

Supplementary Report into Students' Learning Progress

Villa Education Trust's Partnership Schools Kura Hourua: South
Auckland Middle School & Middle School West Auckland
2016-2018

This supplementary report presents detailed analyses of student learning progress at the Villa Education Trust partnership schools: South Auckland Middle School and Middle School West Auckland. This report is the result of a separate agreement between the Villa Education Trust and the Ministry and is not directly relevant to the assessment of student achievement performance that applied under the contracts and were subject to assessment by the Advisory Group on Charter Schools.

6 June 2019

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Executive Summary

- Villa Education Trust (the Trust) operated two schools: South Auckland Middle School (SAMS) and Middle School West Auckland (MSWA), from 2014-2018 as partnership schools kura hourua (partnership schools). Approximately 180-200 students were enrolled per school per year across years 7, 8, 9 and 10 (student ages 11-14).
- The partnership schools model had a focus on improving educational achievement for priority learners. Under the model, partnership schools were required to meet agreed outcomes (performance standards) in return its sponsors received bulk funding and had flexibilities in how the school was governed and operated.
- In 2016 the Trust raised issues about the lack of progression measures and measures for students in years 9 and 10 in the contract. A programme of work was committed to with the intention of establishing progress measures, but it did not complete because it was overtaken by events (the 2017 General Election).
- This report provides further analysis of the learning progress in SAMS and MSWA over the years 2016-2018, alongside the attainment based reporting that was required under the contract. Attainment-based results do not include consideration of the learning position of the students when they enrolled at the schools. They indicate whether students were able to achieve at a particular attainment level by the end of a given year. If performance is viewed based only on attainment-based measures, accelerated learning progress can be missed.
- Accelerated learning progress has been identified at SAMS. Learning progress is the rate at which students are learning, not whether or not they achieved a particular standard like National Standards. Having an indication of where learning progress is occurring, and how fast relative to usual expected progress, is important information for teachers. It can enable targeted learning programmes to be directed to match individual student needs. It can be shared with parents and whānau so they can also focus on the learning support their children need at home.
- This report explores three alternative learning progress analysis approaches: the Trust's own approach, and two approaches by an educational research expert (effect size calculations and violin plots showing the distribution of student achievement).
- The effect size analyses indicate that SAMS achieved significantly accelerated learning in both Reading and Mathematics; and that MSWA achieved some accelerated learning in Mathematics but was not yet achieving accelerated learning in Reading. In some cases analysis showed areas where students were making less learning progress than expected.
- Learning progress analysis has been included for students in Years 9 and 10. The Years 9 and 10 results show learning progress is lower than in the earlier year groups, however, some accelerated progress was evident at SAMS.
- The Trust developed its own approach to analysing and monitoring learning progress. As part of this report, the Trust's approach was verified and a template was developed to support ongoing learning progress analysis. This template may assist other schools and is available from the Ministry or the Trust upon request.
- The learning progress analysis and methodologies used in this report are intended to inform future work on school-based learning progress monitoring and assessment, and support teaching practice through the Trust's ongoing involvement in the state schools that replaced the partnership schools.

Introduction

Purpose

In 2016 the Villa Education Trust (the Trust) formally raised issues with the Ministry of Education (the Ministry) about the lack of progression measures and measures for students in years 9 and 10 in the contract. A programme of work was committed to with the intention of establishing progress measures, but it did not complete because it was overtaken by events.

Following the 2017 General Election, Government policy changed and the review was overtaken. The partnership school kura hourua (partnership schools) model was subsequently removed from the education system and schools were invited to apply to establish schools under the state system. All current sponsors applied and were approved to establish state schools. The partnership school contracts were ended in December 2018.

It is possible to analyse student learning progress and monitor it without setting standards. With the partnership school model removed, this report has an exploratory focus. It provides analysis of student achievement at the two partnership schools established and operated by the Trust between 2013 and 2018. The schools were South Auckland Middle School (SAMS) and Middle School West Auckland (MSWA).

This report is supplementary to the regular reporting about partnership school performance to the Minister of Education. This has not been prepared by or for the Advisory Group on Charter Schools, although it will be shared with the advisory group for information.

For this joint project with the Trust, the Ministry contracted Dr Kane Meissel, Auckland University, to provide expert analysis. This report was prepared by Simon Laube, Senior Manager, Partnership Schools Kura Hourua, Early Learning and Student Achievement.

Partnership School Kura Hourua Model

Partnership schools were first established in New Zealand in 2013 with a focus on improving educational achievement for priority learners: Māori students, Pacific students, students from low socio-economic backgrounds and students with additional learning needs. By 2018 there were 11 partnership schools operating through fixed term contracts with the Crown. At the end of 2018 the model was removed from the education system, the contracts ended, and all operating partnership schools were replaced by state schools.

The partnership school model was established with a focus on improving educational achievement for priority learners. Under the model, the schools were required to meet agreed outcomes (performance standards) in return sponsors received bulk funding and had flexibilities in how the school was governed and operated. Sponsors had complete discretion over the control and management of their school through statutory authority in the Education Act 1989.

It was intended that flexibilities would help enable schools to be more innovative, so they could respond to local education needs, more effectively engage students and deliver better educational results that help improve student's life outcomes. Sponsor performance was assessed on an annual basis, based on the schools' results against the performance standards.

Student achievement performance standards were based on student attainment results against National Standards/Ngā Whanaketanga Rumaki Māori for students in Years 1 to 8 and NCEA for secondary students, generally undertaken at Years 11 to 13).

National Standards, however, did not extend to Years 9 or 10 students, and partnership school contracts had no performance standards for these year levels. This impacted particularly on middle

schools such as those operated by the Trust, because it meant that the assessment of school performance was based only on the results for Year 7 and 8 students (i.e. half the student population in the case of the Trust's two partnership schools).

In 2013, partnership schools were subjected to an aspirational target to reach 85% at/above National Standards in all subjects. The student achievement performance standards set for partnership schools increased each year from a starting point of around 50% in the first year of operation to 85% for all subjects by 2017.

System level results did not, however, achieve the 85% aspirational level before National Standards were removed from the education system in 2017. In 2016 the national averages for Reading reached 78%, Writing 71% and Mathematics 75%.

In 2017, subsequent system level targets were set at the level of 80% by 2021 in Writing and Mathematics for Year 8 students; consistent with this, revised partnership school performance standards were developed and implemented from Round Four contracts onwards. They included an aggregate standard that was lower than 85% and was set across the three subject areas (Writing, Mathematics and Reading), but more closely linked to the student population expected to enrol (METIS 1064290 refers).

