Submission into Review to Inform a Better and Fairer Education System

August 2023

Glenn Fahey
Program Director, Education Policy

Edmund Stephen
Research Assistant, Education Policy

The Centre for Independent Studies (CIS) is a leading independent public policy think tank in Australasia. Our work is driven by a commitment to the principles of a free and open society. The CIS is independent and non-partisan in both its funding and research, does no commissioned research, nor takes any government money to support its public policy work.

The Education Program at CIS has long promoted reform in the Australian education sector, recommending evidence-based policy designed to facilitate a high-quality teacher workforce and greater student outcomes. To this end, CIS has produced various papers that the panel might consider relevant, including:

- Teacher Workforce: fiction vs fact;
- Dollars and Sense: Time for smart reform of Australian school funding;
- Failing to teach the teacher: An analysis of mathematics Initial Teacher Education;
- Mind the Gap: Understanding the Indigenous education gap and how to close it; and
- Beating lockdown blues: Students pass the Covid test.

The CIS welcomes the opportunity to contribute to the Review to Inform a Better and Fairer Education System (the Review). Consistent with our position, articulated in the S*ubmission into Productivity Commission Review of the National School Reform Agreement*, we support the broad objective of the National School Reform Agreement (NSRA) — namely to provide a high quality and equitable education for all students. This aligns with the *2019 Alice Springs Education Declaration* as committed to by Australia's education ministers.

However, as noted in our submission, we identified little linkage between the National Policy Initiatives (NPIs) and educational improvement, justifying the need to redefine shared goals. Several reform areas identified in the Review's Consultation Paper — including the explicit focus on lifting student outcomes and attracting and retaining teachers — are crucial goals in raising the state of Australian education. CIS welcomes the Review's direction to advise on "specific reforms and targets that should be tied to funding in the next NSRA".

However, the next NSRA, in our view, must emphasise outputs, rather than inputs. To this end, CIS welcomes the Education Minister's comments (as cited in the Review's Consultation Paper) that "what is even more important than full and fair funding is what funding does, what reforms it is tied to, and what difference it makes to students". In this respect, it is important to revitalise the National Measurement Framework (NMF), focussing on measures that are directly correlated with the performance of schools as relevant to educational outcomes.

In addition, while CIS shares the aspiration toward a 'better and fairer education system', we encourage the Expert Panel to consider an evidence-based approach toward this objective. Rather than

viewing educational equity concerns through an intersectional lens, we stress that the best — indeed the only — sustainable way to reduce educational inequality is to improve an education system's overall quality.

This submission provides analysis to address key questions raised in the Panel's consultation paper and dedicates its recommendations to items to which funding arrangements and reporting under the next NSRA could be tied. The submission's analysis sections offer analysis relevant to the following areas identified in the Panel's consultation paper:

- School resourcing and the NSRA;
- Improving student achievement;
- Reducing achievement gaps;
- Improving student wellbeing; and
- Developing, the size, strength and skill of the Australian teacher workforce.

To support a better coordination of school resourcing within the NSRA, we make the following recommendations:

- Review the SRS to focus on the cost to provide school education, not an arbitrary and outdated inputs-based formula;
- Limit further federal government increases to funding unless this is substantially better targeted;
- Improve funding transparency through a consistent approach across school sectors and a focus on the use of funds, not just the distribution of funds.

To improve the reporting of appropriate measurement and monitoring of system progress toward key national objectives, we make the following recommendations:

- Attach meaningful student achievement and growth targets into the NSRA and NMF (with a special emphasis on growth targets that clearly report systems' progress according to the proportion of students who 'keep up', 'catch up', and 'move up' in achievement proficiency);
- Refresh the national, regional, and local performance monitoring of education outcomes and other targets (particularly through an adaptation of the approach used in the Productivity Commission's Closing the Gap dashboard);
- Measure and monitor student wellbeing through a focus on classroom learning environment and student conduct through a National Behaviour and School Climate Survey;
- Measure and monitor youth literacy and numeracy capabilities directly (based on adult foundational skills), not attainment of qualifications.

To support objectives toward reducing achievement gaps and education system inequities, we make the following recommendations:

- Adopt equity targets that addresses the success of systems in providing educational opportunity (particularly through adapting a series of indicators, including 'academic resilience', learning gains of low-performing schools and students, remediation rates for students receiving additional support, and a new 'gap-closing' performance index);
- Determine a nationally-consistent approach to defining mathematical and literacy learning difficulties and disabilities;

- Develop an implementable census-based school readiness measurement tool to identify students with additional learning needs early and consistently to better support efforts for intensive intervention.

To support objectives to better measure and develop the size, strength and skill of the Australian teacher workforce, we make the following recommendations:

- Directly monitor and measure the teaching instruction in classes and knowledge of teachers;
- Improve public reporting on national teacher workforce data, including a common definition of out-of-field teaching and teacher availability, to identify areas of geographic and subject-specific teacher needs;
- Enable access to deidentified unit-record data in the Australian Teacher Workforce Data for research purposes;
- Reduce unnecessary barriers to enter teaching and use targeted financial incentives to attract in-demand teachers.

School resourcing and the NSRA

The National School Reform Agreements (NSRA) establish the funding arrangements between the federal and state government levels, and is accompanied by a National Measurement Framework (NMF) that defines which student outcomes are measured in terms of, in particular, student achievement, attainment, and engagement. To facilitate improvements in these domains, the NSRA currently stipulates three reform directions — the progress of which is measured by reference to the implementation of eight national policy initiatives (NPIs).

In January 2023, the Productivity Commission released its review into the National School Reform Agreements,[1] recommending a redesign of the NSRA. In particular, the Commission identified that the NPIs have largely failed to meaningfully improve student outcomes. Future NSRAs, they conclude, should incorporate targets that are clear and measurable, as a means for more readily identifying shared objectives and progress toward reaching these.

School funding in Australia is high by international standards and has increased rapidly

Australian taxpayer funding towards primary and secondary schools has increased significantly over recent years — by more than 50 per cent over a decade (See Figure 1). OECD data demonstrates that the real growth in Australian school funding has outpaced comparable countries.

Figure 1: Australian and state/territory government recurrent expenditure (nominal; $b) for all schools between 2016–2021.
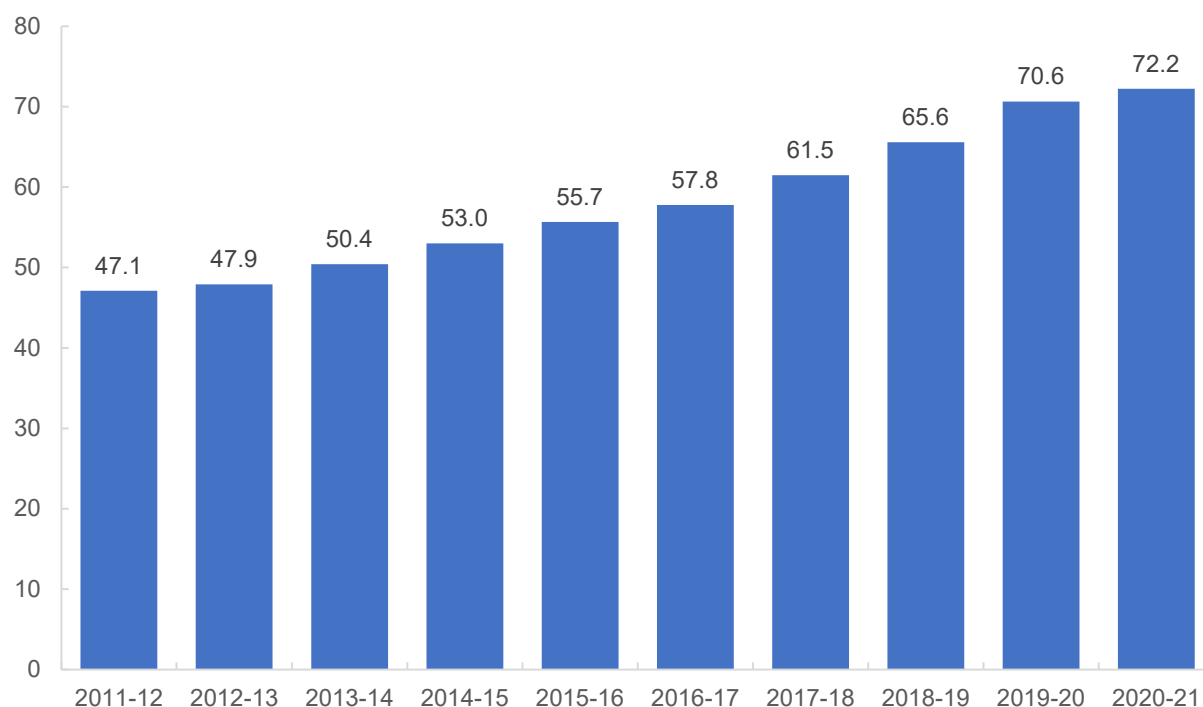
Source: Australian Curriculum Assessment and Reporting Authority. (2023). Government recurrent expenditure on government and non-government schools. https://www.acara.edu.au/reporting/national-report-on-schooling-in-australia/school-funding/government-recurrent-expenditure-on-government-and-non-government-schools.

In per student terms, Australia outspends comparable OECD countries — around 19 per cent more than the OECD average, after adjusting for purchasing power differences[2], and around 17 per cent higher than the OECD average across the full duration of a child's schooling.[3]

Additional school resourcing is not associated with greater student outcomes

At a system-level, additional public funding has not produced improved educational outcomes. This is consistent with decades of educational economics research, finding little or no association between overall resourcing and student outcomes.[4]

Despite lower funding per student, comparable countries consistently record greater student outcomes. In 2018, for example, Australia spent 24% more per student than countries such as New Zealand and Ireland, yet these countries recorded greater educational achievement in the Programme for International Student Assessment (PISA) (see Figure 2). Overall, successive OECD reports have also identified no clear relationship between countries with higher resourcing recording higher achievement, on average.

Figure 2: PISA Reading Scores and School funding per student (US$ PPP spending from age 6-15)
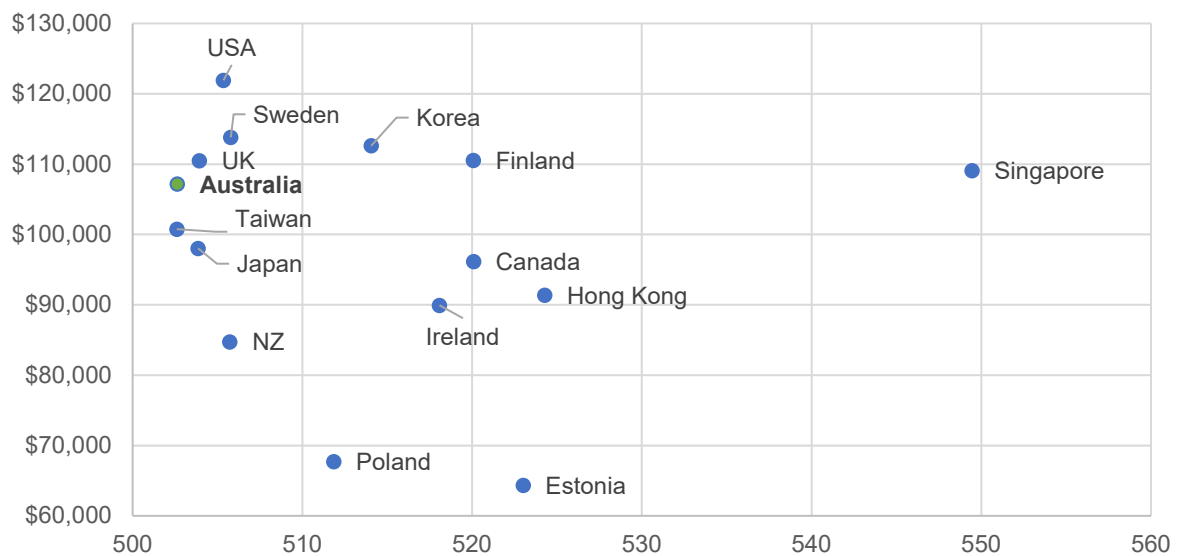
Source: OECD (2019). Programme for International Student Assessment 2018; financial values are $US PPP.

In addition to no evidence of system-wide increases in inputs translating to greater outcomes, CIS research also finds the same to be true when considering school-level comparisons.[5] This analysis found no association between more public funding and improvements in student achievement at the school level. In other words, if two government schools with comparable cohorts of students, but different funding levels, are randomly selected, those schools' students would perform roughly the same on average. As a result, there is little to reason to believe that further increases in resourcing alone are likely to raise Australian student achievement.

Figure 3: Statistical association between key variables and student achievement in Year 5 NAPLAN, government schools, 2010-2018.
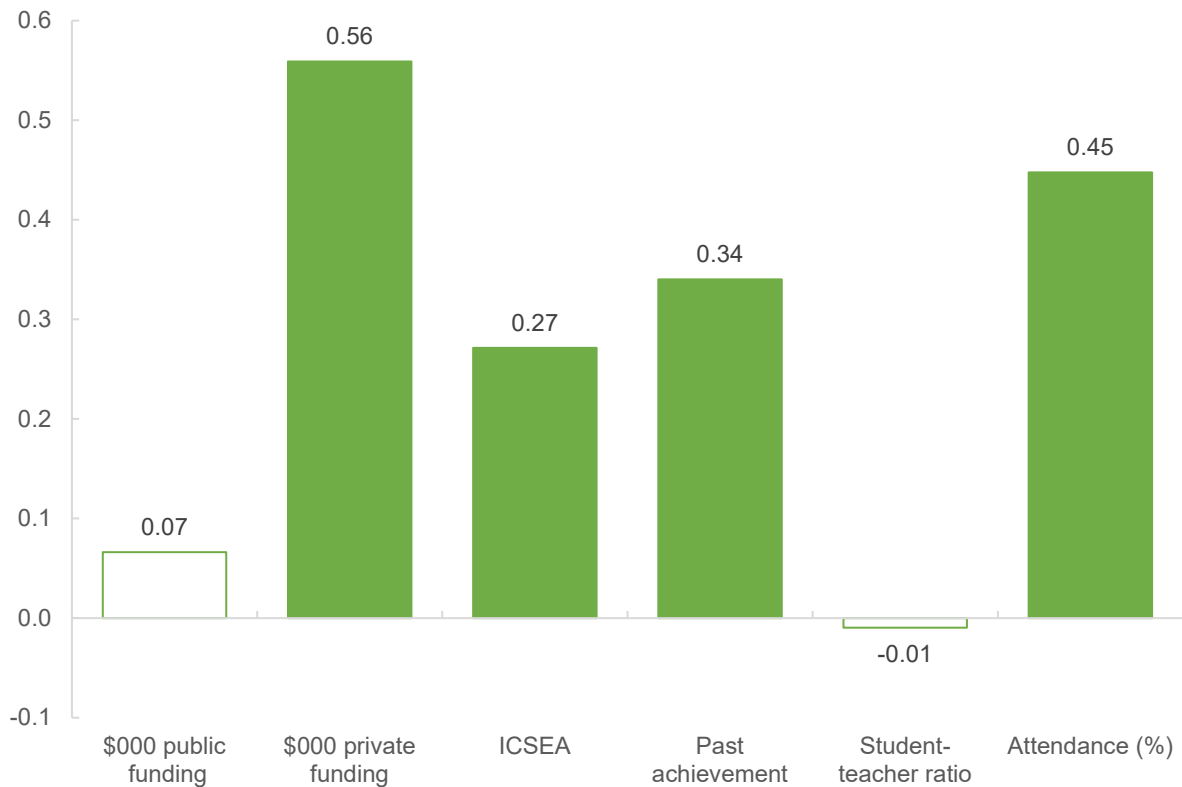
Source: Fahey, G. (2020). Dollars and Sense: Time for smart reform of Australian school funding, Centre for Independent Studies, Research Report No 40.

Among the policy objectives of Gonski school funding reform has been to reduce the impact of socio-educational advantage in explaining student outcomes. Analysis of ACARA school-level data would suggest that this has not occurred to date. This is because it would be expected that the statistical relationship between ICSEA and achievement (the nexus between socio-educational advantage and achievement) might be expected to weaken if redistributed funding were reducing the persistence of disadvantage. However, the statistical association between school ICSEA has generally been the same magnitude or greater since Gonski reforms were introduced to the school funding formula in 2014.

Figure 4: Statistical association between school Index of Community. Socio-Educational Advantage (ICSEA) and average student achievement, 2010 to 2018.
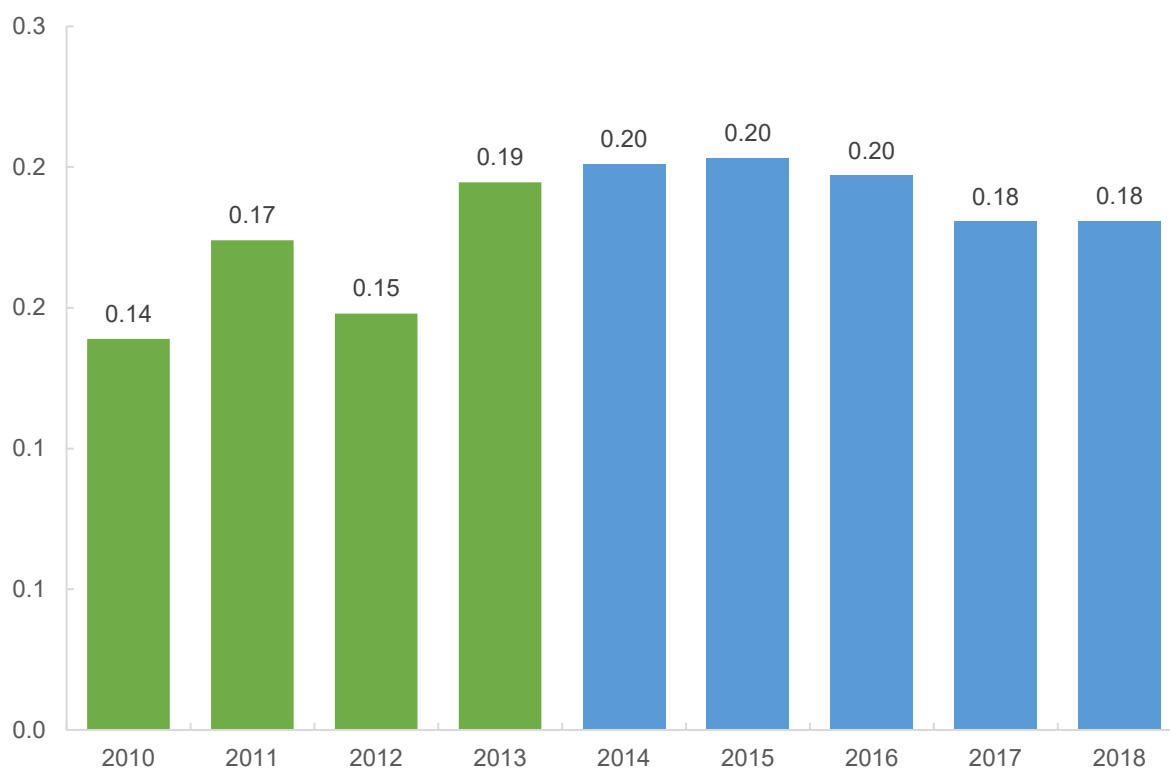
Source: Authors' analysis of ACARA school-record data.

Australia's school funding is already somewhat progressive — though more so in the non-government sectors than in the government sector. This is because there is a negative correlation between a school's ICSEA and the amount of public funding it receives — though this is much greater for the non-government sectors. Similarly, there is a positive correlation between a school's ICSEA and the amount of private funding it receives.

Statistical correlation between school Index of Community. Socio-Educational Advantage (ICSEA) and total public funding (state and federal) and total private funding, 2018.
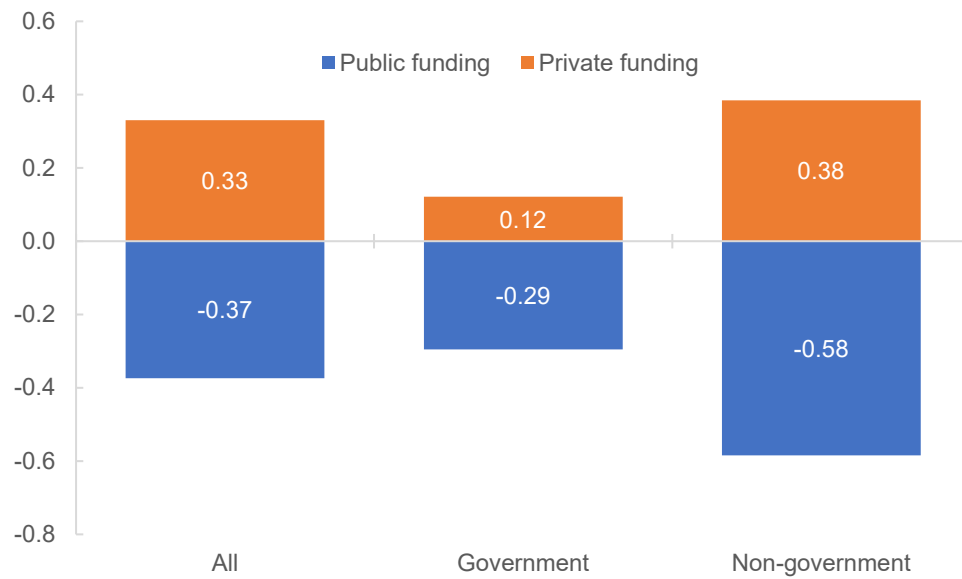

Source: Authors' analysis of ACARA school-record data.

There is little justification for additional federal government investment

While the states and territories are the majority funders of government schools, the federal government is the majority funder of non-government schools (and the single greatest funder of schools overall). The federal government's contribution to funding has increased significantly — especially for government schools — over the past decade. Generally, the federal government's increased contribution of taxpayer funding has proportionately been greater than state governments.

Figure 5: Summary of increase in government funding for government and non-government schools between 2011 – 2021.
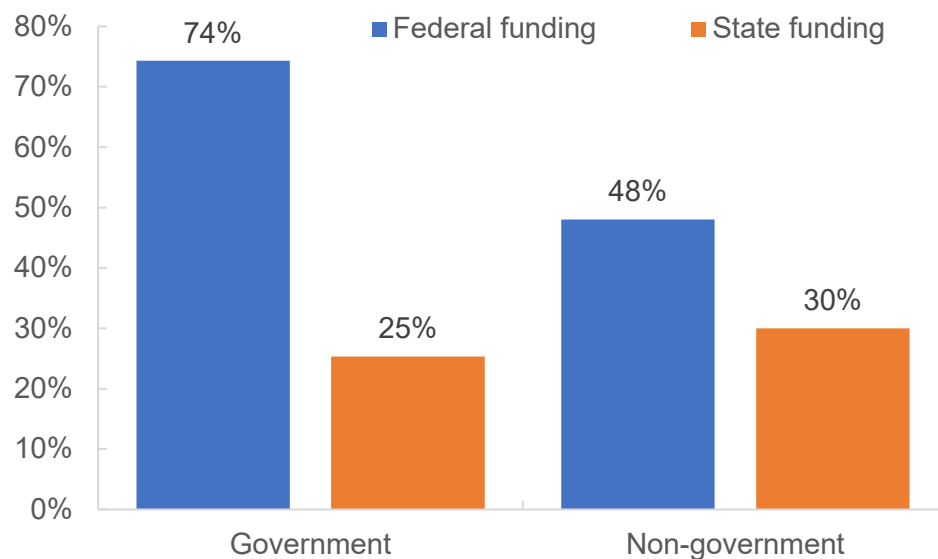
Despite increases from both levels of government, there are inconsistencies in state funding, arising from their varying commitments to contribute toward the Schooling Resource Standard (SRS) — particularly for government schools. As Figure 6 demonstrates, the states and territories — except for the ACT — do not meet the objective of covering 80% of SRS funding for government schools for the 2023 year.

