



issues backgrounder

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NSW school education: PISA 2018, socioeconomic background and proposals for reform

This Issues Backgrounder discusses Australia’s and NSW’s performance in the Program for International Student Assessment ([PISA](#)). Although a range of factors influence educational outcomes, the association between socioeconomic background and educational outcomes is well-established, with “a vast body of literature showing that more advantaged students tend to do better in school than disadvantaged students”.¹ Socioeconomic background was also associated with the largest range in Australia’s most recent (2018) PISA results. For those reasons, this Issues Backgrounder also sets out the association between NSW’s PISA 2018 scores and the socioeconomic background of NSW students. Reflecting national outcomes, NSW students from the lowest socioeconomic quartile performed approximately three years behind students from the highest socioeconomic quartile.

Academically resilient students performed well in PISA 2018 despite socioeconomic disadvantage. Two factors associated with academic resilience were a growth mindset and a positive school climate.

PISA 2018 data further suggests that socioeconomically disadvantaged students may have been particularly disadvantaged by the need for remote learning due to COVID-19 social distancing requirements.

This Issues Backgrounder also discusses recent proposals for reform of NSW school education made by the NSW Curriculum Review; the NSW Legislative Council’s Portfolio Committee Number 3–Education; and the NSW Audit Office.

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¹ Thomson S, [The effects of inequity in Australian schools](#), *Professional Voice*, 2017, 12(1), 29 at 29. See also: UNICEF Office of Research, [An unfair start: Inequality in children’s education in rich countries](#), Innocenti Report Card 15, 2018.

1. PISA: A PART OF THE NATIONAL ASSESSMENT PROGRAM

[PISA](#) is conducted by the Organisation for Economic Co-operation and Development ([OECD](#)) every three years. The Australian Council for Educational Research ([ACER](#)) manages PISA in Australia; with funding jointly provided by the Commonwealth Government and all State and Territory Governments.² Approximately [80 countries](#) and [600,000 students](#) participated in the latest 2018 PISA assessment. These results were published on [3 December 2019](#).

PISA results are reported in various forms; such as mean scores and the proportion of students attaining the National Proficient Standard. Australia's mean scores are also reported by gender, geolocation, school sector, socioeconomic background, Indigenous background, immigrant background and language background.³

PISA is part of the National Assessment Program ([NAP](#)), which aims to drive improvements in student outcomes. The NAP also includes the National Assessment Program—Literacy and Numeracy ([NAPLAN](#)); as well as other national and international assessments.⁴ The annual assessment and reporting cycle for the NAP is specified in the [Measurement Framework for Schooling in Australia 2019](#).

Unlike NAPLAN, which assesses all students over time (in years 3, 5, 7 and 9) and focuses on their individual progress; PISA tests the performance of a representative sample of 15–16 year old students and focuses on the performance of the sample as whole.⁵ This accords with PISA's aim of providing an international comparison of the performance of educational systems in equipping students with the knowledge and skills they need to be active and effective participants in modern society.⁶

The [NAP](#) arose from the [Adelaide declaration on national goals for schooling in the 21st century](#).⁷ The Adelaide Declaration was superseded by the 2008 [Melbourne Declaration on Educational Goals for Young Australians](#) (Melbourne Declaration) and, in December 2019, by the [Alice Springs \(Mparntwe\) Education Declaration](#) (Mparntwe Declaration).⁸ The goals of the Mparntwe Declaration are:

1. The Australian education system promotes excellence and equity.
2. All young Australians become:
 - confident and creative individuals
 - successful lifelong learners
 - active and informed members of the community.⁹

² Thomson S, De Bortoli L, Underwood C and Schmid M, [PISA 2018: Reporting Australia's Results \(Volume 1 Student Performance\)](#), Australian Council for Educational Research, 2019, p xii.

³ *Ibid*, p xii-xxvi.

⁴ The other assessments that also form part of the NAP are: [NAP sample assessments on civics and citizenship, Information and Computer Technology \(ICT\) literacy and science literacy](#); the [Trends in International Mathematics and Science Study \(TIMSS\)](#); and the [Progress in International Reading Literacy Study \(PIRLS\)](#).

⁵ The population was students aged between 15 years and 3 months and 16 years and 2 months, who were enrolled full-time or part-time at an educational institution: Thomson S, De Bortoli, Underwood C and Schmid M, [PISA 2018: Reporting Australia's Results \(Volume 1 Student Performance\)](#), Australian Council for Educational Research, 2019, p xxvii.

⁶ See generally, Schleicher A, [PISA 2018: Insights and Interpretations](#), OECD, 2019, p 3.

⁷ National Assessment Program, [Why Nap: NAP History](#), 2016 [website—accessed 27 February 2020].

⁸ *Ibid*.

⁹ Education Council, [Alice Springs \(Mparntwe\) Education Declaration](#), December 2019, p 4.

PISA mean scores provide a measure of excellence and, by extension, a measure of the ability of young Australians to achieve goal two of the Mparntwe Declaration. By enabling mean scores to be viewed through the perspective of socioeconomic background and the other variables detailed above (at 1), PISA also provides a measure of equity. Equity refers not to equal outcomes but the extent to which student outcomes are related to student background:

Equity does not mean that all students have equal outcomes; rather it means that whatever variations there may be in education outcomes, they are not related to student's background, including socioeconomic status, gender or immigrant background. ...The weaker the relationship, the more equitable the school system, as all students can flourish in such a system, regardless of their background.¹⁰

2. PISA ASSESSMENT CYCLES AND 2018 NSW PARTICIPANTS

Since 2000, PISA has assessed reading, mathematics and science using a triennial assessment cycle, with each assessment focusing on a different subject as its “major domain”. The major domain subject receives a larger amount of assessment time devoted to it than the minor domain subjects.¹¹ Reading was the first subject assessed as a major domain in 2000, followed by mathematics in 2003 and science in 2006. The latest examinations were conducted in 2018, with reading again being the major domain. In 2018, the PISA assessment involved 166 NSW schools and 3,315 NSW students (Table 1).¹² Students completed a two-hour computer-based assessment followed by three questionnaires.¹³

Schools		Students	
Government	98	Government	1,895
Catholic	39	Catholic	834
Independent	29	Independent	586
Total	166	Total	3,315

Source: Australian Council for Educational Research

3. NSW PISA RESULTS

The latest PISA results for all Australian jurisdictions are discussed in detail in the ACER report, [PISA 2018: Reporting Australia's Results: Volume 1 Student Performance](#). Key NSW data is summarised below (at 3.1 and 3.2) and shown in Figures 1 and 2.

¹⁰ OECD, [PISA 2018 Results \(Volume II\): Where All Students Can Succeed](#), 2019, p 15.

¹¹ Thomson S, De Bortoli L, Underwood C and Schmid M, [PISA 2018: Reporting Australia's Results \(Volume 1 Student Performance\)](#), Australian Council for Educational Research, 2019, p 2.

¹² Ibid, p 8 and 9.

