scores at or above the expected standard. The historical pattern of results is represented by a moving average line. Tasmania's performance started improving around the time when the LiL programs were introduced. The results for PIPS maths assessment show a similar pattern.

Figure 1.2

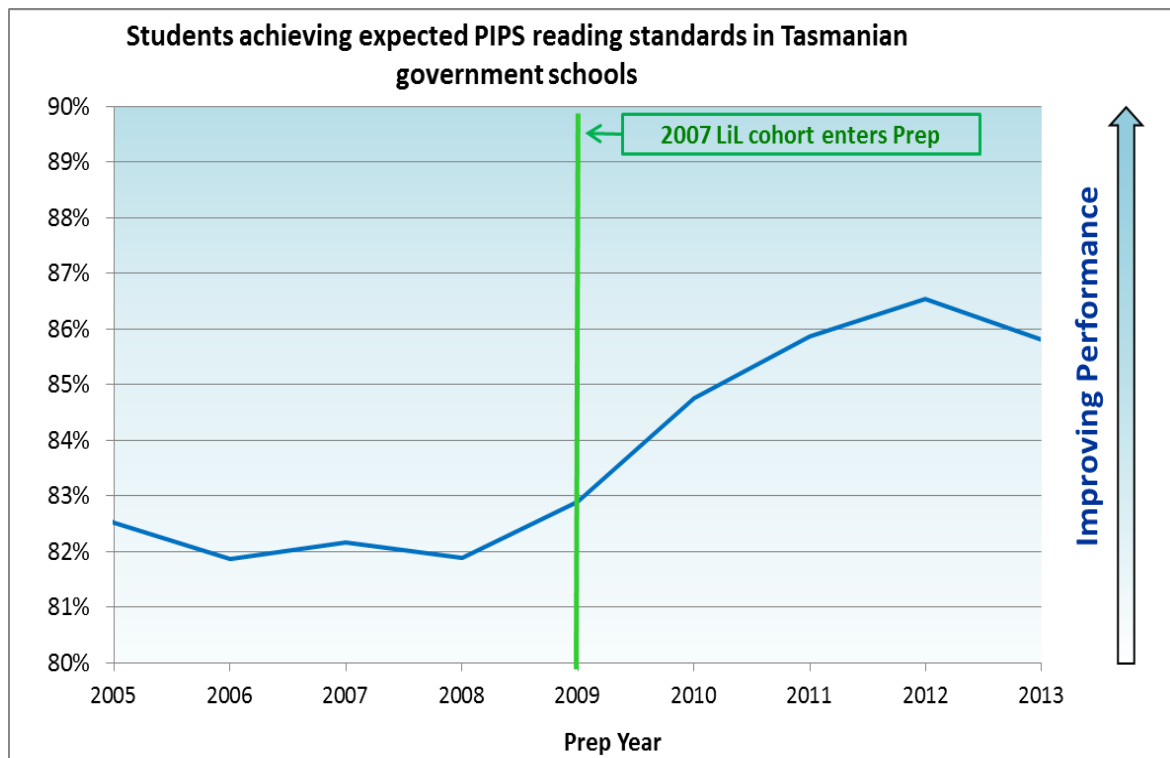
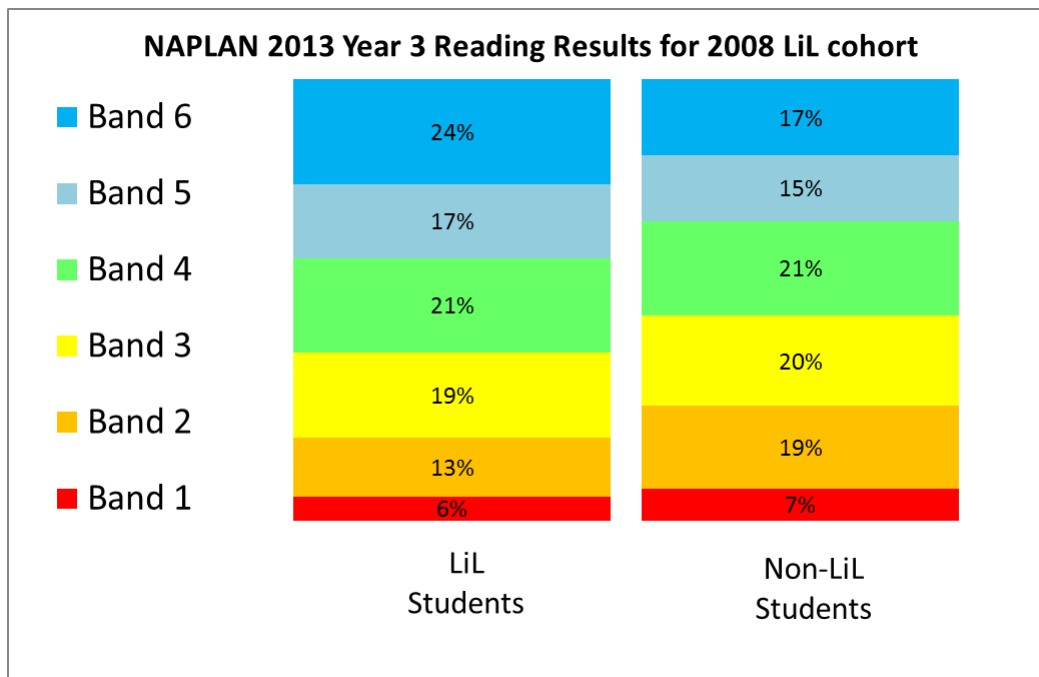


Figure 1.3 shows that students who participate in LiL have improved reading outcomes in NAPLAN Year 3 assessments.

The graph compares the results of students who participated in the 2008 LiL program to those at the same schools who did not participate in LiL. On average, LiL students perform at a higher level than non-LiL students across NAPLAN bands.

Figure 1.3



2 Background

Children's experiences in the earliest years of life are critical to their ongoing development. These experiences have a significant impact on their future achievements at school and the extent to which they are able to take advantage of opportunities later in life.

LiL provides resources to schools to develop and lead initiatives with families and their community to support children's early learning prior to Kindergarten. Schools focus on the needs of their community and make connections with other groups, services and agencies in their area.

LiL is based on the belief that parents are their child's first, ongoing and often most influential teachers. Schools and families work together to give children the best start, leading to a smooth transition into Kindergarten. All schools use the Early Years Learning Framework to plan strategies and programs to support the growth of the whole child including social and emotional development and early literacy and numeracy.

3 Methodology

As part of the *Launching into Learning Longitudinal Study 2007 to 2014*, yearly reports have been produced and published. This report is the fourth in the current series and concentrates on the 2011 LiL program.

These reports primarily rely on the PIPS assessments as the first measures of literacy and numeracy performance and thus a yearly report is prepared two years after LiL programs conclude. PIPS assessments of early reading and maths skills are available for LiL students early and late in their Prep year. This is, on average, three years after these students last participated in a LiL program.

Children who participated in LiL programs in 2008 reached Year 3 primary school in 2013 and subsequently sat NAPLAN tests, allowing analysis of NAPLAN results for this student cohort. The NAPLAN results for LiL students have been compared with non-LiL students to evaluate the impact that regular participation in LiL has had on NAPLAN outcomes.

The analysis of LiL is an ongoing project and results from each year combine to enhance our understanding of the impacts this program has on children and their families. This allows longitudinal analysis of the results to be presented which demonstrate the positive effects of LiL participation over time. The results continue to show that regular participation in LiL has consistently produced significant positive outcomes since the program started in 2011.

Data collection

Teachers delivering LiL programs at each school recorded student participation in a spreadsheet. At the completion of the school year, this data was returned to Educational Performance Services for analysis. Information on the student's name, date of birth and gender was captured. Teachers also indicated if the student attended less than 75 per cent of sessions available to them in the year. The student data was matched to other departmental collected data, including socioeconomic status (SES - as measured by parental education levels), Aboriginality and student outcomes data as it became available.