Figure 6: Summary of states financial commitments (as a percentage of the SRS) in relation to government schools for the 2023 year.


Source: National School Reform Agreements – Bilateral agreements between the Commonwealth and each state.

Improving student achievement

While Australia has historically achieved above the average in international assessments of mathematics, science, and reading, trends in PISA over recent decades have been particularly troubling. In this assessment — across all domains — Australia's performance has recorded the most consistent and steepest decline in the world, other than Finland, resulting in achievement in mathematics statistically equivalent to the OECD average (See Figure 7).

Figure 7: Australian PISA performance as against the OECD average
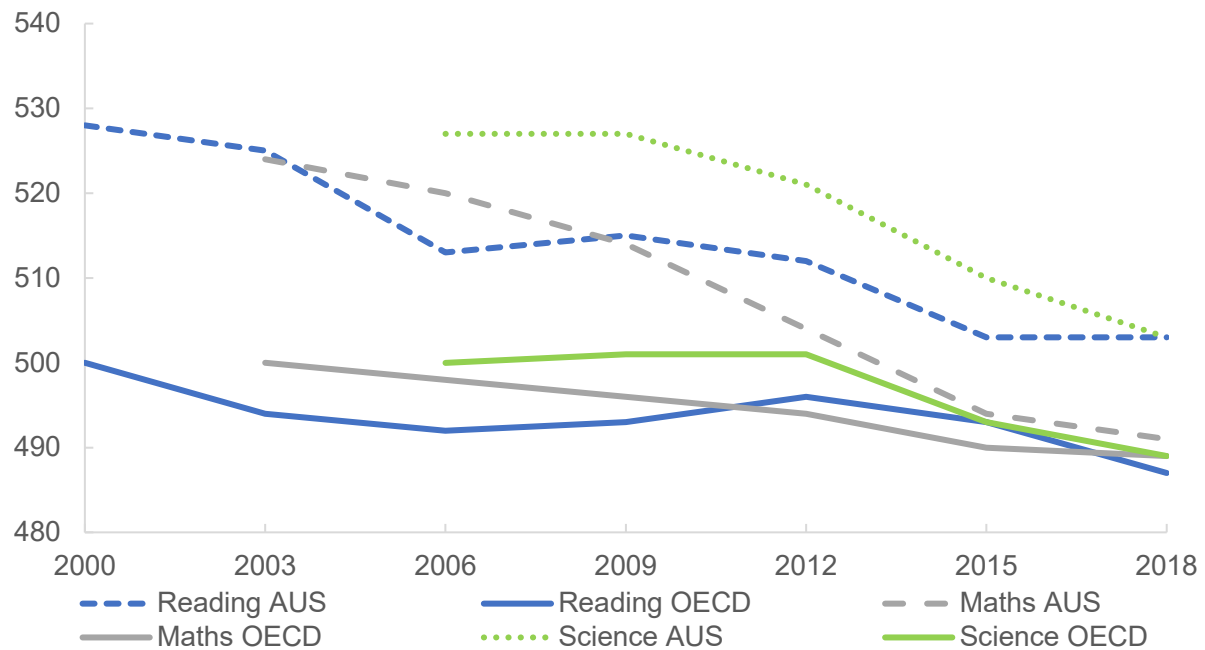
Source: OECD (2019). Program for International Student Assessment (PISA) 2018.

In domestic assessments, NAPLAN shows mixed results over time and across different demographics.

Since NAPLAN was introduced, there has been some improvement in early reading achievement — with Year 3 students now around 9 months ahead of their peers in 2008 — but there have been negligible gains recorded in other domains. Moreover, the gains observed in the earlier years are not generally reflected throughout students' schooling. By Year 9, students are achieving at comparable, and in some cases, lower levels today (such as in writing).

Figure 8: Equivalent months of learning difference in NAPLAN, 2022 average achievement compared to 2008 achievement (2011 for writing).
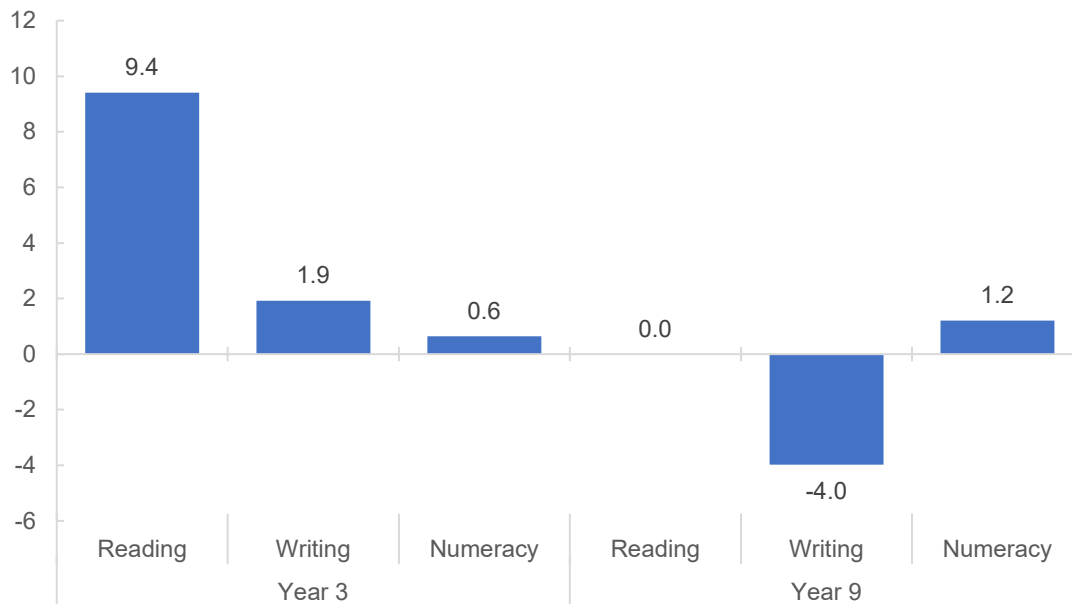
Source: Authors' analysis of ACARA's NAPLAN database.

Many potential factors contribute to student achievement

Students' academic achievement at school is explained by a wide range of factors — including study-related characteristics and preferences (generally described here under the umbrella of 'student factors'), cognitive attributes (largely related to 'executive functioning' skills that are somewhat generic and not domain-specific), demographic and parental background, and school factors.

CIS analysis finds that around 56 per cent of the variation in students' mathematics achievement in Year 9 is accounted for by measured differences in student, cognitive, parental, demographic and school factors.[6] Differences in students' cognitive factors, as well as their differences in study-related characteristics and preferences are responsible for a large proportion of the explained variance.

Figure 9: Proportion of explained mathematics achievement in Year 9, by relevant factors.

| 32% | 31% | 18% | 14% | 5% |

0% 20% 40% 60% 80% 100%

■Student factors ■Cognitive factors ■Parental factors ■Demographic factors ■School factors
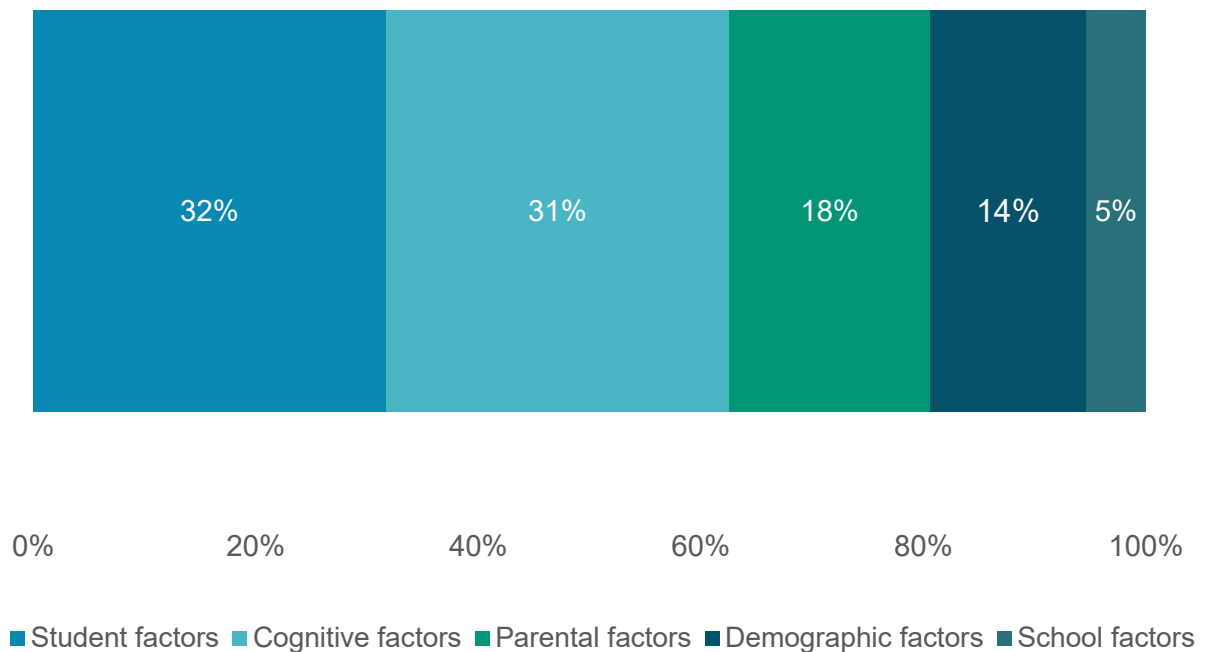
Source: Author's analysis of NAPLAN and LSAC data.

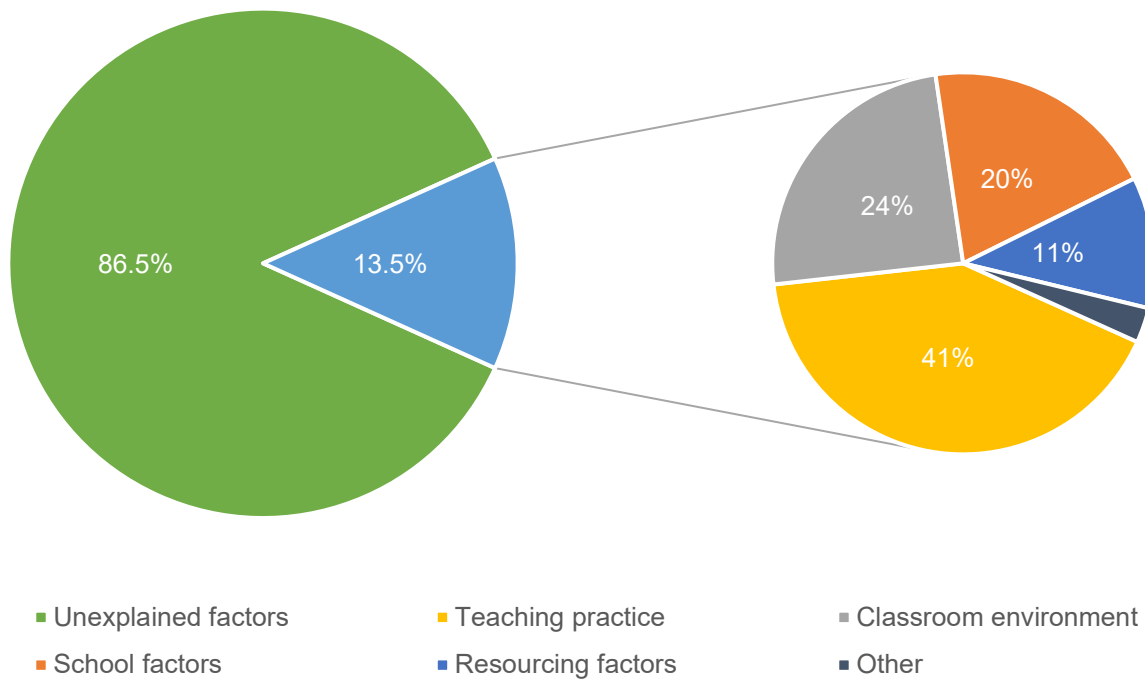*The quality of teaching and teachers are the greatest controllable factors explaining student achievement*

The quality of teaching is the greatest in-school, controllable factor affecting student achievement.[7] Across many studies, research suggests that around 30%,[8] and as much as 40%[9] of variation in student performance is at the class- and teacher-level. Further, there is some evidence suggesting that any achievement gaps arising from one's disadvantaged background can be closed by having a highly effective teacher for 3 - 4 continuous years.[10] Accordingly, teachers can make a substantial difference in the education and life outcomes of their students.[11] [12] [13] [14] [15]

Previous study by Deloitte Access Economics suggests that differences in school quality explains between 8 and 29 per cent of variations in student mathematics achievement.[16] Among various school quality drivers, teaching efficacy was identified as the most influential driver —accounting for one third of the explained variation in student achievement. Here, teaching efficacy refers to the effectiveness of teaching practices in the classroom, which differs from teacher attributes such as level of qualification and years of experience.

Figure 10: Relative importance of school quality drivers (averaged over PISA and TIMSS)

Legend:
- Unexplained factors
- Teaching practice
- Classroom environment
- School factors
- Resourcing factors
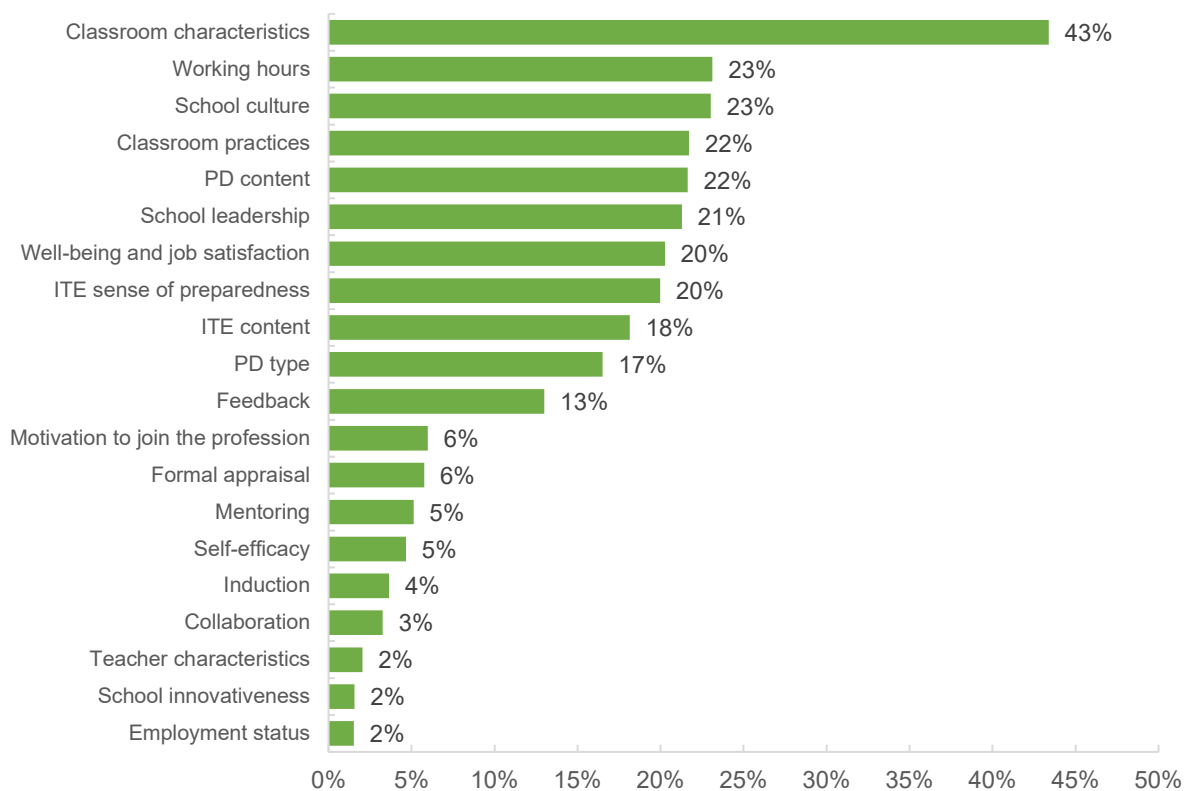- Other

Source: Deloitte Access Economics (2019).

Yet, to the extent that quality of the teacher workforce is typically considered, it is in very narrow, input-based, ways — such as qualifications, teachers' school-leaving achievement (particularly the ATAR), years of experience, teachers' workplace conditions, teachers' self-efficacy and the like. In other words, teacher 'quality' is looked at in terms of the incoming attributes of teachers (effectively, their inputs), rather than what they can do (and ultimately the achievement of their students; their outcomes).

An OECD analysis linking student results and teacher data also confirms the significant relationship between teacher effects on student achievement.[17] Among the key findings from this analysis are:

- While there was no observed relationship with the overall working hours of teachers and student achievement, what teachers spend their working time on is consequential. In particular, students recorded higher achievement when their teachers spent a higher proportion of working hours on marking and correcting student work and spent less time participating in school management activities.
- Schools and teachers with better student-teacher relations, and those in schools where stakeholder involvement with parents and community in school-related activities is greater, record higher student achievement.
- Australian teachers who administer more class assessments and those who provide more immediate feedback on students' work record higher achievement, particularly in reading.
- Australian classes with a poorer disciplinary climate record lower achievement.

- Mathematics teachers who are more prepared in terms of 'general pedagogy' record slightly lower student achievement, but having a teacher more prepared in terms of subject pedagogical knowledge is positively related to achievement.
- Teachers who are more satisfied with working in their school consistently record higher achievement.
- There is mixed evidence regarding the relationship with how satisfied teachers are with their work as a teacher more broadly. There is no statistical relationship found between teachers' workload stress, satisfaction with salary and working conditions, or teachers' views of how the teaching profession is valued by society.
- Several factors that are regularly discussed as being significant determinants of teachers' effectiveness — such as years of experience, employment status (whether they are part-time or full-time), satisfaction with salaries, working conditions, their perceptions of teaching's status, motivation to join the profession, and self-efficacy — are found to have virtually no relationship with student achievement.

Figure 11: Individually computed proportion of variance in Australian student achievement averaged across Reading, Mathematics, and Science by teacher factors.

Source: OECD (2021). Positive, High-achieving Students? What Schools and Teachers Can Do.

Evidence shows that some teaching practices are generally more effective than others.

Deloitte Access Economics analysis suggests that a greater emphasis on explicit instruction is associated with higher student achievement, corresponding to as much as an additional 24 months of learning gain when employed in every lesson.[18] On the other hand, the use of inquiry-based teaching in every lesson was associated with being up to 18 months behind peers not exposed to such

practice.[19] Prior work has also estimated that students who receive inquiry-based teaching in every lesson achieve around 61 points lower in PISA.[20]

It is generally the case that effective teaching doesn't necessarily imply employing explicit instruction alone, but it is often found that a great deal of explicit instruction is necessary before students are ready for alternative teaching approaches to be introduced.

CIS analysis has documented that Australian mathematics classrooms are more likely to employ practices associated with inquiry-based approaches than explicit instruction. CIS estimates that average PISA scores would increase by the equivalent of around 10 months of schooling, by the age of 15, if students received explicit instruction in most classes with some inquiry-based learning.[21]

There are some specific practices for primary mathematics teachers that are regularly found to be among the most effective for all learners:

- Clear teacher demonstrations that recognise implications of cognitive load;
- Guided, scaffolded practice opportunities that allow students to verbalise;
- Immediate corrective feedback to clarify and confirm students' progress; and
- Spaced and interleaved practice to facilitate cumulative review of content.

Multiple independent reports have documented persistent gaps in the preparation of teachers through initial teacher education (ITE). To this end, international data indicates that Australian graduate teachers' preparedness in core areas is below the OECD average and high-performing countries, such as Singapore. (See Figure 12).

Some evidence demonstrates that this is the result of poor ITE courses. For example, the most prescribed textbooks in ITE programs have been identified as not providing sufficient information on effective, evidence-based pedagogy. The content does not place an emphasis on the five core elements of reading instruction (phonemic awareness, phonics, fluency, vocabulary, and comprehension),[22] leaving teachers with knowledge gaps that contribute to ineffective instruction.

This is consistent with unpublished market research conducted by CIS, finding that many practicing teachers report ITE as failing to provide sufficient, evidence-based practices, while promoting alternatives that they later discovered were ineffective or scientifically unjustified. Further, CIS research regarding ITE courses for beginning Mathematics teachers across 31 universities has revealed that none of the courses emphasise explicit instruction, with most universities instead emphasising constructivist approaches.[23]

Figure 12: Teacher preparedness across key areas.
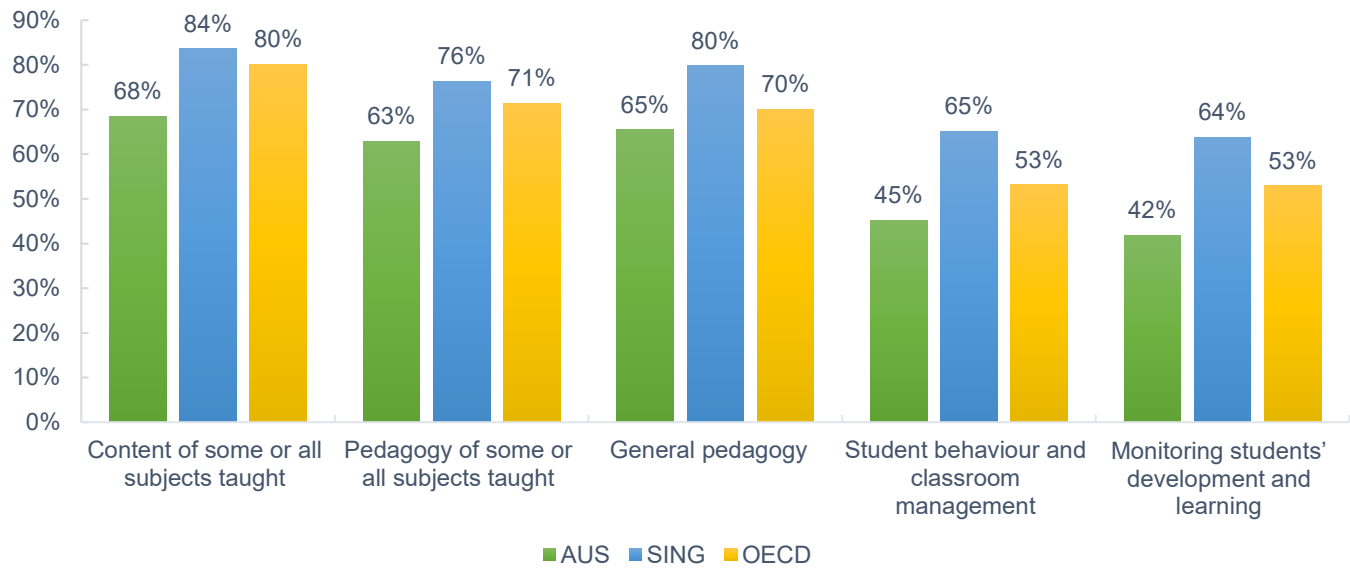
Source: OECD (2019). TALIS (2018).