Further notes

Based in Wattle Downs, SAMS was first opened by the Trust in 2014, as a co-educational middle school for students in Years 7 to 10. The following year its second partnership school, MSWA, opened in Henderson, Waitakere City. This was also a co-educational middle school, which included a te reo Māori bilingual unit.

This report has a focus on student achievement progress over 2016 to 2018 in Reading and Mathematics. This is the first report of this nature. Charter schools are required to provide regular quarterly and annual reporting; and annual reporting is analysed and assessed by the Minister of Education in accordance with the partnership school contractual framework.

The Trust and the Ministry, supported by Dr Meissel, met at South Auckland Middle School on 18 October 2018 and 14 February 2019 as a working group. The sessions allowed analysis to be discussed in-depth and for the work to be developed iteratively. Analysis was completed for the Trust's two schools, using the following information sources:

1. self-reported National Standards results from 2014 to 2017 (based on year-end results)
2. self-reported e-asTTle¹ curriculum level achievement results for each student at the beginning of term 1 and the end of term 4 for 2016 to 2018 for Reading and Mathematics.

In 2018, the Trust reported enrolments of 180 at SAMS and 198 at MSWA. Both SAMS (97%) and MSWA (86%) have reported high percentages of priority learners in 2018, and this has been a pattern since the schools opened.

¹ e-asTTle (Assessment Tools for Teaching and Learning) is an online standardised assessment tool provided free to schools by the Ministry of Education. It was developed to assess students' achievement and progress against the curriculum, in reading, mathematics, writing, and in pānui, pāngarau, and tuhituhi.

The tables below indicate the number of students who were in the school in 2018, who had individualised achievement data available for all previous time points. For example, 30 MSWA students who were in Year 10 in 2018 had Reading data available at the beginning and end of that year. Of these students, only 23 had Reading data for 2017 as well, while only 5 had achievement data for all six time points. Overall, the data available was lower for MSWA than for SAMS.

SAMS Matched Student Achievement Data Sample Size (2016-2018)						
2018 Year Level	Reading			Mathematics		
	2016	2017	2018	2016	2017	2018
7			37			34
8		28	41		30	39
9	24	26	36	23	27	39
10	16	22	32	15	20	30

MSWA Matched Student Achievement Data Sample Size (2016-2018)						
2018 Year Level	Reading			Mathematics		
	2016	2017	2018	2016	2017	2018
7			30			30
8		29	39		30	39
9	8	17	32	8	16	30
10	5	23	30	6	19	26

Note: 2018 is shown in bold as the 2016-2017 figures are shown in relation to the number of 2018 students who had been tracked in previous years. It does not indicate that only 5 Year 10 students had Reading data in 2016 – rather that 25/30 students for whom data were provided in 2018 did not have data from earlier years available.

This report does not examine student engagement or provide in depth information about the population of students and their prior experience of education. Improved student achievement is only possible once a range of factors are already in place: it is a precondition that students must feel safe in school so they can feel settled, engaged and ready to learn. This analysis has not included assessment of the school culture of SAMS and MSWA over the period. However, the evaluation completed by MartinJenkins focused on school culture with close attention of the Trust's schools.² The findings showed positive student engagement through survey results across both of the Trust's schools.

² <https://www.educationcounts.govt.nz/publications/schooling/evaluation-of-partnership-schools-kura-hourua-policy>

Learning Progress

Learning progress is about understanding the rate at which students are learning, not whether or not they achieved a particular standard (i.e. attainment). Learning progress is not the same as attainment-based results. The simplest way to think about learning progress is that it is the change in learning measured from two or more points in time, for example at the start of the year and the end of the year. In contrast, attainment information is gathered by measuring a student's performance against a standard at a single point in time. How learning is measured can vary. For example, tests may be used to inform a teacher's judgement – with assessments recorded for individual students by the school.

Having an indication of where learning progress is occurring, and how fast relative to usual expected progress, is important information for teachers. It can enable them to direct targeted learning programmes to match individual student needs. It can be shared with parents and whānau so they can also focus on the learning support their children need at home.

The scale of the learning challenge increases depending on the current learning level of the students. When schools focus on individual students, better opportunities emerge that can help ensure that teaching practice is responsive to the specific needs of students.

There is currently no national data collection of learning progress. Schools that analyse learning progress tend to rely on normative or curriculum level expectations in making assessments about how students are performing.

In this report, learning progress information is presented in the following ways for each of the Trust's two middle schools:

- National Standards attainment-based results - presented over time (2015 to 2018) by year level. This is to set the scene and reflects student achievement information that has already been publicly reported. The absence of attainment-based results for students in Years 9 and 10 created a gap in the performance information available, and was one of the precursors to this report. In some cases converted results have been used to fill the gaps (for 2018 only).
- Results against the curriculum sub-levels using e-asTTle. Student learning in middle schools broadly aligns across four curriculum levels, and 12 sublevels (2B to 5A within these schools). The distribution of students' against the sublevels and across the year levels is shown using violin plots.
- Effect size calculations show learning progress using established statistical techniques.
- The Trust's own analysis of learning progress is also presented.

The quarterly and annual reporting regime under the partnership school contracts required aggregated student achievement data (both attainment and progress) to be reported. Aggregated data is significantly limited compared to what is possible with individual student data for the purposes of calculating learning progress. For example, as the student population is relatively changeable, aggregate level data cannot distinguish those population changes. In addition, the range of statistical techniques available to test whether the progress is meaningful or potentially due to chance, was narrow. The approaches followed are not mandated in the contract, but have been employed with mutual agreement between the Ministry and the Trust.

The Trust provided individual student-level data for this report. This made it possible to match and track students accurately over multiple time periods (individually "matched" samples).

The Advisory Group on Charter Schools has also completed learning progress analysis for all the partnership schools (only the schools with suitable pre-secondary data), but using aggregated reporting. Due to this aggregation, this other analysis relies on a “pseudo-matched” sampling approach. For example, students in the school for their first year in 2018 could not have been in the school in 2017, so were excluded when considering progress from 2017 to 2018. Some changes within the year groups can also occur, however. For this reason, ideally, progress should be measured using individually matched data (i.e. the same students tracked over time). While the aggregated data approach is mandated under the contracts, the ‘matched’ method relies on individual student data. There are obviously trade-offs between using aggregates and individual student data – richer data may provide better and more reliable insights, but may require more advanced statistical analysis skills, and it was the aggregated method that was mandated through the partnership school contracts.

To demonstrate the difference between the two different approaches, both “pseudo-matched” and “matched” are presented in this report. While both are valid approaches, the matched results were considered preferable and appear bolded in this report.

