

# **PRIMARY SCHOOL MATTERS**

## **POSITIONING PAPER: THE CASE FOR CHANGE**

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# Executive Summary

Primary Focus argues that the education reform agenda over the past five decades in Australia has not focussed on what matters: primary school outcomes.

This Positioning Paper: The Case for Change provides an extensive overview of why primary school outcomes should be the priority policy focus in Australia for improving successful school completion leading to both economic and social prosperity for all Australians.

In the past, policy reform in relation to education in Australia has focussed on the quantity of schooling (successful year 12 completion) and funding structures rather than the relationship between years of schooling, the quality of educational outcomes and the evidence of how students learn best. Policy reform has failed to consider the critical role of primary school in achieving successful school completion.

Primary school outcomes matter. In particular, the foundational knowledge and skills of literacy and numeracy, learnt in primary school, matter.

They matter because they predict future performance in successive school years. Prior performance in primary school predicts future outcomes more so than student background or parental education or occupation. Primary school outcomes matter because they predict future income and wages and participation in the labour force. They also predict whether a young person will be incarcerated or not. Poor primary school outcomes have a lifelong impact on the health and well-being of Australians.

The costs of poor educational outcomes, stemming from poor primary school outcomes, to the Australian economy and society are extreme. They are also preventable.

This Positioning Paper presents the case for change and provides the context for why Australia's educational performance has been deteriorating for decades. It provides an overview of the history of education in Australia in terms of the evolution of the purpose of education and the changing funding structure since the Karmel Report in 1973<sup>1</sup> including the decentralisation of the education system and the shift to school-based management and principal autonomy.

In order to work out the best way forward for improving Australia's education performance, it is important to understand this historical context. Any future policy-making decisions need to consider the effect of past policy decisions and what went wrong; a perpetual imbalance between the three purposes of education, ineffective funding systems creating structural inequity and pedagogical practices not keeping pace with the scientific evidence of how people learn, acquire knowledge and successfully complete their schooling. These structural and systemic failures need to be considered alongside the evidence of how people learn best to improve Australia's educational performance.

Primary Focus believes the time is now right for an education reform agenda focussed on improving primary school outcomes – the momentum has begun, the success of over 250 schools in Australia already pursuing evidence-based approaches shows the potential to improve educational outcomes

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<sup>1</sup> Karmel, P., Blackburn, J., Hancock, G., Jackson, E. T., Jones, A. W., Martin, F. M., Tannock, P., Thomas, M. E., Whitley, A., & White, W. A. (1973). Schools in Australia: Report of the interim committee for the Australian Schools Commission, May 1973. Australian Schools Commission.

- it is time to refocus energies at the national and state levels on system-wide education reform in both policy and practice rather than leaving it to some schools and individual teachers.

Improving Australia's educational performance to achieve equity and excellence, productivity and social cohesion, must begin in primary school.

Australia's education policies need to be evaluated, and informed, by student outcomes, not policy intentions. For this reason, reform needs to prioritise six aspects collectively to achieve improved educational outcomes.

Funding structures need to be re-designed and implemented to best support system-wide success.

1. **Policy.** Australia's education policies must be evaluated on, and informed by, student outcomes, rather than by policies' intentions.
2. **Curriculum.** Must be coherent with clear learning goals, sequenced objectives and be ambitious and demanding, setting solid foundations for students' progress.
3. **Focus on student progress.** There must be frequent and reliable formative and summative assessments as well as independent assessment taking place. The education system must simultaneously nurture quality and excellence and improve low performing students' achievement.
4. **Pedagogy.** There must be a good balance between innovating with new pedagogical approaches and new technology and empirically proven methods.
5. **Teachers.** The Initial Teaching Education (ITE) qualifications must provide pre-service teachers with the knowledge and skills they need to teach effectively. Practicing teachers must engage in evidence-based professional learning, reskilling, upskilling and retraining to maintain currency.
6. **Public.** The public must be on the journey to improve educational outcomes in Australia.

Primary schools must be supported to be well run and ensure that all teachers are using the evidence-based best practice in curriculum, pedagogy and assessment. The task of every primary school should be to ensure that all Australian students exceed the expected level in the foundational cognitive skills of literacy and numeracy before they start high school. These are the cognitive skills which predict school completion and economic and social prosperity.