Reducing achievement gaps

Group differences in student achievement can be significant — including those based on students' sex, Indigeneity, and for those with additional educational needs — such as for students who suffer from learning difficulties or disabilities. However, the Panel is encouraged to focus its efforts on identifying opportunities for the NSRA to strengthen the school and classroom practices with a supporting evidence base in reducing achievement gaps, rather than a further intersectional emphasis on students' backgrounds in defining educational disadvantage.

Achievement gaps can be related to student background, but many gaps can be explained by class and school factors

Analysis of TIMSS and PIRLS international assessments allows for comparisons in student achievement across a wide range of factors, including many that are not recorded in current domestic datasets.

This shows that students' backgrounds can result in considerable achievement gaps in reading and mathematics. This includes the average differences between students in remote schools compared to metropolitan schools (though those between regional and metropolitan schools are only modest), students' Indigeneity, and between schools where there is a relatively affluent background compared to those from a more disadvantaged background.

Other factors related to the background of students (such as the average differences in achievement in schools with high and low proportions of students from a language background other than English (LBOTE)), and some school-based factors, like the difference in schools where teachers are "very satisfied" to where they are "less than satisfied", show no difference in student' average achievement.

Figure 13: Achievement gap in Year 4 reading (as measured by PIRLS score points), based on various school and student factors.
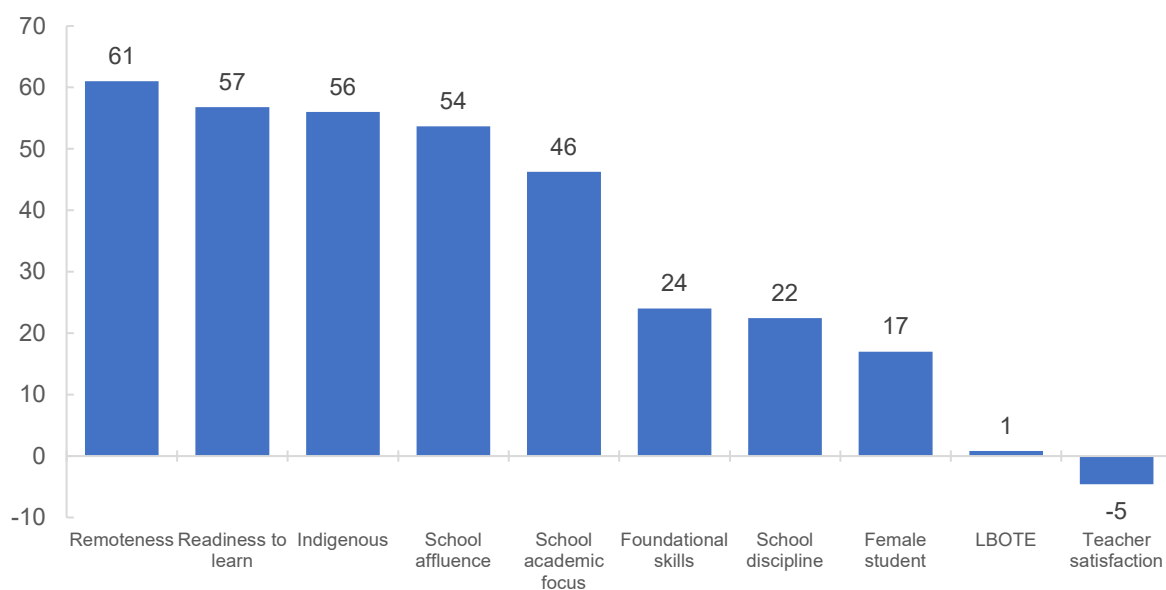
Source: IEA (2020). PIRLS 2021 database.

On the other hand, however, many controllable factors related to teaching and school practice are attributable for sizeable achievement gaps. For instance, the average difference observed in schools where there is generally high compared to low instructional clarity, students' learning readiness (comparing schools where there are "very little" to those where there are "a lot" of limits faced by students not being ready to learn), schools where more than 75 per cent of students enter with necessary foundational skills (compared to those where under 25 per cent do), how principals rate a school's academic focus (from "very high" to "medium"), the frequency of school discipline problems and disorderly behaviour (comparing schools where there are "hardly any problems" to where there are "moderate to severe" problems), are all responsible for statistically significant gaps in average student achievement.

Figure 14: Achievement gap in Year 4 mathematics (as measured by TIMSS score points), based on various school and student factors.
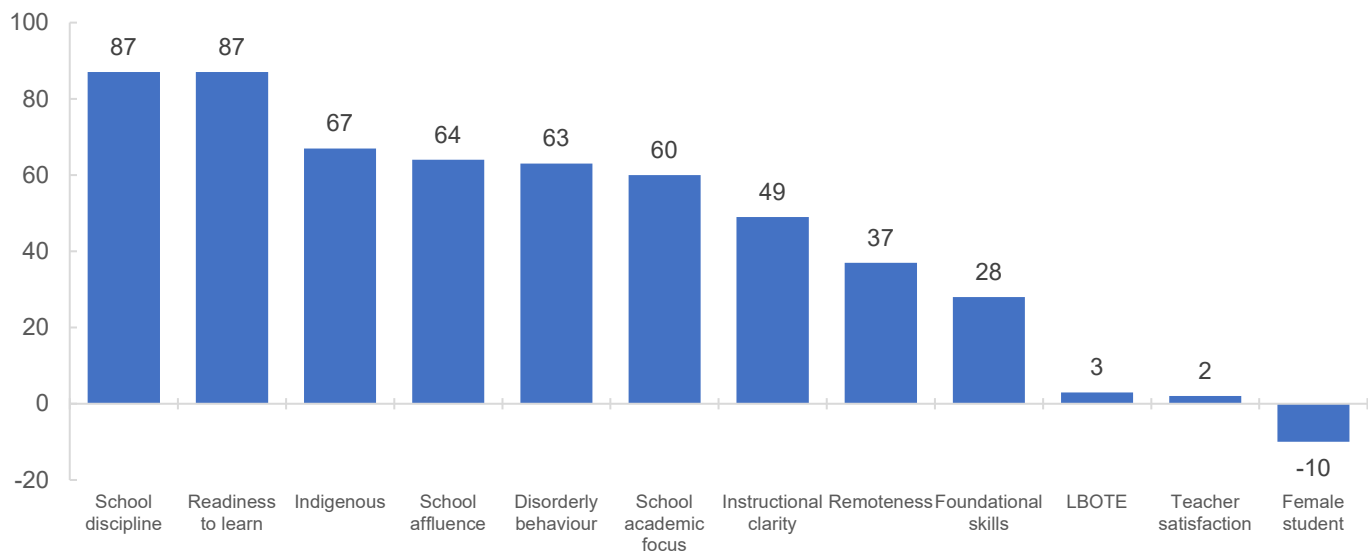
Source: IEA (2020). TIMSS 2019 database.

Domestic assessments show significant literacy achievement gaps between boys and girls

There can also be meaningful differences in average achievement between boys and girls. By Year 9, Australian boys achieve an average of around 4.3 months ahead of girls in numeracy. And in PISA, boys achieved more highly than girls by the equivalent of around 2.6 months in mathematical literacy at the age of 15.

However, by Year 9, girls achieve well ahead of boys in literacy domains — by around 21 months in writing and around 13 months in reading (comparable to the 11.6 months that boys are behind girls in reading in PISA by the age of 15). Given that there is an especially strong association between writing proficiency and post-school educational attainment, the underachievement of boys in this domain is an area that requires more specific monitoring and policy response.

19

Figure 15: Average student achievement gap in NAPLAN domains (males compared to females), Year 3 and Year 9, in equivalent months of learning, 2022.

Source: ACARA (2022). NAPLAN National Student Report, 2022 results.

Background does not necessarily determine student achievement

Gaps in student achievement are traditionally explained by socio-educational or socio-economic factors. School resourcing is implicitly — and in some cases explicitly — informed by delivering additional funding through the SRS through additional loadings that are attracted by students and schools who record greater socio-educational disadvantage (determined largely by the occupational and educational status of parents).

While socio-economic factors do generally correlate with student performance, evidence suggests this must be considered carefully. This is because research shows that variations in educational factors, such as early childhood cognitive ability and prior achievement, more readily explain variations in student performance, than factors such as family income levels.[24] In one study, the effects of cognitive abilities, non-cognitive abilities, and socio-economic status on student performance were measured — the first of which was found to have the strongest relationship to achievement, followed by non-cognitive abilities and socio-economic status, respectively.[25] Consistent with these studies, prior achievement, in particular, has been found to account for up to 50% variance in student achievement.[26] In studies where socio-economic status and prior achievement were both assessed, prior achievement in reading was found to account for 37% variance in science results three years later, while socio-economic status accounted for 2%.[27]

There are evidence-based practices commonly found in high-achieving disadvantaged schools

A 2019 CIS study identified 18 top-performing disadvantaged primary schools based on NAPLAN literacy and numeracy test results.[28] Fieldwork associated with this analysis observed six consistent school and classroom practices common across the high-achieving disadvantaged schools in the study, as summarised in the below table.

20

School discipline	Based on high expectations, a clear set of consistently applied classroom rules, and a centralised school behaviour policy.
Direct and explicit instruction	New content is explicitly taught in sequenced and structured lessons. Includes clear lesson objectives, immediate feedback, reviews of content from previous lessons, unambiguous language, frequent checking of student understanding, demonstration of the knowledge or skill to be learnt, and students practising skills with teacher guidance.
Experienced and autonomous school leadership	Stable, long-term school leadership, and principal autonomy to select staff and control school budgets.
Data-informed practice	Using data from teacher-written, NAPLAN, and PAT assessments to improve teaching, track student progress, and facilitate intervention for underachieving students.
Teacher collaboration and professional learning	Collaboration among teachers and specialist support staff to cater for the often-complex needs of disadvantaged students. With a focus on teacher professional learning; involving peer observations, mentoring, and attending practical professional development activities which help refine literacy and numeracy instruction.
Comprehensive early reading instruction	Including five necessary elements of reading instruction: Phonemic awareness, Phonics, Fluency, Vocabulary, and Comprehension.

By international standards, inequities among Australian students are relatively modest

The Panel's consultation paper identifies the relatively high concentration of disadvantaged students in Australia's schools. It is important that the Panel understands that this one indicator is not representative of the breadth of other indicators of school equity — all of which show that Australia's school systems perform comparably well to the international average and high-performing countries.

Moreover, while the concentration of disadvantaged students in certain schools in Australia may be higher than other countries, differences in student achievement are markedly larger within-schools rather than between-schools — suggesting that most schools are constituted by a range of high, moderate, and low performers (see Figure 16).

Figure 16. Breakdown of variation in PISA performance.
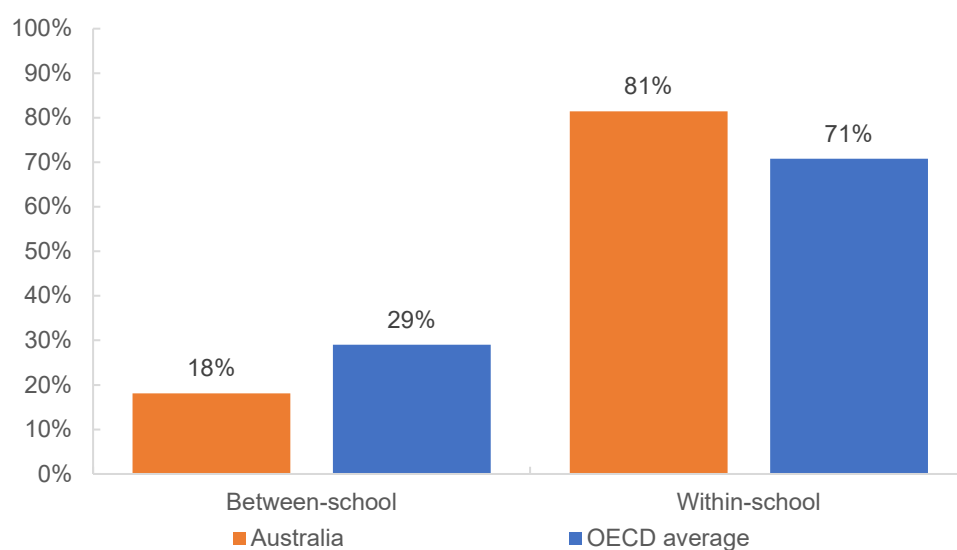
Across three measures of inequity used by the OECD, Australia outperforms the international average (see Figure 17). Spread — being the difference between the highest and lowest performing students — is lower than the OECD average. A student's socio-economic background (SES) is not a strong indicator of their academic performance compared to the OECD average, noting that the performance of migrants is also relatively high in Australian schools.[29] Finally, academic resilience in Australian schools is higher than the OECD average, suggesting that disadvantaged Australian students are more likely to perform better than those in comparable countries.

Figure 17: PISA measures of inequity
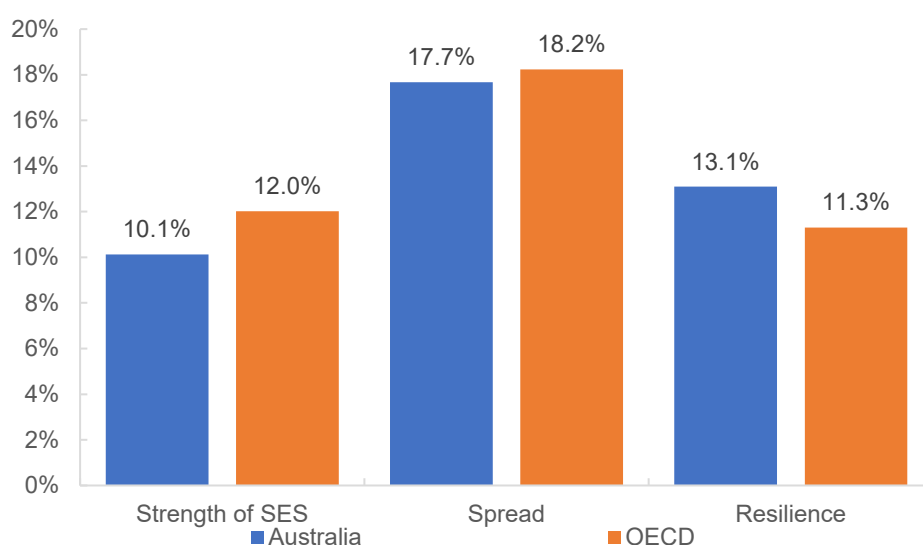
The indicator of academic resilience is especially important in demonstrating a school system's capacity to produce high-achieving students from disadvantaged backgrounds — and is consistent with accepted indicators of socio-educational mobility. On this indicator, Australia ranks as the 17th highest of 76 school systems — though it is slightly lower than some comparable school systems, such as Canada and the United Kingdom, and some high-achieving school systems, such as Hong Kong and Macao.

Figure 18: Percentage of disadvantaged students who scored in the top quarter of reading performance in their own country (Academically resilient students).

| Country	Value
Peru	6.2
Bulgaria	6.5
United Arab Emirates	7.2
Luxembourg	7.6
Philippines	7.7
Hungary	7.7
Israel	8.0
Moldova	8.1
Argentina	8.5
Romania	8.8
Czech Republic	8.9
Belarus	8.9
Belgium	9.0
Lebanon	9.1
Slovak Republic	9.1
Panama	9.2
Switzerland	9.3
Brunei Darussalam	9.5
Uruguay	9.5
Qatar	9.5
Brazil	9.5
France	9.5
Singapore	9.7
Malaysia	9.8
Austria	10.0
Colombia	10.0
Costa Rica	10.0
Portugal	10.0
United States	10.3
Germany	10.4
Mexico	10.6
Saudi Arabia	10.7
Poland	10.8
Chile	11.2
Lithuania	11.2
OECD average	11.3
Sweden	11.4
New Zealand	11.7
Slovenia	11.7
B-S-J-Z (China)	11.7
Japan	11.7
Ukraine	11.8
Chinese Taipei	11.8
Greece	11.8
Latvia	12.2
Denmark	12.2
Dominican Republic	12.3
Georgia	12.3
Albania	12.3
Norway	12.3
Italy	12.4
Jordan	12.4
Thailand	12.5
Netherlands	12.6
Finland	12.6
Russia	12.6
Iceland	12.8
Ireland	13.1
Bosnia and Herzegovina	13.1
North Macedonia	13.1
Australia	13.1
Morocco	13.2
Serbia	13.2
Malta	13.3
Korea	13.5
Indonesia	13.7
Canada	13.9
United Kingdom	14.0
Montenegro	14.3
Turkey	14.5
Croatia	15.2
Estonia	15.6
Kazakhstan	16.0
Hong Kong (China)	16.5
Baku (Azerbaijan)	16.5
Kosovo	17.3
Macao (China)	19.8

Source: PISA 2018 vol 2.

The majority of educational inequities are intra-sector, rather than inter-sector

While the presence of Australia's relatively large non-government sectors is frequently blamed for socio-educational inequalities and stratification, this is misplaced. When decomposing the inequities across school sectors in Australia, most of the variation is explained by differences across the government school sector, with only a minority that is accounted for by public-private inequity.
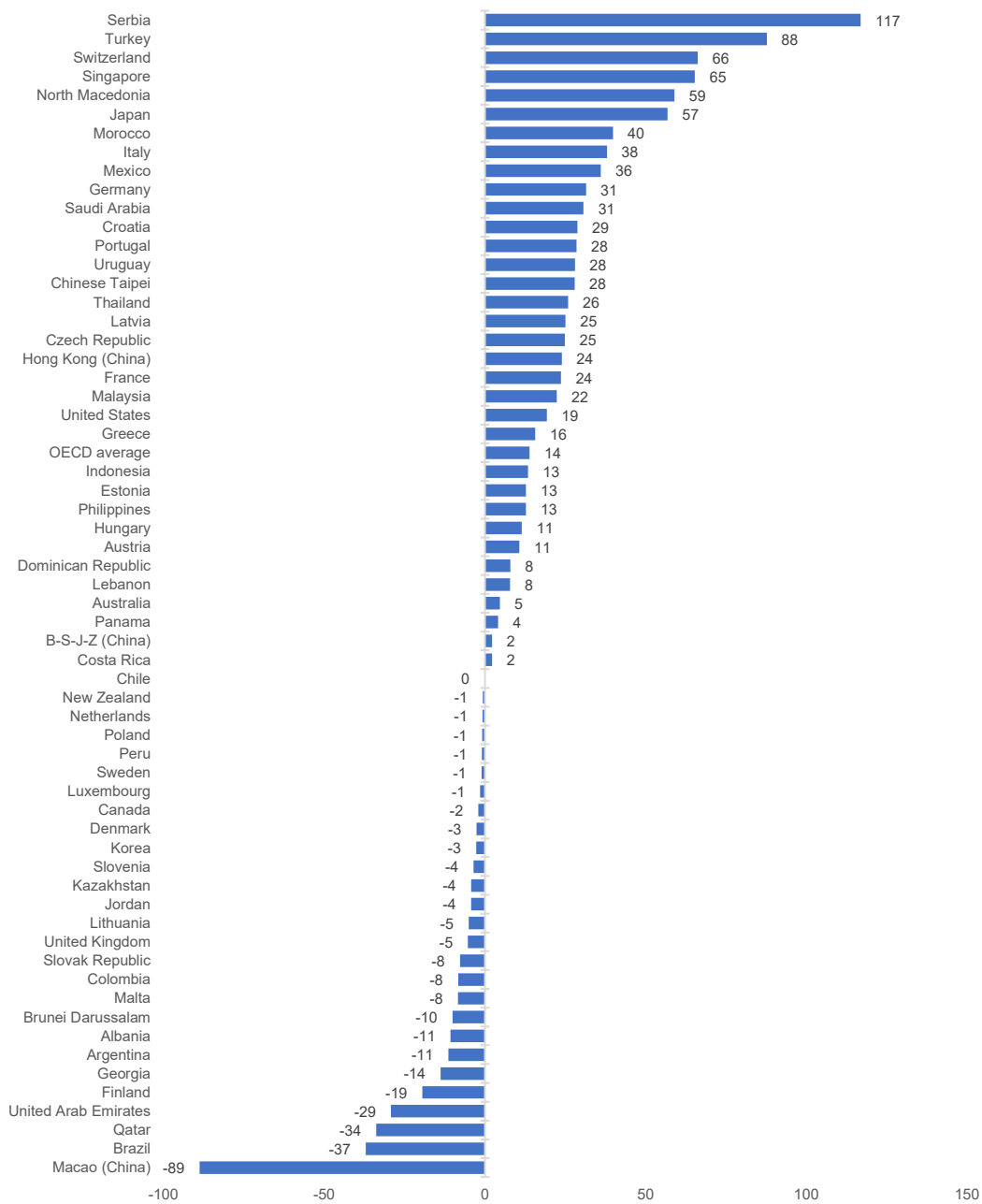
Figure 19. Decomposition of inequities within and between school systems, Australia and OECD average.
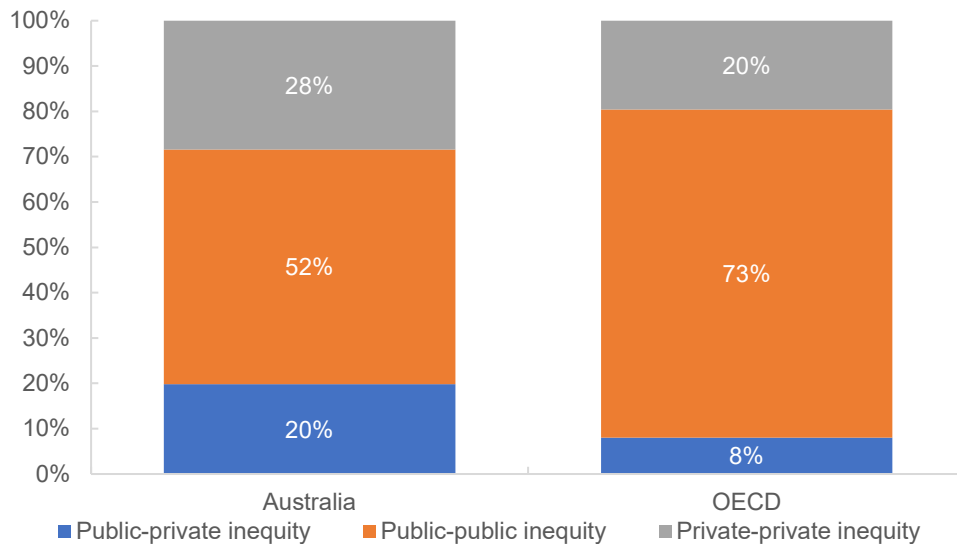
Source: Adapted from OECD (2012). Public and Private Schools: How Management and Funding Relate to their Socio-economic Profile.