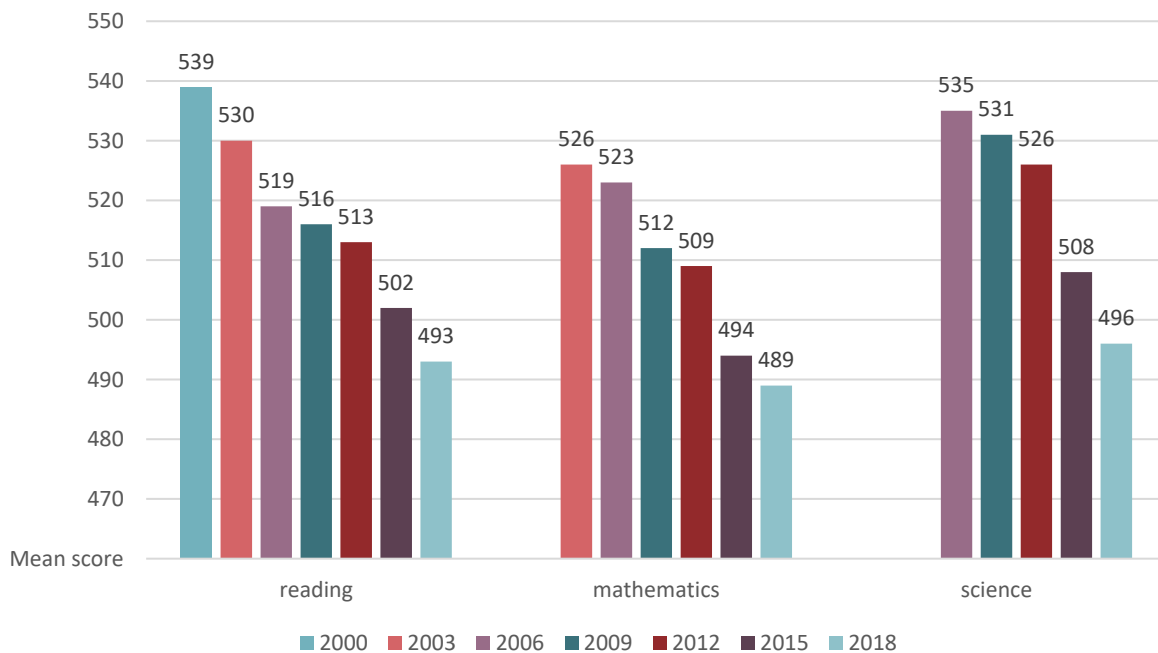
¹³ Ibid, 2019, p 5.

3.1 MEAN SCORES

Figure 1 sets out all of NSW’s PISA mean scores for each of the three subjects assessed. Reading scores are available for every assessment from 2000 onwards; whereas scores for mathematics and science are available, respectively, from 2003 and 2006. As depicted in Figure 1, NSW’s PISA scores have declined by 46 points for reading, 37 points for mathematics and 39 points for science. To assist in gauging the practical significance of these declines, it is possible to view PISA mean scores in terms of years of schooling.¹⁴ This is because the sample of 15–16 year old students Australian students who participated in PISA included students from adjacent school years (for example, years 9 and 10). The difference in the mean scores of students from adjacent school years represents the PISA score value of one year of schooling in Australia.¹⁵

ACER reports that one year of schooling in Australia is, on average, equivalent to: 33 score points on the PISA reading scale; 28 score points on the PISA mathematics scale; and 27 score points on the PISA science scale.¹⁶ It follows that the declines in mean scores shown in Figure 1 represent a loss of between 1.3 and 1.4 years of schooling.

Figure 1: PISA mean scores, NSW students, 2000–2018¹⁷



Source: Australian Council for Educational Research

3.2 THE NATIONAL PROFICIENT STANDARD

PISA proficiency levels categorise tasks that students are able to complete correctly most of the time.¹⁸ The simplest tasks correspond to lower proficiency levels (for

¹⁴ Ibid, p 33, 113 and 177.

¹⁵ Ibid, p 33, 113 and 177.

¹⁶ Ibid, p 33, 113 and 177.

¹⁷ Ibid, Figures 3.8, 5.8 and 6.8.

¹⁸ Ibid, p 255.

example, level 1); while the most difficult tasks corresponds to level 6. Internationally, a proficiency level of 2 is considered low achieving:

Level 2 has been defined internationally as a baseline proficiency level and defines the level of performance on the PISA scale at which students begin to demonstrate the competencies that will enable them to engage effectively and productively across a wider range of situations.¹⁹

In Australia, the National Proficient Standard for PISA has been set at proficiency level 3; which represents a “challenging but reasonable” expectation that students can demonstrate “more than elementary skills” in each subject in the year of assessment.²⁰ In its *PISA 2018 Technical Report*, the OECD specifies the proficiency level cut-off scores for each subject (Table 2).²¹

Proficiency	Reading	Science	Mathematics
Level 1 (1c)*	189.33 to 262.03	Not applicable	357.77 to 420.06
Level 1 (1b)*	262.04 to 334.74	260.54 to 334.93	
Level 1 (1a)*	334.75 to 407.46	334.94 to 409.53	
Level 2	407.47 to 480.17	409.54 to 484.13	420.07 to 482.37
Level 3	480.18 to 552.88	484.14 to 558.72	482.38 to 544.67
Level 4	552.89 to 625.60	558.73 to 633.32	544.68 to 606.98
Level 5	625.61 to 698.31	633.33 to 707.92	606.99 to 669.29
Level 6	698.32 and above	707.93 and above	669.30 and above

* For reading, Level 1 proficiency is divided into three sub-levels (1a, 1b and 1c). For science, Level 1 proficiency is divided into two sub-levels (1a and 1b). For mathematics, a single category of Level 1 proficiency applies.

Source: OECD and US National Centre for Education Statistics

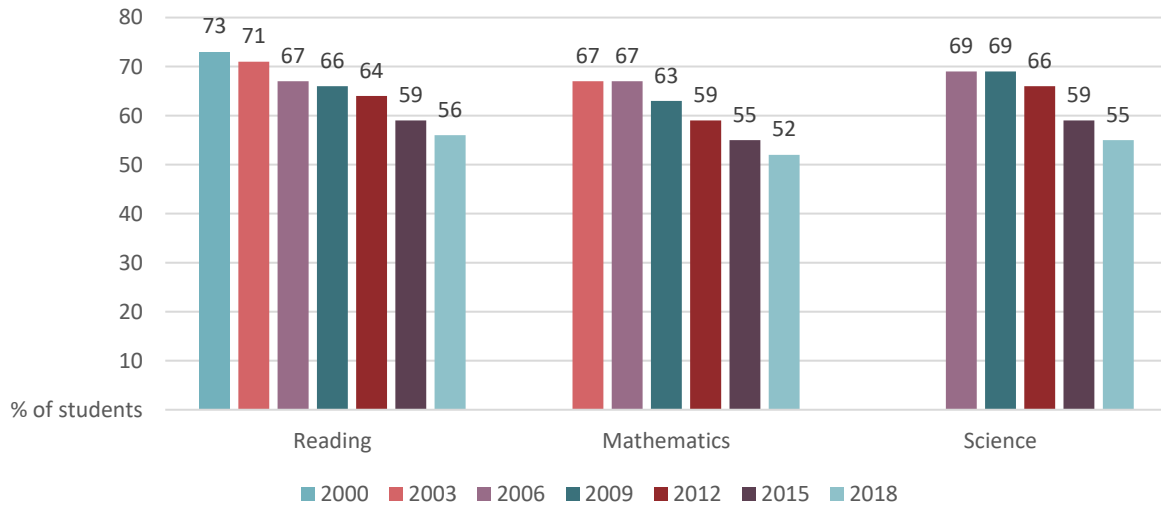
Figure 2 shows that the proportion of NSW students attaining the National Proficient Standard has declined for reading (17%), mathematics (15%) and science (14%). As noted above (at 3.1), results for reading are available for every assessment from 2000 onwards; whereas scores for mathematics and science subjects are available, respectively, from 2003 and 2006. In 2018, for each of the three subjects, almost half of NSW students did not meet the National Proficient Standard.

¹⁹ Ibid, p 3.

²⁰ Ibid, p xxix and 3, citing Australian Curriculum, Assessment and Reporting Authority (ACARA), *Measurement Framework for Schooling in Australia 2015*, p 5. See also, ACARA *Measurement Framework for Schooling 2019*, p 6.

²¹ OECD, *PISA 2018 Technical Report*, 2018, [Chapter 15](#), Tables 15.5, 15.6 and 15.7. See also: US National Centre for Education Statistics, PISA USA, [Proficiency Levels](#), no date [website accessed – 18 March 2020].

