Submission to the Productivity Commission Review of the National School Reform Agreement

Presented by
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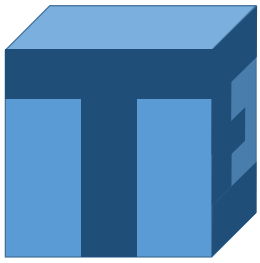

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Key Messages

Teacher Quality and Student Achievement

A prominent focus of the Interim Review report is the influence of teacher quality on student achievement. Appendix D of the Report outlines an analysis that seeks to show that improving teacher quality will lead to substantial gains in long-term productivity.

The focus on teacher quality as a driver of educational outcomes is misplaced. Teachers are important in facilitating student learning, but Australia's teachers are well-educated professionals. Despite a socially stratified education system, with three distinct sectors with access to very different resource levels, Australian schools have relatively equitable outcomes. Differences between schools account for only 20% of the variation in student achievement, with 80% of that variation explained by students' individual characteristics and their family backgrounds.

The Review deliberately restricts its consideration to processes that occur "within the school gates." This fails to address the factors that account for 80% of variation in student outcomes. Any recommendations that flow from a focus on factors that explain 20% of variation in outcomes are destined to be limited and ineffective.

It is vital that the Commission broadens the scope of its Review of the NSRA.

Performance Targets and Equity Groups

The performance targets presented in the NSRA are vague and lack the specificity that would enable a rigorous assessment of progress towards them.

I suggest that specific targets be specified for student achievement outcomes. I base these on Australian students' performance on PISA assessments.

It would be helpful if other assessment programs, e.g. NAPLAN, and other assessments that are frequently administered in schools, e.g. ACER's Progressive Achievement Tests (PATs) were equated to PISA performance scales. This would enable ongoing evaluation of Australia's trajectory towards its specific goals.

In addition to identifying equity groups, e.g. ATSI and CALD students, specific targets should be set for those groups.

Having identified target groups, it is essential that the reasons for their disadvantage be identified, the mechanisms by which group membership is manifest in lower achievement, and proven interventions are identified that address the mechanisms of disadvantage.

Evidence-based policies and practices

In selecting and implementing interventions designed to ameliorate low achievement, strong evidence bases are required. These exist, but knowledge translation of effective interventions into classroom practices is very weak in education. This is being addressed by agencies such as AERO, but there is considerable scope to enhance educational knowledge creation and translation in Australia.

Introduction

One focus of the Commission's Interim Report on the Review of the National School Reform Agreement (NSRA) is the effect of teacher quality. In this submission, I present evidence that variation in "teacher quality" explains much less of the variation in student achievement than do individual student and family background factors. A focus on teacher quality may be misplaced and may lead policy-makers to ignore other factors that are much more influential on student achievement.

I comment on the lack of specificity of the performance targets for Australia's education systems and of the lack of a clear specification of equity target groups. Some groups are obvious targets, e.g. Indigenous Australian children and youth have lower levels of achievement and attainment than do their non-Indigenous peers. Similarly, children and young people from low-SES family backgrounds also have lower levels of achievement than do children and youth from more advantaged families. There is no obvious or simple classification of children by SES as all levels of SES below the highest level experience poorer outcomes. Disadvantage is apparent in other groups, e.g. those whose main home language is other than English reveal lower levels of achievement. However, home language is confounded with immigrant status, with some immigrant groups having higher levels of attainment while others have lower levels, compared to 'native' (as defined in PISA studies) students. In literacy achievement (but not in mathematics or science), males demonstrate, on average, substantially lower levels of achievement than do females. The identification of target groups is not a simple task. However, if Australia is to lift its educational performance, attention will have to be paid to all students and to those groups whose achievement is substantially lower than comparison groups. Further, having identified equity target groups, it is necessary to understand the causes and mechanisms by which disadvantaged group membership leads to poorer achievement. Understanding the mechanisms by which disadvantage operates may suggest effective interventions to ameliorate that disadvantage.