A potential weakness with the matched data is that it will exclude transient students. Individual student progress cannot be measured once a student leaves the school. It is therefore challenging to control for transience.

Attainment-based results for SAMS and MSWA and the conversion of e-asTTle results to National Standards for Years 7-10 in 2018

A graduated formatting rule (shown below) has been used in Tables 1 and 2 to represent how close the attainment-based result were to a notional 85% standard (at/above National Standards). This rule means that percentages 85% and over clearly appear green. It is important to note that the Trust's schools were not required to reach the 85% performance standard until 2017. It featured as an aspirational target that was consistent with the student achievement objectives behind the partnership school policy. To enable easy comparison across years, the same colour gradient is used for all achievement tables, even in cases where the performance standard differed from 85%.³



Table 1 Self-reported Student Achievement (Attainment) and the Converted e-asTTle results (National Standards) at South Auckland Middle School

Q4 2015-2018					
Subject	Year Level	% At/Above National Standard			
		2015 (N = N/A)	2016 (N = N/A)	2017 (N = 88)	2018 ¹ (N = 153)
Reading	7	73	41	68	68
	8	70	53	64	79
	9	N/A	N/A	N/A	87
	10	N/A	N/A	N/A	76
	Total	72	47	66	78
Writing	7	77	48	64	N/A
	8	70	63	55	N/A
	9	N/A	N/A	N/A	N/A
	10	N/A	N/A	N/A	N/A
	Total	73	56	59	N/A
Mathematics	7	63	55	59	97
	8	77	57	46	50
	9	N/A	N/A	N/A	60
	10	N/A	N/A	N/A	39
	Total	70	56	52	61
All Subjects	Total	72	53	59	69

¹ Note that 2018 results have been converted from e-asTTle curriculum levels.

³ The Ministry has published on its website the quarterly and annual reports and final assessment reports on the Trust's partnership schools: <http://www.education.govt.nz/our-work/information-releases/information-releases-from-2018/partnership-schools-kura-hourua-information-release/advice-to-minister-operations-and-reporting/>.

Table 2 Self-reported Student Achievement (Attainment) and the Converted e-asTTle results (National Standards) at Middle School West Auckland

Q4 2015-2018					
Subject	Year Level	% At/Above National Standard			
		2015 (N = N/A)	2016 (N = N/A)	2017 (N = 95)	2018 ¹ (N = 160 ²)
Reading	7	38	37	39	36
	8	52	38	56	46
	9	N/A	N/A	N/A	88
	10	N/A	N/A	N/A	66
	Total	45	38	46	59
Writing	7	31	21	33	N/A
	8	48	34	40	N/A
	9	N/A	N/A	N/A	N/A
	10	N/A	N/A	N/A	N/A
	Total	40	28	36	N/A
Mathematics	7	59	42	50	88
	8	44	56	40	46
	9	N/A	N/A	N/A	43
	10	N/A	N/A	N/A	29
	Total	52	49	45	51
All Subjects	Total	45	38	42	55

¹ Note that 2018 results have been converted from e-asTTle curriculum levels.

The Trust provided 2018 student achievement results for SAMS and MSWA based on the standardised assessment tool e-asTTle for Reading and Mathematics. The sponsor and the Ministry agreed that these results would be converted to National Standards. This would allow the Advisory Group on Charter Schools to assess the results against the applicable performance standards in the contracts, and make further detailed analysis possible. No Writing results were reported for 2018, however. The conversions are included in this report. The conversion process that was used is fully documented in the report by the Advisory Group on Charter Schools (2018).

The converted results have been used in this report, together with the sponsor's previously reported Overall Teacher Judgement results for 2015 to 2017. 2014 data for SAMS is publicly available but has been excluded from this report because it is outside the time period.

It should be noted that the conversion process used to translate the e-asTTle results was also applied to Years 9 and 10. While the conversion outcomes could be verified against the earlier OTJs for students in Years 7-8, no such verification was possible for Years 9-10. Caution should be taken interpreting those conversions, however there was no reason to believe the conversions are less accurate than those done for Years 7-8.

Verification of the Trust's learning progress analysis

The Trust provided its own analysis of learning progress results for SAMS and MSWA based on the standardised assessment tool e-asTTle for Reading and Mathematics. Its approach was developed with the expert assistance of Michael Absolum in 2016, and was considered by the Education Review Office through regular review.

In short, the Trust's own progress assessment practice sought to identify students where closer attention was required – to improve student achievement. This practice presented opportunities for the Trust to raise achievement challenges either through making changes to teaching practice or by further tailoring education based on individual students' needs.

The Trust's general aim⁴ was for learning progress of around 1.5 years every 1 calendar year. Its methodology was to annualise curriculum progress by tracking the curriculum sub-levels that each individual student was at (using e-asTTle). In terms of expected progress against the curriculum, a student may be expected to shift upwards three curriculum sub-levels every two years. The Trust's analysis showed individual progress using different baselines (to measure progress you must measure the difference between two data points):

- **Within the year** (e.g. quarter 1 of the current year, measured against quarter 4 of the current year);
- **Across the year** (e.g. quarter 4 of the previous year, measured against quarter 4 of the current year);

Essentially both of the above approaches measure progress over one year but the baseline is different. There are pros/cons associated with the different baselines. A baseline taken after the end of the school holidays may be subject to the "school holiday effect" – where students can apparently appear to lose progress. Similarly, there may be issues with both the student population changes (sample size reductions) and variations associated with the teachers conducting the assessments⁵; and,

- **The longest period available** (e.g. quarter 1, 2016, established the baseline; with the last data point quarter 4, 2018).

Dr Meissel analysed the Trust's data and verified it. Any result over 1 indicates accelerated progress; results of 1.5 indicate greater acceleration and that the Trust was meeting its own expectations. The results are below.

Table 5 Student Achievement (Learning Progress) at South Auckland Middle School

Projected Progress (Annualised)												
Year Level	Reading						Mathematics					
	Within the Year		Across the Year		Longest Period Avail.		Within the Year		Across the Year		Longest Period Avail.	
	<i>n</i>	Indic.	<i>n</i>	Indic.	<i>n</i>	Indic.	<i>n</i>	Indic.	<i>n</i>	Indic.	<i>n</i>	Indic.
7	37	1.61	N/A	N/A	37	1.61	34	1.88	N/A	N/A	34	1.88
8	41	1.34	32	1.63	41	1.32	39	1.75	33	1.49	39	1.27
9	36	0.84	27	1.63	36	0.82	39	1.23	27	1.16	39	0.76
10	32	1.14	25	0.64	32	0.68	30	1.48	27	1.38	34	0.76
Overall	146	1.24	84	1.33	146	1.13	142	1.58	87	1.35	146	1.16

⁴ It is important to note that the Trust's aims should be considered indicative of its discretion to determine its approach to educational achievement for priority learners, and is not a Crown-imposed performance standard.