Error Bars

Error Bars presented in this report were calculated using a standard 95 per cent confidence interval approach.

4 Results

4.1 Kindergarten Development Check

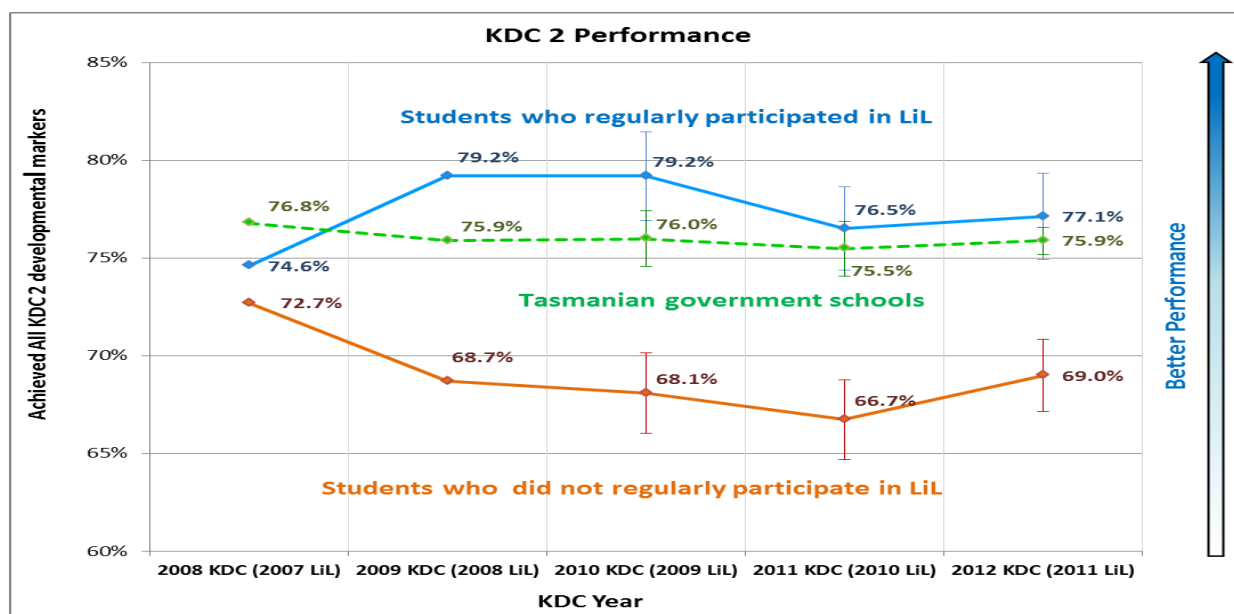
The Kindergarten Development Check (KDC) assessment evaluates Kindergarten students against a set of developmental markers twice in the year. This is the earliest post-LiL assessment available for these students as part of a statewide group. KDC is a diagnostic tool for identifying potential problems in a child's development. It measures performance across the three areas of *Thinking and Problem Solving*, *Literacy and Numeracy* and *Health and Wellbeing*. Failing to meet one developmental marker out of 21 classifies a child as *At Risk*. The results of the second assessment (KDC 2) collected late in the Kindergarten year are used for this analysis. The first KDC assessment (KDC 1) results are not used because the KDC 2 results are regarded as more stable.

Figure 1.4 shows that over the period 2009 to 2012, children who regularly participated in LiL, on average, outperformed their peers on the KDC 2 assessment (i.e. there were lower levels of *At Risk* students among the LiL group than the non-LiL group). The 2008 result showed a smaller improvement for LiL students as this reflected the first smaller LiL cohort entering Kindergarten.

As observed for previous LiL cohorts, there were proportionally fewer students identified as *At Risk* in the 2011 LiL group compared to the non-LiL group (77.1 per cent achieved all KDC markers compared to 69.0 per cent for the non-LiL group).

The size of improvement in KDC 2 results, when the LiL and non-LiL groups are compared over time, is reasonably consistent for 2009, 2010, 2011 and 2012 KDC 2 (improvements of 10.5, 11.1, 9.8 and 8.1 percentage points respectively).

Figure 1.4



Details: The graph compares the percentages of students who achieved all of the KDC second assessment developmental markers. Note the green dotted line shows the results for all Tasmanian government schools including data from schools where LiL programs were not offered. The lines for LiL and non-LiL students show the results for these students at schools that offered LiL between 2007 and 2011 (42 schools in 2007 increasing to 122 schools in 2011).

Error Bars presented in this chart were calculated using a standard 95 per cent confidence interval approach.

4.2 Performance Indicators in Primary Schools

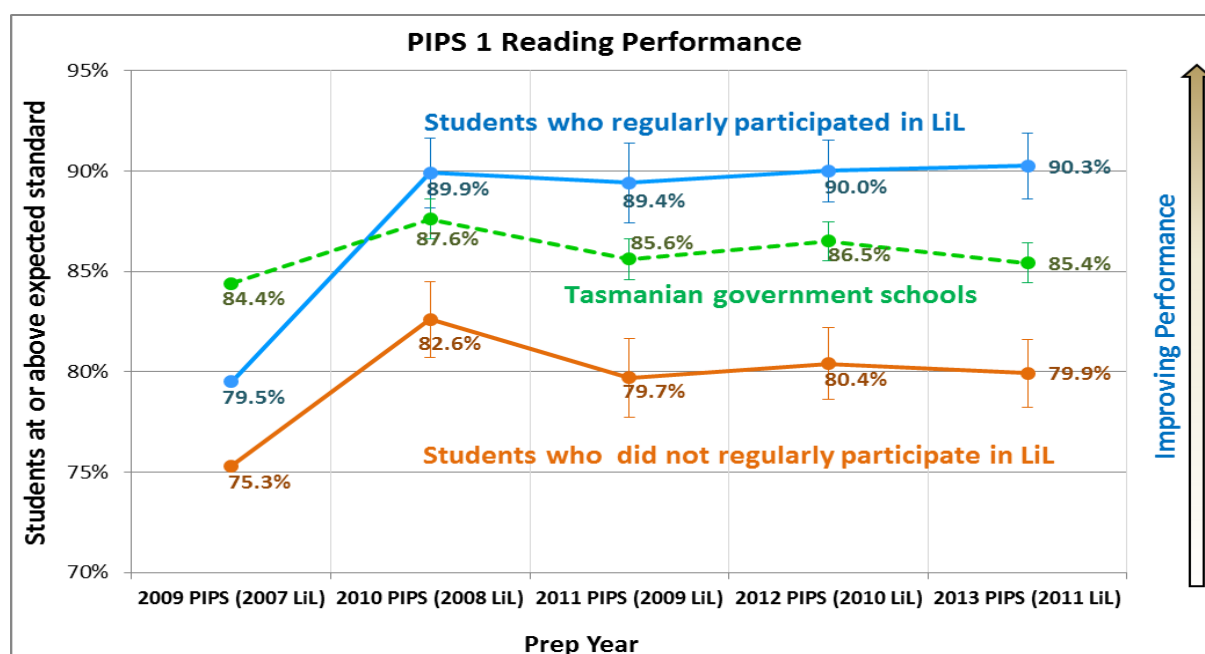
Assessments of reading and maths ability of students in Preparatory (Prep) are conducted twice per year through the Performance Indicators in Primary Schools (PIPS) assessments. The analysis below is based on the first PIPS assessment.

Figure 1.5 and Figure 1.6 show the proportion of students who attained a result *At or above expected standard*. The graphs plot *Students who regularly participated in LiL*, *Students who did not regularly participate in LiL* (i.e. those who attended schools where LiL was offered but did not regularly participate in LiL) and *Tasmanian government schools*. The statewide results are averaged for all students in all government schools whether they attended LiL or not.

Children who regularly participated in LiL in 2011 outperformed children at the same schools who did not regularly participate (e.g. for Reading: LiL group – 90.3 per cent at or above expected standard; non-LiL group 79.9 per cent at or above expected standard). The results indicate that children maintain the benefits of LiL into Prep.