There is also little reason to believe that the non-government sectors exacerbate pre-existing educational inequities. OECD analysis shows that there is no statistically significant difference in achievement between non-government and government schools, after accounting for differences in SES. As a result, while there may be some differences in the socio-educational advantages across sectors, this is not a reflexion of structural inequities within the education system, nor a contributor to wider socio-economic disparities.

Figure 20: Difference in performance on the reading scale between public and private schools after accounting for students' and schools' index of economic, social and cultural status.

Country	Value
Serbia	117
Turkey	88
Switzerland	66
Singapore	65
North Macedonia	59
Japan	57
Morocco	40
Italy	38
Mexico	36
Germany	31
Saudi Arabia	31
Croatia	29
Portugal	28
Uruguay	28
Chinese Taipei	28
Thailand	26
Latvia	25
Czech Republic	25
Hong Kong (China)	24
France	24
Malaysia	22
United States	19
Greece	16
OECD average	14
Indonesia	13
Estonia	13
Philippines	13
Hungary	11
Austria	11
Dominican Republic	8
Lebanon	8
Australia	5
Panama	4
B-S-J-Z (China)	2
Costa Rica	2
Chile	0
New Zealand	-1
Netherlands	-1
Poland	-1
Peru	-1
Sweden	-1
Luxembourg	-1
Canada	-2
Denmark	-3
Korea	-3
Slovenia	-4
Kazakhstan	-4
Jordan	-4
Lithuania	-5
United Kingdom	-5
Slovak Republic	-8
Colombia	-8
Malta	-8
Brunei Darussalam	-10
Albania	-11
Argentina	-11
Georgia	-14
Finland	-19
United Arab Emirates	-29
Qatar	-34
Brazil	-37
Macao (China)	-89

Source: OECD (2019). PISA 2019 database.

There are substantial numbers of at-risk learners with additional needs who are not consistently being identified and remediated

Compared to high-performing countries, there are more Australian students failing to meet the 'on track' numeracy benchmark in Year 4 — for instance, in Singapore and Japan, less than 1 per cent are below the minimum standard. NAPLAN has typically identified smaller proportions of students in the

lowest achievement bands (potentially due to under-reporting) — a matter that may have been resolved in 2023 changes to the national assessment.

Figure 21: Proportion of low or under-achieving students across international assessments.
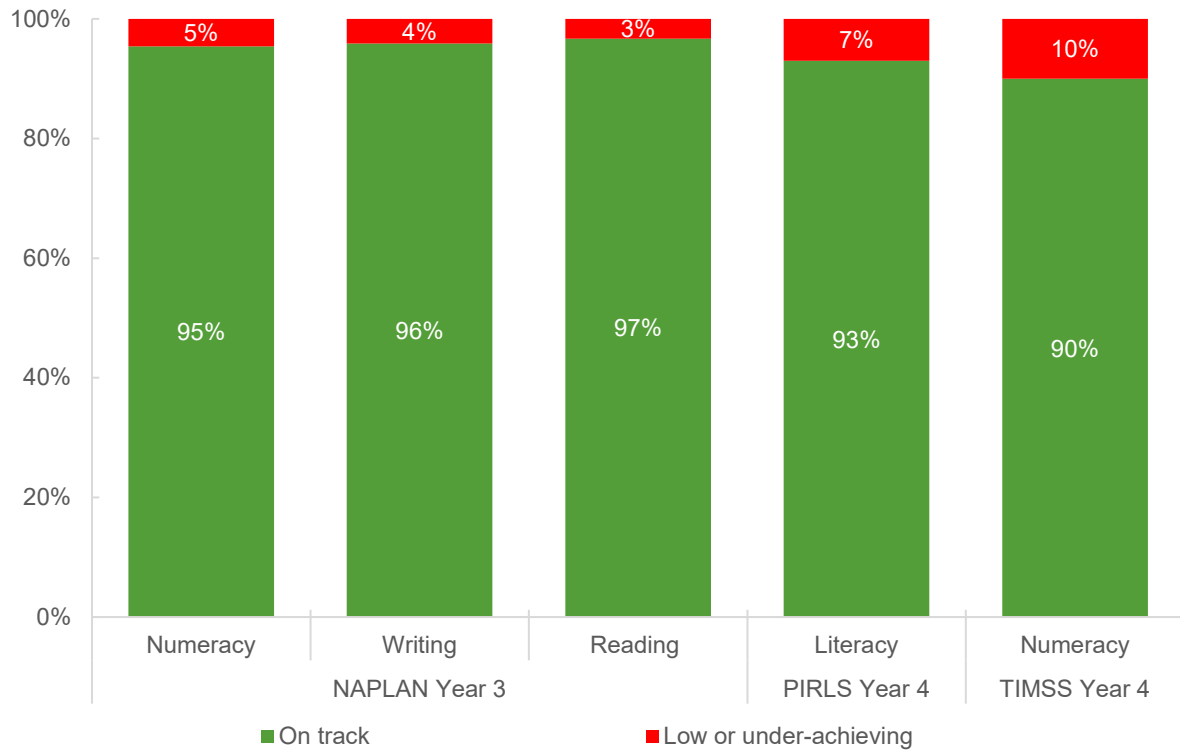

Source: Australian Curriculum, Assessment and Reporting Authority (2019), National Assessment Program – Numeracy, Writing, Reading (Year 3); International Study Centre (2016), Progress in International Reading Literacy Study (Year 4); Trends in International Mathematics and Science Study (Year 4).

There are not clear signals from identifying at-risk students and the process and outcomes from intervention

Some early indicators of students' possible educational vulnerabilities in early school years can be observed in the Australian Early Development Census (AEDC). [30] This shows that, in some domains, up to one in four students are vulnerable or at risk of developmental difficulties at school entry. The proportion of students at risk of developmental vulnerability has remained broadly constant since data was first collected.

In any case, despite the importance of the data collected in the AEDC, it is not clear that it is currently informing educational practitioners and policymakers in ways that are likely to improve outcomes of impacted children.

Figure 22: Percentage of children aged 6-7 years, by developmental vulnerability and domain, 2021.
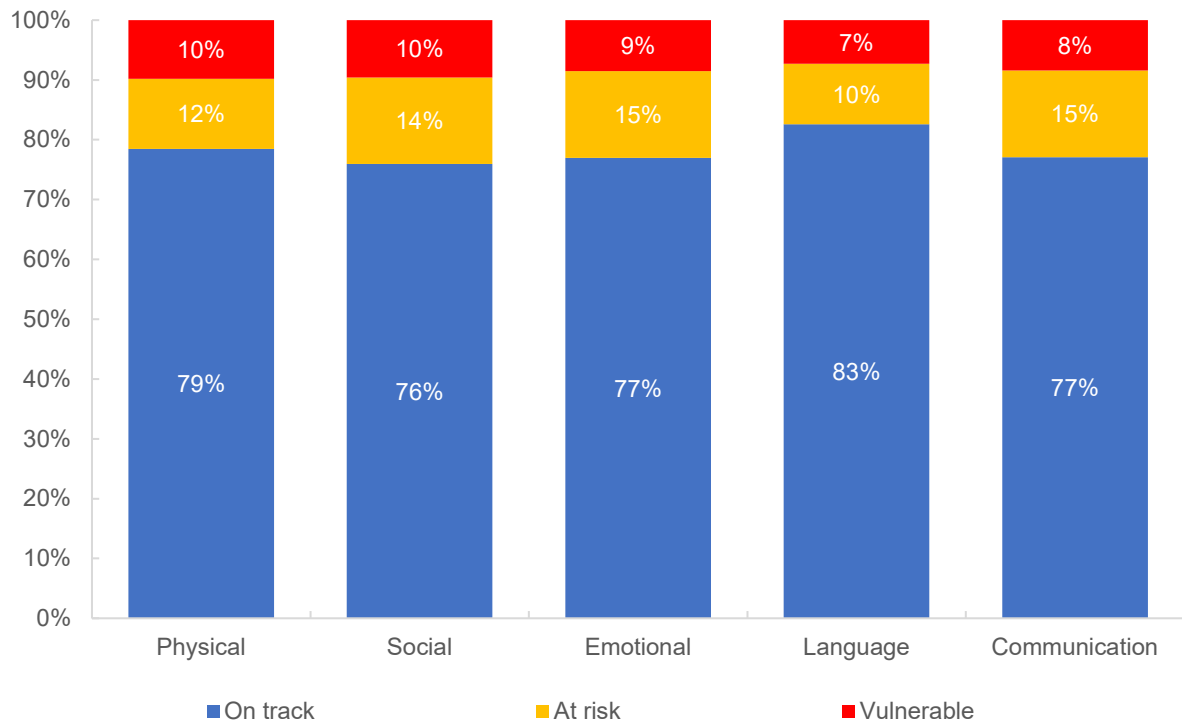
Source: Department of Education, Skills, and Employment (2021). Australian Early Development Census (AEDC).

There is also little evidence that academically-vulnerable students are currently being remediated at desired levels. Productivity Commission analysis shows that the vast majority of students who fail to meet the NAPLAN National Minimum Standard in numeracy go on to exceed this benchmark in Year 5.

Figure 23: Performance of Year 3 – 5 and 7-9 students as against the National Minimum Standard.
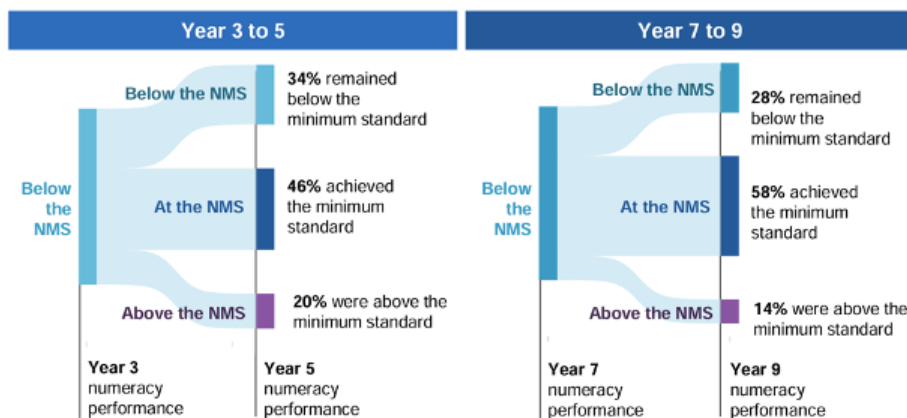
The single greatest factor explaining differences in achievement between Indigenous and non-Indigenous students is the difference in school attendance rates

CIS decomposition of differences in achievement between Indigenous and non-Indigenous students found that differences in attendance rates and differences in parental education levels account for most of the explained gap.[31] However, differences in school-level factors — such as differences in remoteness, funding, staffing ratios, and proportion of Indigenous students in schools — do not significantly contribute to the achievement gap.

Figure 24: Proportion of decomposed measures of primary school student achievement gap between Indigenous and non-Indigenous students, Year 3.
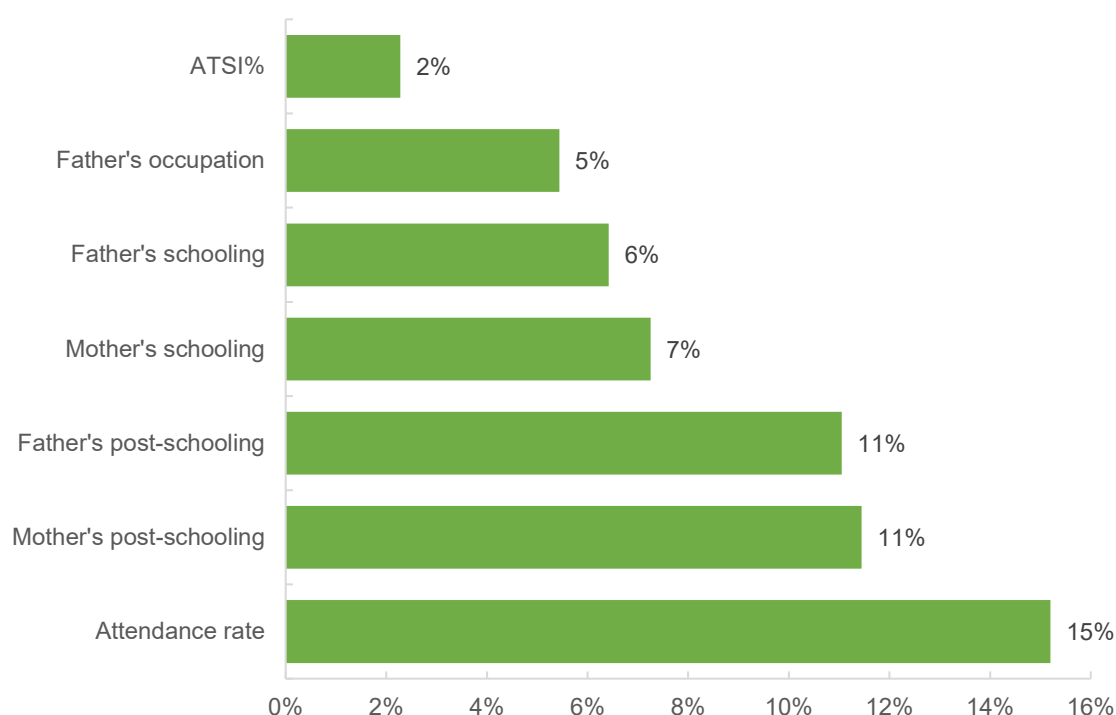
NB: does not sum to 100% as negligible proportions are omitted from display.

Improving student wellbeing

The Panel's apparent concern in the consultation paper for the mental health and wellbeing of students is admirable, however the implications for the NSRA or resourcing are not clear. The Panel is encouraged to focus its attention on a narrow set of evidence-based classroom and school practices known to contribute towards a positive school climate that minimises disruption and disorder and maximises opportunities to learn.

Australian students perform comparatively well on wellbeing indicators

While there are few high-quality indicators of student wellbeing and general school engagement in Australia, international assessments offer a valuable comparison to similar countries.

For instance, the OECD's Sense of Belonging Index — a construct that aligns with students' emotional engagement — shows that, on average, Australian 15-year-olds record comparable levels of various wellbeing indicators to similar countries.

Figure 25: OECD Sense of Belonging Index components; Australia compared to the OECD average.
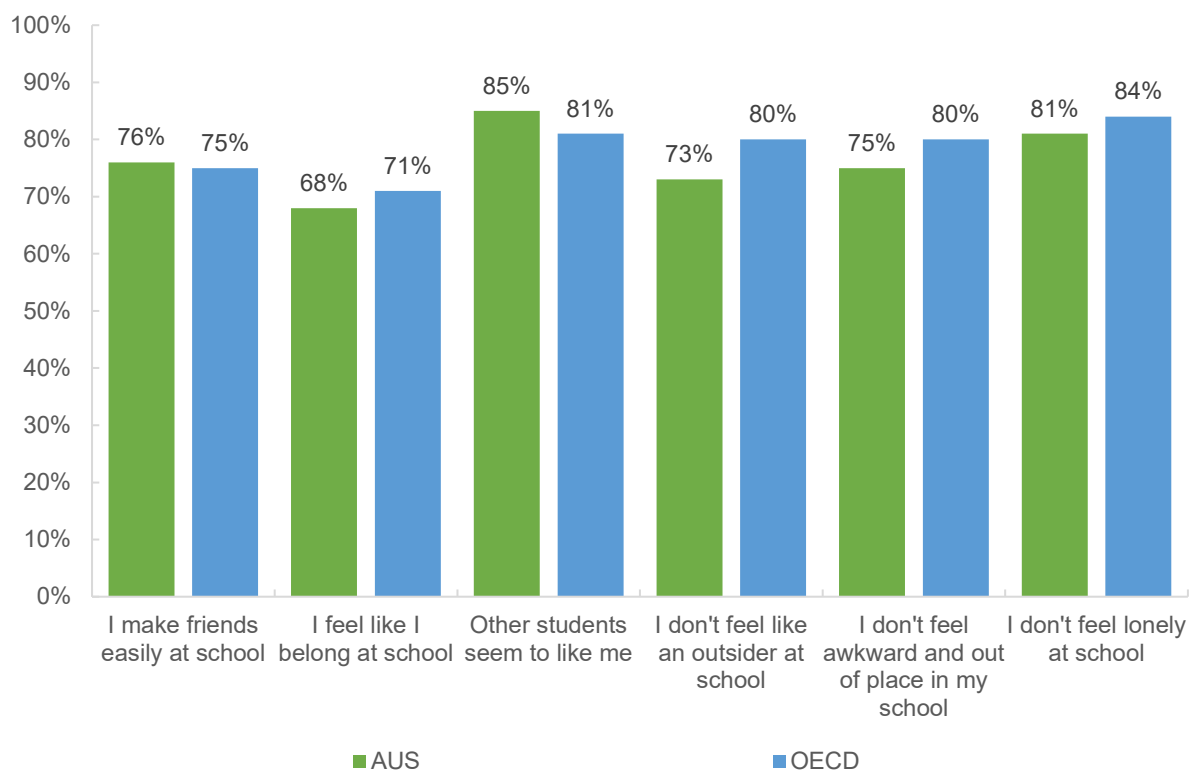
Source: OECD (2019). Programme for International Student Assessment 2018.

Similarly, Australian students' responses in the PIRLS and TIMSS are also generally consistent with the international averages.

Figure 26: Proportion of students in Year 4 and Year 8 according to their reported Sense of School Belonging, Australian and International average.
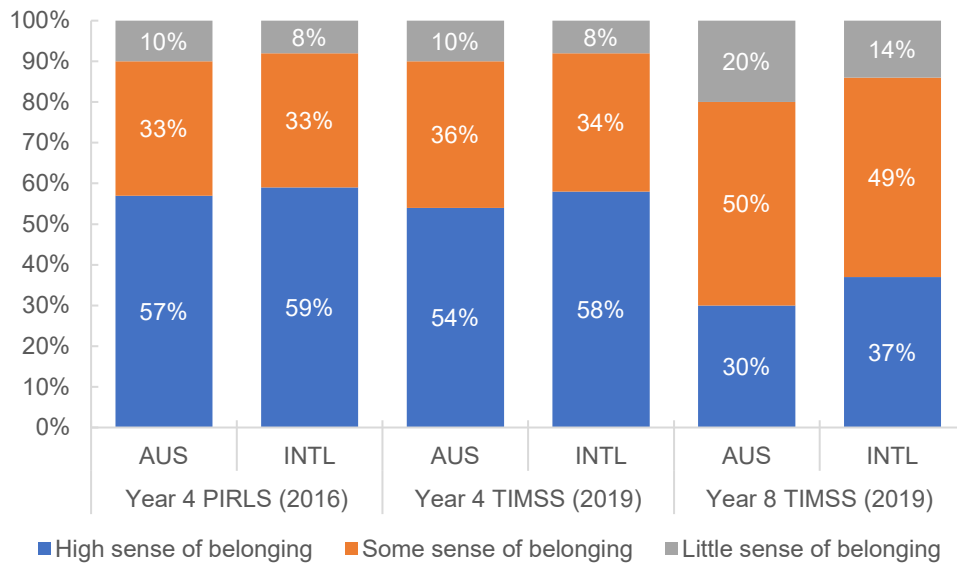

Source: TIMSS & PIRLS International Study Centre. (2019). Students Sense of School Belonging.

General wellbeing indicators have little or no relationship with student achievement, but some academic engagement indicators do

Analysis of PISA data shows there is no correlation between Australian student's sense of belonging (as measured by the Sense of Belonging Index) and their achievement, after controlling for socioeconomic status. In addition, in most countries, perceptions of competitiveness amongst peers are not associated with students' sense of belonging — meaning any softening of academic standards and competitiveness should not be considered as a potential lever to improve students' general wellbeing. In general, OECD data also shows no significant difference in wellbeing between academically resilient Australian students and Australian students who were not academically resilient.

Figure 27: Score-point difference in PISA reading associated with a one-unit increase in the index of sense of belonging, after accounting for SES.
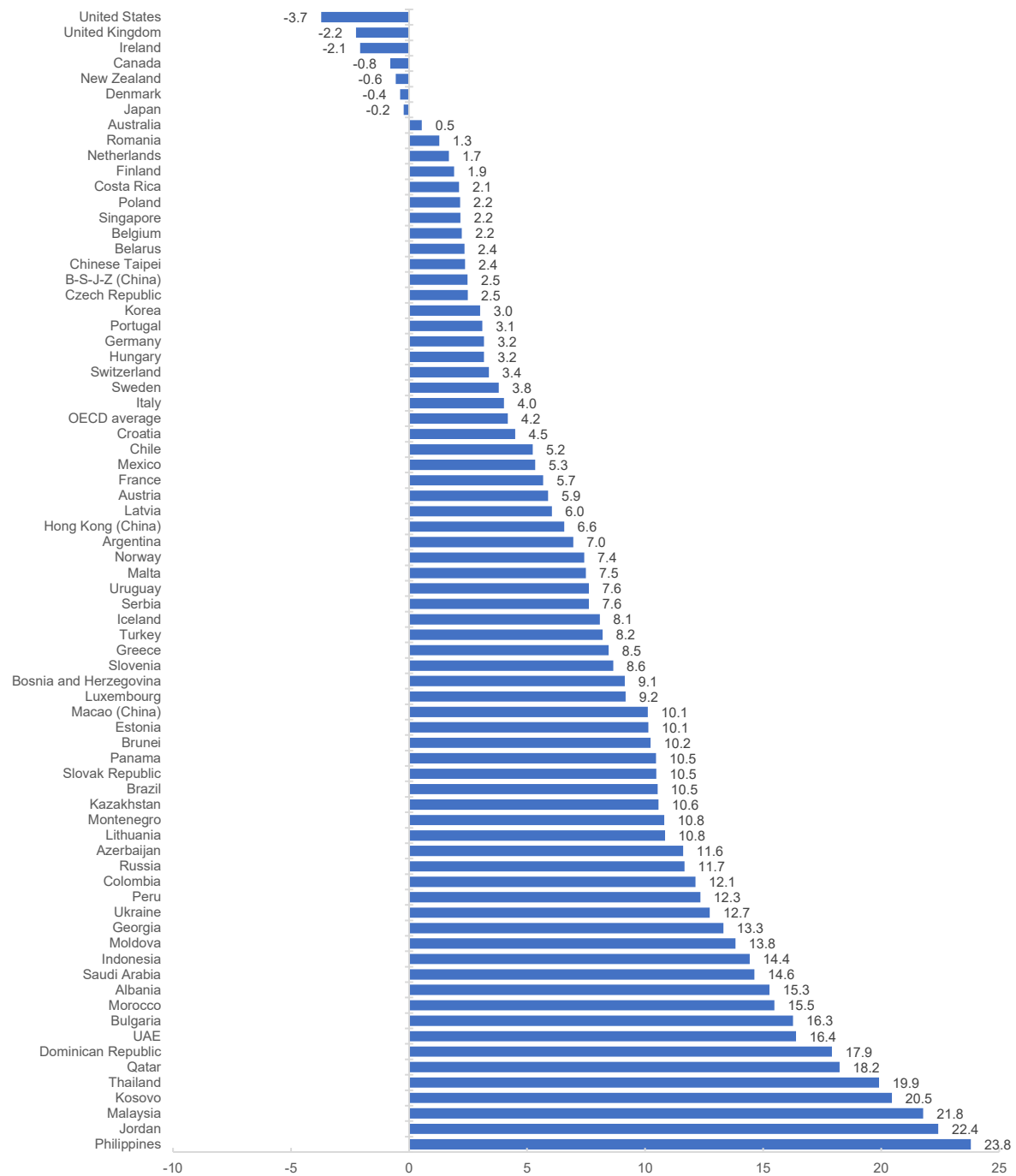
Source: OECD (2019). OECD PISA 2018 data.