Policy Targets for Student Achievement

The NSRA expresses educational quality and equity as its prime objective:

> Australian schooling provides a high quality and equitable education for all students. (Council of Australian Governments (COAG), 2021, p.6)

Its targets refer to quality and equity, but the agreed measures are non-specific. For example:

> Reduce the gap in achievement between students from various socio-economic backgrounds in Australia's PISA educational performance compared to other countries and the OECD average. (COAG, 2021, p.7)

Its reference to "various socio-economic backgrounds" and to "performance compared to other countries" lack the specificity that would enable robust evaluation of progress towards the primary objectives of the Agreement.

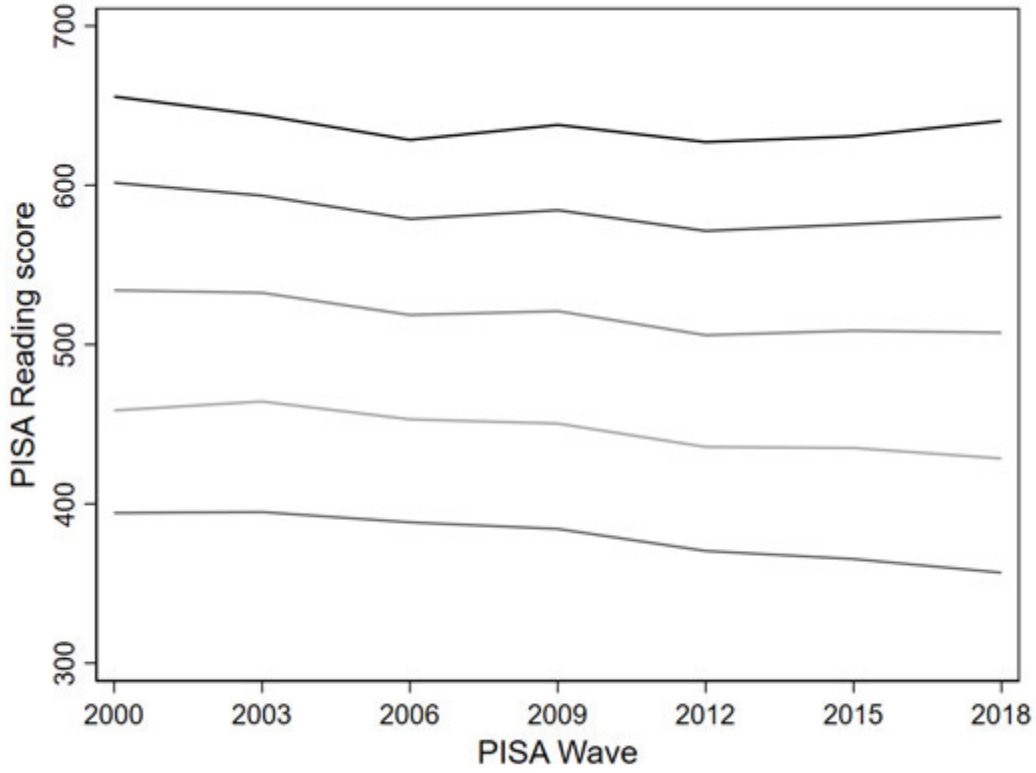
A previous iteration of the NSRA referred to Australia being in the top five countries among those that participate in PISA. This league table target was not sensible: it was more specific than the current one, but it depended on the countries that choose to participate in the PISA study. Many more countries and regions participate now than did in 2000 and some countries have dropped out of the program. It would be more sensible to specify a target such as returning to the standards that were evident in Australia in 2000, and perhaps improving on them. This would enable related and specific targets to be established for equity groups. This would lead to a target mean literacy score in PISA of 535 compared with the most recent average score of 502. In order to track progress towards a specific target, it is desirable to equate scores on other assessments, e.g. NAPLAN and PATs, to the PISA performance scales. I do not suggest changes to the current NAPLAN scales, but if a given NAPLAN level

were to be linked to a location on the corresponding PISA scale, it would be possible to know how likely it is that students are on trajectories that will lead to desired PISA scores.