Some of the children who are analysed as part of non-LiL students have attended LiL less than regularly. Partial participation in LiL may provide partial benefits and raise average performance of the *Students who did not regularly participate in LiL*, leading to an underestimation of improvements from regular participation.

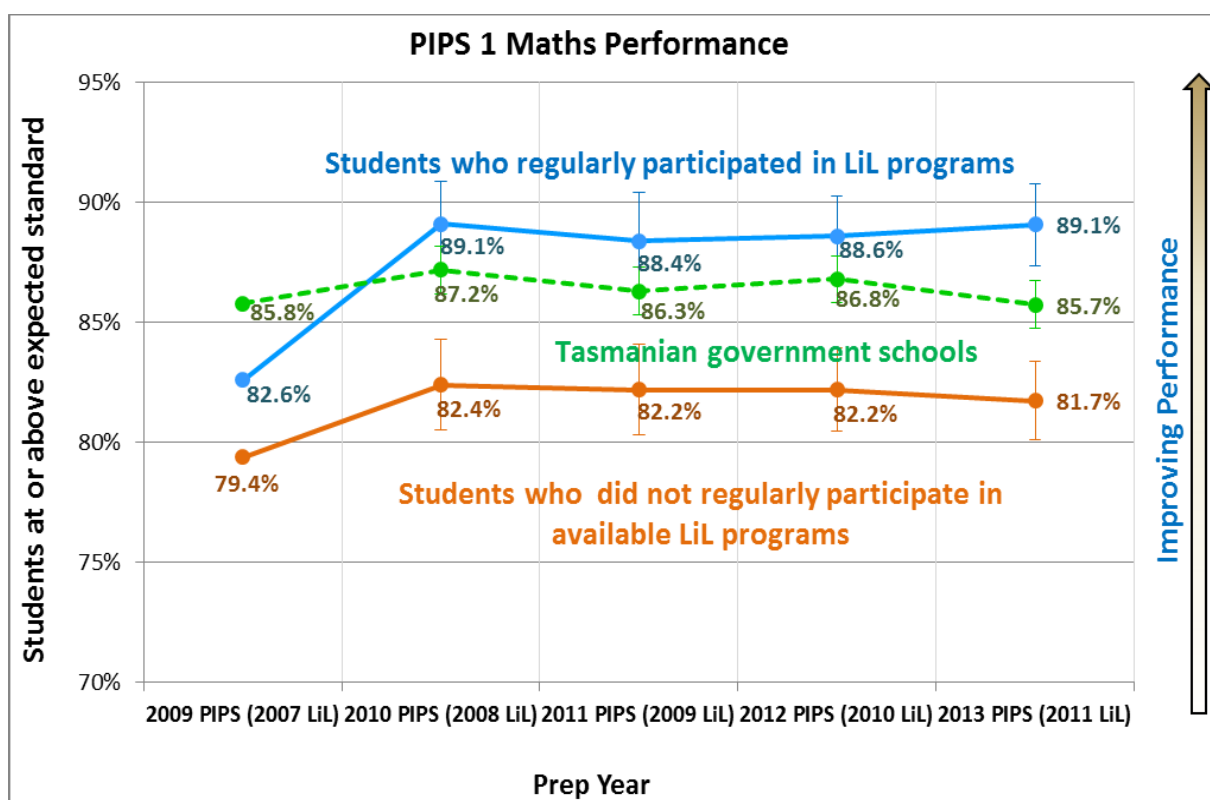
Figure 1.5



Details: The graph presents a comparison of the percentages of students with results at or above the expected standard for the first PIPS reading assessment. Note the green dotted line shows the results for all Tasmanian government schools including data from schools where LiL programs were not offered. The lines for LiL and non-LiL students show the results for these students at schools that offered LiL between 2007 and 2011 (42 schools in 2007 increasing to 122 schools in 2011).

Error Bars presented in this chart were calculated using a standard 95 per cent confidence interval approach.

Figure 1.6



Details: The graph presents a comparison of the percentages of students with results at or above the expected standard for the first PIPS maths assessment at government schools. Note the green dotted line shows the results for all Tasmanian government schools including data from schools where LiL programs were not offered. The lines for LiL and non-LiL students show the results for these students at schools that offered LiL between 2007 and 2011 (42 schools in 2007 increasing to 122 schools in 2011).

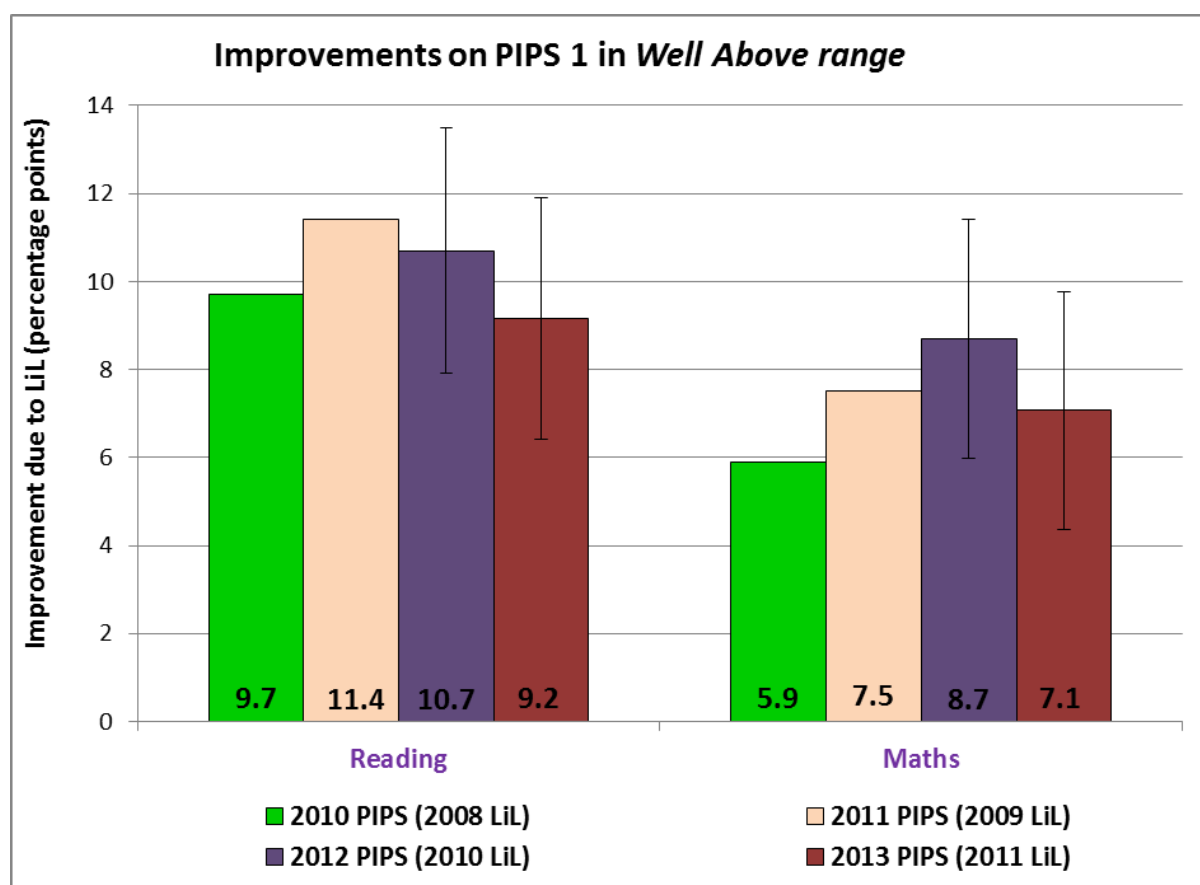
Error Bars presented in this chart were calculated using a standard 95 per cent confidence interval approach.

4.2.1 Improvements in PIPS Well Above range

Students who do very well in the PIPS assessments perform in the *Well Above* range of PIPS scores. Improvements complementary to meeting minimum standards have been observed as increases in the proportion of these top performing students. This demonstrates that regular participation in LiL also helps more students to perform at the highest levels, improving educational outcomes beyond just meeting minimum standards.