In addition, OECD analysis found a curvi-linear relationship between students' life satisfaction and their achievement. Namely, this includes a negative overall linear relationship — students who are more satisfied (particularly, those who are "very satisfied") record lower achievement, while those who are "not satisfied" score slightly lower than others. Importantly, what this study (and other research in this field) indicates is that the relationship between students' wellbeing and academic

success are mixed and require closer examination before substantial further intervention from school systems.

Figure 28: Score-point difference in reading associated with students' life satisfaction, after accounting for SES.
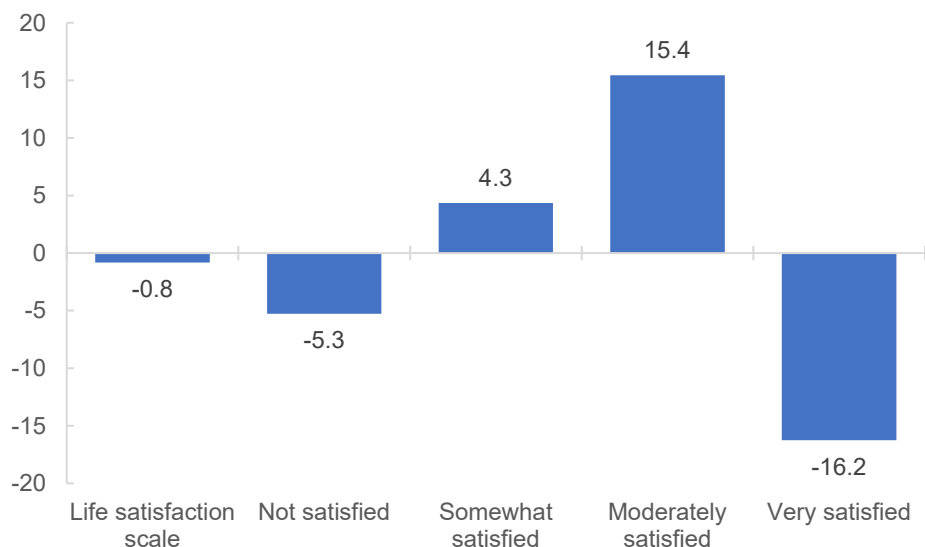
Source: OECD (2019). OECD PISA 2018 data.

Nonetheless, it is certainly appropriate for school systems to seek to take reasonable steps to ensure that students are as happy and healthy as is practical. OECD analysis shows that various school and classroom factors are correlated with students' life satisfaction — including exposure to bullying, cooperation among peers, and the like.

Figure 29: Change in students' average life satisfaction associated with a one-unit increase in the following indices, after accounting for SES.
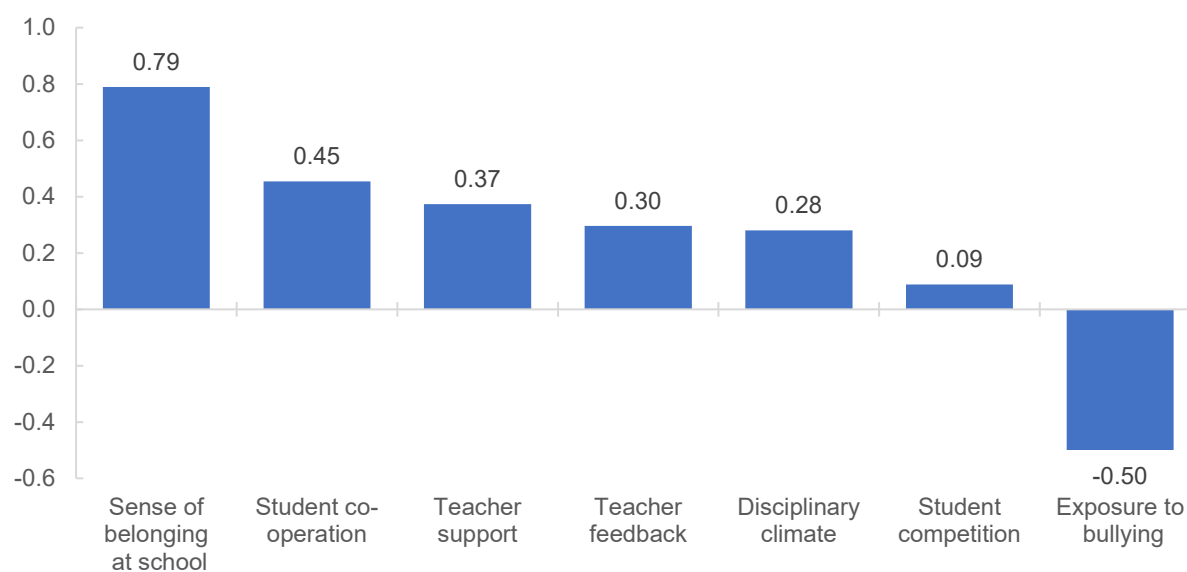
Analysis of data found in the Longitudinal Study of Australian Children (LSAC) shows that, while students' numeracy achievement is correlated with indicators of student engagement, this correlation is markedly stronger for *cognitive and behavioural engagement* — such as how hard students work, their attention span, attentiveness, distraction, homework completion, and the like — than *emotional engagement* — such as whether students feel happy at school, find school fun, and the like.
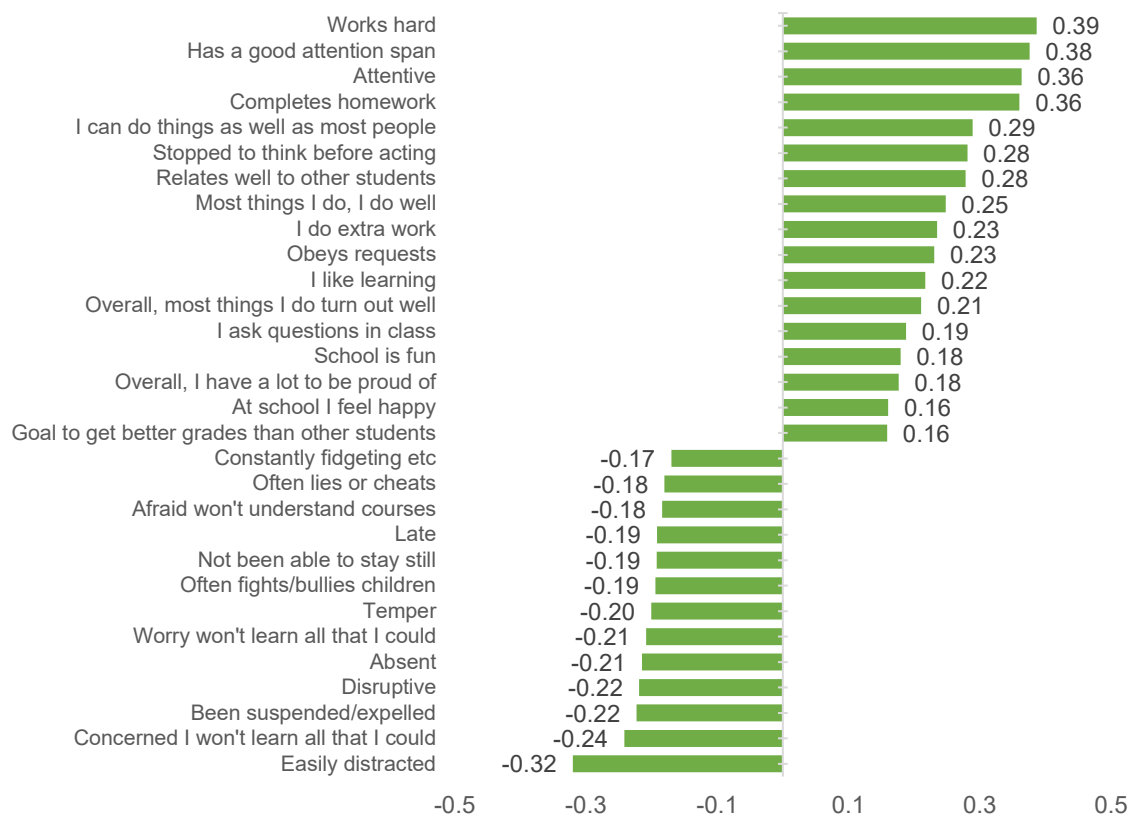
Figure 30: Correlation between student engagement factors and mathematics achievement in Year 9.

	Correlation
Works hard	0.39
Has a good attention span	0.38
Attentive	0.36
Completes homework	0.36
I can do things as well as most people	0.29
Stopped to think before acting	0.28
Relates well to other students	0.28
Most things I do, I do well	0.25
I do extra work	0.23
Obeys requests	0.23
I like learning	0.22
Overall, most things I do turn out well	0.21
I ask questions in class	0.19
School is fun	0.18
Overall, I have a lot to be proud of	0.18
At school I feel happy	0.16
Goal to get better grades than other students	0.16
Constantly fidgeting etc	-0.17
Often lies or cheats	-0.18
Afraid won't understand courses	-0.18
Late	-0.19
Not been able to stay still	-0.19
Often fights/bullies children	-0.19
Temper	-0.20
Worry won't learn all that I could	-0.21
Absent	-0.21
Disruptive	-0.22
Been suspended/expelled	-0.22
Concerned I won't learn all that I could	-0.24
Easily distracted	-0.32

Australian school systems compare poorly on behaviour and classroom disruption

Australia is ranked 69th out of 76th on the OECD's Disciplinary Climate Index.[1] In particular, the levels of classroom disruption and disorder are below the OECD average, causing material delays in the conduct and efficiency of lessons (see Figure 31).

Figure 31: Comparison of scores in 'disciplinary climate in language-of-instruction lessons' between Australia and OECD.
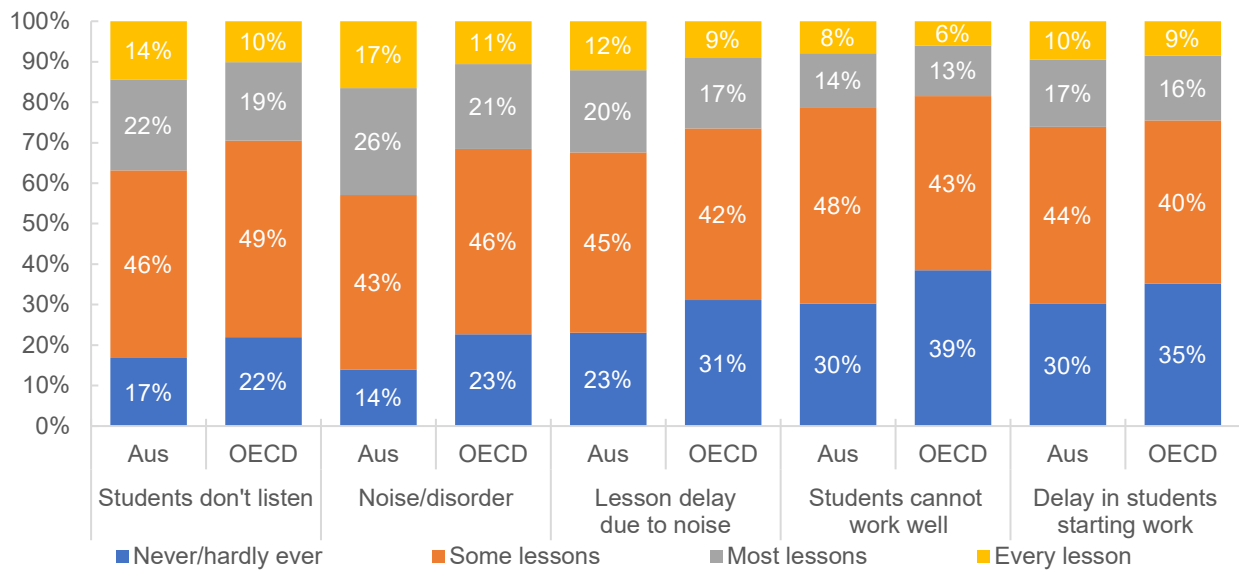

Source: OECD. (2019). PISA 2018 Results – Volume III. Table III B1.3.1.

Schools and classes with a more disciplined environment enjoy more class time spent on task and less school time is lost due to absenteeism due to issues like truancy, behaviour management, bullying, and the like. Moreover, OECD analysis finds that students in schools with greater disciplinary environments record higher achievement — with Australian students achieving around 7 months higher in PISA's reading assessment with a one-unit increase in the disciplinary index (this is approximately the difference in discipline recorded between Australia and PISA-participating Chinese provinces).

Students in less advantaged schools and Indigenous students report being in schools with poorer disciplinary climates. The impact of poor disciplinary climate in school disproportionately impacts upon achievement of boys, exacerbating related attitude and attention deficits that contribute toward learning outcomes.
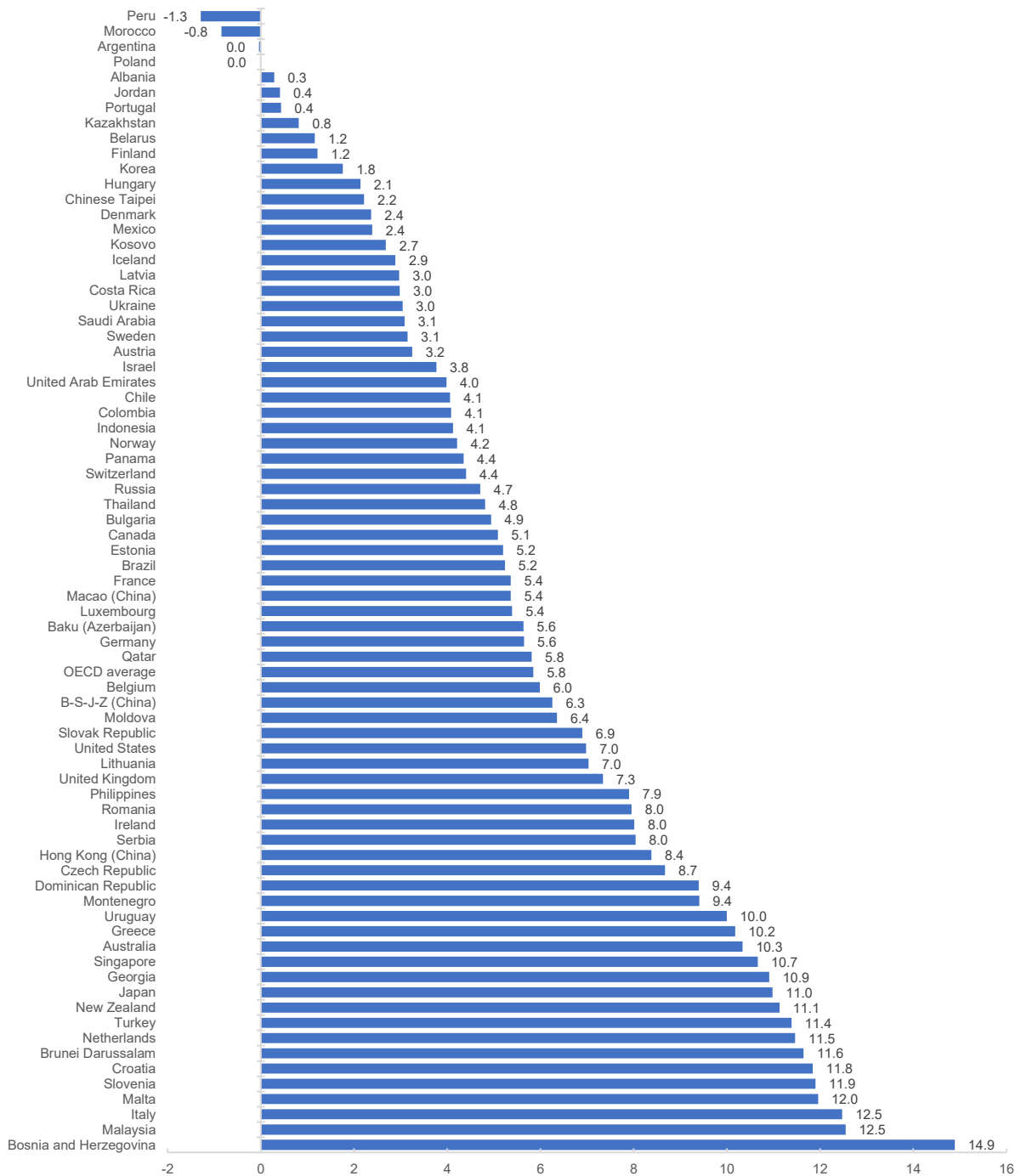
Figure 32: School disciplinary climate index (least disciplined to most disciplined), Australia vs OECD average and selected countries.
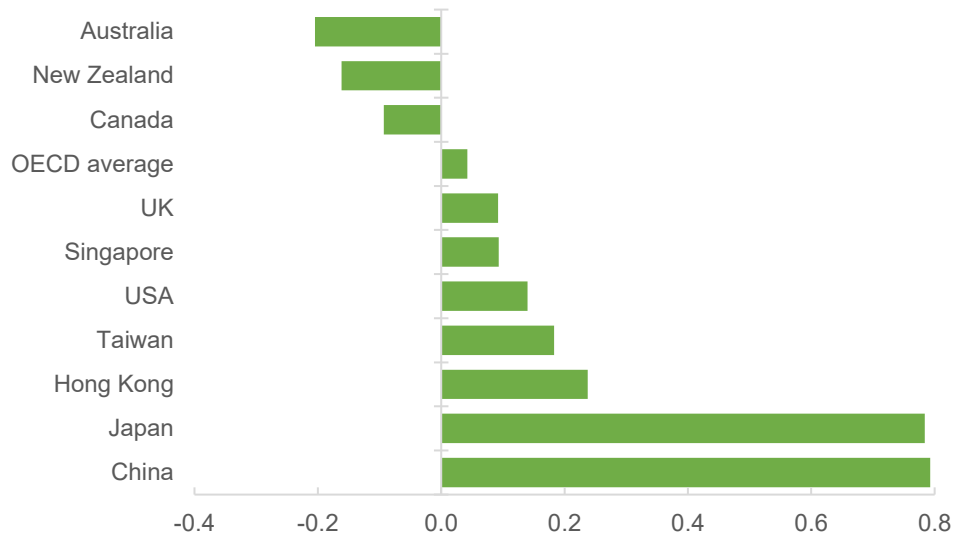
Source: OECD (2019). Programme for International Student Assessment 2018.

OECD analysis shows that improving a school system's disciplinary climate can improve the opportunities for students from disadvantaged backgrounds to record high levels of achievement. Namely. the negative impact of poor disciplinary climate is almost twice as high in Australian classrooms than the average OECD country. In particular, the difference between the top and bottom quartiles of disciplinary climate in Australian classes is associated with around a 10-percentage point difference in the proportion of disadvantaged students achieving in the top quarter of performance.

Figure 33: Disciplinary climate at school and student resilience; Percentage-point difference between the top and bottom quarters of the index of disciplinary climate

Country	Value
Peru	-1.3
Morocco	-0.8
Argentina	0.0
Poland	0.0
Albania	0.3
Jordan	0.4
Portugal	0.4
Kazakhstan	0.8
Belarus	1.2
Finland	1.2
Korea	1.8
Hungary	2.1
Chinese Taipei	2.2
Denmark	2.4
Mexico	2.4
Kosovo	2.7
Iceland	2.9
Latvia	3.0
Costa Rica	3.0
Ukraine	3.0
Saudi Arabia	3.1
Sweden	3.1
Austria	3.2
Israel	3.8
United Arab Emirates	4.0
Chile	4.1
Colombia	4.1
Indonesia	4.1
Norway	4.2
Panama	4.4
Switzerland	4.4
Russia	4.7
Thailand	4.8
Bulgaria	4.9
Canada	5.1
Estonia	5.2
Brazil	5.2
France	5.4
Macao (China)	5.4
Luxembourg	5.4
Baku (Azerbaijan)	5.6
Germany	5.6
Qatar	5.8
OECD average	5.8
Belgium	6.0
B-S-J-Z (China)	6.3
Moldova	6.4
Slovak Republic	6.9
United States	7.0
Lithuania	7.0
United Kingdom	7.3
Philippines	7.9
Romania	8.0
Ireland	8.0
Serbia	8.0
Hong Kong (China)	8.4
Czech Republic	8.7
Dominican Republic	9.4
Montenegro	9.4
Uruguay	10.0
Greece	10.2
Australia	10.3
Singapore	10.7
Georgia	10.9
Japan	11.0
New Zealand	11.1
Turkey	11.4
Netherlands	11.5
Brunei Darussalam	11.6
Croatia	11.8
Slovenia	11.9
Malta	12.0
Italy	12.5
Malaysia	12.5
Bosnia and Herzegovina	14.9

Source: OECD (2019). PISA 2018 database.

Most states already measure and monitor student wellbeing, but a national approach could be better targeted at behaviour

Most state departments already collect data pertaining to general wellbeing and engagement of students — such as South Australia's Wellbeing and Engagement Collection, Queensland Engagement and Wellbeing (QEW) Survey, NSW's Tell them from Me survey, Victoria's Attitudes

to School Survey, and the ACT's School Satisfaction Survey. It is therefore unclear what benefits might be expected from a further expansion of similarly intentioned data collections at the national level, and in concert with the NSRA specifically.

There may, however, be some opportunity to better measure and monitor general school conditions (not necessarily satisfaction with school and the like). Several US examples include Iowa's Conditions for Learning Survey (which collects data from students, staff, and parents in three domains of conditions for learning: Safety, Engagement, and Environment), Kentucky's Quality of School Climate and Safety, or Alaska's School Climate and Connectedness Survey (across the domains of the schools' respectful climate, safety, parent and community involvement, student involvement, high expectations, caring adults, and peer climate; with results reported on a 1-5 overall scale).