Comparisons with other countries are of limited value. It would be more sensible to consider what is happening in Australian schools and communities, but with regard to what others do well. Finland is often held up as an example that we should seek to emulate. This is based on its relatively high standing in the original 2000 PISA wave. However, its trajectory is similar to Australia's. (But see below for its position on equity). Other countries to have experienced a comparable decline include Canada and New Zealand. Of the 31 countries that have participated in all seven PISA waves, only Portugal and Poland have shown some growth.

The change in Reading Literacy performance of Australian students is shown in Figure 1 in which the achievement of students at the 90th, 75th, 50th, 25th and 10th percentiles are plotted against the PISA waves. It is apparent that across successive cohorts of 15-year-olds, the highest performing students have declined the least (15 score points) while the performance of low-achieving students has declined more substantially (26 score points). This suggests that greater attention to low achieving students is warranted.

Figure 1 Change in student achievement in reading by selected percentiles (P90-P10)



Teacher Quality and Initial Teacher Education

A focus on quality teaching suggests the problem of student under-achievement is a consequence of teacher under-performance. There are problems in the teaching force, including those identified in the interim review and elsewhere, e.g. Hunter, Sonnemann, and Joiner (2022) who found that teachers lack time to prepare adequately for teaching because of other demands on them, and Weldon (2016) who found that out-of-field teaching was common and had detrimental effects on student learning. However, before acting on this claim, it is necessary to evaluate relevant evidence. Variation in teacher effectiveness will be revealed in variation in their students' achievement scores and that variation will be apparent between schools.

Teacher Effectiveness and School Effects

Leigh (2010) used NAPLAN data to estimate teacher effects and claimed that correlations between students' gains in literacy and numeracy scores are indicative of teacher effectiveness. The R^2 values of his models of the influence of teacher characteristics, which include gender, experience and additional qualifications, on student achievement were extremely low (.004 for literacy and .006 for numeracy). Further, while Leigh acknowledged that the tests were conducted two years apart, he did not acknowledge that in that intervening period students typically had three different teachers. Some students have fewer teachers if they are in mixed level classes or if a teacher moves up a grade with the students, but in many schools where staffing is less stable, some students may have had more than three teachers. Thus, Leigh's analysis is for a putative composite teacher. This may underpin the very low explanatory power of his models as the effects are averaged over several teachers who very likely have quite different characteristics. In short, Australian data (e.g. NAP, PISA, TIMSS, PIRLS) in general do not enable the analyses that Leigh attempted.

As students progress through school, it is likely that their achievement is a consequence of their home circumstances and their school context. School context is an amalgam of the aggregate influences of their former and current teachers, of the environment of the school, and of the peers with whom they share their learning. While these school-related effects are cumulative, it is likely that achievement, measured at a point in time, is shaped predominantly by the most proximal influences. A complete understanding of teacher effects would require a longitudinal research design with student achievement and varying teacher characteristics collected at each time point. I know of no Australian studies that have implemented this design.

Before attempting to estimate teacher effects, it is necessary to discover how much of the variance in student achievement is attributable to individual students and their circumstances and attitudes, and how much can be ascribed to the learning environments of their schools, including teachers and peers. Estimating the proportions of variance attributable to individual- and school-level effects is done using multilevel analysis.

Using Australian data from the PISA 2018 wave, the proportion of variance attributable to each of the levels in a two-level model (individual students and schools) is found to be about 20% at the school-level and 80% at the individual student-level. The proportions attributable to schools for each PISA test domain are shown in Table 1. For mathematics, the school effect is slightly greater (22%) than for either reading literacy or science (18% and 20% respectively). By comparison, in highly equitable countries very little variation is associated with schools (8% for Finland and 9% for Norway) while in highly inequitable countries much more variance is school-related (57% for Turkey and 58% for Hungary). The importance of these findings is that most of the variation in Australian student achievement is related to students' characteristics – their home circumstances (e.g. parental education, home language) and their attitudes and approaches to learning, and that much less is attributable to the school context. Thus, before focusing on the quality of teaching as the dominant influence on achievement, caution is advised. This focus, while no doubt worthy, may be misplaced and may inhibit policy-makers from seeking more salient influences.