⁵ Teachers at the Trust's schools may exhibit more stability around the assessments made, the Trust advised that students have the same teachers throughout their entire time at the school.

At SAMS, the results suggest consistent accelerated learning progress in Years 7 and 8 for Reading.

Accelerated learning progress in Mathematics for Year 7-10 students was most strongly indicated overall, with some instances of lower than expected progress concentrated in Year 10. For students in Years 9 and 10, learning progress was lowest if viewed over the longest period available.

Table 6 Student Achievement (Learning Progress) at Middle School West Auckland

Projected Progress (Annualised)												
Year Level	Reading						Mathematics					
	Within the Year		Across the Year		Longest Period Avail.		Within the Year		Across the Year		Longest Period Avail.	
	<i>n</i>	Indic.	<i>n</i>	Indic.	<i>n</i>	Indic.	<i>n</i>	Indic.	<i>n</i>	Indic.	<i>n</i>	Indic.
7	30	0.86	N/A	N/A	30	0.86	30	1.60	N/A	N/A	30	1.60
8	39	0.96	41	-0.20	45	0.66	39	1.80	39	1.28	42	1.52
9	32	1.50	21	1.62	32	1.70	30	1.45	22	1.36	34	1.67
10	30	0.68	30	0.51	34	0.94	26	0.75	27	0.40	29	0.79
Overall	131	1.00	92	0.45	141	1.01	125	1.45	88	1.03	135	1.42

- At MSWA, the results suggest consistent accelerated learning progress in Year 9 for Reading.
- Accelerated learning progress in Mathematics for Year 7-9 students was indicated.
- There was less than expected progress for students in Year 10 across both subjects.

Table 3 Robust Cohen’s d Student Learning Progress at South Auckland Middle School – to show comparability of matched approach to the pseudo-matched approach

Period	Sample	Reading			Mathematics		
		N		Robust Cohen’s d	N		Robust Cohen’s d
		Time 1	Time 2		Time 1	Time 2	
Within the year (Q1 2018-Q4 2018) Years 7-8	Pseudo-matched	92	81	0.19	92	75	0.42
	Matched	78	78	0.20	73	73	0.43
Years 7-10	Pseudo-matched	183	153	0.16	182	153	0.29
	Matched	146	146	0.15	142	142	0.32
Across the year (Q4 2017-Q4 2018) Year 8 only	Pseudo-matched	37	43	0.33	40	40	0.24
	Matched	32	32	0.83	33	33	0.40
Years 8-10	Pseudo-matched	117	115	0.25	117	118	0.24
	Matched	84	84	0.54	87	87	0.40
Across two years (Q1 2017-Q4 2018) Year 8-10	Pseudo-matched	119	115	0.13	135	118	0.01
	Matched	84	84	0.27	97	97	0.07

- At SAMS, students in Years 7-8 show accelerated progress in both Reading and Mathematics.
- Accelerated progress is evident in Reading within the year, but is more evident when measured across the year. There is a large discrepancy between the pseudo-matched and matched samples, suggesting the existence of an unknown environmental factor; such as that either some high achieving students left the school, or low achieving students started after the first assessment had been completed in 2018.
- The accelerated learning in Mathematics is significant and this remains evident through both approaches - within the year and across the year. The lower figure for the pseudo-matched sample likely reflects the same environmental factor applied, as suggested above.
- In general, the level of accelerated learning appears increased when measured across the year and with matched samples. However, accelerated learning is not evident in Mathematics when effect size is analysed across two years.

Middle School West Auckland – Effect Size Analysis

The matched sample provides a more accurate indication of progress. Pseudo-matched data is presented for comparison purposes only (to allow comparisons to the analysis presented in the Advisory Group report).

Table 4 Robust Cohen’s d Student Learning Progress at Middle School West Auckland – to show comparability of matched approach to the pseudo-matched approach

Period	Sample	Reading			Mathematics		
		N		Robust Cohen's <i>d</i>	N		Robust Cohen's <i>d</i>
		Time 1	Time 2		Time 1	Time 2	
Within the year (Q1 2018-Q4 2018) Years 7-8	Pseudo-matched	85	75	-0.09	82	74	0.17
	Matched	63	63	-0.06	63	63	0.30
Years 7-10	Pseudo-matched	166	149	-0.02	162	146	0.07
	Matched	120	120	-0.04	117	117	0.16
Across the year (Q4 2017-Q4 2018) Year 8 only	Pseudo-matched	53	48	-0.35	55	46	0.28
	Matched	41	41	-0.30	39	39	0.31
Years 8-10	Pseudo-matched	140	127	-0.08	145	120	0.21
	Matched	92	92	-0.07	88	88	0.18
Across two years (Q1 2017-Q4 2018) Year 8-10	Pseudo-matched	121	127	0.07	123	120	-0.01
	Matched	78	78	0.10	74	74	0.09