Figure 2: Proportion (%) of NSW students attaining the National Proficient Standard, 2000-2018²²

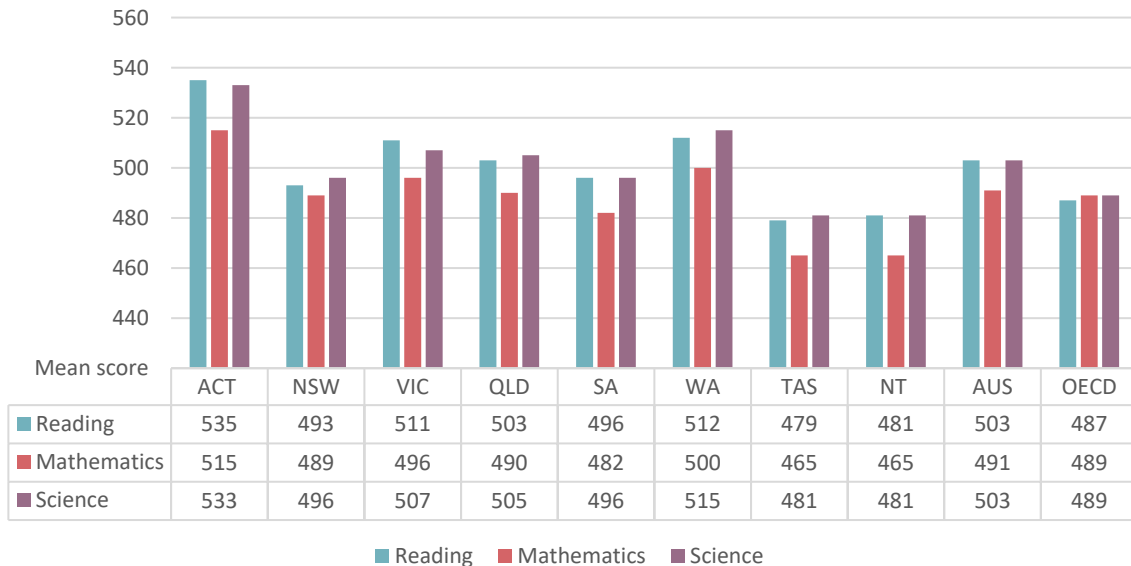


Source: Australian Council for Educational Research

4. A NATIONAL AND INTERNATIONAL COMPARISON

Figure 3 sets out the PISA 2018 mean scores for each jurisdiction, Australia and the OECD. NSW’s mean score was below the national mean score in reading (NSW: 493; AUS: 503), mathematics (489 to 491) and science (496 to 503). NSW’s mean score was higher than the OECD mean score in reading (493 to 487) and science (496 to 489). In mathematics, NSW’s mean score (489) was the same as the OECD average.

Figure 3: PISA 2018 mean scores, States and Territories, national and OECD²³



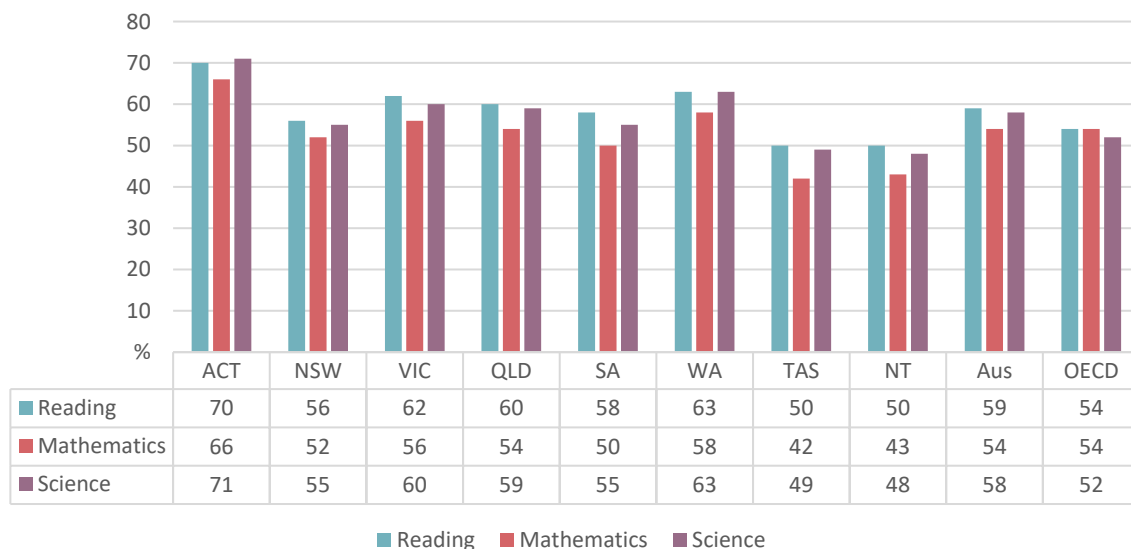
Source: Australian Council for Educational Research

²² Thomson S, De Bortoli L, Underwood C and Schmid M, *PISA 2018: Reporting Australia’s Results (Volume 1 Student Performance)*, Australian Council for Educational Research, 2019, Tables 3.5, 5.5 and 6.5.

²³ Ibid, Figures 3.6, 5.6 and 6.6.

Figure 4 shows that, in 2018, the proportion of NSW students who attained the National Proficient Standard in each subject was lower than the national average. While the proportion of NSW students who attained the National Proficiency Standard was higher than the equivalent OECD proportion in reading (56 to 54) and science (55 to 52), it was lower in mathematics (52 to 54).

Figure 4: PISA 2018, proportion (%) of students attaining the National Proficient Standard, States and Territories, national and OECD²⁴



Source: Australian Council for Educational Research

5. SOCIOECONOMIC BACKGROUND

PISA assesses the influence on educational outcomes of gender, geographic location, school sector, socioeconomic background, Indigenous background, immigrant background and language background. This Issues Backgrounder focuses on the variable of socioeconomic background because:

1. The influence of socioeconomic background on educational outcomes is recognised in the academic literature.²⁵
2. The OECD has commented on the association between socioeconomic background and PISA 2018 outcomes; as well as the potential for nations to improve their educational outcomes by promoting “academic resilience” amongst socioeconomically disadvantaged students.²⁶
3. Socioeconomic background was associated with the largest differences in Australia’s PISA 2018 scores (Table 3).²⁷
4. One-quarter of Australia’s PISA 2018 students were from the lowest socioeconomic quartile.²⁸

²⁴ Ibid, Figures 3.7, 5.7 and 6.7.

²⁵ As discussed in Thomson S, *The effects of inequity in Australian schools*, *Professional Voice*, 2017, 12(1), 29 at 29. See also: UNICEF Office of Research, *An unfair start: Inequality in children’s education in rich countries*, Innocenti Report Card 15, 2018.

²⁶ OECD, *PISA 2018 Results (Volume II): Where All Students Can Succeed*, 2019, Chapters 2 and 3.

²⁷ Ibid, p xiii-xxvi and 81, 162 and 222.

²⁸ Ibid, p 11.

Table 3: Differences in national PISA 2018 scores by variable				
Variable	Reading	Mathematics	Science	Total
Gender: difference between male and female students	32	6	0	38
Geographic location: difference between metropolitan and remote schools	59	57	50	166
School sector: difference between Government and Independent schools	49	47	47	143
Socioeconomic background: difference between highest and lowest quartiles	89	81	83	253
Indigenous background: difference between Indigenous and non-Indigenous students	76	69	75	220
Immigrant background: largest difference between Australian-born, first-born and foreign-born students	12	14	13	39
Language background: difference between students speaking and not speaking English at home	24	0	21	45

Source: Australian Council for Educational Research

PISA determines a student’s socioeconomic background using information from the questionnaires that formed part of the assessment and the Index of Economic, Social and Cultural Status (IESCS), which measures:

- The highest level of occupation held by a student’s father and mother.
- The highest education level of parents, measured in years of education.
- Home possessions; which includes measures of family wealth, cultural resources, educational resources and books in the home.²⁹

A school’s socioeconomic background is calculated using the aggregate measure of the socioeconomic background of the students attending the school.³⁰