Table 1 Proportion of variance attributable to the school level, by PISA test domain

Domain	VPC	se	CI95 (lo)	CI95 (hi)
Reading	.1805	.0099	.1619	.2007
Mathematics	.2245	.0110	.2036	.2468
Science	.1981	.0103	.1786	.2191

Note VPC = Variance Partition Coefficient (also known as Intraclass correlation (ICC)). This indicates the proportion of variance attributable to the clustering of students, i.e. to the schools they attend.

The results show a limited, but important, effect attributable to schools, including teachers, school climate and peers. This does not mean that teachers are unimportant. They do suggest that teacher effects are complex. First, it seems likely that teacher influences on student achievement are cumulative and that student outcomes arise from many teachers and therefore that proportion of variation attributable to schools and teachers may underestimate teacher effects. Second, Australia does have relatively robust processes for teacher quality assurance. Each jurisdiction requires registration of teachers that is contingent upon both new graduates and continuing teachers meeting specified standards and undertaking professional learning. Initial teacher education (ITE) providers must show how their programs meet prescribed standards and demonstrate how individual courses and their assessments ensure graduates will meet the Graduate level requirements of the Australian Professional Standards for Teachers (APST). Further, ITE students must pass a Teaching Performance Assessment that demonstrates their achievement of the Graduate level of the APST. Entry into initial teacher education is now subject to minimum standards and before graduating, students must pass the Literacy and Numeracy Test for Initial Teacher Education (LANTITE). In summary, Australia has in place a set of quality assurance processes for teachers that ensure the profession has a base level below which teachers cannot be registered or maintain their registration to teach. In order to sustain claims that low student achievement is a consequence of poor teacher performance, it must be assumed that the quality assurance processes outlined above are not fit for purpose. The data and analyses presented in this submission do not support that contention.

Because most of the variation in student achievement is related to individual student factors, the Commission's restriction on its Review, namely that the "Commission has focused on factors that can operate 'within the school gates'" (PC Interim Report, p.13) severely limits its scope and likely effectiveness. It is important that the Commission broadens its scope to consider the influence of non-school factors and influences of school factors other than teacher quality or that it recommends that such broader analyses be undertaken in order to inform policy development.

Influences of Non-School Factors

The discussion in this section is based on analyses undertaken for a project on literacy achievement. The work has not yet been submitted for peer review. Descriptive and regression analyses have been undertaken, the latter modelling interaction effects. In addition, multilevel models and structural models, which enable the influences of mediating variables to be investigated, have been undertaken but are not reported here. Because educational outcomes arise from multiple influences and their interactions, and which are multilevel, simple models fail to capture the complexity and can result in misleading interpretations. The discussion below focuses on student-level influences. They are categorised as being demographic, attitudinal, students' perceptions of the school climate, and students' perceptions of their teachers' practices.

In estimating the effects of non-school factors, I am aware that many are not directly amenable to policy interventions. For example, a student's sex and parental education, both of which influence achievement, cannot be altered. However, being aware of their effects and understanding the mechanisms by which they operate may lead policy-makers and educators to consider actions that can counteract any negative effects attributable to them.

Demographic Influences

The influences of a selection of demographic variables available in the PISA data set were evaluated in a regression model in which reading achievement was the dependent variable. While many of these variables were found to have statistically significant influences, parental education, language spoken at home and sex were found to have quite strong influences. (See Table 2).

Compared with students whose parent(s) had a university qualification, those whose parents had not completed secondary education revealed a lower reading achievement score of about 40 points. This is equivalent to about one year of learning. Students whose parents had completed secondary school or who had a vocational qualification had a 20-point lower score, or about two terms of learning.

Students who spoke a heritage language rather than English at home or who spoke both a heritage language and English had scores 43- and 32-points lower than those who spoke English only. However, home language should be interpreted along with immigrant status (IMMIG). The relationships between immigrant status, home language and achievement warrant much more detailed attention. Immigrant parents may have arrived under a variety of programs, some as skilled or business migrants, others as refugees. Their circumstances are likely to be quite varied. Further, the aspirations and expectations of immigrant parents, which were not included in the models reported here, are likely to exert strong influences on their children's achievement. This set of relationships is worthy of much more detailed investigation as it may lead to explanations for differences in the achievement of students by parental education and this in turn may suggest worthy interventions.