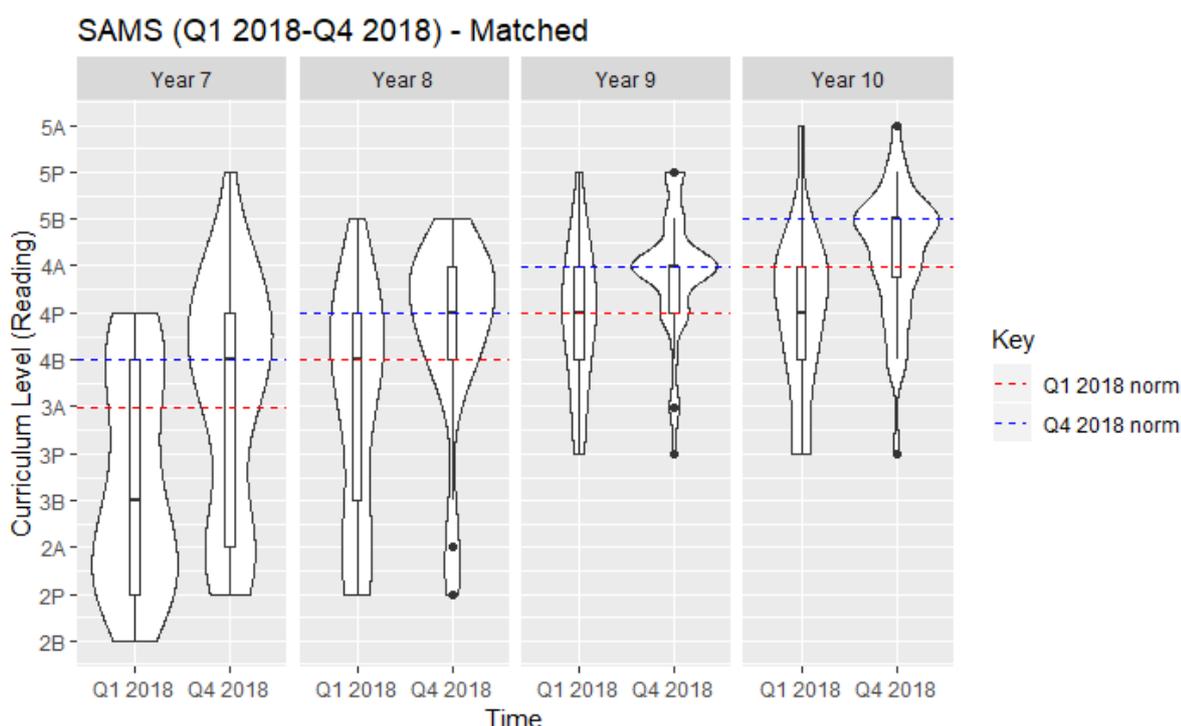
- At MSWA, students show accelerated progress in Mathematics. Progress is more evident at the lower year levels (7-8).
- Progress in Reading is equivalent to normative expectations for the year group when measured within the year, but is below expectations when measured across the year. This suggests the presence of an environmental factor for the Year 7s, as they are not included in analysis across the year. Possibly the Year 7 students made greater progress than the students in the other year levels. This suggests that both methods of analyses ('within the year' and 'across the year') can provide meaningful insights.
- No accelerated progress is evident when effect size analysis is conducted across two years.

Violin Plots: Further analysis of student achievement distributions

The following series of charts show the distribution of student achievement assessments as another way to understand progress. They plot the individual students' at each measurement point as assessed against the curriculum.

The violin plots show the relative density of the distribution across the curriculum levels for all the individual students at the school for that subject. There are markers ("-") for the median of the data; a box indicating the interquartile range; and outliers are indicated by black dots. Dotted lines indicate the normative expectations for the year group. In general the normative data indicates a shift of one curriculum sublevel over a year. In many cases the median results are indicative of a shift that is the same or greater than one curriculum sublevel.

South Auckland Middle School– Student Achievement Distributions in Reading



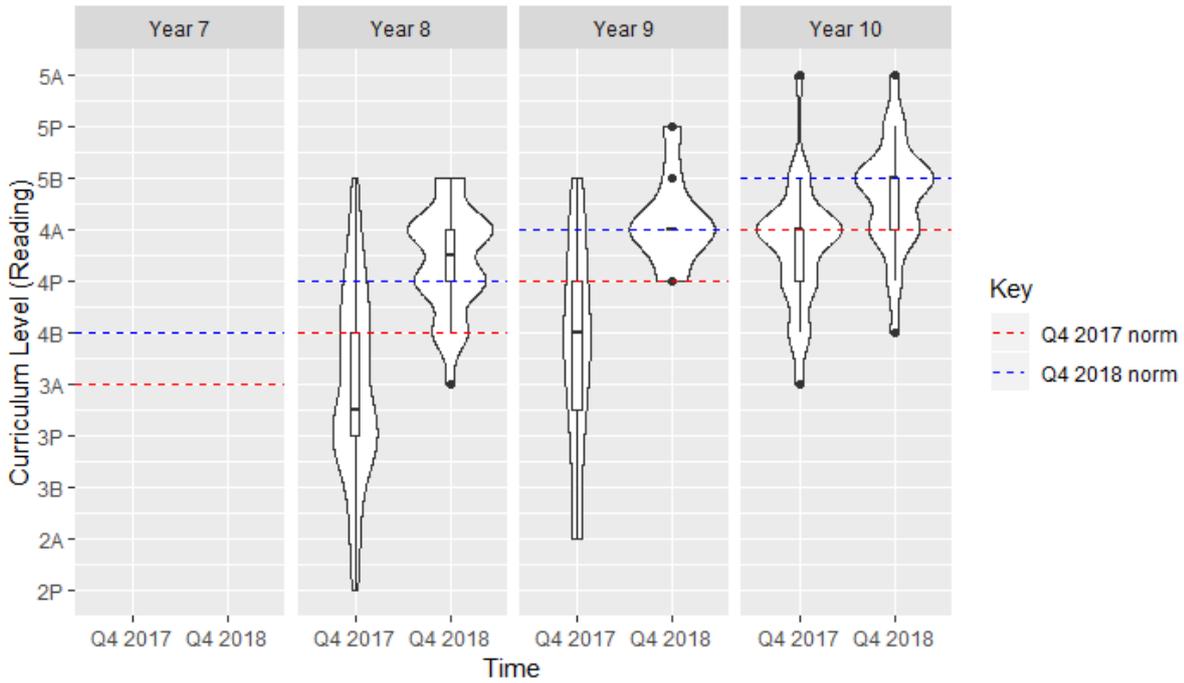
- Note that because the sample sizes are relatively small there can be artefacts within the plots where the density appears to lessen between curriculum sub-levels. For example, the Year 10 Q4 2018 result shows narrowing between 4A and 5B – it is not possible to receive a curriculum level result between these two sub-levels so such narrowing should be ignored. In contrast, narrowing around a sub-level – as shown around 3P for Year 8 Q4 2018 – reflects that there are very few students with this result.

Pointers for reading/interpreting violin plots:

Look for the following: has the year group improved if you compare the first point in time with the second (e.g. Q1 2018 with Q4 2018), has the distribution changed (the violin shapes indicate the distribution), and did the data generally get closer to the norm (has the shape shifted upwards against the curriculum levels, if yes by how much, noting the change expected to occur based on the norm, and its relation to the norms)?

Violin plots show data distribution, but some progress can be inferred by observing these distributional changes.