5.1 INTERNATIONAL SCORES AND SOCIOECONOMIC BACKGROUND

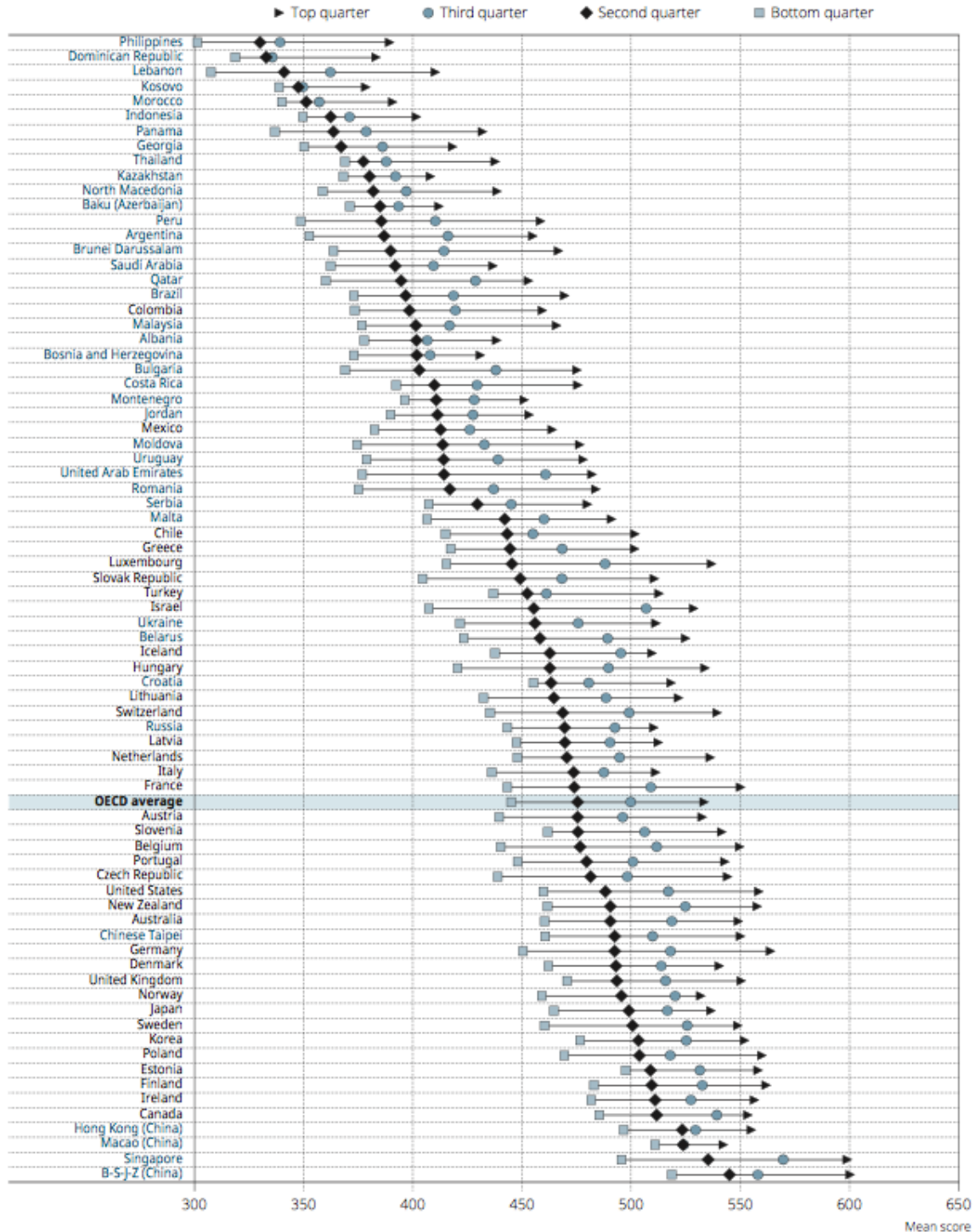
The average performance of students from each nation in the PISA 2018 major domain of reading is set out in Figure 5, with the bottom socioeconomic quartile of students in each nation depicted as a blue square. As shown in Figure 5, the mean score of Australian students in the lowest socioeconomic quartile (460) was higher than the OECD mean score of students in the lowest socioeconomic quartile (445); but was lower than the mean score of students in the lowest socioeconomic quartile

²⁹ Thomson S, De Bortoli L, Underwood C and Schmid M, *PISA 2018: Reporting Australia’s Results (Volume 1 Student Performance)*, Australian Council for Educational Research, 2019, p xxxi.

³⁰ Thomson S, *The effects of inequity in Australian schools*, *Professional Voice*, 2017, 12(1), 29.

in such countries as Canada (485), Singapore (495) and China (519).³¹ In all nations, students from the top socioeconomic quartile outperformed their peers; although the range in scores between the lowest and highest socioeconomic quartiles varied from 39.8 (Kosovo and Kazakhstan) to 121.5 (Luxembourg).

Figure 5: PISA 2018: Mean scores in reading, by socioeconomic background³²



³¹ OECD, *PISA 2018 Results (Volume II): Where All Students Can Succeed*, 2019, p 57 and PISA 2018 Database Table II.B1.2.3.

³² *Ibid.*

5.2 NATIONAL SCORES AND SOCIOECONOMIC BACKGROUND

Table 4 sets out Australia’s PISA 2018 scores by student socioeconomic background.³³ Australian students from the highest socioeconomic quartile outperformed their peers from the lowest socioeconomic quartile by an average of 89 score points in reading, 81 score points in mathematics and science, and 83 score points in science.

Socioeconomic background	Reading	Mathematics	Science
Lowest quartile	460	451	462
Second quartile	490	480	491
Third quartile	519	506	519
Highest quartile	549	532	545
Difference between highest and lowest quartiles	89	81	83

Source: Australian Council for Educational Research.

5.3 NSW SCORES AND SOCIOECONOMIC BACKGROUND

Tables 5 – 7 set out data requested by the NSW Parliamentary Research Service from ACER on NSW’s PISA outcomes and socioeconomic background. As shown in Table 5, in each of the three subject domains, the PISA 2018 scores of NSW students from lower socioeconomic backgrounds were less than the scores of students from higher socioeconomic backgrounds. The differences in PISA scores between the highest and lowest quartiles of socioeconomic background students in NSW were greater than the equivalent national differences set out above in Table 4.

Socioeconomic background	Reading	Mathematics	Science
Lowest quartile	444	441	450
Second quartile	484	479	487
Third quartile	510	501	510
Highest quartile	540	530	537
Difference between highest and lowest quartiles	96	89	87

Source: Australian Council for Educational Research.

As noted above (at 3.1), ACER reports that one year of schooling in Australia is, on average, equivalent to: 33 score points on the PISA reading scale; 28 score points

³³ Thomson S, De Bortoli L, Underwood C and Schmid M, *PISA 2018: Reporting Australia’s Results (Volume 1 Student Performance)*, Australian Council for Educational Research, 2019, p 81, 162, 222. For further discussion of PISA 2018 results by socioeconomic status, see: OECD, *PISA 2018 Results: Where All students can succeed (Volume II)*, 2019, Chapter 2.

on the PISA mathematics scale; and 27 score points on the PISA science scale.³⁴ Based on these values and the data in Table 5, in NSW in 2018 the lowest quartile of socioeconomic background students performed approximately: 2.9 years behind the highest quartile of students in reading; 3.2 years behind the highest quartile of students in mathematics; and 3.2 years behind the highest quartile of students in science.³⁵ Between the third and highest quartiles of NSW students, there remained 0.9 years of schooling difference for reading and 1 year for both mathematics and science.

5.4 SOCIOECONOMIC BACKGROUND AND SCHOOL SECTOR

When raw PISA 2018 scores are considered, NSW students from Independent schools achieved the highest mean scores in each subject; followed by students from Catholic schools and then students from Government schools (Table 6).

School sector	Reading	Mathematics	Science
Independent	530	523	531
Catholic	507	494	505
Government	477	476	481

Source: Australian Council for Educational Research

However, as set out in Table 7, after student-level and school-level socioeconomic background was taken into account, there was no statistically significant difference in any of the subject domains between the three school sectors. In other words, NSW PISA 2018 results suggest that higher PISA scores are associated with socioeconomic background, rather than with school sector.