Males had substantially lower reading scores than females – a difference of 28 points or about three terms of learning. This difference is net of other modelled demographic influences. The absolute difference, estimated in a simple t-test between male and female students, is 30 score points. Further, in a quantile regression, I find that males are very much more likely to be in the lowest achievement deciles and that the achievement differential between males and females is much more pronounced in the lower achievement bands. The difference between males and females in the top decile is 15 points, but is 45 points in the lowest decile. Clearly, males have lower reading literacy achievement than females and this is especially so among lower achieving students.

I highlight the above results to indicate policy challenges that confront education ministers. Parental education itself is beyond the reach of policy-makers. The policy issue arises from a lack of knowledge about the mechanisms by which low parental education is manifest in the low achievement of their children. A better understanding of this mechanism may lead to potentially fruitful interventions.

Because Australia has had a sustained immigration program, many students are from Culturally and Linguistically Diverse (CALD) backgrounds and for many of them Standard Australian English is a second or subsequent language or dialect. This is reflected in their lower reading literacy scores noted above. In the PISA sample, 27% of students speak a language other than English at home and with friends (20% identified as bilingual and 7% as predominantly speaking a heritage language). Given this substantial proportion of CALD students and their lower literacy scores than mainly English speakers, there is scope to develop policy targets and strategies to enhance the literacy performance of these groups.

Although males are not an equity target group, their literacy performance does warrant attention. The headline difference in literacy scores by sex is quite substantial (30 score points), and males make up a substantially greater proportion of the low-achievement tail that characterises literacy achievement.

Table 2 Regression coefficients for demographic predictors of Reading Achievement

PV1READ	Coefficient	Std. err.	t	P>t	[95% Conf. interval]	
CULTPOSS	10.137	1.563	6.490	0.000	7.074	13.201
HEDRES	5.952	1.685	3.530	0.000	2.649	9.256
WEALTH	-8.512	1.777	-4.790	0.000	-11.995	-5.030
HISEI	0.856	0.078	11.010	0.000	0.704	1.008
EMOSUPS	9.717	1.483	6.550	0.000	6.811	12.624
Sex (Ref Female)						
Male	-28.006	7.891	-3.550	0.000	-43.473	-12.539
Male#CULTPOSS						
Male	-8.258	2.165	-3.810	0.000	-12.502	-4.015
Male#HEDRES						
Male	6.841	2.277	3.000	0.003	2.378	11.305
IMMIG (Ref Native)						
Second-Generation	21.795	4.536	4.810	0.000	12.904	30.686
First-Generation	11.735	4.689	2.500	0.012	2.544	20.926
Lang. class (Ref Eng.)						
Bi-lingual	-32.434	4.246	-7.640	0.000	-40.758	-24.110
Mainly heritage lang	-42.990	5.506	-7.810	0.000	-53.784	-32.197
Parent ed. (Ref Univ)						
None or primary	-37.960	12.892	-2.940	0.003	-63.232	-12.689
Some secondary	-38.359	6.183	-6.200	0.000	-50.480	-26.238
Year 12 or voc. Cert	-18.599	3.283	-5.660	0.000	-25.035	-12.163
Constant	493.478	5.666	87.090	0.000	482.371	504.585

Notes: SES is disaggregated into components including Cultural Possessions (CULTPOSS), Home Educational Resources (HEDRES), Wealth (WEALTH), Parental occupational status (HISEI), and parental education, for which a university degree is the reference category. Parental education has a very strong influence on reading achievement. Immigrant status, whether first- or second-generation (reference category is Native) has a positive influence, net of home language.

Students' Attitudes and Perceptions of Teaching and of School Climate

Detailed literacy achievement models (see Table 3) suggest avenues for addressing reading literacy gaps. When other factors, such as enjoyment of reading, perceptions of disciplinary climate, and perceptions of teacher interest in students are included, the achievement gap by sex drops to about 2 score points and is non-significant. Males report less interest in reading, a more adverse effect of a poor disciplinary climate, and perceive lower levels of interest by teachers. These, and other factors that explain variation in literacy achievement, deserve attention and interventions designed to address them have the potential to improve literacy achievement of all students and especially of males.