Several other US states — such as Maine's Integrated Youth Health Survey (as well as one domain in Alaska that tracks the frequency of students' risk behaviours [such as vandalism, fights, theft, bullying, and weapons]) — place a wider emphasis on the presence of risky behaviours and broader health and safety of children in grades 5-12.

Some other instruments are better targeted toward the learning environment of students. For instance, the Delaware School Climate Survey records responses from students, parents, and staff teacher-student relations, student-student relations, respect for diversity, clarity of expectations, fairness of rules, school safety, student engagement schoolwide, bullying schoolwide. And the University of Maryland's "Effective School Battery" includes student survey responses on questions related to schools' safety, respect for students, planning and action, fairness of rules, clarity of rules, and student influence. For closer monitoring of school-level recording of the number of incidents and disciplinary actions taken for certain types of behaviour, Colorado tracks prohibited behaviours (generally related to those on school grounds, at school activities, or school-sanctioned events) and what actions schools take on such behaviour.

However, the most appropriate and comprehensive data collection is England's National Behaviour Survey. The survey covers the views of students, teachers, parents, and school leaders regarding four key areas relevant to student behaviour as depicted in the table below.

Topics Assessed	Examples of specifics
School Behaviour Culture and Policy	Shared understanding of 'good behaviour'; expectations of behaviour; equal application of rules.
School Environment and Experience	Extent to which teachers are 'calm and orderly'; Feelings of safety; school enjoyment
Frequency and Impact of Misbehaviour	Quality of behaviour; interruptions from misbehaviour; levels of bullying.
Responding to Behaviour	Confidence in managing student behaviour; opportunity to acquire professional development vis-à-vis behaviour management; commonly used interventions.

Source: UK Department for Education. (2023). National Behaviour Survey: Findings from Academic Year 2021/22.

# Developing the size, strength, and skill of the Australian teacher workforce

Over recent years, it has been widely reported (including by the Australian Department of Education) that Australia is amid an unprecedented and prolonged teacher shortage. However, notwithstanding a surge in vacancies since early 2020, the data do not paint as dire a picture as is frequently portrayed. It was surprising to find discussion in the Panel's consultation paper dedicated to apparent concerns surrounding teachers' retention, despite little evidence that retention is any lower today than in the past, or posing a particular risk to the teacher workforce's sustainability. The Panel is encouraged to focus on evidence-based approaches to strengthening the capabilities of the existing teacher workforce and to consider efficient, targeted policy interventions to support more flexible and diverse entry pathways into the teaching profession.

Australia's teacher workforce is growing healthily, despite higher-than-average vacancies over recent years

Not only are there more teachers in Australia than there have ever been (in 2022 there was 38% more full-time-equivalent teachers in Australia than in 2001), the pace of growth in the workforce is historically high too. This is despite historically slow growth in the demand for teachers, due to slower student enrolment growth than typical over recent decades.

In general, the teacher workforce outlook is healthy into the medium term. Between 2021 and 2026, Jobs and Skills Australia estimates that Australia will require around a cumulative 9.4% increase in schoolteachers over five years (itself an upper bound estimate as it was made prior to the impact of Covid-19 on significantly slowing population demand).[32] This pace of increase is slower than the current rate of growth in the workforce. Between 2016 and 2021, the number of teachers increased by almost 12% and around 10% in full-time equivalent terms. In other words, the total size of the teacher workforce is currently meeting the pace required to meet medium term demand.

Figure 34: Five-yearly growth rate of the Australian teacher workforce (total headcount and full-time equivalent), 2001 to 2021.
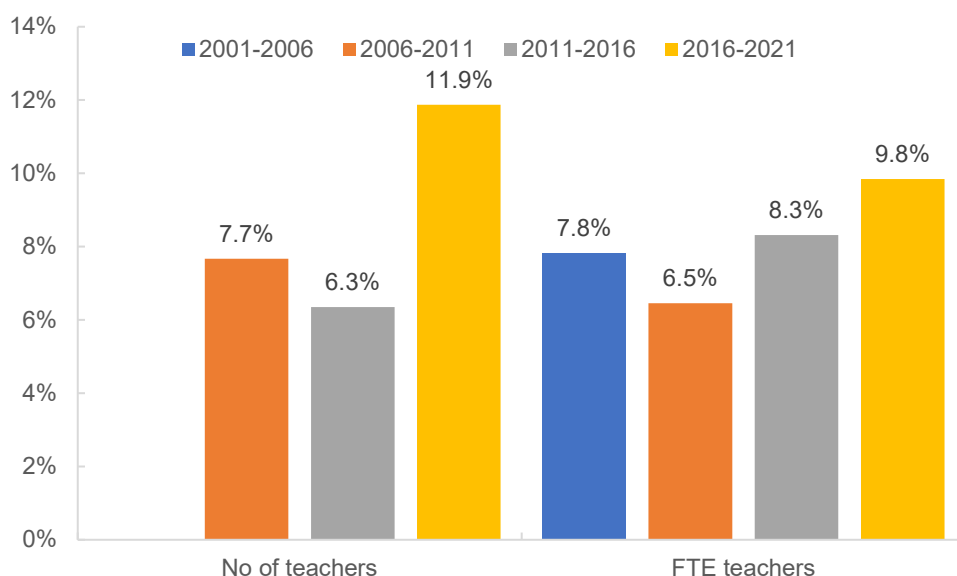
Nonetheless, it is true that teacher vacancies have increased significantly over recent years. However, this increased rate of vacancies is broadly consistent with those across the Australian economy at large (see Figure 35). This suggests that issues facing teacher supply are not unique to the profession, but are also the result of broader macroeconomic factors impacting on labour and skills shortages.

Figure 35: Number of advertised job vacancies, (2006–2023), schoolteachers (LHS) and whole economy (RHS).
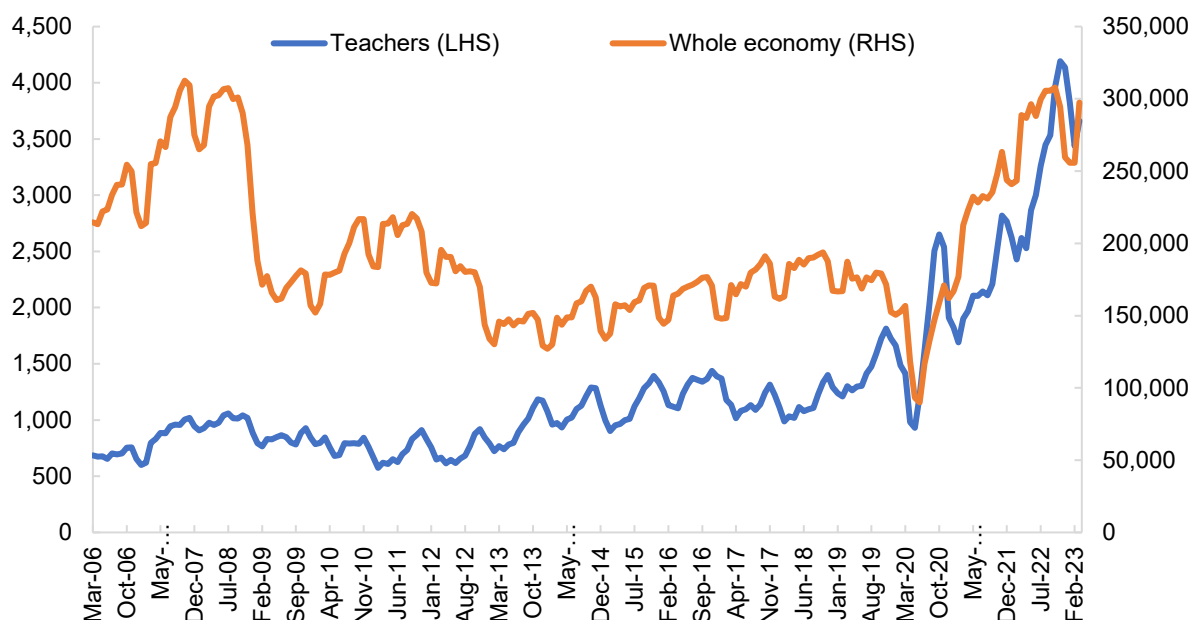
Source: Internet Vacancy Index.

On a sector-by-sector basis, the increase in vacancies has been greatest for Early Childhood Education and Care and more moderate for some other schoolteacher sectors. In general, the increase in teacher vacancies is comparable to the increase found across all professions (See Figure 36).

**Figure 36: Vacancy rate increase across sectors between 2020 – 2022.**
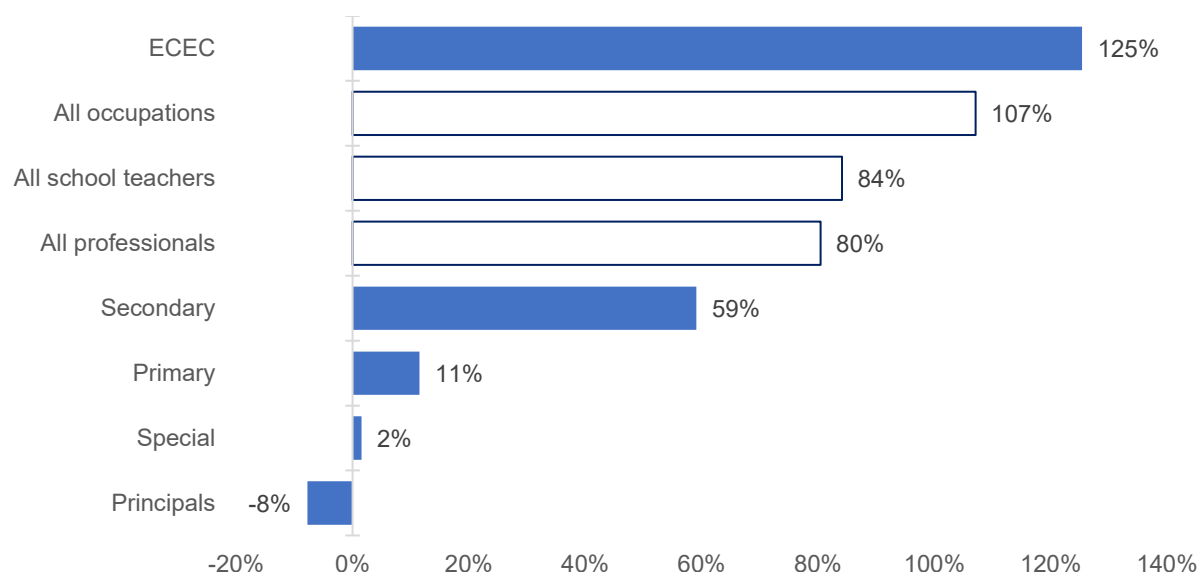
Source: Internet Vacancy Index.

Potential and actual attrition from the teacher workforce is low compared to other professions and to similar countries

Alarmist claims regarding potential attrition of Australian teachers are often based on data concerning intentions to depart the profession. However, this can dramatically overstate actual attrition. For instance, some international evidence suggests that a rate of around 40 – 50% of reported intentions to depart the profession may equate to an actual attrition rate of around 10 – 15%.[33]

In any case, intentions to depart the profession are lower than comparable countries, with TALIS data indicating that 12.7% of Australian teachers intend to leave the profession within five years, contrasting with the OECD average of 14.1%.[34] ABS data also indicates that the rate of teachers expecting to leave the profession within the next year is consistently lower than other professions (See Figure 37).

Figure 37: Percentage of teachers and all professionals intending to leave the profession.
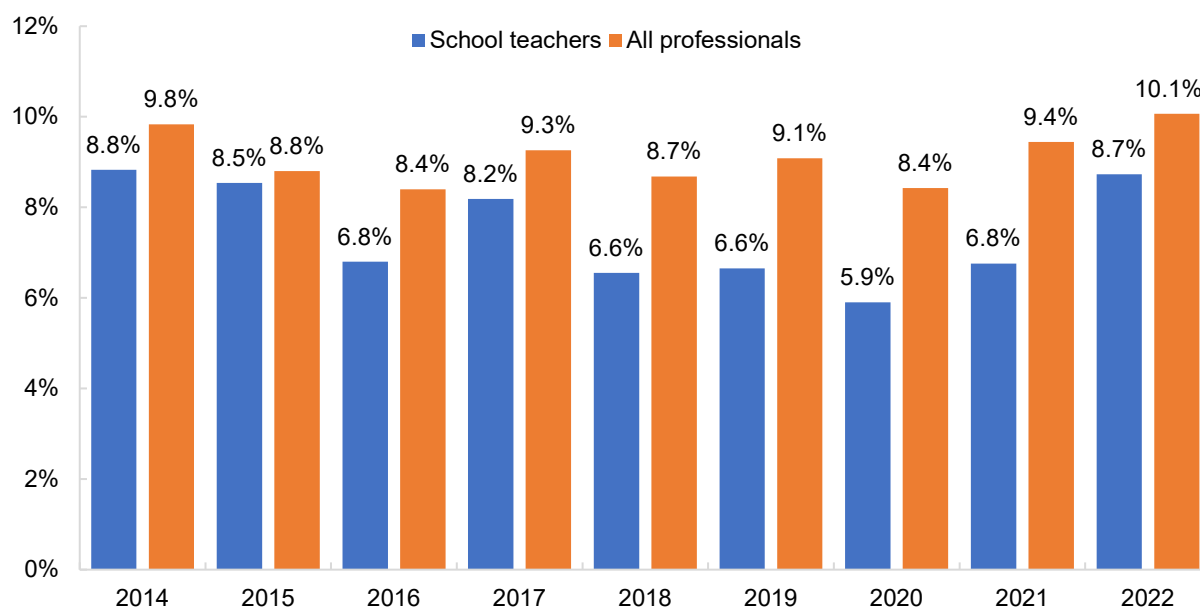

Source: ABS (2021). Characteristics of Employment, 2014 to 2022. NB that the NSW school teacher sample reports high standard errors in some years, however consolidated trend data appears reliable across the years covered.

It is also frequently implied that Australia's early career teachers are exceedingly likely to depart the profession early. For instance, it is often claimed that up to half of graduate teachers will exit the profession within the first five years of their career, but this is not supported by reliable evidence.[35]

The most accurate available measure of teacher attrition is the number of lapsed teacher registrations. An analysis of this data in NSW found that around 10.7% of teachers who gained accreditation between 2009 – 2013 were removed from the accreditation list within six years.[36] This is broadly consistent with official resignation data, indicating that in 2013, within the first five years of their appointment, 8.1% of teachers within NSW resigned from the Department of Education.[37]

Overall, the rate of teacher attrition in New South Wales, Queensland and Victoria is lower compared to other OECD countries (see Figure 38).

**Figure 38: International comparison of approximate teacher attrition rates in government schools.****
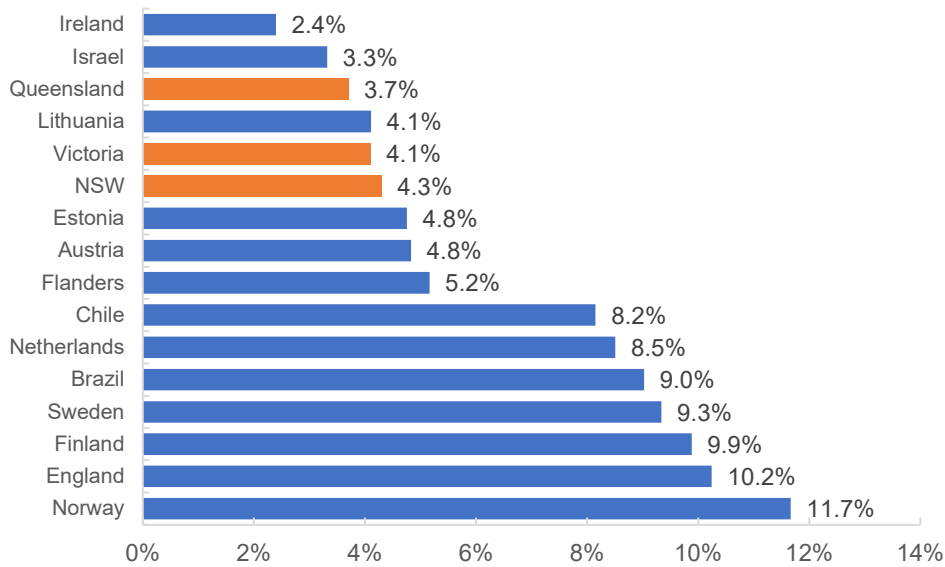
Source: OECD (2021). Education at a Glance, Table D7.1; Victorian Education Department; NSW Education Department; Queensland College of Teachers.**OECD figures based on an indirect measure of attrition for 2016, computing attrition based on the number of teachers in two successive reference years and the number of teachers who entered the teaching profession between these two reference years. Australian data is estimated from varying methods from counting lapsed teacher registrations. There are no directly comparable statistics on teacher attrition across Australia or internationally.

Further, ABS data shows that approximate attritions within the teaching profession are also consistently lower than across other professions — with around 5% of teachers leaving the profession each year (a rate that is broadly consistent with NSW Department data that records workforce separations) (see Figure 39).

This rate of exit is easily compensated by the number of new entrants to teaching from ITE graduations and returning teachers to the workforce.

Figure 39: Approximate attrition rate across schoolteachers and all professions.
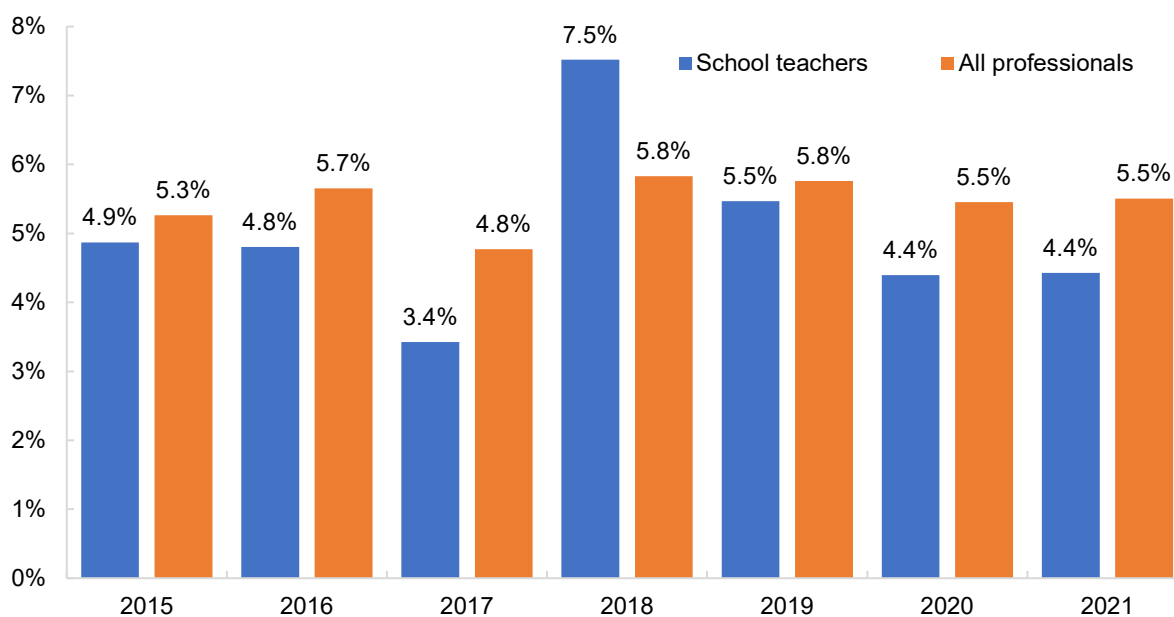
Claims regarding the ageing of the teacher workforce — and by extension, concerns over high rates of retirement of Australian teachers — are also often exaggerated. Australia's teaching workforce is relatively young, with the proportion of Australian teachers aged over 50 sitting below the OECD average (Figure 40). On average, Australian teachers intend to remain within the profession for another 16.3 years — above the TALIS average of 15.3 years.[38]

Figure 40: Summary of age and experience profile of Australian teachers compared to the OECD.
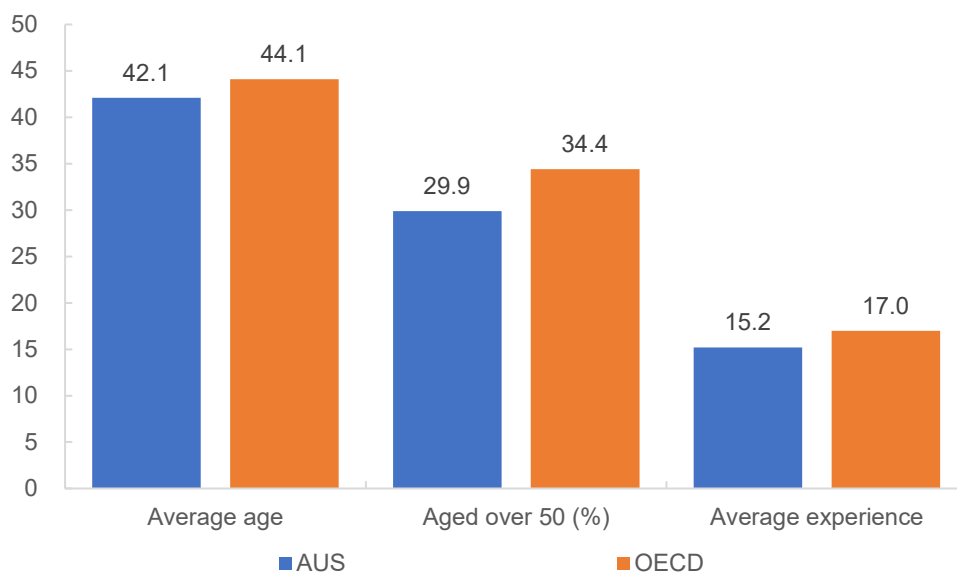
Australian data indicates that only 16% of the workforce is aged over 60 years,[39] and the average retirement age of those working in education is 65.1 years.[40] There is little evidence to suggest that retirement rates are outstripping demand, with NSW and Victoria averaging a retirement rate of 2.2% and 1.8%, respectively.[41]

Financial incentives to enter teaching are ineffective, unless better designed

Government initiatives to attract more people into an ITE degree have recently focussed on providing additional financial assistance to candidates. The National Teacher Workforce Action Plan, for example, recommends '5000 bursaries worth up to $40,000 each to help attract high quality candidates to the teaching profession'.[42] While some international evidence suggests an uptake in applications for ITE degrees because of the provision of bursaries,[43] the distribution of bursaries may have been ineffective; that is, they might have been provided to individuals who would have otherwise pursued an ITE degree, and incentivised teacher training while failing to increase the uptake of teacher positions.[44]

In England, a 'phased bursary' has been introduced for in-demand teachers (e.g., those who teach Mathematics and Science), with successful results. These bursaries are paid as a salary supplement to graduate teachers within the first years of their career, rather than provided to those who only enrol in a teaching qualification. As an extension, a 'Phased Math Bursary' is available to Mathematics teachers in their third and fifth year of teaching, providing an additional salary supplement of £5000 per year. Some studies demonstrate positive effects of this initiative on retention, finding that eligible teachers were 23% less likely to leave the profession in the relevant year.[45] Positive effects on costs were also observed, with the cost per additional teacher retained being 32% lower than training an equivalent replacement teacher.[46]

Effectively, these measures serve to differentiate pay for hard-to-staff subjects to better reflect market demand for individuals with differing qualifications (rather than fixed and rigid pay schedules). Consistent with the evidence of their effectiveness as outlined above, some international studies demonstrate that offering a 5% salary supplement to Science and Maths teachers can result in a greater teacher supply, while saving costs on recruitment of new teachers.[47]

As part of its 'Job Ready Graduates' reforms, the Morrison Government reduced student contribution amounts for certain courses such as teaching while increasing them for others — with an intention to incentivise uptake of in-demand degrees. The cost borne by students for undertaking teaching degrees was reduced by 42%.[48] However, there is little evidence that lower, income-contingent university loans are causally linked to higher uptake of certain courses. It has been observed that following the implementation of the JRG program, demand for courses that attracted higher tuition fees than before (e.g., those relating to society and culture) increased.[49] Course choices are likely to be guided by other salient factors, such as job prospects and salaries.[50]

Most recently, the Australian Universities Accord – Interim Report has suggested that degrees such as teaching should be free, stating that 'government employers waiving HELP debts through existing payroll mechanisms may be an effective approach to supporting [teacher] workforces'.[51] However, as mentioned, forms of fee-reduction alone are unlikely to attract teachers who are most in demand, absent an approach to secure employment in the profession.