School sector comparison	Difference (raw)	Difference after accounting for student level socioeconomic background	Differences after accounting for student and school level socioeconomic background
Reading			
Catholic-Government	30	23	0
Independent-Government	53	27	-7
Independent-Catholic	23	6	-2
Mathematics			
Catholic-Government	18	7	-18
Independent-Government	47	25	-13

³⁴ Thomson S, De Bortoli L, Underwood C and Schmid M, *PISA 2018: Reporting Australia's Results (Volume 1 Student Performance)*, Australian Council for Educational Research, 2019, p 32, 113, 117.

³⁵ In terms of years of schooling, the NSW results are similar to the national results: *Ibid*, p xxii-xxiii.

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Independent-Catholic	29	20	11
Science			
Catholic-Government	24	18	-3
Independent-Government	50	27	-6
Independent-Catholic	26	11	4

Source: Australian Council for Educational Research. Note: Statistically significant values are in **bold**.

6. SOCIOECONOMIC BACKGROUND AND ACADEMIC RESILIENCE

The data presented in this Issues Backgrounder documents the association between socioeconomic background and the PISA 2018 performance of NSW students. The OECD notes, however, that for academically resilient students “disadvantage is not destiny”.³⁶ In the context of the 2018 major domain of reading, the OECD defines a student to be academically resilient if they are in the bottom quarter of the IESCS in their own country but score in the top quarter for that country.³⁷

In the PISA 2018 exams more than 13% of Australia’s socioeconomically disadvantaged students were academically resilient:

In spite of socio-economic disadvantage, some students are capable of attaining high levels of academic proficiency. On average across OECD countries, one in ten disadvantaged students was able to perform in the top quarter of reading performance in their country, indicating that disadvantage is not destiny. In Australia, Canada, Estonia, Hong-Kong (China), Ireland, Macao (China) and the United Kingdom, all of which scored above the OECD average, more than 13% of disadvantaged students were academically resilient.³⁸

Using information from the questionnaires that accompanied the PISA 2018 examination, the OECD identified two factors as being positively associated to a statistically significant extent with academic resilience in many countries, including Australia.³⁹ Those two factors were a growth mindset and a positive school climate.⁴⁰ Parental support was also found to be positively associated with academic resilience in Australia, but not to a statistically significant extent.⁴¹ With respect to growth mindset, questions included whether students agreed with the statement: “Your intelligence is something about you that you cannot change very much”. With respect to school climate, questions included whether there was noise and disorder in classrooms.

6.1 A GROWTH MINDSET

Students with a growth mindset view challenges as external and able to be overcome with effort and practice. In contrast, students with a fixed mindset view their abilities as predetermined and, therefore, believe they are unable to overcome difficult challenges, even with effort and practice.⁴² In Australia, 68% of all students exhibited a growth mindset.⁴³

³⁶ OECD, *PISA 2018 Results (Volume II): Where All Students Can Succeed*, 2019, p 66.

³⁷ Ibid.

³⁸ Ibid.

³⁹ The OECD analysis was conducted at the national, and not the State, level.

⁴⁰ OECD, *PISA 2018 Results (Volume II): Where All Students Can Succeed*, 2019, pp 70, 71 and 73.

⁴¹ Ibid, p 69.

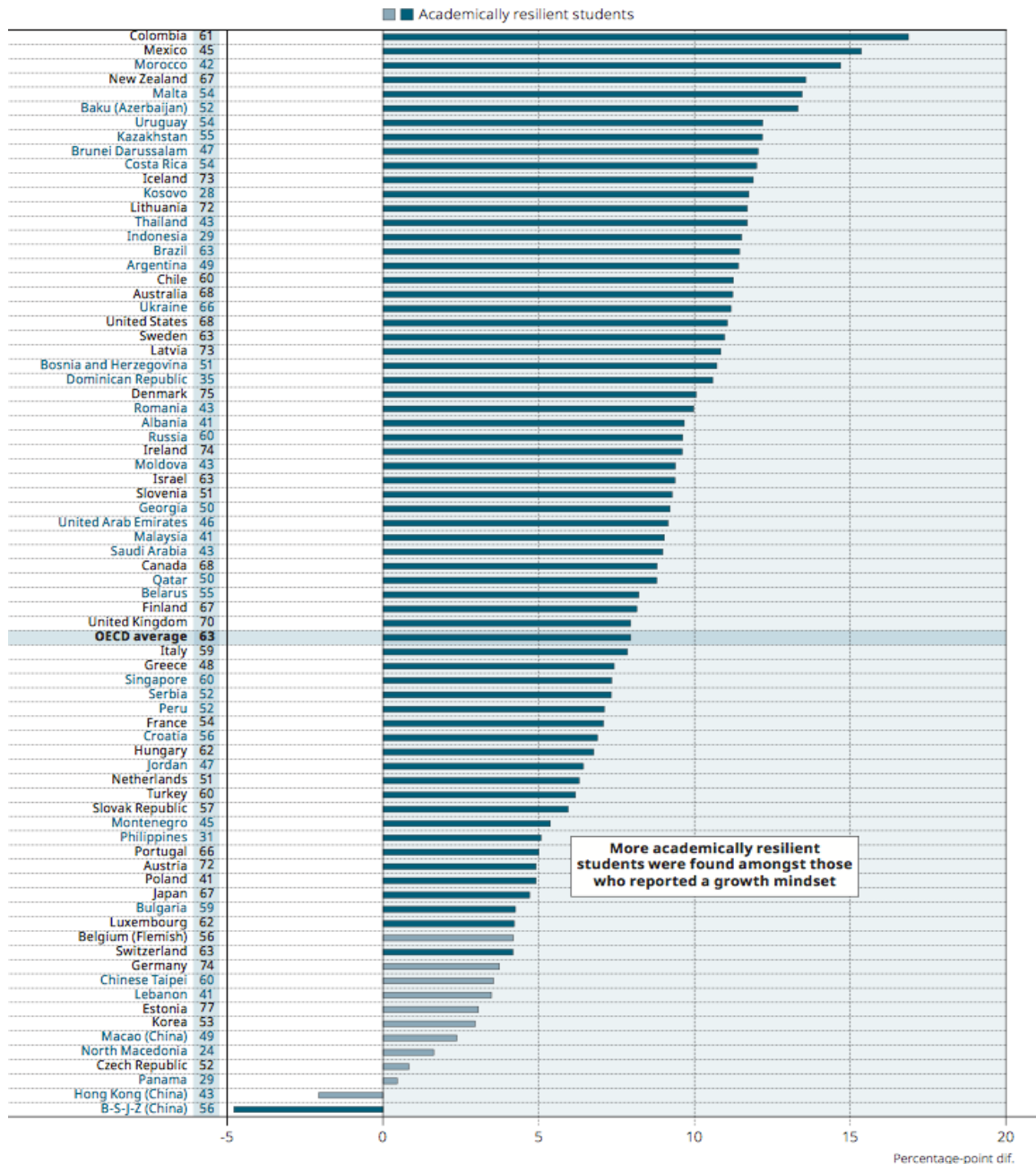
⁴² Ibid, p 70.

⁴³ Ibid, p 73 and Figure 6.

The results of the PISA 2018 questionnaires showed that there were 64 countries, including Australia, where larger shares of academically resilient students exhibited a growth mindset, rather than a fixed mindset.⁴⁴

Figure 6 shows that in Australia the percentage of academically resilient students with a growth mindset was 11 points greater than the percentage of academically resilient students with a fixed mindset. This difference was statistically significant.