In contrast to the situation for males, adding explanatory variables has a much less marked influence on speaking a language other than English. The parameters for being either bilingual or mainly speaking a heritage language fall by about 50% when attitudinal variables are added to the model but a home language other than English remains a barrier to success. Similarly, the parameters for parental education decrease by about 50% when attitudinal and perceptions of teaching and school climate are included in the model. They provide a partial explanation for the lower performance of students whose parents have lower levels of education, but much remains to be explained in order to consider interventions that may redress the disadvantages that low-SES and CALD students experience.

The model summarised in Table 3 requires careful interpretation. For example, SCREADCOMP (self-perception of reading competence) is likely to be endogenous to the extent that it reflects students' judgments of their past reading performance. It is well-known that past performance is a strong predictor of current capability, so this variable may be a proxy for prior achievement and it may not be amenable to intervention. Further, it may explain some variance that would more sensibly be attributed to other variables. Its removal,

however, results in very minor changes to the parameters of other variables in the model. Similarly, METASUM and METASPAM (the ability to summarise what is read and the ability to detect source credibility) both depend on comprehension, and therefore are also endogenous to reading achievement. Further analyses will tease out these effects.

Table 3 Regression coefficients for demographic, attitudinal, and perceptions of school climate and teaching predictors of Reading Achievement

PV1READ	Coefficient	Std. err.	t	P>t	[95% Conf interval]	
WEALTH	-2.591	1.088	-2.380	0.017	-4.724	-0.458
HISEI	0.441	0.048	9.140	0.000	0.347	0.536
EMOSUPS	1.630	0.990	1.650	0.100	-0.311	3.572
IMMIG (Ref. Native)						
Second-Generation	11.013	2.830	3.890	0.000	5.465	16.561
First-Generation	4.048	2.895	1.400	0.162	-1.628	9.723
Lang. class (Ref Eng.)						
Bi-lingual	-12.463	2.664	-4.680	0.000	-17.686	-7.241
Mainly heritage lang.	-17.676	3.367	-5.250	0.000	-24.276	-11.076
Parent Ed (Ref. Univ)						
None or primary	-24.063	8.747	-2.750	0.006	-41.210	-6.915
Some secondary	-19.458	4.100	-4.750	0.000	-27.495	-11.422
Year 12 or Voc. Cert	-10.834	2.033	-5.330	0.000	-14.819	-6.850
JOYREAD	9.694	0.866	11.200	0.000	7.997	11.392
EFFORT1	7.408	0.474	15.630	0.000	6.479	8.337
SCREADCOMP	11.012	1.133	9.720	0.000	8.792	13.233
SCREADDIFF	-3.473	1.110	-3.130	0.002	-5.649	-1.297
PISADIFF	-15.908	1.147	-13.870	0.000	-18.157	-13.659
GFOFAIL	7.762	0.922	8.420	0.000	5.955	9.569
EUDMO	-8.152	0.915	-8.910	0.000	-9.946	-6.358
HEDRES	2.924	0.952	3.070	0.002	1.057	4.791
WORKMAST	-3.259	1.067	-3.050	0.002	-5.351	-1.167
DISCRIM	-9.073	1.482	-6.120	0.000	-11.978	-6.167
BULLIED	-4.765	1.211	-3.930	0.000	-7.140	-2.391
Sex (Ref. Female)						
Male	-1.796	2.011	-0.890	0.372	-5.739	2.146
male#DISCRIM						
Male	-5.253	1.901	-2.760	0.006	-8.979	-1.527
male#BULLIED						
Male	3.412	1.597	2.140	0.033	0.281	6.543
COMPETE	4.647	0.980	4.740	0.000	2.726	6.567
DISCLIMA	2.509	0.883	2.840	0.004	0.778	4.240
DIRINS	-11.176	1.051	-10.640	0.000	-13.236	-9.116
ADAPTIVITY	6.086	1.197	5.080	0.000	3.739	8.433
STIMREAD	2.573	1.155	2.230	0.026	0.309	4.837
UNDREM	5.797	0.981	5.910	0.000	3.873	7.720
METASUM	12.771	1.030	12.400	0.000	10.752	14.789
METASPAM	22.917	0.984	23.290	0.000	20.988	24.845
Constant	440.864	5.155	85.510	0.000	430.758	450.971

Notes: See notes for Table 2.