Figure 1.7 presents these improvements as percentage point increases in students performing in the *Well Above* range on PIPS 1. The differences are calculated between LiL and non-LiL students at LiL schools only and aggregated for all socioeconomic backgrounds.

Figure 1.7



Details: The graph shows increases in the proportion of students performing at the highest level on PIPS 1 after regularly participating in LiL during the year prior to Kindergarten.

Error Bars presented in this chart were calculated using a standard 95 per cent confidence interval approach.

4.3 Sustainability of improvements due to LiL

This part of the analysis addresses the sustainability of improvements that regular participation in LiL produces.

PIPS assessments are given twice in the same year and have been used in this report as a measure of how the improvements are maintained. The first assessment occurs at the beginning of the Prep year and second assessment towards the end of the Prep year. Students who participated in the 2011 LiL program are compared to those at the same schools who did not participate in LiL.

The 2013 NAPLAN results reported later in this document, along with the KDC and PIPS results show that regular participation in LiL benefits students through Kindergarten, Prep and Year 3 primary school demonstrating the sustainability of benefits for at least the first five years of schooling.

Figures I.8 through to I.11 present comparisons between LiL and non-LiL students in achieving scores at or above the expected range for PIPS 1 and PIPS 2 assessments. The graphs show the improvement in the proportion of LiL students compared to non-LiL students for PIPS reading and maths assessments between 2009 and 2013 - matching LiL cohorts between 2007 and 2011 respectively.

Figure I.8 shows that between 2009 and 2013 students who participated in LiL outperformed students who did not by between 4.2 and 10.3 percentage points. Figure I.9 shows the sustainability of improvements into PIPS 2 Reading assessment. This has held true for all observed cohorts so far.

Figure I.8

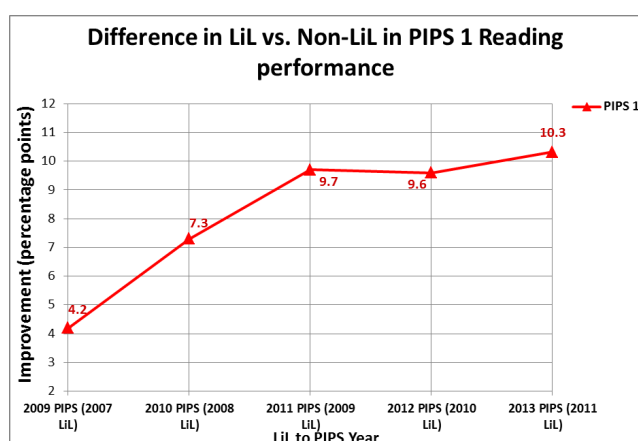


Figure I.9

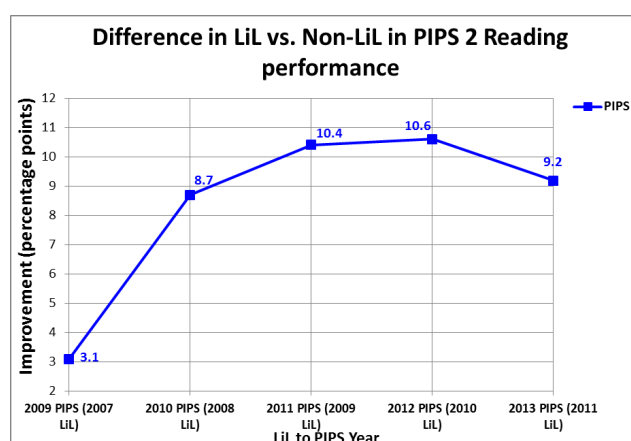


Figure I.10 shows that between 2009 and 2013 students who participated in LiL outperformed students who did not by between 3.2 and 7.3 percentage points. Figure I.11 shows the sustainability of improvements into PIPS 2 Maths assessment.

Figure I.10

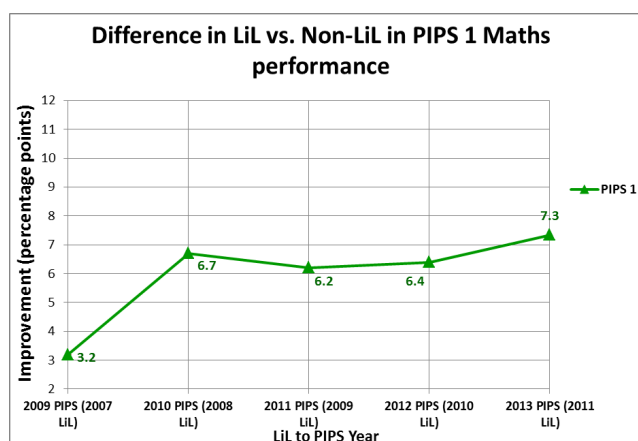
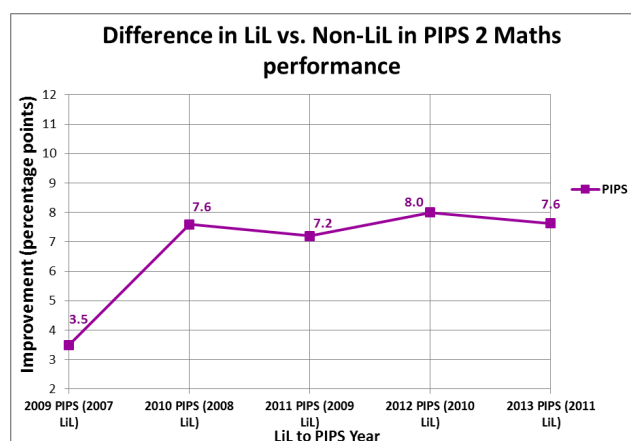


Figure I.11



4.4 NAPLAN Year 3

There were 1058 students who participated in LiL in 2008 who sat NAPLAN Year 3 in 2013. A NAPLAN 2013 result was not available for a small number of LiL students due to absenteeism, movement interstate or movement to the non-government sector.

LiL programs were offered in 109 Tasmanian government schools in 2008. Students attending schools offering LiL in 2008 are compared to students who attended the same schools but did not attend LiL sessions.

4.4.1 Improvements observed in NAPLAN Year 3 Reading and Numeracy

Student achievement in the NAPLAN Year 3 is represented across six proficiency bands. *Band 2* represents the National Minimal Standard (NMS). Students scoring in *Band 1* are therefore below NMS.

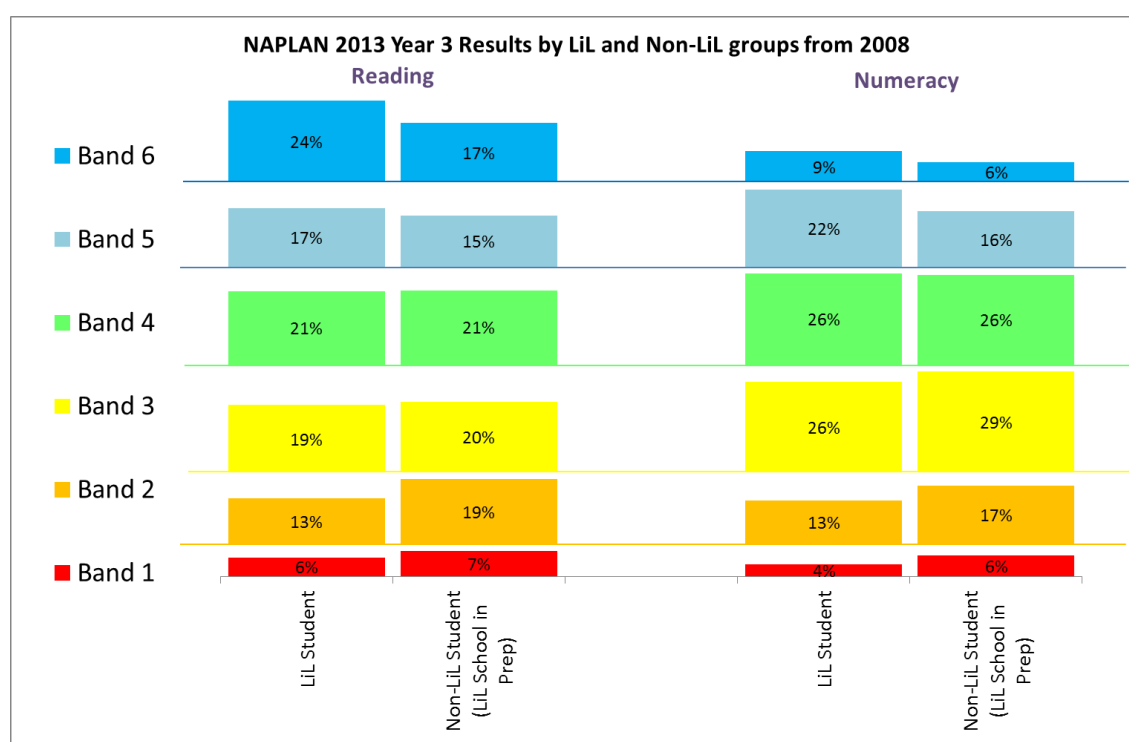
Figure 1.12 shows the results for reading and numeracy.