There are multiple barriers that deter mid-career professionals from entering the profession

Some evidence suggests that mid-career professionals are deterred from pursuing an Initial Teacher Education (ITE) degree. A survey of 1500 professionals conducted by the *Behavioural Economics Team of the Australian Government* revealed that a majority underestimated the duration of the required degree (the 2-year masters) and held concerns about its length.[52] Concerns over loss of income during the period of study were also cited as a barrier to a career in teaching.[53] However, an alternative one-year ITE course was found to be as attractive as a $20,000 increase in top pay, '*suggesting there is significant value attached to shortening the time spent out of the workforce for mid-career changers*'.[54]

Encouraging re-entry to the profession is an efficient means of increasing the quantity of the workforce

The National Teacher Workforce Action Plan has recommended that states and territories 'investigate the potential to promote teaching, mentoring and other opportunities to people who are registered but not currently working as teachers'.[55] Some evidence suggests that the market of such teachers is sizeable, with ABS data indicating that around 1 in 4 potentially qualified teachers in NSW are not currently working in the profession (see Figure 41).

Figure 41: Proportion of workers with a teacher education qualification, by status of work, NSW.
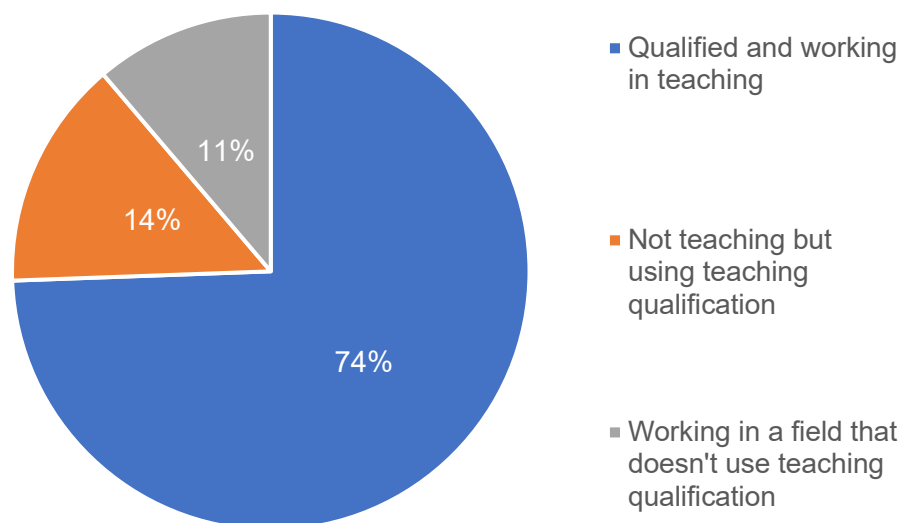
Source: ABS Qualifications and Work, 2018-19. Data contains NSW workers who hold a teacher education degree, as identified under the Australian Standard Classification of Education (ASCED). Labels are adapted from the responses to survey question for the relevance of non-school qualification to current job.

There is a significant proportion of potential teachers who would consider re-entry to the workforce. Australian Teacher Workforce Data indicates that 47% of teachers surveyed who are not in service would consider returning to the profession, and a further 6% are already actively looking for teaching opportunities.[56] A 'reduced workload' and 'higher salary' were the two most common factors needed to incentivise any return to the workforce, overcoming barriers (see Figure 42).

45

Figure 42: Results of survey of former teachers, indicating what percentage cite a specified change needed to incentivise their return.
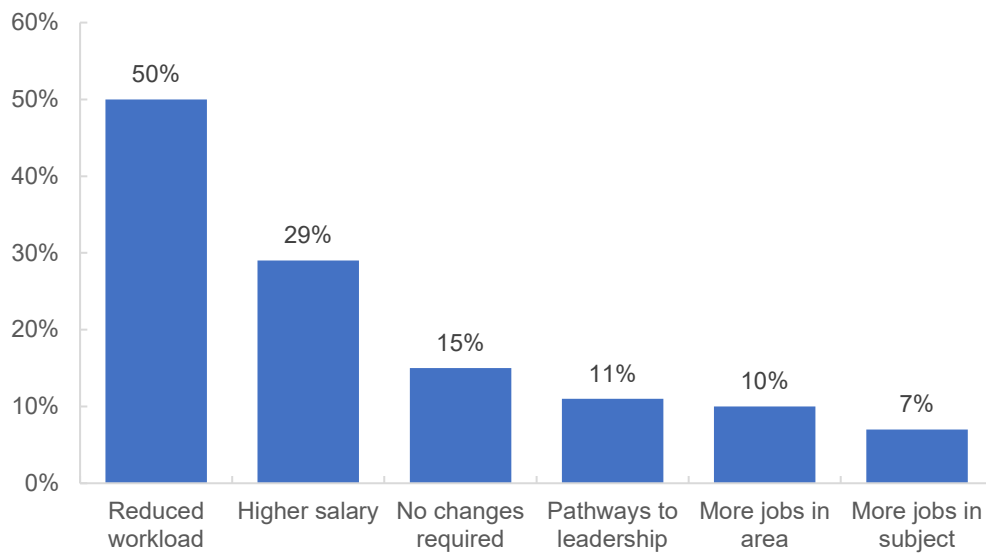
Source: Australian Teacher Workforce Data 2023, Teacher Survey (2018 – 2022).

Any discussion of the re-entry of qualified teachers to the profession should involve consideration of where potential teachers are geographically distributed. Figure 43 shows the proportion of individuals who report holding a teacher education degree and are currently working as teachers within different geographical locations. Where there are low proportions of degree-holders working as teachers (low utilisation), there is a large market representing a potential supply of future teachers, who might re-join the workforce under the appropriate circumstances. By contrast, areas involving high proportions of degree-holders working as teachers (high utilisation) might not be worth targeting, noting that strong incentives may already exist to attract such a large proportion of teachers in the first place. Efforts to promote re-entry of qualified teachers may be a less inefficient approach to address short-term supply challenges, compared to policy measures that target earlier stages of the ITE pipeline.

Figure 43: Proportion of teacher-degree holders currently working as teachers, by geographical location
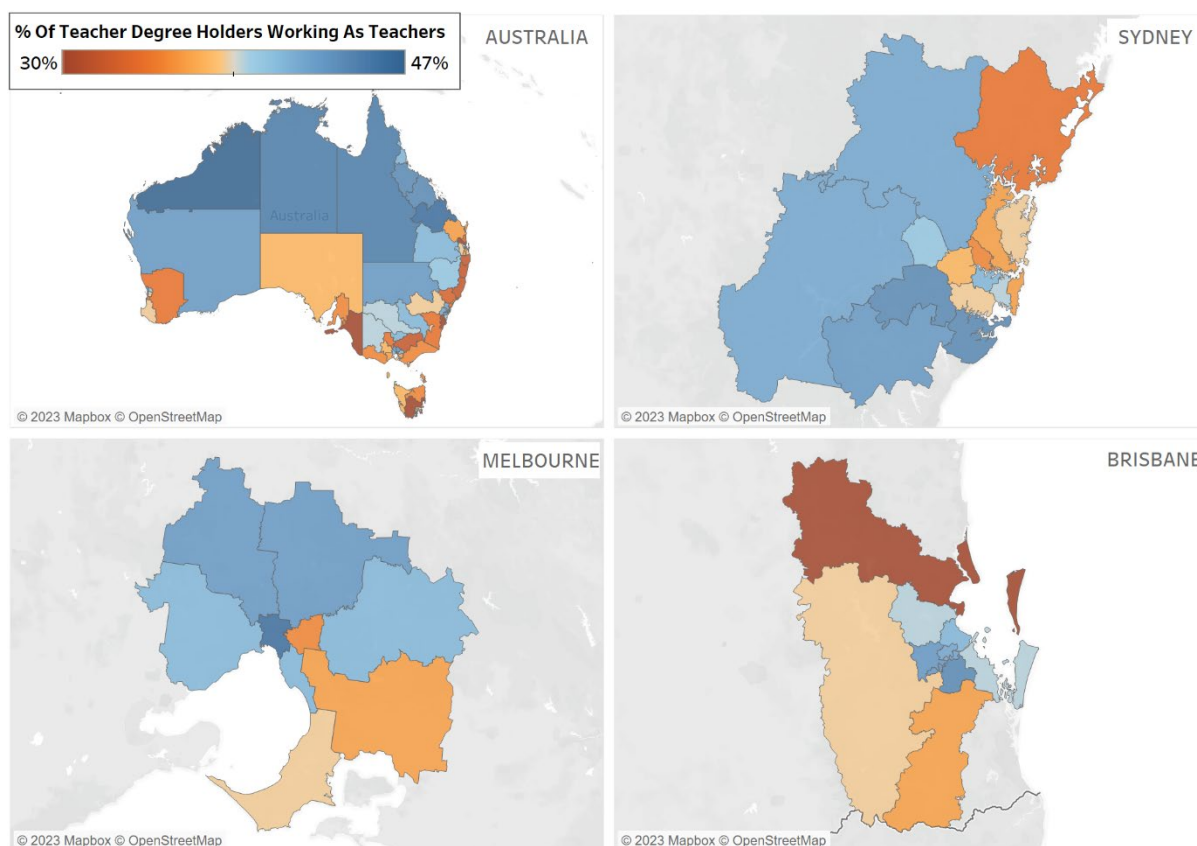
High-performing teachers are not adequately rewarded and recognised

Teachers frequently report a lack of opportunities for adequate reward and recognition — 71% of teachers who intend to leave the workforce cite 'reward and recognition' as a basis for their anticipated departure.[57] In 2014, more than 50% of secondary school teachers cited 'insufficient recognition or reward' as a reason for leaving the profession.[58] Such data is broadly consistent with a 2021 survey conducted by the Australian College of Educators and the NEITA Foundation, revealing that while 87% of teachers value opportunities for promotion, 70% of them consider such opportunities rare.[59]

The Highly Accomplished and Lead Teacher (HALT) accreditation program is an intergovernmental approach, through which most states reward effective teachers, having regard to the *Australian Professional Standards for Teachers*. However, the number of HALT-accredited teachers (around 1200) has not reached anticipated targets.[60] More specifically, as at February 2023, only 300 New South Wales teachers were qualified as HALTs, despite a goal of more than 1000 HALT-certified teachers by the end of 2022.

Such low uptake is — at least in part — attributed to the onerous administrative requirements associated with the HALT application process. A New South Wales Auditor-General Report found that, as at 2019, only 102 of the 66,487-strong NSW public teacher workforce were certified as HALTs, with the length and complexity of the process deterring applications.[61] Some applications reviewed exceeded 160 pages, and could take up to three years to complete.[62] The *Report of the*

Inquiry into Teacher Shortages in New South Wales found that a 'requirement to self-advocate' resulted in time-consuming obligations imposed on teachers, including the collection of vast and complex documentary evidence.[63]

Policy implications

Review the SRS to focus on the cost to provide school education, not an arbitrary and outdated inputs-based formula

Though revision to the SRS is not in scope of current considerations of the NSRA, it should be reviewed by the National School Resourcing Board through the life of the next term of the NSRA. The SRS is exceedingly high, it is indexed arbitrarily (until recently, prescribed at the rate of 3.56 per cent; while the 2022 amount was designated by a combination of wage and consumer price index), is not determined in an evidence-based way, and its loadings are outdated. This makes the resourcing model less efficient and responsive to needs than it should be.

The National School Resourcing Board should be tasked with re-calibrating the base per student funding entitlement, based on estimating an activity cost function that is relevant to schools of varying types and structures. The activity costs associated with operating a school could then be better indexed in accordance with specific cost adjustments relevant to each activity item. This could align with more appropriate and valuable information for financial transparency purposes as discussed below.

Limit further federal government increases to funding unless this is better targeted

Australian schools are very well-funded in overall quantum, compared to similar countries, and the distribution of funding is more progressive than found in other countries. Given the limited association between increased funding amounts and improved student achievement, there is little reason to believe that further investment from the federal government in particular — as indicated by previous commitments from the Government — would significantly impact on student outcomes, but could potentially further 'crowd out' state and territory governments in meeting their funding obligations.

Rather than focus on the quantum of spending in Australian schools, the NSRA should instead address the quality of spending decisions — and ensure that the investment in schooling is limited to evidence-based activities that are likely to raise overall educational outcomes.

Improve funding transparency through a consistent approach across school sectors and a focus on the use of funds, not just their distribution

The Panel's consultation paper is right to identify the opportunity for greater transparency in funding across Australia's school systems. However, efforts to increase transparency should be shared across systems, so that additional burdens are not directed at non-government sectors alone. By far, the greatest redistribution and direction of public fundings occurs within state government departments, however, there has been limited public scrutiny about how federal funding to states is redistributed.

In any case, it would be more informative for systems to work toward transparency of funding outputs rather than inputs. Namely, this should include new data collection that consolidates financial information from schools, according to various activities in the running of schools (including the external service providers to schools). The National School Resourcing Board could be tasked with identifying budgetary activities that could be appropriately categorised and reported publicly, including on the MySchool website. This would assist in creating an evidence base about best practice

in resource decision-making and budgeting across Australian schools. Further, budgeted spending could be compared with actual spending as a means of public accountability. Importantly, unallocated, or carried over funds should also be reported to identify areas of underspend (currently understood to be exceedingly high in some government school systems).

Among the available examples from overseas school systems is the K-12 school reporting publicly available in the US state of Arizona. The Arizona School Finance Transparency Portal contains valuable and transparent information to users, concerning schools' and districts' revenues, expenditures, and variations of actual spending from budgets. Revenues are reported by source — namely, the funding breakdown from local, county, state, and federal governments. Expenditures are reported according to 'function', 'program', and so on. The function reporting, for instance, records the proportion of spending allocated to classroom and non-classroom spending, and the proportion on non-operational spending. Classroom spending, as an example, is then further reported into categories of instruction, and support services for instruction and for students. Student support services can then be further reported into spending allocated to professional services, such as guidance services, speech pathologists, health, psychological, social work, and other professionals.

Several other states — such as New York, Kentucky, Colorado, Oklahoma, and others — publish transparent data at the district level to enable spending activity comparisons and public accountability. Schools in Florida provide detailed budget reporting at the school level, with reporting that compares per student spending on each item of operating costs against the district and state average.

Reduce concentrations of socio-educational disadvantage by committing school systems to eliminating catchment zoning restrictions for enrolments

The greatest source of concentrations of disadvantage in schools is not the existence of the non-government school sector, but that Australians can be highly socio-economically stratified by geography. There are limited available levers for education policy alone to reduce the broader socioeconomic disparities that result from this stratification (especially in the case of non-metropolitan areas). Additional regulations placed on enrolments or resourcing of non-government schools would not reduce socio-educational stratification — in fact, it would worsen it, particularly in metropolitan and some inner regional areas.

The only feasible method available for education policymakers to support a more mixed cohort of students in government schools would be to eliminate current catchment zone regulations in metropolitan areas. This is because a primary source of stratification is due to regulations that mean that local schools reproduce socio-economic profiles that reflect their local areas, with less diversity in the student cohort.

Attach meaningful student achievement and growth targets into the NSRA and NMF

A national improvement target in PISA was proposed by the Morrison government in 2021, with the goal of returning Australia to its former position as a leading nation across reading, writing, and mathematics by 2030 [64] — in other words, reversing the 20-year PISA decline within 10 years. While the goal is ambitious, there is some evidence that substantial improvement in student outcomes can be achieved within as little as a six-year period, provided the appropriate structures, resources, and processes are in place.[65]

As a statement of shared commitment over a 5-year period, the NSRA is an appropriate tool to express a national improvement objective across all states and territories. Designed correctly, subsequent NSRAs could work toward consistent progress in improving student standards on a national and state level. By way of example of whole-system target-setting for student populations, the US state of Illinois has established ambitious targets spanning a 15-year period.

In addition to stating a shared goal of national performance in assessments such as PISA, achievement targets should better incorporate measurement of NAPLAN results in numeracy, reading, and writing. Recent changes to NAPLAN assessment reporting may assist in creating a new, and more accurate, benchmark.

To this end, NAPLAN achievement targets in overall achievement should be stated in terms of the proportion of the student population achieving at the equivalent rate of proficiency (not just, for instance, the mean score).

In addition, achievement growth targets would be best expressed in terms of the proportion of students who are making the equivalent years of progress based on students' matched previous in achievement (using approaches related to the 'student growth percentile' method), rather than value-added scores alone (given the non-linear way that numerical scores in NAPLAN translate on the equivalent years of learning scale).

This could be supported through reporting of students' progress in a method similar to what is used in the US state of Colorado, that also reports student achievement growth metrics according to the proportion of students who 'keep up', 'catch up', and 'move up'.

Over the life of the NSRA, ACARA could work with jurisdictions toward adapting Colorado's indicators, as listed below, to align with NAPLAN data collections:

- **growth** (how much academic progress each student made in a year, as compared with that of students who started at similar levels of proficiency);
- **catch up** (records the proportion of students who previously scored at the Unsatisfactory or Partially Proficient achievement level and demonstrated enough growth in the past year to reach Proficient or Advanced within three years or by 10th grade [that is, sufficient to be on track to 'catch up' to the state's proficiency goal]);
- **keep up** (records the proportion of students who previously scoring at the Proficient or Advanced achievement level and demonstrated enough growth in the past year to maintain proficiency over three years or until 10th grade [that is, they are making sufficient progress to be on track to 'keep up' with the state's proficiency goal over time]); and
- **move up** (records the proportion of students who previously scored at the Proficient achievement level and demonstrated enough growth in the past year to reach the level of Advanced within three years or by 10th grade [that is, they are making sufficient progress to be on track to 'move up' to the state's highest proficiency goal]).

Refresh the national, regional, and local performance monitoring of education outcomes and other targets

Currently, consistent national performance reporting is limited to ACARA's National Report on Schooling in Australia (and its associated data portal) and the Productivity Commission's Report on Government Services. Whilst this reporting has been improved over recent years, it does not fully

serve the purposes of transparent, timely, and valued information source for performance monitoring purposes — nor is it sufficient to monitor the progress toward shared commitments stated in the NSRA.

Data should be further reported at more localised levels, including Catholic diocese, government school catchment zone (or an alternative administrative area to be agreed with departments), and according to ABS Statistical Areas.

In addition to the current MySchool reporting approach, more could be done to make it consumer-friendly and easily interpretable. For instance, in several US states (including Texas, Arkansas, Missouri, and Iowa), an index rating system assigns a 'report card' from A-F for schools (as well as districts, postcodes, counties, and congressional districts), while other states (such as Kentucky) similarly use a star rating system for similar reporting.

Performance reporting of targets could follow a similar framework to that used for the Productivity Commission's Closing the Gap (CTG) dashboard; recording each states' (and, for the NSRA's new targets' purpose, lower administrative units) progress against relevant indicators [adapted from the CTG's reporting as either 'improvement', 'no change', and 'worsening', as well as 'on track to be met' or 'not on track to be met' through the life of the NSRA]).

Adopt equity targets that addresses the success of systems in providing educational opportunity, not intersectionality of student backgrounds

Governments have an important responsibility to address persistent educational equity concerns and should aspire to significantly reduce inequality as a matter of course. But the NMF could better identify suitable objectives for ensuring, or working toward, greater educational opportunity. However, care should be taken in establishing equity-related targets to avoid misaligning incentives or inadvertently setting differential outcomes based on an intersectional approach from students' backgrounds.

Instead, such targets should focus on improving the opportunities of students who are educationally disadvantaged. In the United States, the Every Student Succeeds Act (ESSA) provides some guidance in addressing this — by requiring that all systems address the needs of disadvantaged students based on educational needs, including children with disabilities, and those attending low-performing schools.

Several options for incorporating appropriate equity targets into the NSRA and NMF could focus on how successful schools and systems perform in terms of:

- the **participation rate** in NAPLAN assessment (including as broken down by priority cohorts of students, such as Indigenous populations, chronically absent students [those attending less than 90 per cent of school days], students with disability [including students identified with a developmental delay, vulnerability, or learning difficulty], and students from a refugee or displaced background);
- students' **academic resilience** (the chances of socio-educationally disadvantaged students achieving in the top quartile of achievement; could be adapted from the indicator used by OECD in PISA);
- students' **academic growth** (adapted from Colorado's approach for the proportion of students who 'keep up', 'catch up', and 'move up');

- students' **learning gains** for low-performing students and schools (adapted from the indicators used in Florida and Mississippi, by separately reporting on the gains in learning achieved by students who previously were performing in the lowest quartile in mathematics and literacy assessments (or the progress of students in the lowest quintile, as used in Ohio));
- students' **remediation rates** for students with additional learning needs (such as adapted from the approach used in Texas, which measures the proficiency rates and academic progress scores for both students who currently receive special education services (in this context, specific to special instruction and related developmental, corrective, supportive, or evaluative services) or previously received special education services in any of the preceding three years); and
- a '**gap closing**' performance rating index (adapted from approaches used in Ohio and Texas, that weights achievement scores of tested students in priority cohorts against those in the wider population, as a way of ranking progress toward ESSA objectives).