While Primary Focus acknowledges that its assertion that primary school is the best policy lever the government has to improve both economic and social prosperity in Australia, we also acknowledge it is a long horizon to realise the return on investment in primary school reform. The process will involve a lengthy time period until the school students and future generations become adults, join the workforce and are productive, independent and informed citizens in our society. This will require policy-makers and successive governments to be patient and track the incremental progress which will be achieved firstly through improved primary school outcomes and then school completion, participation in further education and training and then the labour force. It will also be evidenced through greater equality, social cohesion and health and well-being.

# Primary School Matters

By the start of year 7, students are expected to have acquired the foundational skills that will prepare them for future progress through the education system. These are the skills they learn in primary school and provide a crucial juncture in the learning journey. In addition to acquiring and consolidating the foundational skills needed for a wide-ranging curriculum in secondary school, primary school also provides the opportunity for students to discover both academic and non-academic interests and talents. The primary school experience also influences and determines subsequent secondary, senior secondary and post-school pathways.

During primary school, students also develop their sense of self-efficacy including engagement, well-being, persistence and other non-cognitive skills, shaping their chance of success. However, evidence shows that students who do not meet the Year 7 milestone have declining levels of self-efficacy through primary school<sup>2</sup>. This is important as levels of student engagement in school as well as their dispositions towards school and learning are correlated with achievement, and vary by background<sup>3</sup>.

Primary school is also the period in which the gap in student achievement widens within and between schools. The proportion of students missing out on educational opportunities increases steadily between the early years and middle years of primary school, so that by year 7, 28.4 per cent of Australian students have not acquired the core skills required to access the wider curriculum and pursue educational opportunity<sup>4</sup>.

Importantly, while variation in learner progress can be partly explained by student-level factors, school-level factors can also be influential, positively (or negatively). In its *Educational Opportunity in Australia 2015: Who succeeds and who misses out* report, The Mitchell Institute found that while approximately 12 per cent of children were not ready for school, they achieved the academic learning benchmark by Year 7. In addition, for almost 16 per cent of students who did not meet the year 7 benchmark, they remained in school to successfully complete Year 12 or equivalent by age 19<sup>5</sup>. The ability to recover from being behind in early educational milestones shows that it is possible for schools to bridge gaps, provide access to opportunity and achievement and for young people to overcome set-backs.

Given the correlation between success in primary school and secondary school as well as later life outcomes, it is critical that the efficacy of primary school – the acquisition and consolidation of foundational skills and self-efficacy - is prioritised in education policy settings.

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<sup>2</sup> Lamb, S, Jackson, J, Walstab, A & Huo, S (2015), *Educational opportunity in Australia 2015: Who succeeds and who misses out*, Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute, Melbourne: Mitchell Institute.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

## 1. Overview

To provide the context for why primary school outcomes should be the priority for system-wide educational reform in Australia, this Positioning Paper: The Case for Change follows a sequential order.

It begins with a brief history of education in Australia; the purpose of schooling and funding structures since the 1970s. While schooling and education serve multiple purposes, a simple explanation of the purpose of education would be to acquire knowledge and skills to use effectively at an individual, societal and economic level, however, over the decades the perceived purpose has oscillated between whether education is a public good for social justice and equity purposes or for productive purposes.

The paper then provides an overview of Australia's educational performance and discusses the consequences of deteriorating outcomes including the economic and social costs, the widening equality gap, the risk of incarceration and the impact on the health and well-being of Australians.

Next the paper discusses the relationship between education and the economy. In the past, education and training has been considered one of the easiest policy levers to manipulate to achieve improved economic and social outcomes at the individual and macro levels. As a result, considerable investment has been made over the decades to increase access and participation in education to successfully complete school and to pursue further education and training. However, improved economic performance has not necessarily resulted as was expected. It is the quality of education, measured by knowledge and cognitive skills – demonstrated through standardized tests in literacy, numeracy and science - that students gain during their schooling years that is substantially more important for economic growth than the mere quantity of schooling.

The paper then moves on to explain why primary school matters. It provides the evidence-base that primary school outcomes predict school performance and that it is literacy skills such as writing, spelling and punctuation and grammar as well as background knowledge which underpin successful school completion. Literacy skills also predict incomes and wages.

Next, the way forward is outlined. Key factors such as investment, curriculum, teaching, and student assessment are critical to improving educational outcomes at a system-wide level and school level. However, first the paper reflects on the historical context in Australia because any future policy making decisions need to consider the effect of past policy decisions. Across four separate Declarations since 1999, the goals of excellence and equity have been reiterated and repeated, however, despite increased funding by both Commonwealth and State Governments, excellence and equity have not been achieved. Education performance has deteriorated and inequality has worsened. Policy reform in Australia has focussed on the decentralisation of the education system and school-based management, including increased principal autonomy, as well as funding structures with no attention provided to pedagogical practices, student progress and the Science of Learning.