Students who regularly participated in LiL in 2008 (“LiL 2008”) outperformed students at the same schools who did not regularly participate (“non-LiL 2008”).

A smaller proportion of “LiL 2008” students achieved a below NMS result (*Band 1*) than “non-LiL 2008” students. Conversely, a greater proportion of “LiL 2008” students achieved a high score (*Band 6*) than “non-LiL 2008” students.

The results show that across NAPLAN Bands 1-6 there is a higher proportion of LiL students with results in the upper Bands (4-6). This pattern is consistent for both reading and numeracy.

Figure 1.12



Details: The graph shows a greater proportion of students achieving higher NAPLAN scores for both reading and numeracy. The NAPLAN performance ranges are ordered by outcomes from the lowest (*Band 1*) to the highest (*Band 6*).

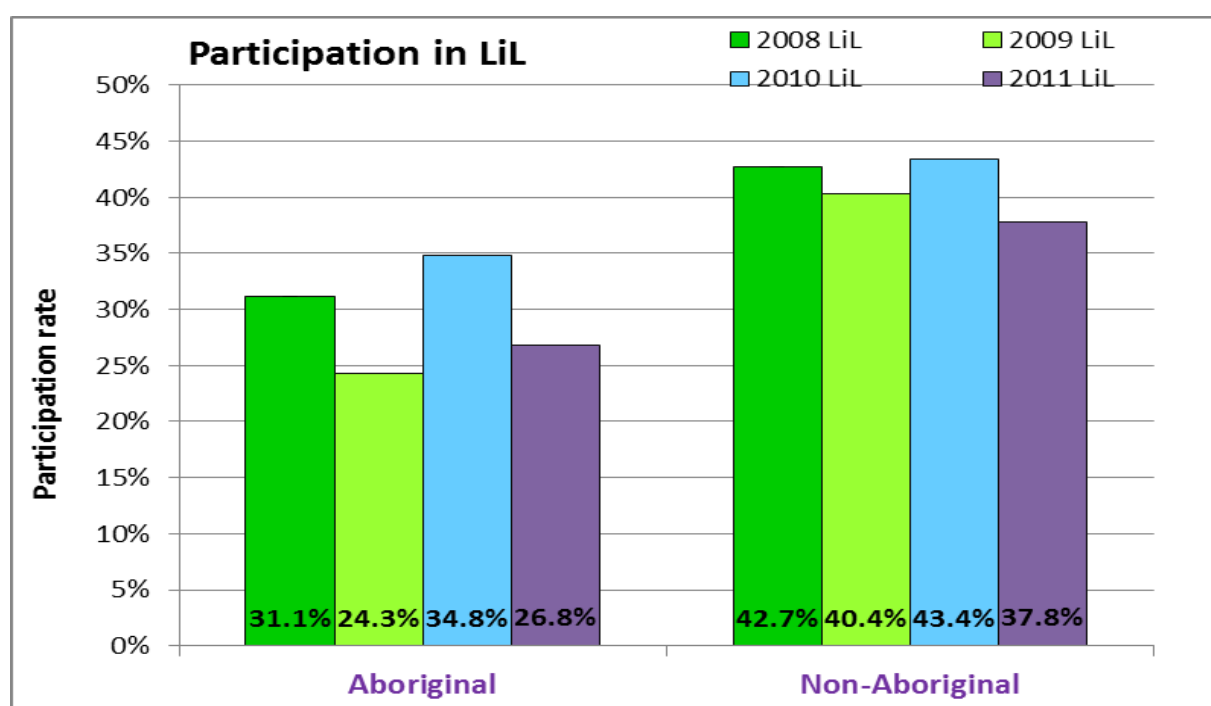
4.5 LiL and Aboriginal students

4.5.1 LiL participation for Aboriginal students

Figure 1.15 compares the rates of regular participation in LiL for Aboriginal students to those of non-Aboriginal students. The participation rate in LiL for Aboriginal students is consistently lower than for non-Aboriginal students. The participation rate for Aboriginal students varies more from year to year than for non-Aboriginal students. The amount of variation is likely to be due to the relatively small counts of Aboriginal students.

The participation rates shown in Figure 1.15 are calculated when these students attended Kindergarten at the time of the LiL participation survey. This approach keeps the counts closer in time to when LiL programs were delivered than using the later PIPS data and this reduces drift in group membership.

Figure 1.15



Details: The graph shows differences in the rates of regular participation between Aboriginal and non-Aboriginal students in LiL between 2008 and 2011.

Table 1.1: Student counts for LiL participation by Aboriginality

	Aboriginal		Non-Aboriginal	
	Count	%	Count	%
	71	31.1	1093	42.7
2009	67	24.3	1168	40.4
2010	126	34.8	1398	43.4
	106	26.8	1276	37.8