With attitudinal predictors included, the parameter for Sex is small and non-significant, c.f. Table 2. This suggests that the effect on achievement of being male is mediated by attitudes and perceptions.

Students' perceptions of teacher practices (Adaptivity, and Stimulation to read, have modest influences on achievement.

Classroom climate variables (Competitive, Discipline) have modest influences on achievement.

The Need for Evidence-Based Practices and Policies

The above analyses and discussion indicate that the educational disadvantage experienced by some groups (low-SES, CALD, and for literacy, males) can be explained by mediating factors and that those influences, in turn, may be amenable to proven effective interventions.

It is not enough to set performance targets, even specific ones such as having a national reading assessment score of 535 (with related targets for identified equity groups). It is also necessary to establish mechanisms by which those targets can be achieved. I note that any mechanism designed to improve student achievement is the responsibility of the jurisdiction and of the school and the sector in which it is located. The NSRA does not and likely will not become involved in on-the-ground improvement processes.

A widely recognised problem in education is the lack of knowledge transfer from research into practice. Knowledge translation is much better understood in medicine than it is in education. It is hoped that the Australian Education Research Organisation (AERO) can play a role in the dissemination of knowledge into practice and in evaluating its outcomes.

Mechanisms designed to ensure improvements in Australian schools must involve:

- Understanding the nature of the problem
- Being aware of the context in which the problem is situated
- Selecting interventions for which a solid evidence base exists and that are sensitive to the context
- Implementing and evaluating the interventions to confirm that they are leading to the desired outcome

Several reliable sources of tested interventions are available. These include:

Visible Learning	http://visible-learning.org/
Education Endowment Foundation	https://educationendowmentfoundation.org.uk/
What Works Clearinghouse	http://ies.ed.gov/ncee/wwc/

Each of these (and other sources) have advantages. Visible Learning is a curated resource in which the likely effectiveness of 150 potential interventions is tabulated. The Education Endowment Foundation (EEF) provides guidance on initiatives that have been trialled in schools by teachers and therefore has a high level of authenticity. The What Works Clearinghouse privileges randomised control trials (RCTs) in its selection of potential interventions. This method provides robust estimates of effects but may lack the authenticity of EEF findings. The innovations suggested by these sources have some disadvantages. Their findings require interpretation. For example, simply selecting an intervention based on a high effect size, as reported on Visible Learning, may not yield a solution to a school's specific challenges. Moreover, some 'effects' are simply not amenable to change.

Research is required that generates an understanding of the causes and processes by which membership of disadvantaged groups is manifest in lower levels of achievement and attainment. This research may be undertaken by agencies like AERO, the Australian Council for Education Research (ACER), and university faculties of education and related disciplines. This research needs to be coordinated and its findings disseminated.

Schools do need support in selecting and implementing interventions. A review of a selection of school improvement plans conducted by the author found that many schools nominated innovations that either were not well understood or that had poor efficacy. A focus on growth mindsets is an example of a poorly understood innovation that is unlikely to have any substantial effect on student achievement. It is hoped that agencies like AERO can play a role in improving the dissemination of information about effective interventions and in their implementation.

The Review highlights wellbeing as a desirable target for future iterations of the NSRA. This is worthy but also one of many potential desirable outcomes from school education. There is

strong evidence that the wellbeing of many young people is declining, especially among young women (Brennan et al., 2021, p.20). Most of young people's concerns do not arise within schools but from non-school influences, e.g. coping with stress, body image and climate change, but some do arise within schools, e.g. bullying (Tiller et al. 2021, p.19). While schools are important locations in which young people form friendships and in which they interact with teachers, it is abundantly clear that schools and teachers are expected to take responsibility for very many non-academic issues. If they are required to monitor and promote student wellbeing, schools will need to be better resourced and to employ qualified counsellors who can support individual students and provide wellbeing programs.