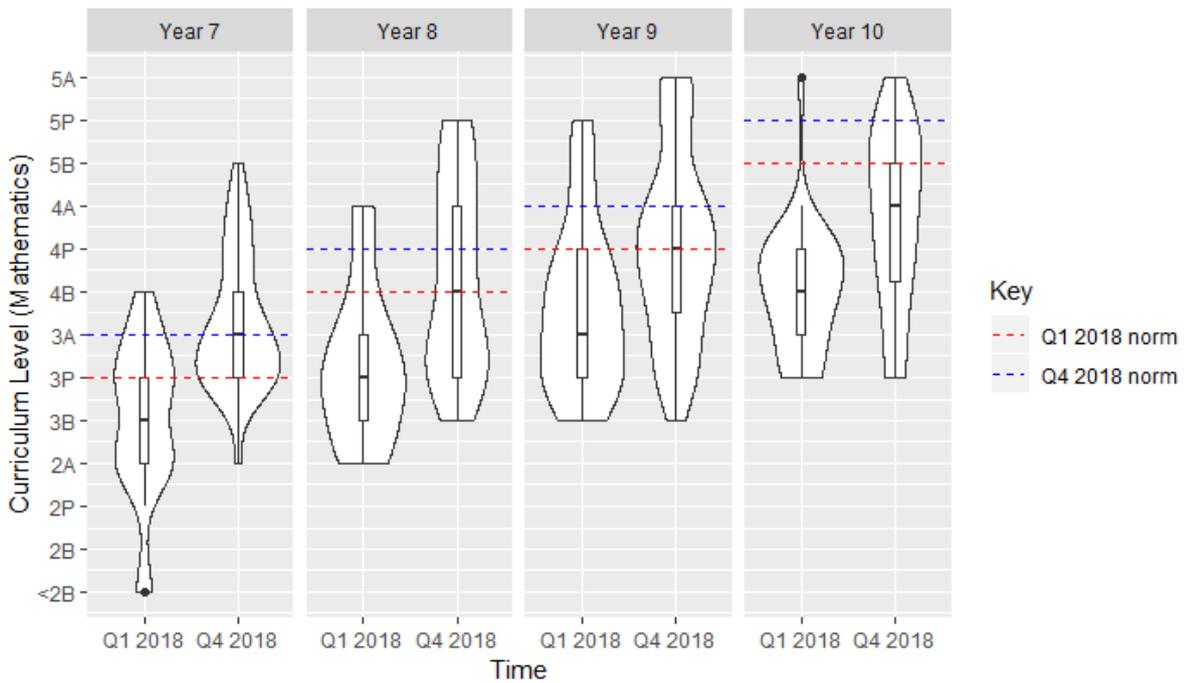
SAMS (Q4 2017-Q4 2018) - Matched



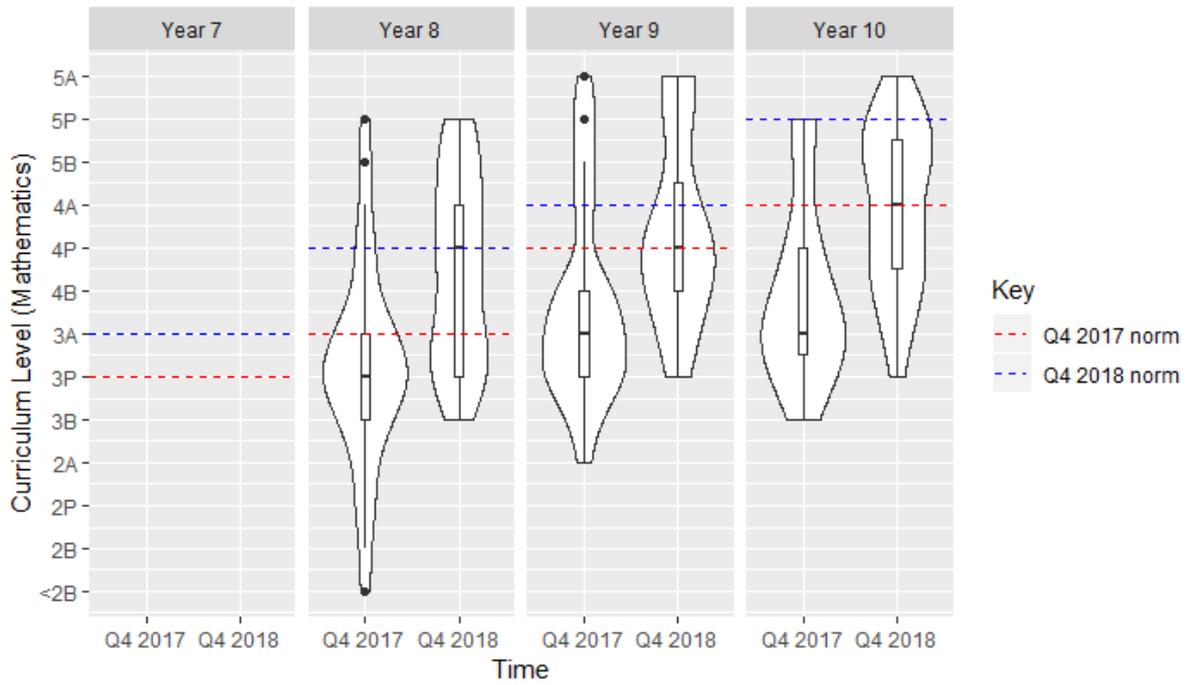
- An absence of data in Year 7 is because the students were not enrolled at quarter 4 2017.