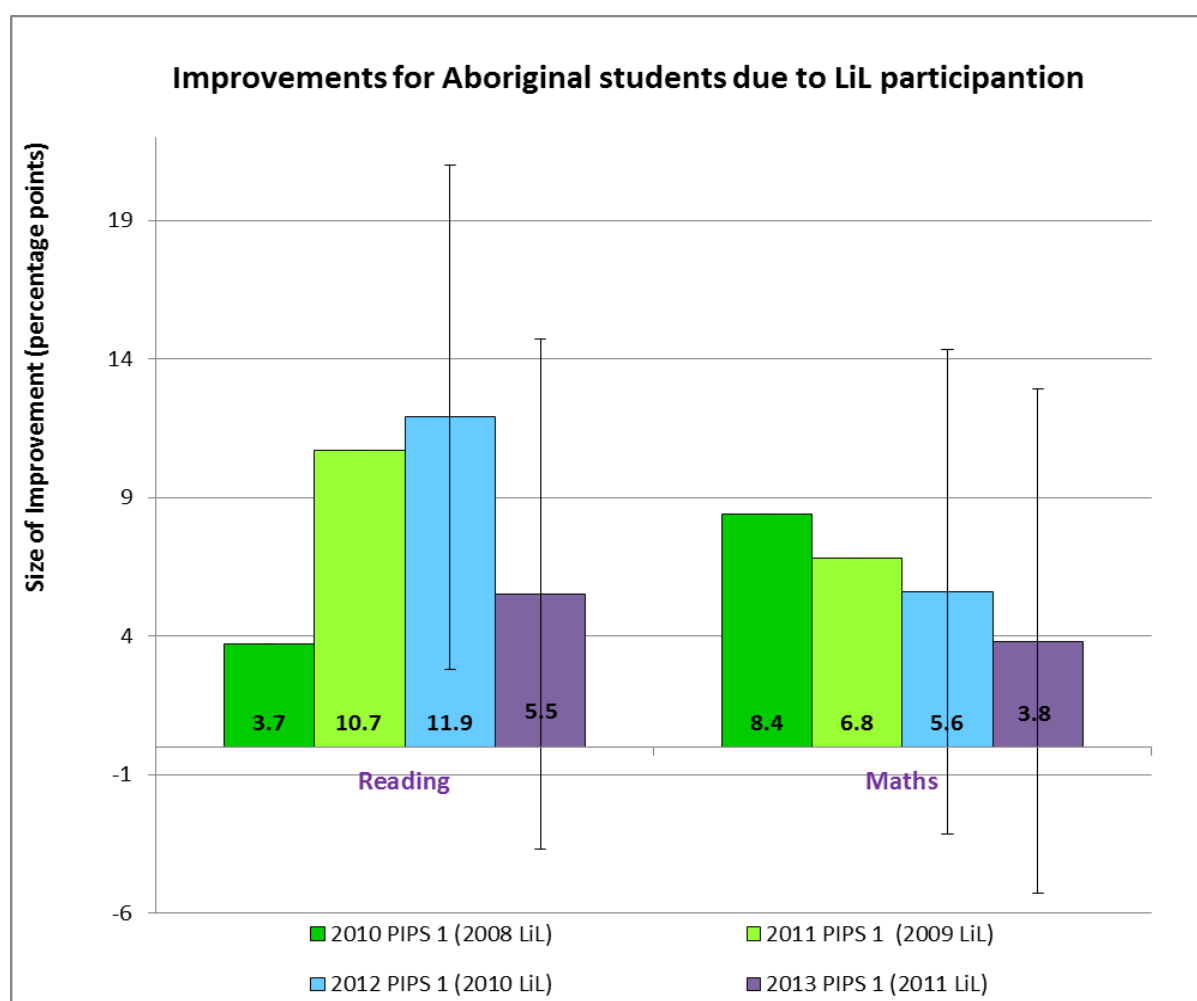
4.5.2 Improvements observed in PIPS for Aboriginal students

The benefits of participation in LiL for Aboriginal students were analysed with the same methods as for all students. The students were disaggregated by their Aboriginal status and differences in performance were compared within each group for LiL and non-LiL students.

Figure I.16 shows improvements in performance defined as the percentage point increase in students meeting minimum standards (scoring above the *Below* range of PIPS scores). The error bars are large relative to the improvements because the counts of Aboriginal students are relatively small (104 LiL, 279 Non-LiL) and the movement of a couple of students into or out of *Below* range makes a proportionally large difference.

The results from analysis of PIPS reading and maths show that Aboriginal students benefit significantly from regular participation in LiL.

Figure I.16



Details: The graph shows the improvements in PIPS I performance (between 2010 and 2013) gained by Aboriginal students from regular participation in LiL. The percentage point size indicates the improvement in students achieving a score at (or above) the *Within* range.

Error Bars presented in this chart were calculated using a standard 95 per cent confidence interval approach.

Table I.1: Students in the *Below range* 2013 PIPS I scores disaggregated by Aboriginality

		2011 LiL students	2011 Non-LiL students	Improvement in meeting minimum standards
Aboriginal	Reading	19.2% (104)	24.7% (279)	+5.5
	Maths	20.2% (104)	24.0% (279)	+3.8
Non-Aboriginal	Reading	9.1% (1208)	19.4% (1931)	+10.3
	Maths	10.7% (1208)	17.3% (1931)	+6.6

Details: The percentages of 2013 PIPS I scores in the *Below range* at the 2011 LiL schools disaggregated by regular LiL participation and Aboriginality. This is an improvement in performance is represented by a reduction in the proportion of students below minimum standard, after regularly participating in LiL during the year prior to Kindergarten. The green bracketed numbers are counts of students with PIPS I results in all performance ranges and are the denominator for the percentages.

Table I.2: Students in the *Well Above range* 2013 PIPS I scores disaggregated by Aboriginality

		2011 LiL students	2011 Non-LiL students	Improvement in <i>Well Above range</i>
Aboriginal	Reading	26.0% (104)	7.5% (279)	+18.5
	Maths	19.2% (104)	10.4% (279)	+8.8
Non-Aboriginal	Reading	23.9% (1208)	16.0% (1931)	+7.9
	Maths	22.4% (1208)	15.8% (1931)	+6.6

Details: The percentages of 2013 PIPS I scores in the *Well Above range* at the 2011 LiL schools disaggregated by regular LiL participation and Aboriginality. These improvements are percentage point increases in students performing at the highest level on PIPS I after regularly participating in LiL during the year prior to Kindergarten. This measure shows that regular participation in LiL not only helps Aboriginal students to meet minimum PIPS standards but also makes them more likely to perform at the highest level.

4.6 LiL and Socioeconomic Background

4.6.1 LiL Participation by Socioeconomic Background

Socioeconomic Status (SES) of students is a significant factor in student outcomes. The student SES measure used in this report is the highest educational level achieved by a student's parents.

Table 1.3: Explanations of the Socioeconomic Education Indicator codes

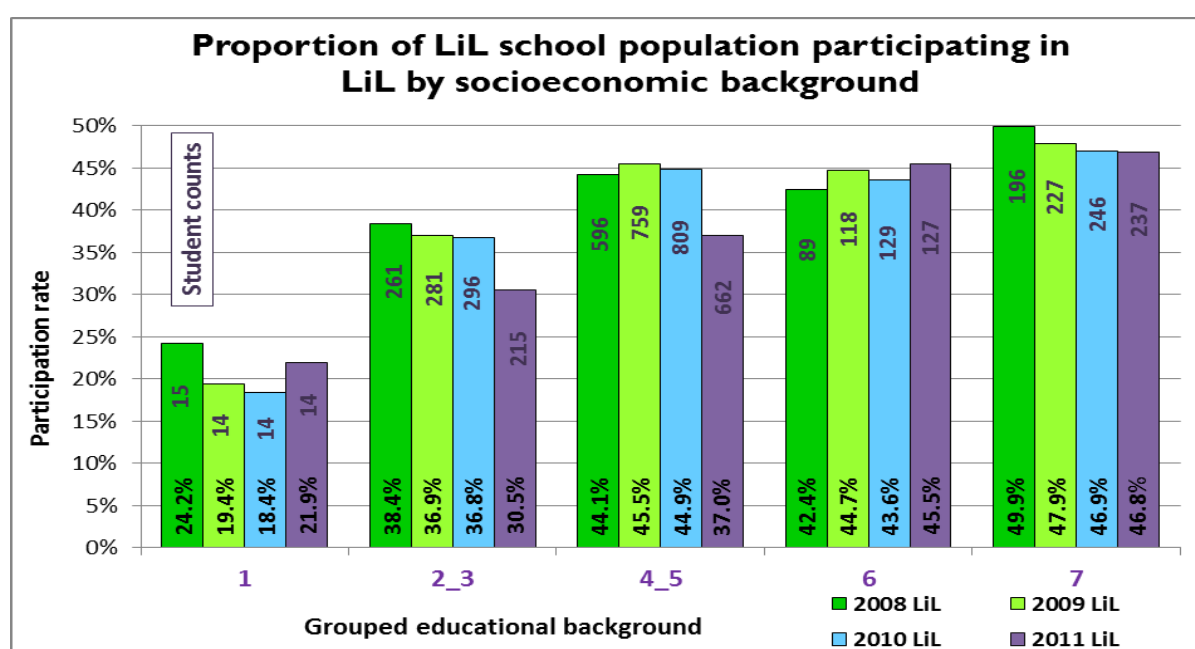
Education Indicator	Description
0	Not stated/Unknown
1	Year 9 or equivalent or below
2	Year 10 or equivalent
3	Year 11 or equivalent
4	Year 12 or equivalent
5	Certificate I to IV (including Trade certificate)
6	Advanced Diploma/Diploma
7	Bachelor degree or above

Details: This table displays parental education background codes from the *Data Standards Manual: Student Background Characteristics* produced by the Australian Curriculum Assessment and Reporting Authority (ACARA).