Cognitive scientists on the other hand correlate Australia's deteriorating academic performance with the pedagogical shift to 'inquiry-based learning' over explicit instruction in Australian classrooms. Therefore, in the next section, the importance of knowledge and human cognitive architecture is discussed. Human cognitive architecture explains how students learn most effectively.

Inquiry-based learning has meant that pedagogical practices have shifted to focusing on the application of knowledge in the learning process rather than the acquisition of knowledge. Through inquiry processes, students are required to apply abstract concepts to problem solving and to engage in self-directed learning to develop the capability to transfer their learning to other contexts.<sup>6</sup> This is empirically proven to be an ineffective pedagogical practice.

The paper then moves to discuss recent developments in education policy in Australia resulting from the 2017 Review to Achieve Educational Excellence in Australian Schools report Through Growth to Achievement, the Quality Initial Teacher Education Review, the establishment of the Australian Education Research Organisation and the new Australian Curriculum as well as the Standing Committee on Employment, Education and Training Inquiry Report into Adult Literacy and the Productivity Commission Inquiry into Australia's Productivity Performance.

The final section of the Positioning Paper: The Case for Change provides clear evidence of what needs to be done to improve Australia's educational performance, starting with primary school outcomes.

Primary schools must be supported to be well run and ensure that all teachers are using evidence-based best practice in curriculum, resources, pedagogy and assessment. The task of every primary school should be to ensure that all Australian students exceed the expected level in the foundational cognitive skills of literacy and numeracy before they start high school. These are the cognitive skills which predict school completion.

Primary Focus believes the time is now right for this reform agenda – the momentum has begun, the success of over 250 schools in Australia already pursuing evidence-based approaches show the potential to improve educational outcomes - it is time to refocus energies at national and state level on system-wide education reform informed by the Science of Learning, particularly in primary school.

## 2. Education in Australia – a brief history

### The purpose of education

Schooling and education serve multiple purposes. A simple explanation of the purpose of education would be to acquire knowledge and skills to use effectively at an individual, societal and economic level.

This overarching purpose of education can be further explained by three intentions<sup>7</sup>;

- 1) Democratic equality
- 2) Social efficiency
- 3) Social mobility

*Social efficiency* refers to the economic purposes of education to achieve competent and productive workers while *social mobility* refers to the private purposes which provides individual advantage

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<sup>6</sup> Crato, N. (2021), Setting up the Scene: Lessons Learned from PISA 2018 Statistics and Other International Student Assessments, in N. Crato (ed.), Improving a Country's Education, PISA 2018 Results in 10 Countries, Chapter 1, Springer

<sup>7</sup> Labaree, D. F. (1997), "Public goods, private goods: The American Struggle over Educational Goals", American Educational Research Journal, Vol. 34 No. 1, pp. 39-81

through credentialism in a competitive environment such as the labour market and social standings. *Democratic equality* refers to the public good of education and the desire to produce active and competent citizens in an equitable environment.

The purpose of schooling at a point in time can be determined by the funding, structure, organisation and curriculum of an education system<sup>8</sup>. It is argued that policy positions and associated funding decisions over many decades have shifted to prioritise the economic and individual purposes of education at the expense of equality, equity, citizenship and social justice – the public good of education<sup>9</sup>. This has resulted in Australia’s education system being considerably more complex and diverse than other comparable nations. This has serious consequences for educational outcomes in Australia which are being experienced today. These are discussed in [Section 3](#).

With the commencement of the decentralisation process of the education system in Australia in the 1970s so that education would be a “central implement for making society more equitable and promoting social change and reform” and the associated significant Commonwealth redistributive funding to schools, it was legislated that “the primary obligation of governments was to maintain government school systems at the highest standards, open to all, without fees or religious tests.”<sup>10</sup> Initially, the decentralisation process was intended to increase access and equity by providing autonomy to principals and their schools to better meet the needs of their students and the community, as recommended in the 1973 Karmel Report<sup>11</sup>. However, over time, the purpose of schooling shifted to being central to the national economic growth agenda rather than to achieving equity.