Omissions from and Limitations of the PC Review of the NSRA

I draw attention to two shortcomings of the Review; the restriction to processes that occur "within the school gates" and the omission of funding arrangements from the terms of reference for the Review.

Beyond the School Gate

In the analyses presented above, I make the point that in Australia, most of the variation in student achievement (about 80%) can be attributed to student background factors, especially SES, home language and sex, leaving only 20% that can be traced to school-related factors. About half of the 80% can be explained by factors that mediate the relationships between background variables and achievement outcomes.

Of the 20% of variance that can be ascribed to school-related factors, a small proportion is due to differences in teacher approaches. More is related to classroom climate, and some of this arises from peer influences.

Thus, the restriction to within-school factors substantially limits the potency of any recommendations that may arise from the Review.

Funding

Although funding arrangements for school education were omitted from the terms of reference for the Review, it does appear that the Commission is well-placed to undertake a review of the returns on investment for funding. It is clear that the original Gonski Review (Gonski et al., 2011) was compromised and that the subsequent review (Gonski et al., 2018) has not been fully implemented and that some schools are receiving more than 100% of the recommended 'school resource standard' while others, mostly government schools, operate on substantially less than this funding level (see Greenwell & Bonner, 2022). What has not been investigated is the potential for both under- over-investment in education in different sectors. Thus a return-on-investment analysis is warranted and it is suggested that such an analysis be recommended as part of the final Review report.

Conclusion and Implications

This submission draws upon analyses undertaken for a project using PISA data and investigating factors that influence youth literacy achievement. Only fragments of those analyses are presented here.

Factors Influencing Student Achievement

In this submission, I focus on factors that influence student achievement, drawing attention to the important but limited role that schools have in explaining variation in student achievement. The key findings and their implications are:

- Most (80%) of the variation in student achievement is explained by non-school factors, specifically, home environment (broadly SES, including parental education, home

educational resources), main language used at home and with friends (heritage language or bilingual rather than Standard Australian English), and – for literacy – sex.

- School-related factors that include aspects of the school climate (e.g. student behaviour), teaching practices, and peer effects, account for only 20% of the variation in student achievement. Teacher effects make up only a proportion of school-related influences.
- An implication of these findings is that the restriction of the Commission's Review to "within the school gate" factors will severely limit the effectiveness of any recommendations the Commission might make in its final Review report.
- The findings do not mean that teachers are unimportant. Rather, when we observe student achievement at a point in time, in addition to individual student factors, we detect the cumulative influences of many teachers. It is likely that there is variation in teacher effectiveness, but Australia does have a robust registration regime that places a floor under teacher quality. A focus on teacher quality to the exclusion of other more salient factors will likely yield misleading recommendations.

Performance Goals of the NSRA

I argue that the NSRA should set much more specific achievement goals, for all Australian students and for equity target groups. Both the goals and the equity groups that are targeted need to be explicit.

- The current targets of the NSRA are vague and do not permit rigorous evaluation of progress towards them. Specific targets expressed in terms of student achievement are required.
- Overall targets should be set. For example, it would be reasonable to aim to restore student achievement of 15-year-olds to at least the levels reported for the 2000 PISA wave. (Literacy 535, Mathematics 533, and Science 527).
- Goals for equity target groups could be set in terms of gaps between current levels of achievement for those groups and overall achievement scores.

The Need for Evidence-Based Policies and Practices

I suggest that the causes of the declining performance of Australian students over the past two decades and the under-performance of equity target groups require research. That research should focus on the processes by which membership of an equity target group leads to lower levels of achievement and attainment.

I refer to sources of evidence for practices that may ameliorate the declining performance of Australia's education systems and I argue that education in Australia has failed to address knowledge translation. Knowing what works, under what circumstances, and being able to implement and evaluate innovation is lacking in Australia's schools and a greater focus on knowledge translation will facilitate overall improvements in performance and enhance progress towards greater equity in Australian education.

- Research is required that is designed to identify the processes by which membership of an equity target group lead to lower achievement.
- Knowing **how** equity groups experience lower levels of achievement and attainment may lead to the identification of proven interventions than can be implemented and evaluated.

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About the Author

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