Rates of regular participation in LiL vary significantly for children from different socioeconomic backgrounds. Children from socioeconomically disadvantaged backgrounds gain significant improvements in their educational performance from regular participation in LiL (see Section 4.6.2.). However, proportionally fewer of these children attend LiL regularly. Increasing participation in LiL for these children would improve their average educational outcomes.

Figure 1.17 shows rates of regular participation in LiL by socioeconomic background. Note the graph does not include rates where SES background is unknown.

Figure 1.17



Details: The graph shows how socioeconomic background of children affected the rates of regular participation in LiL between 2008 and 2011.

4.6.2 Improvements observed in PIPS by Socioeconomic Background

The level of improvement in PIPS literacy and maths performance obtained from regular participation in LiL vary with the socioeconomic background of students. Accordingly the 2013 LiL and non-LiL groups were subdivided by socioeconomic background and differences in performance compared.

Students who regularly participated in LiL outperform their peers (at the same schools) across all socioeconomic backgrounds in meeting minimum standards and in the proportion of those performing above average.

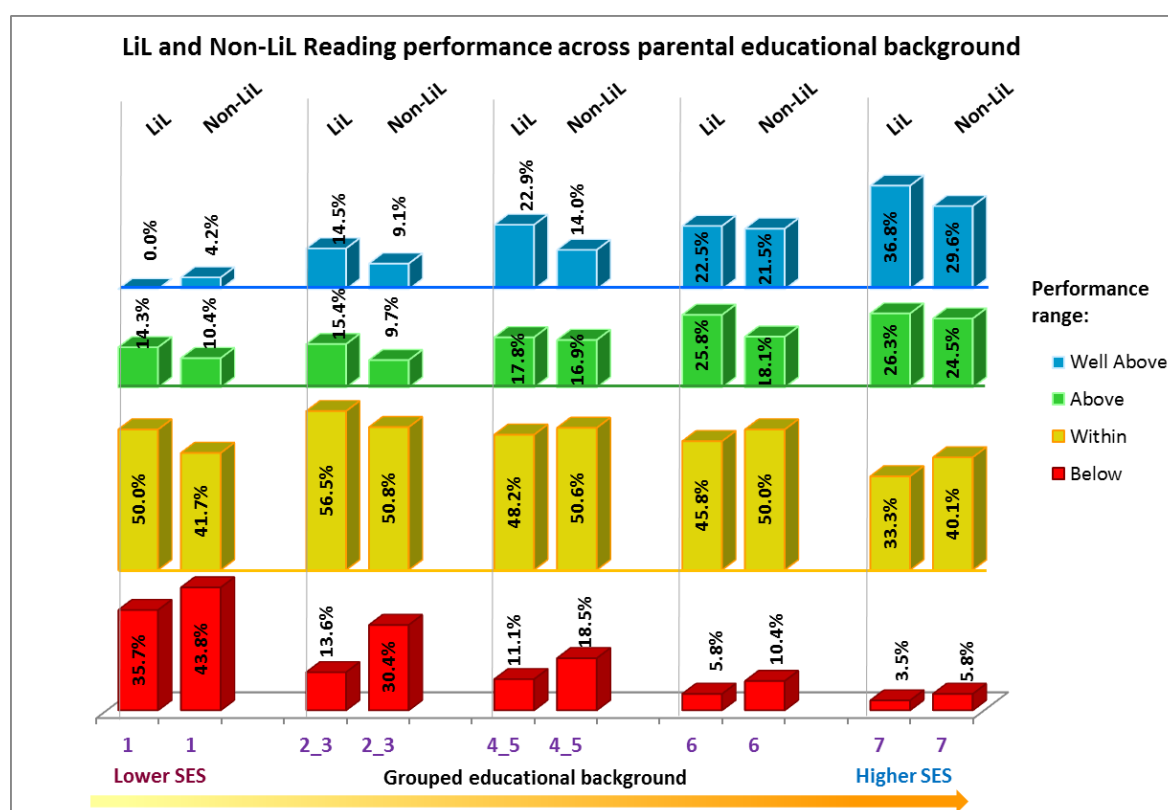
The graphs in Figure 1.19 and 1.20 show a smaller percentage of students in *Below* range for LiL students than non-LiL students for each educational background. This is an improvement in performance represented by a reduction in the proportion of those below minimum standard.

Both *Above* and *Well Above* range represent students performing above average. Improvements in the performance of LiL students compared to non-LiL students are represented by proportionally higher percentages in the *Above* and *Well Above* ranges.

Figure 1.19 shows LiL students from low socioeconomic backgrounds (SES 1 and SES 2_3) performing 8.3 and 5.7 percentage points higher than non-LiL students.

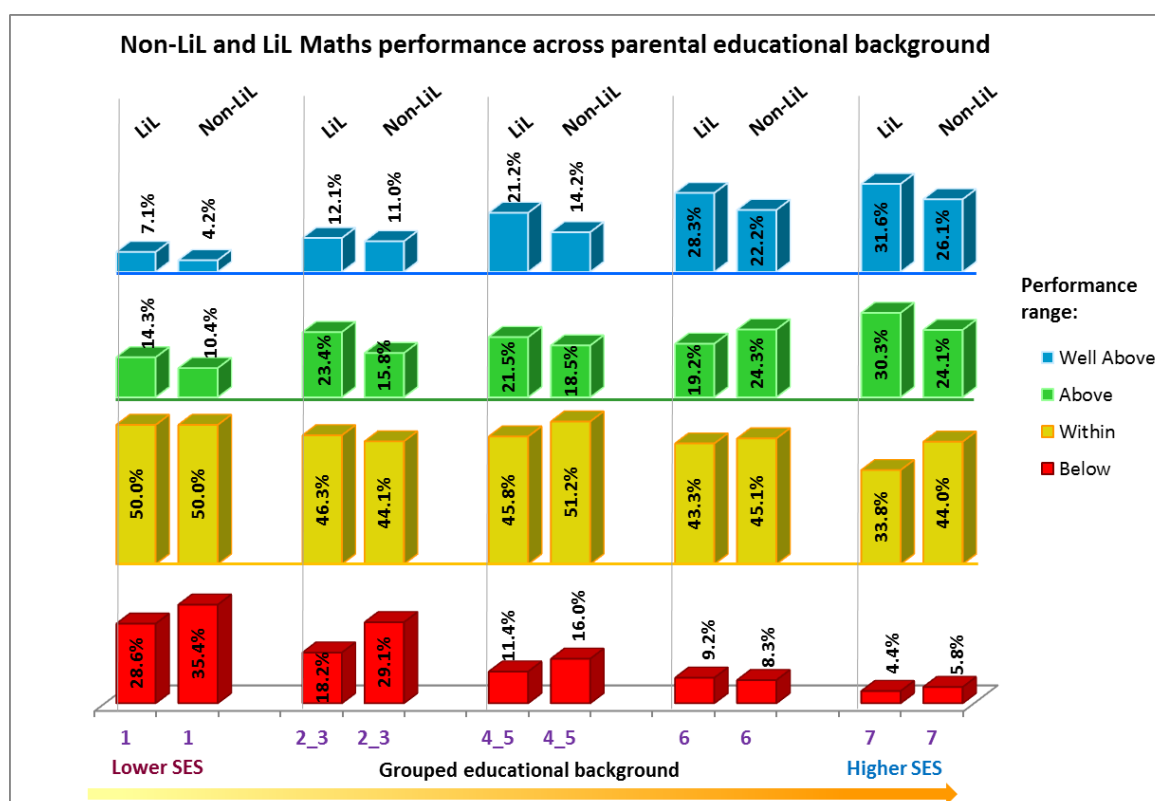
Figure 1.20 shows a similar pattern for maths results.

Figure 1.19



Details: The graphs show changes in outcomes after regular participation in LiL across all PIPS performance ranges disaggregated by socioeconomic background. The PIPS performance ranges are ordered by outcomes from the lowest in *Below* range to the highest in *Well Above* range.