Figure 6: PISA 2018: Academic resilience and growth mindset: percentage-point difference between academically resilient students with and without a growth mindset⁴⁵



Notes: Statistically significant differences are in dark blue. The percentage of students with a growth mindset in each country is shown next to the country name. Countries are ranked in descending order of the percentage-point difference between academically resilient students with and without a growth mindset. Source: OECD

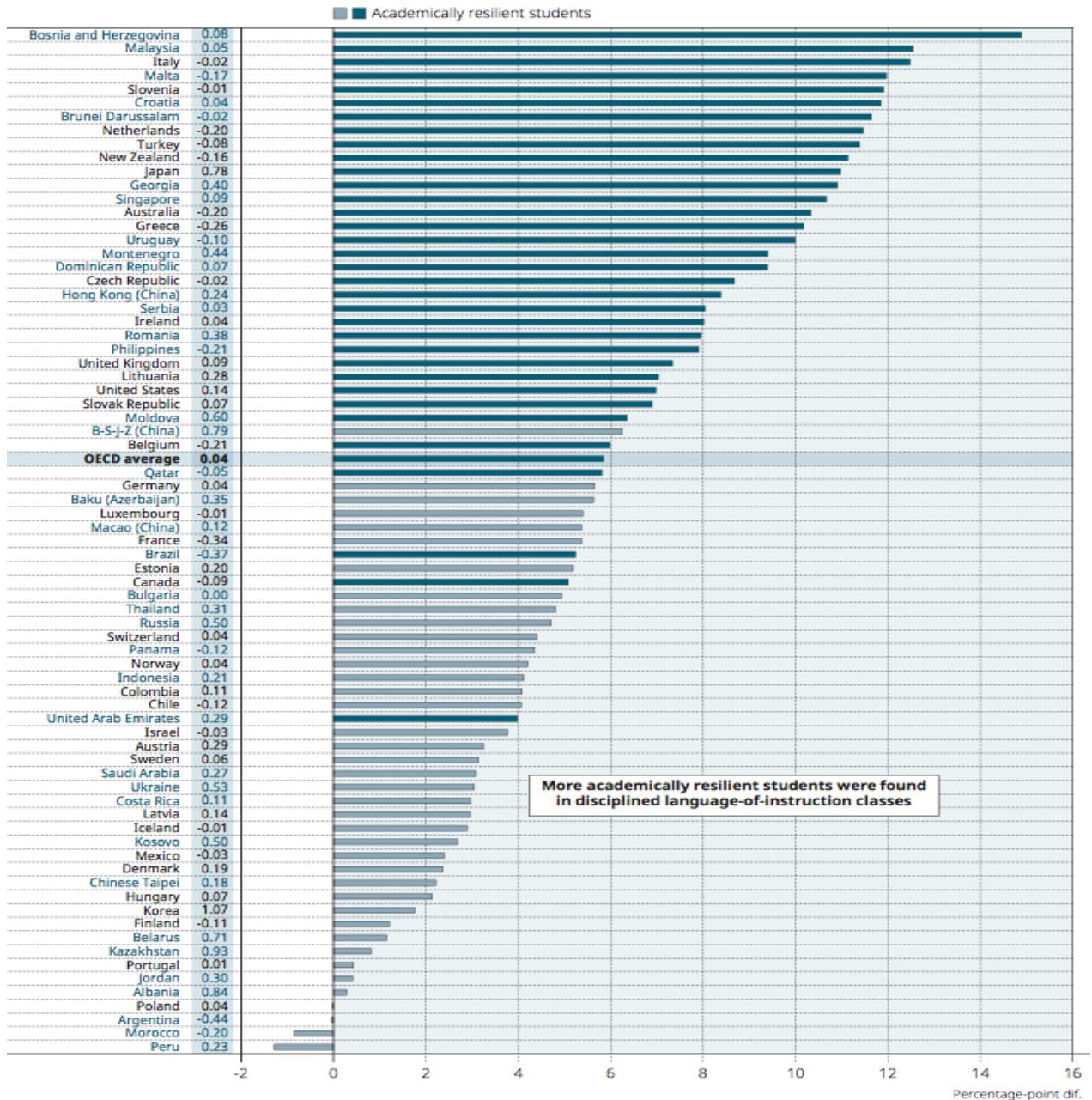
⁴⁴ Ibid, p 70.

⁴⁵ Ibid, p 73.

6.2 A POSITIVE SCHOOL CLIMATE

A positive school climate is one in which teachers manage their classes well and students are prepared to learn and not be disruptive. As shown Figure 7, there was a statistically significant difference (10%) in the percentage of Australian academically resilient students in the top and bottom quarters of the OECD’s Index of Disciplinary Climate (IDC).⁴⁶ The figures relate to language instruction classes, where the PISA 2018 major domain of reading was taught.

Figure 7: PISA 2018: Academic resilience and school disciplinary climate: percentage-point difference between the top and bottom quarters of the IDC⁴⁷



Notes: Statistically significant differences are shown in dark blue. The Index of Disciplinary Climate (IDC) average score is shown next to each country. Countries are ranked in descending order of the percentage-point difference between academically resilient students in the top and bottom quarters of the IDC. Source: OECD

⁴⁶ Ibid, p 71

⁴⁷ Ibid.

7. SOCIOECONOMIC BACKGROUND AND ONLINE LEARNING

Data from the PISA 2018 questionnaires also informs the discussion of the potential effect on students of the shift to online learning due to the COVID-19 pandemic.

As noted by Dr Sue Thomson, Deputy Chief Executive Officer (Research) at ACER, the PISA 2018 data shows that in Australia 78% of students from the lowest socioeconomic quartile report having a quiet place to study at home, compared to 96% of socioeconomically advantaged students.⁴⁸

Moreover, while 84% of socioeconomically disadvantaged students in Australia (compared to 99% of socioeconomically advantaged students) had a computer at home they could use for school work; only 41% of socioeconomically disadvantaged students (compared to 91% of socioeconomically advantaged students) had three or more computers at home. This may make it more difficult for socioeconomically disadvantaged students to access computer time at home,⁴⁹ particularly where other family members are working from home.

Dr Thomson also noted that, based on the PISA 2018 data, socioeconomically advantaged students in Australia spend more time using digital devices in class than socioeconomically disadvantaged students.⁵⁰ For instance, 26% of socially disadvantaged students, compared to 11% of socioeconomically advantaged students, spent no time using digital devices in science classes. Dr Thomson suggests this additional time using digital devices in class would have assisted socioeconomically advantaged students transition to an online learning environment.⁵¹

Table 8: Time spent using digital devices in classes per week, socioeconomically disadvantaged and advantaged students (%), Australia.⁵²

Time spent per week	English classes		Mathematics classes		Science classes	
	Disadvantaged (%)	Advantaged (%)	Disadvantaged (%)	Advantaged (%)	Disadvantaged (%)	Advantaged (%)
None	25	12	40	30	26	11
1-30 minutes	29	21	26	21	26	19
31-60 minutes	22	24	17	17	22	26
More than 60 minutes	23	42	16	30	19	40
Subject not studied	Less than 1	Less than 1	Less than 1	Less than 2	7	4

Source: PISA 2018

⁴⁸ Thomson S, [What PISA tells us about our preparedness for remote learning](#), *Teacher*, 20 April 2020.

⁴⁹ *Ibid.*

⁵⁰ *Ibid.*

⁵¹ *Ibid.*

⁵² *Ibid.*

8. COMMENTARY ON PISA 2018

Commonwealth Education Minister Dan Tehan responded to Australia's PISA 2018 results by stating that "alarm bells should be ringing as a result of what we've seen through these results".⁵³ NSW's PISA 2018 results were also met with concern by the NSW Government, with Premier Gladys Berejiklian describing them as a "huge wake-up call".⁵⁴ After noting the disconnect between increased education funding and declining PISA outcomes, Premier Berejiklian said the NSW Government planned to identify best practice teaching methods in high performing public schools and adopt those methods across the NSW public school system.⁵⁵ NSW Education Minister Sarah Mitchell MLC described the results as "very disappointing" and said increasing teaching standards and curriculum reform were key to improving educational outcomes.⁵⁶

NSW's PISA 2018 results became the subject of parliamentary debate in February 2020, during the first sitting week after the release of the results in December 2019. Concerns about the decline in NSW's PISA results, and school outcomes in general, were raised by members of the Labor Opposition, including Shadow Minister for Education, Prue Car MP,⁵⁷ and members of the crossbench, including Pauline Hanson's One Nation member Mark Latham MLC.⁵⁸

Professor Masters, ACER Chief Executive Officer, noted that PISA focuses on higher-order thinking⁵⁹ because it requires students to apply knowledge and skills to novel real-world situations.⁶⁰ As such, Professor Masters suggested that Australia's declining PISA results reveal a deficit in higher-order thinking, rather than fundamental literacy and numeracy skills.⁶¹ This interpretation was also suggested by Peter Goss, School Education Program Director at the Grattan Institute, who said it was supported by the diverging trajectories of PISA and NAPLAN outcomes.⁶² NAPLAN is focused on fundamental knowledge and skills, and from 2008 to 2019 mean NAPLAN scores in reading and numeracy remained stable or increased across Australia and in NSW.⁶³

Professor Pasi Sahlberg, Deputy Director at the Gonski Institute for Education at the University of New South Wales, argues that an underlying reason for the decline in Australia's school education outcomes relative to other nations, as demonstrated in assessments such as PISA, is "a steady decline in social equality and growing inequity

⁵³ [Education Minister says 'alarm bells should be ringing' over poor student test results](#), *ABC News*, 4 December 2019.