South Auckland Middle School– Student Achievement Distributions in Mathematics

SAMS (Q1 2018-Q4 2018) - Matched

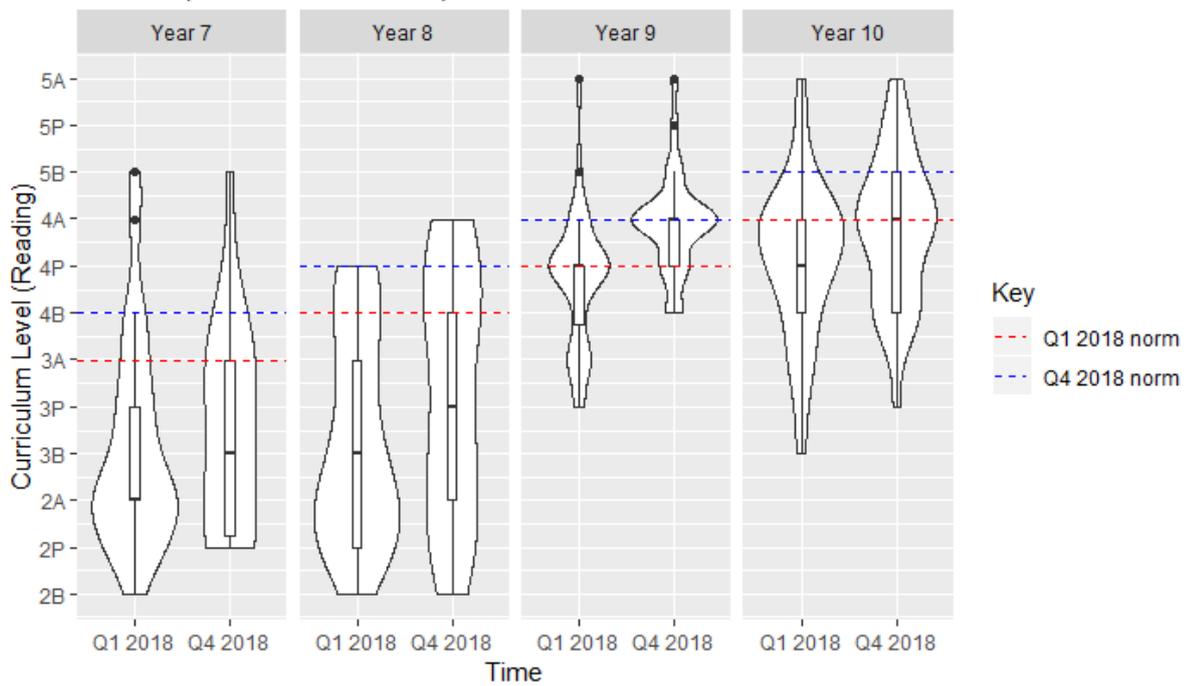


SAMS (Q4 2017-Q4 2018) - Matched

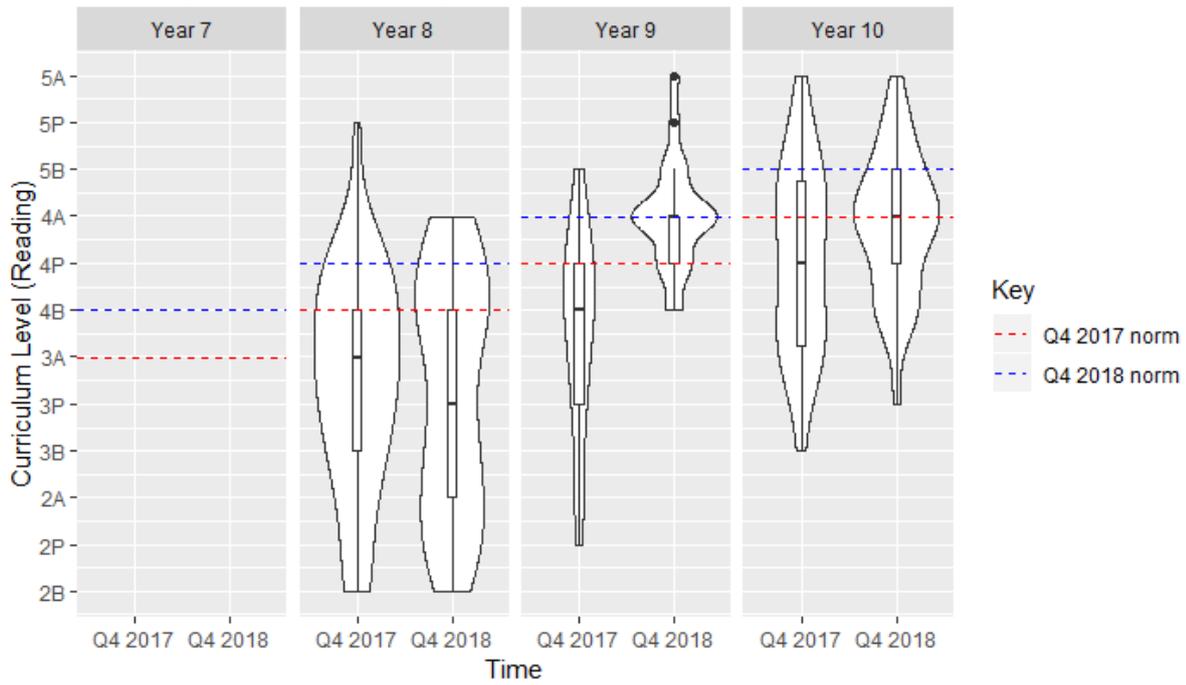


Middle School West Auckland – Student Achievement Distributions in Reading

MSWA (Q1 2018-Q4 2018) - Matched

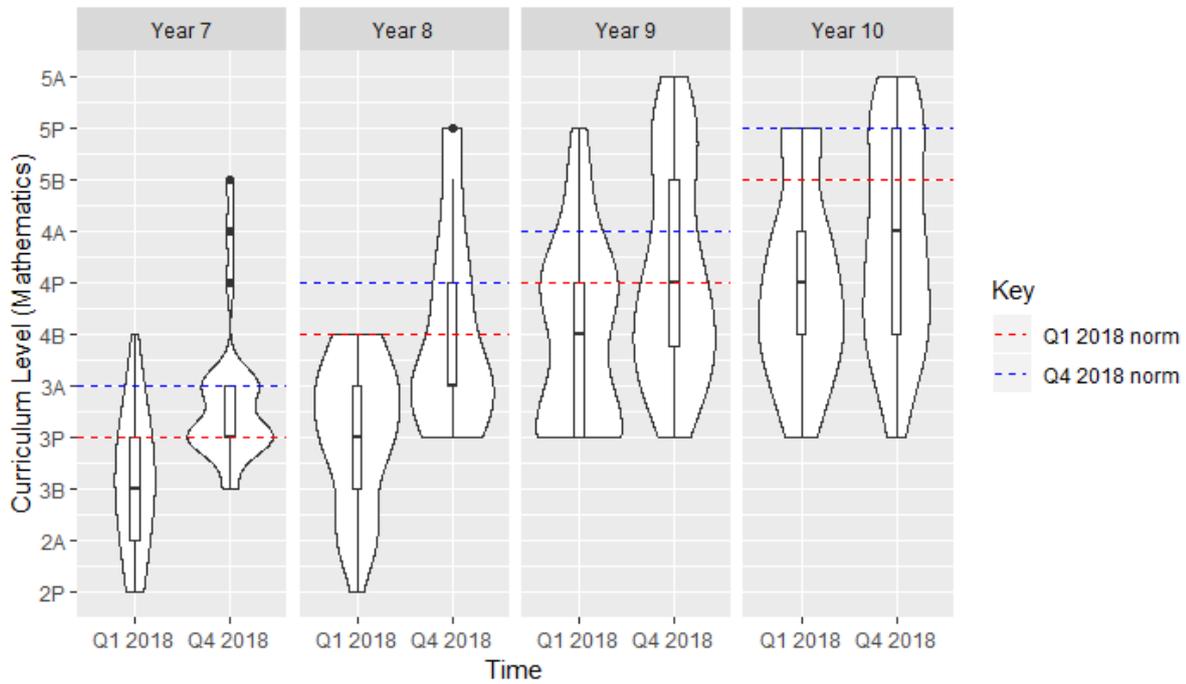


MSWA (Q4 2017-Q4 2018) - Matched

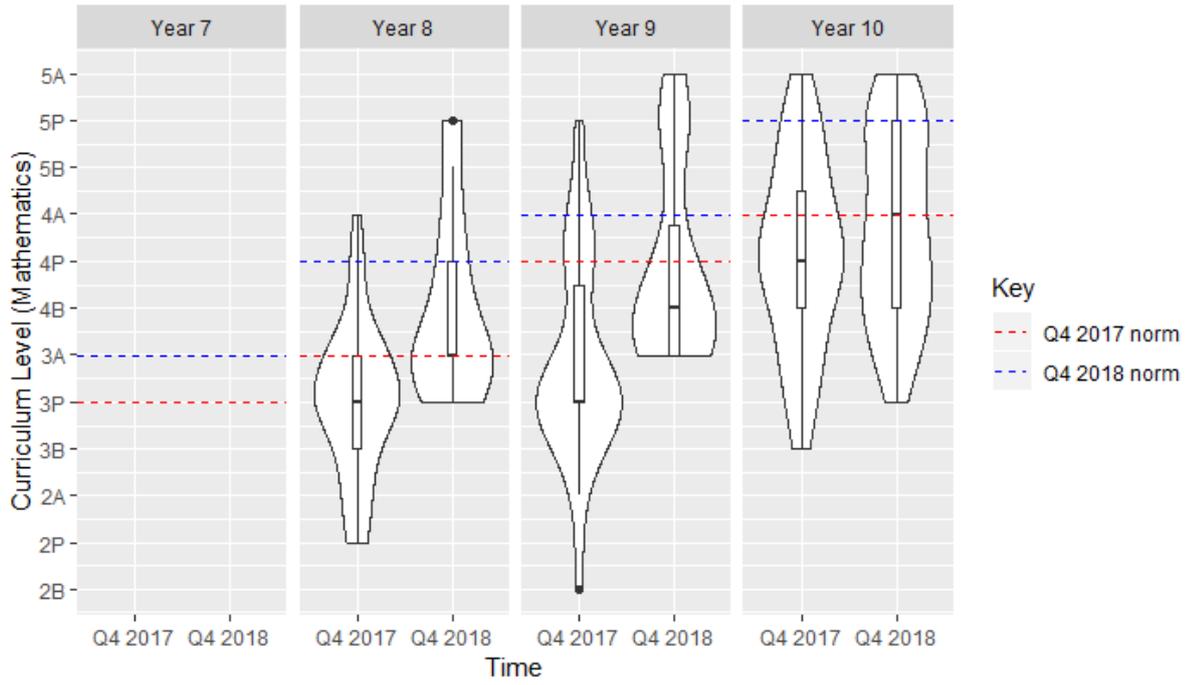


Middle School West Auckland – Student Achievement Distributions in Mathematics

MSWA (Q1 2018-Q4 2018) - Matched



MSWA (Q4 2017-Q4 2018) - Matched



Concluding remarks

This report has presented analysis that shows the Trust's two middle schools have demonstrated accelerated learning in Reading and Mathematics across 2016 and 2018, to varying degrees, over the same period where the monitoring of performance using attainment-based measures showed non-performance. Analysis of learning progress can identify if accelerated learning occurred.

The effect size analyses showed that SAMS achieved accelerated learning in both Reading and Mathematics; and that MSWA achieved accelerated learning in Mathematics but was not yet achieving accelerated learning in Reading. Both SAMS and MSWA had Year 7 student populations that started at school significantly below the normative expectations. In some cases analysis showed areas where students were making less learning progress than expected.

Attainment-based results do not include consideration of the learning position of the students when they enrolled at the schools. They indicate whether students were able to achieve at a particular attainment level by the end of a given year. If performance is viewed based only on attainment-based measures, accelerated learning progress can be missed. For example, if students in Year 7 started the year significantly below both the expectations for that year group then it would be very challenging to support those students to reach the expectations by the end of the same year, and sustained accelerated learning would be required to achieve expectations over time.

Had performance for Years 9 and 10 been part of regular reporting, it would have provided better access to more data for tracking cohorts of students as they moved through the year groups at the schools. Learning progress analysis has been included for students in Years 9 and 10. The Years 9 and 10 results show learning progress is lower than in the earlier year groups, however, significant accelerated progress was evident at SAMS. Continuation of a progress monitoring approach by the Trust or the new state schools could offer further insights.