Figure I.20



4.6.3 Improvements observed in NAPLAN Year 3 by Socioeconomic Background

NAPLAN results for students who attended a school where LiL programs were offered in 2008 were subdivided by socioeconomic background and differences in performance compared.

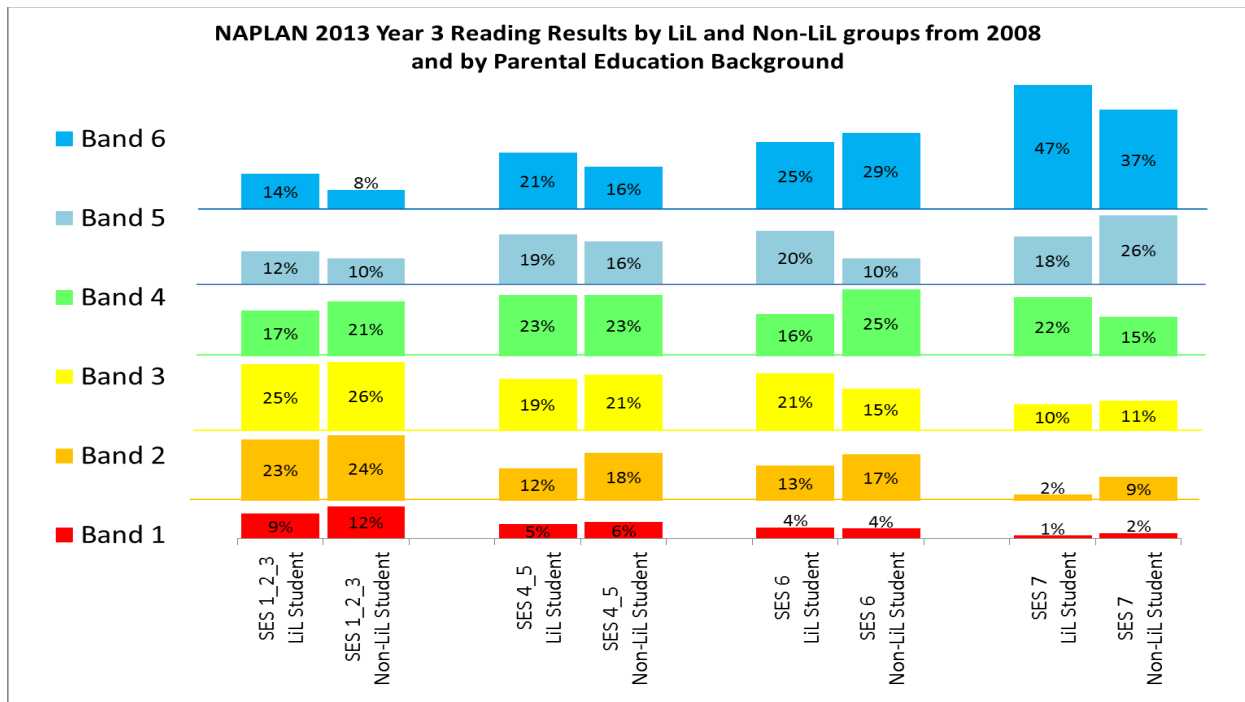
The NAPLAN results were disaggregated in a similar way to PIPS graphs presented in Figure I.20. However, due to the small number of students in SES I category, the data has been aggregated across SES categories I, 2 and 3.

Students who regularly participated in LiL (in 2008) outperformed students who attended the same school but did not participate in LiL.

The graphs in figures I.21 and I.22 show that, for students with parents from lower educational backgrounds, a smaller percentage are represented in *Band 1* for LiL than in non-LiL. This is an improvement in performance represented by a reduction in the proportion of those students below NAPLAN national minimum standard (NMS).

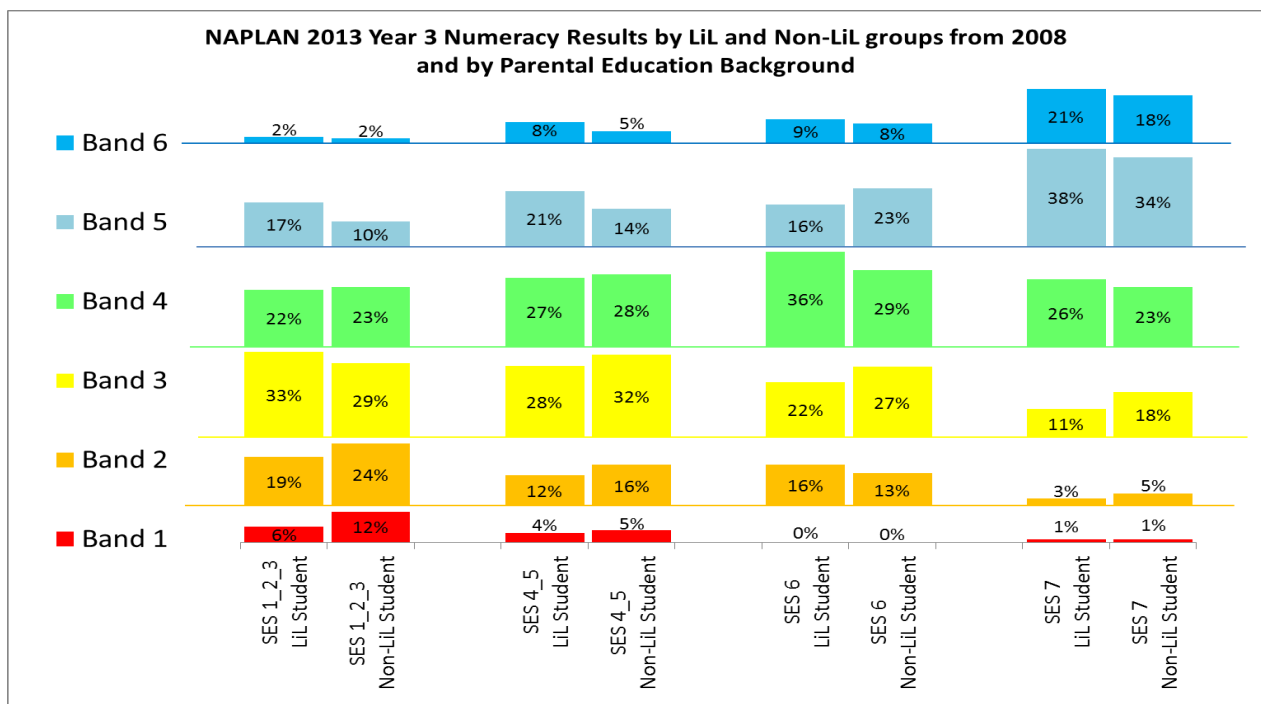
Both graphs also show that, for students with parents from higher educational backgrounds, a larger percentage is represented in *Band 6* for LiL than in non-LiL. This is an improvement in performance represented by an increase in the proportion of those students above NAPLAN NMS.

Figure 1.21



Details: The graphs show changes in outcomes after regular participation in LiL across NAPLAN reading performance bands disaggregated by socioeconomic background. The NAPLAN bands are ordered from lowest *Band 1* to the highest *Band 6*.

Figure 1.22



Details: The graph show changes in outcomes after regular participation in LiL across NAPLAN numeracy performance bands disaggregated by socioeconomic background. The NAPLAN bands are ordered from lowest *Band 1* to the highest *Band 6*.

5 Conclusions

The *Launching into Learning Longitudinal Study 2007 to 2014* has established that regular participation in LiL gives children a significant boost in general development, reading and maths performance. These improvements are sustained after participation in LiL ceases, with LiL children showing improved results through Kindergarten, Prep and (NAPLAN) Year 3. These benefits occur irrespective of socioeconomic background or Aboriginal status, with students from disadvantaged socioeconomic backgrounds benefiting most (Fig 1.1 Page 4).

The accumulated multi-year data emphasises that LiL programs have consistently delivered improvements in educational outcomes in every year after they were established.