⁵⁴ Baker J, [Premier says status quo 'no longer tenable' in schools, flags reforms](#), *Sydney Morning Herald*, 20 February 2020.

⁵⁵ *Ibid.*

⁵⁶ Baker J, ['Alarm bells': Australian students record worst result in global tests](#), *Sydney Morning Herald*, 3 December 2019.

⁵⁷ *NSW Hansard*, [Legislative Assembly](#), 25 February 2020, p 39-40.

⁵⁸ *NSW Hansard*, [Legislative Assembly](#) and [Legislative Council](#), 25 February 2020, p 22 and 26.

⁵⁹ Baker J, ['Alarm bells': Australian students record worst result in global tests](#), *Sydney Morning Herald*, 3 December 2019.

⁶⁰ NSW Curriculum Review, [Nurturing Wonder and Igniting Passion: Interim Report](#), 2019, p 8

⁶¹ Baker J, [While individual schools might shine, PISA results show our education system is stagnating](#), *Sydney Morning Herald*, 6 September 2019.

⁶² *Ibid.*

⁶³ See [NAPLAN 2019 Results, Time Series](#). [website-accessed 7 May 2020].

in school education”.⁶⁴ Professor Sahlberg suggests that measures for strengthening equity in education include:

... high-quality early childhood education as a basic right for all children, preventive support for children and families in their health and wellbeing, allocating money to schools to offer individualised help to all children, and investing in teacher collaboration and professionalism to advance school improvement.⁶⁵

9. RECENT REVIEWS AND REFORM PROPOSALS

In September 2019, the NSW Audit Office recommended reform of the teacher accreditation process in its report, [Ensuring teaching quality in NSW public schools](#).

Recommendations for reform of the school curriculum in NSW have been made by the NSW Curriculum Review, which published its [interim report](#) in October 2019 and its [final report](#) in April 2020 (released on 23 June 2020).

In February 2020, recommendations for wide-ranging reform of school education were made by the NSW Legislative Council’s Portfolio Committee Number 3 – Education, in its report [Education, measurement and outcome-based funding in NSW schools](#).

In April 2020, the NSW Audit Office made recommendations for reform of the Local Schools, Local Decisions policy, in its report [Local Schools, Local Decisions: needs-based equity funding](#). A brief overview of these reports and their recommendations is provided below.

The 2019 Audit Office report: The 2019 Audit Office report, while noting the decline in NSW’s PISA scores, referred to research that found teaching quality is the greatest *in-school* influence on student outcomes, and accounts for 30 per cent of the variance in student performance.⁶⁶

The process for ensuring teacher quality in NSW schools involves professional accreditation, teaching standards, a Schools Excellence Framework and a Performance and Development Framework:

The Australian Professional Standards for Teachers (the Standards) describe the knowledge, skills and understanding expected of effective teachers at different career stages. Teachers must be accredited against the Standards to be employed in NSW schools. The NSW Education Standards Authority (NESA) is responsible for ensuring all teachers in NSW schools are accredited. As part of the accreditation process the NSW Department of Education (the Department) assesses whether public school teachers meet proficient accreditation standards and advises NESA of its decisions.

The School Excellence Framework provides a method for the Department to monitor teaching quality at a school level across four elements of effective teaching practice. The Performance and Development Framework provides a method for teachers and their supervisors to monitor and improve teaching quality through setting professional goals to guide their performance and development.⁶⁷

⁶⁴ Sahlberg P, [Are Australian students receiving the school education they deserve?](#), ABC News, 9 March 2020.

⁶⁵ Ibid.

⁶⁶ NSW Audit Office, [Ensuring teaching quality in NSW public schools](#), 2019, p 1.

⁶⁷ Ibid, p 1.

The Audit Office report found that the process for ensuring teaching quality in NSW public school was not operating effectively⁶⁸ and recommended reforms to improve its operation.⁶⁹

The Curriculum Review reports: The [NSW Curriculum Review](#) was headed by Professor Geoff Masters. In the Review's [interim report](#), Professor Master's expressly stated that the need for curriculum reform was underscored by the decline in NSW's PISA results:

NSW students slipped from being among the highest performers in the world in 2000 to being near the OECD average in 2015. In other words, while low-level skills are in declining demand in workplaces, the proportion of NSW 15 year olds with only low-level skills has been growing. Reforms to the content and structure of the curriculum, although only part of the solution, are essential in addressing this challenge.⁷⁰

The Curriculum Review has proposed reforming the content and structure of the school curriculum, as well as the senior school curriculum. Content reforms include reducing syllabus content, and focusing on core knowledge, in order to promote deep learning of disciplinary knowledge.⁷¹ As noted above (at 8), Professor Masters views the decline in NSW's PISA 2018 results as indicating that educational reform could usefully address the promotion of higher-order thinking skills. Higher-order thinking involves deeper conceptual understanding, rather than passive absorption and recall of information.⁷² It enables students to apply knowledge in new situations; an ability which is a focus of PISA.⁷³

Structural reforms include constructing a long-term series of attainment levels in each area of knowledge, that are independent of student age or year level, and which all students are expected to achieve.⁷⁴

Reforms to the senior school curriculum include reducing the proliferation of courses and the division between theoretical academic courses and practical vocational courses.⁷⁵ Instead, courses will be designed to better prepare students for life after school by integrating both theory and application.⁷⁶

In its [Response to the NSW Curriculum Review Final Report](#), the NSW Government stated that it is "supportive of the overall principles of reform proposed" and will develop a new curriculum from kindergarten to Year 12 in the next four years.⁷⁷

The NSW Legislative Council report: In February 2020, the NSW Legislative Council's Portfolio Committee Number 3 – Education, published its report on [Education, measurement and outcome-based funding in NSW schools](#). The Committee report, which was chaired by Pauline Hanson's One Nation member Mark

⁶⁸ Ibid, p 2-4.

⁶⁹ Ibid, p 5. See also NSW Department of Education, [Quality Teaching, Successful Students](#), 2019 [website - accessed 21 June 2020]

⁷⁰ NSW Curriculum Review, [Nurturing Wonder and Igniting Passion: Interim Report](#), 2019, p x.

⁷¹ Ibid, p xi; Curriculum Review, [Nurturing Wonder and Igniting Passion: Final Report](#), 2020, p xiii.

⁷² Queensland Curriculum and Assessment Authority, [Higher-order thinking](#), [website-accessed 10 May 2020]. See also NSW Department of Education, [Critical thinking](#), [website-accessed 10 May 2020]; NSW Curriculum Review, [Nurturing Wonder and Igniting Passion: Interim Report](#), 2019, p 8.

⁷³ NSW Curriculum Review, [Nurturing Wonder and Igniting Passion: Interim Report](#), 2019, p 8 and 79.

⁷⁴ Ibid, p xii-xiii; Curriculum Review, [Nurturing Wonder and Igniting Passion: Final Report](#), 2020, p xiii.

⁷⁵ Ibid p xiii; Curriculum Review, [Nurturing Wonder and Igniting Passion: Final Report](#), 2020, p xiii.

⁷⁶ Ibid p xiii; Curriculum Review, [Nurturing Wonder and Igniting Passion: Final Report](#), 2020, p xiii.

⁷⁷ NSW Government, [Response to the NSW Curriculum Review Final Report](#), 2020, p 7.