Determine a nationally-consistent approach to defining mathematical and literacy learning difficulties and disabilities

Many students suffer from mathematical and literacy learning difficulties, but schools are not always able to consistently and confidently identify the additional needs of students, ensure that pedagogy and lesson plans are best suited to meet these needs, and coordinate additional professional services where required. This inconsistency limits the success in ensuring that as many students with learning difficulties as possible can achieve equivalent to a proficient level in literacy and numeracy during their schooling years.

Education ministers should endorse a common definition for mathematical and reading learning difficulties and disabilities to better support identification of relevant students, along with a nationally consistent, and well-understood, 'standard of care' for students meeting this definition. This could also include a statement from ministers to the effect of a commitment for universal access to educational support available to all students presenting with a learning difficulty or disability in an Australian school.

While the additional resourcing made available in recent years through the Nationally Consistent Collection of Data on School Students with Disability (NCCD) has, to an extent, raised schools' ability to make reasonable adjustments, it remains the case that there is substantial inconsistency in the assessments made at the school and classroom level. There is significant individual judgment required in making assessments.

Close to 1 in 4 Australian school students receive an educational adjustment due to disability (mostly cognitive and socio-emotional) — most of whom attracting at least some additional resourcing — however it is not clear what educational outcomes are being achieved for this cohort of students — be it achievement in nationally consistent assessments, attendance rates, retention into senior secondary school, and so on.

Develop an implementable census-based school readiness measurement tool to identify students with additional learning needs early and consistently to better support efforts for intensive intervention

The Australian Early Development Census (AEDC) periodically provides a general overview across a range of foundational domains, but is not specifically targeted toward educational needs, integrated

into schooling practice, and too infrequent and inconsistently measured to systematically support educators. Some state jurisdictions, such as in Western Australia, have made impressive progress in developing and reporting on school readiness, but practice is not consistent or systematic across Australia.

One example of a system-wide approach is taken in the US state of Maryland, with its Kindergarten Readiness Assessment — administered for all students in first few weeks of school, reporting on readiness levels (demonstrating, approaching, and emerging) across four domains (including a language and literacy domain and a mathematics readiness domain) at a county level, and is broken down for students with disabilities and those without.

This school readiness instrument should be universal and supported by an enhanced awareness within schools of the direct pathways toward intensive intervention, when early indicators from such an instrument point to a student requiring additional supports.

Measure and monitor student wellbeing through a focus on classroom learning environment and student conduct

The Panel's consultation paper dedicates considerable space to further aligning the direction of school systems, through the NSRA, toward efforts supporting students' wellbeing and mental health. While that is an admirable intention, it is not clear that this is necessarily the best use of the NSRA, nor for centralised policy direction, given the nascent stage of reliable educational research to inform best practice. Based on current evidence, there is little reason to believe that schools alone are necessarily the most efficient or effective administrative unit to solely provide support services to children and youth in this area — particularly given the already significant workload placed on teachers and schools.

Given the key objective of the NSRA and education ministers to strive for excellence and equity in the school system, further tilting toward additional non-academic outcomes could further dislocate these key pursuits. For this reason, it would be more appropriate for efforts for expanding measurement and monitoring of matters to be more closely related to the conditions supporting learning in schools and classrooms.

The Panel could consider adaptations from instruments identified in the preceding discussion of this submission — namely the items contained in the OECD's Disciplinary Climate Index (presence of noise and disorder, listening to teachers, students working well together, delays to instruction and commencing lessons), UK's National Behaviour Survey (especially the prevalence and impact of misbehaviour, responses to behaviour, school-based policies, and the safety of students at school), Colorado's school-level behavioural breaches and sanctions register, and Delaware's School Climate Survey (particularly the emphasis on within-classroom responses related to disciplinary climate).

One option could be to administer a new census-based survey to measure classroom and school learning climate each year alongside NAPLAN assessments for the relevant year groupings (and separately for students who are non-participants in NAPLAN), which could be complemented with several items directly related to in-class instruction effectiveness (per below).

Measure and monitor youth literacy and numeracy capabilities directly, not attainment of qualifications

Jobs and Skills Australia is currently undertaking a review into national measurement of adult foundational skills. Its 2023 discussion paper identified a series of options for a new data series focussed on foundational literacy, numeracy, and digital skills as a way of monitoring national capabilities. Current ongoing data collections, conducted by the ABS, consider only educational attainment — that is, the highest level of qualification that an individual has attained — not individuals' proficiency in literacy and numeracy.

Given the persistently reported concerns of employers and higher education providers for inadequate foundational skills of school graduates, it is appropriate for better monitoring of adult skills, not just credentials. The populations of most interest — and in most need of additional sampling to ensure ongoing representativeness in data collection — are the youth population (19-25 years of age), Indigenous Australians, and individuals living in remote areas (who are not sufficiently sampled in most current data collections of educational attainment).

The Panel is encouraged to also acknowledge efforts for system-wide accountability for 'college and career' readiness that could come under consideration through the NSRA. In US states, such as Kentucky (which measures each students' 'college' and 'career' readiness and has benchmarked results for over a decade) and California (using a College and Career Indicator to rate each student as 'well prepared', 'prepared', 'approaching prepared', and 'not yet prepared'), there is impressive system-wide and school-level reporting on progress in preparing students for post-secondary education and employment, beyond the Year 12 graduation rate.

Directly monitor and measure the teaching instruction in classes and knowledge of teachers

The Panel's consultation paper correctly identifies the limited monitoring of evidence-based practices and quality of teaching available to students across school systems. Given the critical role of consistent, evidence-based teaching practice to ensuring students reach academic success, there is an important need for the NSRA to concretely monitor progress in this area.

Whilst there are no direct examples from other school systems that alone would sufficiently meet the highest level of aspiration for the NSRA, a combination of some international examples could inform a new approach in Australia.

For instance, Iowa uses an 'educator effectiveness' indicator, which includes the proportion of out-of-field licensing as well as the proportion of evaluated teachers who do not meet the state's teaching standards (currently around 1.4 per cent across the state).

Similarly, Colorado reporting on the teacher workforce includes: an educator preparation report, educator shortage survey (recording unfilled advertised positions in each subject area), and educator effectiveness metrics (reporting on the proportion of both the novice and experienced teachers whose principals' performance evaluation ratings are recorded as 'highly effective', 'effective', 'partially effective', or 'ineffective'). These performance ratings from principals are based on six 'teacher quality standards' (know content, establish environment, facilitate learning, reflect on practice, demonstrate leadership, and measures of student learning).

An approach in Massachusetts, reported at the district level, incorporates a range of qualitative measures to indicate instructional quality in observed schools (through a common observational instrument for classroom instruction, and supported by focus groups with district leaders, principals, students, and families). Classroom observations are informed by the widely-used instrument known as the Classroom Assessment Scoring System (CLASS), resulting in reporting based on 'emotional support', 'classroom organisation', and 'instructional support'.

The Panel should consider feasibility of adopting approaches similar to the above through developing a shared commitment from education ministers toward such goals. It may also be appropriate to consider a general instructional environment survey that could be administered to students (similar to the above behaviour and school climate survey) that is modelled off questions used in the TIMSS, PIRLS, and PISA international assessments (namely, those relating to instructional clarity, quality of classroom demonstrations, support available to check for understanding, and so on).

In addition to the implementation of recommendations from the recent Teacher Education Expert Panel, it may be appropriate for the Panel to propose that policymakers develop a teacher knowledge ITE exit examination (in place of the current LANTITE) that is specifically targeted at the areas of understanding aligning with the soon-to-be-introduced core content requirements of ITE programmes.

Improve public reporting on national teacher workforce data, including a common definition of out-of-field teaching and teacher availability, to identify areas of geographic and subject-specific teacher needs

The Australian Teacher Workforce Data (ATWD) has made significant improvements over recent years, but remains an imperfect tool for monitoring national and jurisdictional progress toward shared objectives for the size and strength of the teacher workforce.

There are now many examples of effective public reporting and monitoring of teacher workforce demand and supply, but Australia has remained more limited in its approach to this. As identified above, Colorado's reporting of the teacher workforce is among the highest standard.

A recently launched dashboard by the Learning Policy Institute offers a range of state-by-state comparisons in teaching attractiveness and factors affecting teacher supply and demand. For instance, the teaching attractiveness index is based on data related to: compensation (starting salary and wage competitiveness as a percentage of the estimated weekly wage for other college-educated workers within each state); working conditions (including mentoring of early career teachers, perceptions of evaluation, and the like); teacher turnover and hiring (collecting the proportion of teachers who actually leave a school and leaving teaching altogether, and the proportion of schools with teaching vacancies that found it very difficult to fill the vacancy or could not fill the vacancy). The teacher demand and supply factors that are reported include: teacher pipeline (number and growth in ITE enrolments and completions), workforce characteristics, and teachers' financial strain (the proportion who also work outside the school system, those who have outstanding student loans, and how much money is spent on classroom supplies).

The challenge of out-of-field teaching — particularly in subject areas of mathematics, science, and technology — has been persistent for many years; impacting on student outcomes and teachers' confidence and workload. However, there is little coordination in reporting on, and working towards, shared objectives to reduce the incidence of out-of-field teaching. The ATWD has introduced an out-of-field teaching indicator that is based on the proportion of the current workforce holding

qualifications in the relevant field. A more suitable indicator into the future would be to report on the proportion of students attending classes staffed by an out-of-field teacher.

Enable access to deidentified unit-record data in the Australian Teacher Workforce Data for research purposes

The ATWD has now been in circulation for some years (albeit imperfectly) and includes some reasonable reporting through its online dashboard and key metrics portal. While there is an oversight board associated with the ATWD, it has made virtually no progress in improving access to this data to help support the crucial need for independent, evidence-based research to inform teacher workforce decision-making. This is unsurprising given the current composition of the ATWD oversight board — current stewards of the data collected within jurisdictions — which has omitted external, independent researchers, who would likely be the most appropriate audience for the ATWD to be utilised for research purposes.

Reduce unnecessary barriers to enter teaching and use targeted financial incentives to attract in-demand teachers

While there is an opportunity to improve teacher supply through financial incentives, most current policy approaches are unlikely to work. Efforts to attract more teachers to the profession should focus specifically on addressing segments of the workforce most in demand. In particular, policymakers should introduce targeted incentives to better attract graduate and mid-career potential teachers with a maths, science, and technology backgrounds as a priority. Generalised approaches may be costly and unnecessary.

For new graduates, rather than further general bursaries or loan forgiveness schemes, for instance, a phased bursary might better meet the goals of attracting and retaining in-demand teachers. For attracting mid-career targets, policymakers should focus on reducing existing barriers to enter teaching. For instance, replacing the two-year requirement to obtain a post-graduate teaching degree with one-year would attract the most in-demand teachers with a diverse range of skills and experience. Further, additional flexibility in acquiring a teaching qualification (e.g., by recognising prior experience in initial teaching salaries) could reduce disincentives for candidates transitioning from other professions.

References

[1] Productivity Commission. (2022). Review of the National Schools Reform Agreement (Study Report).

[2] OECD. (2022). Education at a Glance.
https://gpseducation.oecd.org/Content/EAGCountryNotes/EAG2022_Australia.pdf.

[3] OECD. (2022). Education at a Glance.
https://gpseducation.oecd.org/Content/EAGCountryNotes/EAG2022_Australia.pdf.

[4] Hanushek, E. A. (2003). The Failure of Input-Based Schooling Policies, *Economic Journal*, 113(485), pp. F64-F98.

[5] Fahey, G. (2020). Dollars and Sense: Time for smart reform of Australian school funding, Centre for Independent Studies, Research Report No 40.

[6] Fahey, G. and Yoo, K. (2022, forthcoming). Early mathematics really counts: Longitudinal drivers of student outcomes, Forthcoming Research Report, Centre for Independent Studies.

[7] Deloitte Access Economics (2019). Unpacking drivers of learning outcomes of students from different backgrounds, Canberra: Australian Government Department of Education.

[8] Hattie, J. (2003). Teachers make a difference: What is the research evidence? Paper presented at the Building Teacher Quality: What does the research tell us ACER Research Conference, Melbourne, Australia. Retrieved from http://research.acer.edu. au/research_conference_2003/4/ .

[9] Ingvarson, L. and Rowe, K. (2008). Conceptualising and evaluating teacher quality: Substantive and methodological issues, *Australian Journal of Education*, 52 (1), pp. 5-35.

[10] Hanushek, E.A. (2014). Boosting Teacher Effectiveness, in: *What lies ahead for America's children and their schools*, Finn C.E. and Sousa, R. (eds), pp. 25 – 35, Hoover Institution Press, Stanford CA.

[11] Chetty, R.; Friedman, J. N.; and Rockoff, J. E. (2014). Measuring the impacts of teachers II: Teacher value-added and student outcomes in adulthood. *American Economic Review*, 104 (9), pp. 2633–2679.

[12] Graham, J. and Flamini, M. (2021, in print). Teacher Quality and Students' Post-Secondary Outcomes, *Educational Policy*, October 2021. doi:10.1177/08959048211049429

[13] Rivkin, S. G.; Hanushek, E. A.; and Kain, J. (2005). Teachers, Schools and Academic Achievement, *Econometrica*, 73 (2), pp. 417–58.

[14] Rockoff, J. E. (2004). The Impact of Individual Teachers on Student Achievement: Evidence from Panel Data, *American Economic Review*, 94 (2), pp. 247–52.

[15] Aaronson, D.; Barrow, L.; and Sander, W. (2007). Teachers and Student Achievement in the Chicago Public Schools, *Labor Economics*, 25 (1), pp. 95–135.

[16] Deloitte Access Economics (2019). Unpacking drivers of learning outcomes of students from different backgrounds, Canberra: Australian Government Department of Education.

[17] OECD (2021). Positive, High-achieving Students? What Schools and Teachers Can Do, OECD Publishing, Paris.

[18] Deloitte Access Economics (2019). Unpacking drivers of learning outcomes of students from different backgrounds, Canberra: Australian Government Department of Education.

[19] Deloitte Access Economics (2019). Unpacking drivers of learning outcomes of students from different backgrounds, Canberra: Australian Government Department of Education.

[20] Mourshed, M.; Krawitz, M.; and Dorn, E. (2017). How to improve student educational outcomes: New insights from data analytics, McKinsey and Co.

[21] Mourshed, M.; Krawitz, M.; and Dorn, E. (2017). How to improve student educational outcomes: New insights from data analytics, McKinsey and Co.

[22] Buckingham, J., and Meeks, L. (2019). Shortchanged: Preparation to teach reading in initial teacher education. Sydney: MultiLit

[23] 23 Fahey, G.; O'Sullivan, J.; and Bussell, J. (2021). Failing to teach the teacher: An analysis of mathematics Initial Teacher Education, Centre for Independent Studies, Analysis Paper No 29.

[24] Marks, G. (2016). The relative effects of socio-economic, demographic, non-cognitive, and cognitive influences on student achievement in Australia. *Learning and Individual Differences*, 49, pp. 1 – 10.

[25] Boman, B. (2023). The Influence of SES, cognitive, and non-cognitive abilities on grades: cross-sectional and longitudinal evidence from two Swedish cohorts. *European Journal of Psychology of Education*, 38, pp. 587 – 603.

[26] Harker, R., & Tymms, P. (2004). The effects of student composition on school outcomes. *School Effectiveness and School Improvement*, *15*(2), 177–199.

[27] Nunes, T., Bryant, P., Strand, S., Hillier, J., Barros, R., & Miller-Friedmann, J. (2017). *Review of SES and science learning in formal educational settings: A report prepared for the EEF and the Royal Society*. Education Endowment Foundation.

[28] Joseph. B. (2019). Overcoming the Odds: A study of Australia's top-performing disadvantaged schools, Research Report No 39, Centre for Independent Studies.

[29] Behr, A., & Fugger, G. (2020). PISA performance of natives and immigrants: Selection versus efficiency. *Open Education Studies*, *2*(1), 9-36

[30] Australian Early Development Census. (2022). AEDC Data Dictionary. https://www.aedc.gov.au/resources/detail/2022-aedc-data-dictionary

[31] Fahey, G. (2021). Mind the Gap: Understanding the Indigenous education gap and how to close it, Centre for Independent Studies, Research Report No 41.

[32] Jobs and Skills Australia, Employment Outlook to November 2026.

[33] Räsänen, K.; Pietarinen, J.; Pyhältö, K. et al. (2020). Why leave the teaching profession? A longitudinal approach to the prevalence and persistence of teacher turnover intentions, *Social Psychology of Education*, 23, pp. 837–859.

[34] OECD (2019). TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners, OECD Publishing: Paris.

[35] Weldon, P. (2018). Early career teacher attrition in Australia: evidence, definition, classification and measurement, *Australian Journal of Education*, 62(1), pp. 61 – 78.

[36] NSW Education Standards Authority (NESA) (2020). NSW Attrition Report for Graduate Teachers, March 2020.

[37] NSW Government (2016). Budget Paper No. 3 Budget Estimates 2016-17. Sydney, NSW Government.

[38] OECD (2021). Teachers Getting the Best out of Their Students, OECD Publishing, Paris.

[39] AITSL (2021). Australian Teacher Workforce Data: National Teacher Workforce Characteristics Report, December 2022.

[40] Australian Bureau of Statistics (ABS) (2020). Retirement and Retirement Intentions, Australia, 2018-19, cat no. 6238.0, Table 9.1.

[41] NSW Department of Education (2021). NSW Teacher Supply Strategy, 2021-2031; Victorian Department of Education (2019). Victorian Teacher Supply and Demand Report 2017, March 2019.

[42] Department of Education (2022), 'The National Teacher Workforce Action Plan', https://www.education.gov.au/teaching-and-school-leadership/resources/national-teacher-workforce-action-plan.

[43] Worth, J.; Tang, S.; and Galvis, M. (2022). Assessing the impact of pay and financial incentives in improving shortage subject teacher supply, National Foundation for Educational Research; National Audit Office (2016). Training new teachers, Report by the Comptroller and Auditor General, HC 798.

[44] Cater, J. (2017). Whither Teacher Education and Training?, Higher Education Policy Institute, HEPI Report No 95.

[45] Sims, S. and Benhenda, A. (2022). The effect of financial incentives on the retention of shortage-subject teachers: evidence from England, Working Paper No. 22-04, Centre for Education Policy and Equalising Opportunities, University College London.

[46] Sims, S. and Benhenda, A. (2022). The effect of financial incentives on the retention of shortage-subject teachers: evidence from England, Working Paper No. 22-04, Centre for Education Policy and Equalising Opportunities, University College London.

[47] Sims, S. (2017). What happens when you pay shortage-subject teachers more money? Simulating the effect of early-career supply supplements on teacher supply in England, Gatsby Charitable Foundation.

[48] Ministers' Media Centre. (2023). Student teachers become job-ready graduates. Retrieved from https://ministers.dese.gov.au/Student-teachers-become-job-ready-graduates.

[49] Norton, A. (2022). From Private to Public Benefit: The Shifting Rationales for Setting Student Contributions. *Melbourne Centre for the Study of Higher Education. The University of Melbourne.*

[50] Norton, A. (2022). From Private to Public Benefit: The Shifting Rationales for Setting Student Contributions. *Melbourne Centre for the Study of Higher Education. The University of Melbourne.*

[51] Department of Education. (2023). Australian Universities Accord: Interim Report. https://www.education.gov.au/download/16699/australian-universities-accord-interim-report/33821/document/pdf

[52] Commonwealth Department of Education (2021), 'Next Steps: Report of the Quality Initial Teacher Education Review', https://www.education.gov.au/quality-initial-teacher-education-review/resources/next-steps-report-quality-initial-teacher-education-review

[53] Commonwealth Department of Education (2021), 'Next Steps: Report of the Quality Initial Teacher Education Review', https://www.education.gov.au/quality-initial-teacher-education-review/resources/next-steps-report-quality-initial-teacher-education-review

[54] Commonwealth Department of Education (2021), 'Next Steps: Report of the Quality Initial Teacher Education Review', https://www.education.gov.au/quality-initial-teacher-education-review/resources/next-steps-report-quality-initial-teacher-education-review.

[55] Department of Education (2022), 'The National Teacher Workforce Action Plan', https://www.education.gov.au/teaching-and-school-leadership/resources/national-teacher-workforce-action-plan.

[56] Australian Institute for Teaching and School Leadership. (2023). Australian Teacher Workforce Data: Key Metrics Dashboard. https://www.aitsl.edu.au/atwd-kmd/key-metrics-dashboard-media/Action/Preview?sf-auth=v6GeoIesrOWpwPHWgOIkK0r9RC3YeEpFhI85c8iU6g1T3xs%2fwj7E7hs2Xte%2ff9ZVggxoEQxpDS9wbm1lFZpf0sSIQWfT0tKJ2FQj0Ln8dFmpaDRUWxAhZh78oaUy56W4A8qmmk4blVMyaEWolNx9f%2b%2b9gTjbqQzPV6BguSKxHZ4Nid0kb%2foZIqpz4GiO%2bTTOXhoJyxwH%2f2VGE72YQQ5g8AoWEIjAQ3ccGsZVUxVMb53X8EtDfkuBoRTR%2bT18rgMOv7hpA1azUBLFLRHWYge%2bwUxczOm9%2ftZuwSwJV%2bh%2fJxeH4z7Q2pR5b7heefHHnFL96TDnK7JvBaYQhbp%2bEOtczZvDN4LZ%2fvfi%2fAAAAA%3d%3d&sf_site=6e4e856e-126c-44d7-b9a5-96b6f652ba1d&sf_site_temp=True.

[57] Australian Institute for Teaching and School leadership. (2023). ATWD Key Metrics Dashboard Release. https://www.aitsl.edu.au/docs/default-source/atwd-js/march29-2023/atwd-key-metrics-dashboard---march-2023.pdf?sfvrsn=ebd1b03c_2.

[58] National Teacher Workforce Database: Data Analysis Report 2014, https://nla.gov.au/nla.obj-3063778111/view.

[59] NeiTA Foundation (2021). NEiTA – ACE Teachers Report Card 2021 Teachers' perceptions of education and their profession, report prepared with the Australian College of Educators.

[60] Australian Institute of Teaching and School Leadership. (2022). A Snapshot of National Certification of Highly Accomplished and Lead Teachers (HALTs) in 2022. https://www.aitsl.edu.au/docs/default-source/certification/certification-snapshot-end-of-2022.pdf.

[61] NSW Audit Office (2019). Ensuring teaching quality in NSW public schools, Performance Audit, September 2019, New South Wales Auditor - General's Report.

[62] NSW Audit Office (2019). Ensuring teaching quality in NSW public schools, Performance Audit, September 2019, New South Wales Auditor - General's Report.

[63] New South Wales Legislative Council. (2022). *Great Teachers, great schools: Lifting the status of teaching, teacher quality and teacher numbers in New South Wales* (Report 48).

[64] Ministers' Media Centre. (2023). Being our best: Returning Australia to the top group of education nations. Retrieved from https://ministers.dese.gov.au/tudge/being-our-best-returning-australia-top-group-education-nations.

[65] Barber, M., Chijioke, C., and Mourshed, M. (2010). Education: How the world's most improved school systems keep getting better. McKinsey and Company: London.