This report has identified that lower performing students can make accelerated learning progress, however, no evidence has been identified that suggests that learning progress cannot also be achieved with higher performing students. Learning progress can become affected by a "ceiling effect" where students' attainment is significantly higher than the curriculum level for the age group. Once there are students well above the curriculum expectations, the learning progress results may drop off (partly because at that point the assessments have less room in the curriculum to show progress). Some schools will have environments where higher achievers are present, but that was not the case for these two partnership schools that had targeted priority learners.

All three approaches to calculating learning progress can provide insights: 'within a year', 'across a year' or using the 'longest period available'. 'Across the year' may provide more reliable data, however, that approach means that no calculations are possible for Year 7 students. The longer periods started to suffer from lower sample sizes, meaning more caution should be observed when interpreting those results. Considering the separate analysis completed across the other partnership schools using pseudo-matched (aggregate) data, it is notable that the Trust's schools did not follow the pattern that emerged of 'across the year' results showing reduced progress compared to results 'within a year' (in fact the opposite was evident at SAMS). The reason for that difference is unclear, but could have been due to the continuity provided by students having the same teachers across their entire period at the school. Having multiple measurement points and richer data has advantages, multiple perspectives can provide further insights.

The violin plots are another method for obtaining insights about the learning progress, but they are secondary to the effect size analysis. In the violin plots SAMS showed significant improvements in terms of distributional shifts against the curriculum sublevels; MSWA did not.

The Trust developed its own approach to analysing and monitoring learning progress. As part of this report, the Trust's approach was verified and a template was developed to support ongoing learning progress analysis. This template is available to others upon request.

The analysis methods contained in this report are illustrative of what is possible, but care should be taken interpreting these results. We do not have complete data for all the students that were enrolled over the period and information is rarely missing at random, which means the results of our analyses will contain bias.



We **shape** an **education** system that delivers
equitable and **excellent outcomes**

He mea **tārai** e mātou te **mātauranga**
kia **rangatira** ai, kia **mana taurite** ai ōna **huanga**