Latham MLC, stated that although its original focus was the introduction of outcomes-based budgeting for the NSW Department of Education, the need for broader educational reform became apparent in light of the decline in NSW school outcomes.⁷⁸ The Committee report said the decline in school outcomes was evidenced by a deterioration in NSW's NAPLAN performance relative to other States and Territories since 2014, and by the decline in NSW's PISA results since 2000.⁷⁹ It made 66 recommendations for wide-ranging reform of school funding, administration, and teaching practices and teaching standards.⁸⁰ Dissenting statements were made by Greens NSW's David Shoebridge MLC,⁸¹ and the Australian Labor Party's Courtney Houssos MLC⁸² and Anthony D'Adam MLC.⁸³

The Committee report examined the issue of socioeconomic disadvantage in detail, noting that "some 300 government schools" in NSW are dealing with high levels of socioeconomic disadvantage:

The NSW Government submission identifies a significant cohort of schools not only experiencing educational disadvantage but also a social crisis in servicing their local population. It writes of how:

Approximately 12-15 percent of NSW public schools are coping with highly complex school environments, where multiple types of need combine in high concentrations to produce unpredictable and often unsustainable demands on school leaders and staff. These are schools operating on the frontlines of entrenched disadvantage, in communities where they are often acting as the service providers of last resort.

Addressing complexity is likely to be important for achieving equity targets, driving system-wide school improvement, and delivering an education system that reduces the impact of disadvantage.

Some 300 government schools find themselves in this very difficult situation.⁸⁴

The Committee found that addressing the issue of socioeconomic disadvantage was central to the success of any proposed educational reform:

In the name of equity and maximising the economic and social participation of all our citizens, there is no more important task for the NSW Government than breaking the cycle of entrenched educational disadvantage.⁸⁵

In order to address the relationship between socioeconomic disadvantage and school outcomes, the Committee recommended:

- the use of Tailored Support⁸⁶ and a Best Practice School Network (Recommendation 61);

⁷⁸ NSW Legislative Council, [Education, measurement and outcome-based funding in NSW schools](#), p x-xi.

⁷⁹ Ibid, p x-xi.

⁸⁰ Ibid, p xvi-xxiv.

⁸¹ Ibid, p 151.

⁸² Ibid, p 152-153.

⁸³ Ibid, p 154-155.

⁸⁴ Ibid, p 80.

⁸⁵ Ibid, 83.

⁸⁶ Ibid, p 63. The Committee noted that: "Tailored support for schools started in 2018, with 300 schools involved. In 2019 this increased to 500 schools (nearly one-quarter of all NSW government schools). The support ranges from single-issue interventions (such as behavioural problems or failing literacy and numeracy results) to wider school problems. It usually emphasises the importance of professional development, explicit teaching and evidence-based practices. Extra resources and staff are allocated,

- the use of financial incentives, akin to the [financial incentives used in Victoria](#), to attract the most effective teachers and principals to the most disadvantaged schools (Recommendation 62);
- the production of a report identifying the features of successful public housing redevelopment projects, and identifying communities and schools that would benefit from such redevelopment projects (Recommendation 63);
- the development of a clear policy on the interface between Health and Education services (Recommendation 64); and
- the Minister for Education to report to Parliament every 12 months on the Government's performance in meeting targets related to remote and isolated schooling (set out in Recommendation 21) and on NSW school literacy, and every six months on the Government's progress towards bringing disadvantaged schools up to best practice (Recommendation 65).⁸⁷

The dissenting statement of the Greens NSW referred to the importance of addressing socioeconomic disadvantage through needs-based funding.⁸⁸ The introduction of outcomes-based funding was opposed. The Greens NSW also argued that any efforts to base teacher pay on student outcomes would encourage teaching to the test and teachers to avoid teaching in socioeconomically disadvantaged schools.⁸⁹

In its dissenting statement, Labor agreed "there is a serious problem in NSW schools, which has been reflected in the most recent NAPLAN and PISA results".⁹⁰ Labor affirmed its support for addressing socioeconomic disadvantage through needs-based school funding.⁹¹ It expressed concerns that outcomes-based budgeting would adversely affect the existing needs-based funding model for NSW schools.⁹² In line with its support for needs-based funding, it also opposed the introduction of financial incentives for improved school outcomes.⁹³

The 2020 NSW Audit Office report: The 2020 Audit Office report [Local Schools, Local Decisions: needs-based equity funding](#), recommended greater accountability in the manner in which individual schools spend [equity funding](#) under the Department of Education's [Local Schools Local Decisions](#) policy.

The report noted that the *Local Schools, Local Decisions* policy was launched in 2012 to give public schools more autonomy over decision-making, including decisions relating to the spending of equity funding.⁹⁴ Equity funding is provided to schools in order to assist students from a low socioeconomic background, as well as Indigenous students and students who are not proficient in English; and to provide low-level

paid for by the Department." The Committee recommended the development of a formal Tailored Support policy (Recommendation 42).

⁸⁷ Ibid, p 85-86.

⁸⁸ Ibid, p 151.

⁸⁹ Ibid, p 151.

⁹⁰ Ibid p 152.

⁹¹ Ibid p 152.

⁹² Ibid p 153.

⁹³ Ibid p 153.

⁹⁴ NSW Audit Office, [Local Schools, Local Decisions: needs-based equity funding](#), 2020, p 1.

adjustments for disability.⁹⁵ In 2019, the NSW Government allocated approximately \$900 million in equity funding.⁹⁶

The NSW Audit Office found a lack of accountability on the spending and effectiveness of equity funding:

The department has not had adequate oversight of how schools are using needs-based equity funding to improve student outcomes since it was introduced in 2014. While it provides guidance and resources, it has not set measures or targets to describe the outcomes expected of this funding, or explicit requirements for schools to report outcomes from how these funds were used. Consequently, there is no effective mechanism to capture the impact of funding at a school, or state-wide level. The department has recently developed a consistent set of school-level targets to be implemented from 2020. This may help it to better hold schools accountable for progress towards its strategic goal of reducing the impact of disadvantage.

A significant amount of extra funding has been provided to schools over recent years in recognition of the additional learning needs of certain groups of students facing disadvantage. Under the Local Schools, Local Decisions reform, schools were given the ability to make decisions about how best to use the equity funding in combination with their overall school resources to meet their students' needs. However, multiple guidelines provided to schools contain inconsistent advice on how the community should be consulted, how funding could be used, and how impact should be reported. Because of this, it is not clear how schools have used equity funding for the benefit of identified groups. School annual reports we reviewed did not fully account for the equity funding received, nor adequately describe the impact of funding on student outcomes. ...⁹⁷

The NSW Audit Office recommended that, by April 2021, the NSW Department of Education should:

1. Clarify the objective of equity funding and update guidance material and reporting material to consistently reflect this objective.
2. Better integrate equity funding into school planning and reporting by:
 - a. supporting schools to set consistent measures and targets for improving educational outcomes for each equity group
 - b. providing schools with a four-year projection of funding for each equity group based on past enrolment trends
 - c. supporting schools to implement effective strategies for community engagement on the development of the school plan priorities
 - d. requiring schools to identify how they plan to use available funding sources to meet the additional learning needs of identified equity groups and the outcomes expected
 - e. requiring schools to report on how they have used funding to meet the additional learning needs of identified equity groups and the outcomes that have been achieved.
3. Measure and report on school and student outcomes achieved as a result of equity funding on an ongoing basis.

⁹⁵ Ibid, p 1.

⁹⁶ Ibid, p 1.

⁹⁷ Ibid, p 1.

4. Identify schools that have made significant and sustained improvements for specific equity groups and share better practice approaches for using equity funding.
5. Identify schools that have not met expected growth for equity groups and provide tailored advice and support on effective approaches to lift performance.
6. Strengthen guidance on implementing cost-effective and educationally sound interventions that target the learning needs of equity students. For example, by expanding upon the Centre for Education Statistics and Evaluation's 2015 '[What works best](#)' publication [[since updated to 2020](#)] and incorporating additional evidence.
7. Better coordinate support provided to schools on community consultation, strategic planning, resource allocation and strategic financial management.
8. Improve training and support to lift the financial management capabilities of school principals, business managers and Directors, Educational Leadership.⁹⁸

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⁹⁸ Ibid, p 2.