By 2011, the legislated requirement of public schooling had been downgraded so that the level of education to be acquired in government schools was “the safety net and guarantor of a reasonable quality education in this country.”<sup>12</sup> Education became the economic tool for Australia’s future prosperity and subsequent education policy positions, language and associated funding, reflected this shift. Australia now has an education system which consists of governance at multiple levels – Federal, State or Territory and at the school level – with considerable difference between the states in terms of curricula, assessment, funding and system structures.<sup>13</sup>

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<sup>8</sup> Cranston, N., Kimber, M., Mulford, B., Reid, A., and Keating, J. (2010), Politics and school education in Australia: a case of shifting purposes. *Journal of Educational Administration*, 48(2), pp. 182-195

<sup>9</sup> Cranston, N., Kimber, M., Mulford, B., Reid, A., and Keating, J. (2010), Politics and school education in Australia: a case of shifting purposes. *Journal of Educational Administration*, 48(2), pp. 182-195; Wilkinson, J., & Brooks, J. S. (2018), *Educational Leadership in Australia*, Asia Pacific Education: Leadership, Governance and Administration, 31; MacDonald, K., Keddie, A., Blackmore, J., Mahoney, C., Wilkinson, J., Gobby, B., Niesche, R. and Eacott, S., 2021. School autonomy reform and social justice: a policy overview of Australian public education (1970s to present), *The Australian Educational Researcher*, pp.1-21.

<sup>10</sup> Cited in Connors, L., & McMorrow, J. (2010). *New directions in schools funding: A proposed model*. Sydney: University of Sydney, Faculty of Education and Social Work.

<sup>11</sup> Karmel, P., Blackburn, J., Hancock, G., Jackson, E. T., Jones, A. W., Martin, F. M., Tannock, P., Thomas, M. E., Whitley, A., & White, W. A. (1973). *Schools in Australia: Report of the interim committee for the Australian Schools Commission*, May 1973. Australian Schools Commission.

<sup>12</sup> Cited in Armitage, C. (2007, May 16). Vouchers not an option in the new market model. *The Australian*, p. 21.

<sup>13</sup> Wilkinson, J., & Brooks, J. S. (2018), *Educational Leadership in Australia*, Asia Pacific Education: Leadership, Governance and Administration, 31



The decentralisation, restructuring and then some re-centralising of the education system has resulted in federalism shaping the policy and practices underpinning the role and purpose of schooling in Australia. While the curriculum and standards framework for teachers and school leaders are now set centrally and the Australian Constitution allocates the administrative responsibility for schooling to the States and Territories, it is the principals themselves and their school associations which have autonomy over the details of curriculum, texts and teaching practices, particularly at primary and lower secondary level<sup>14</sup>. However, the reality of the increase in managerial tasks associated with higher levels of autonomy is that principals have less time to devote to leading learning in their schools, including the support and development of teachers.<sup>15</sup> This is despite principals being expected to be the instructional leaders in schools.

Initiated in 2007, the National Education Agreement between the states and territories and the Federal Government set out objectives and outcomes for schooling, roles and responsibilities of each level of government and established strong accountability frameworks such as performance indicators and benchmarks, reporting mechanisms and policy and reform directions. This national reform agenda initiated the development of the Australian Curriculum, Assessment, and Reporting Authority (ACARA) in 2008, the Australian Curriculum in 2010 and the Australian Institute for Teaching and School Leadership (AITSL) in 2010 as well as the National Assessment Program, participating in international standardised assessment benchmarking programs (e.g. PISA) and the Australian Education Act 2013 which contained a range of targets to ensure that Australia “provides a high quality and highly equitable system for all students” and setting a specific goal that “Australia to be placed, by 2025, in the top 5 highest performing countries based on the performance of school students in reading, mathematics and science”.<sup>16</sup>

Even so, the decentralisation and subsequent increasing involvement from the Federal Government combined with different ideological perspectives across the nation over the five decades, has led to considerable tension, inevitability impacting on the purpose of education and subsequent outcomes.<sup>17</sup>

Given the structural and systemic changes to the education system in Australia, federal and state education ministers agreed to develop national goals for schooling education in a joint declaration approximately every 10 years. The first Declaration in 1989 is referred to as the Hobart Declaration. In 1999, the Adelaide Declaration included a goal based on equity; “Schooling should be socially just, so that: students’ outcomes from schooling are free from the effects of negative forms of discrimination based on sex, language, culture and ethnicity, religion or disability; and of differences arising from students’ socio-economic background or geographic location.”<sup>18</sup> The Melbourne Declaration in 2008 extended the notion of equity to include excellence as its primary goal. It also explicitly stated that socio-economic disadvantage should cease to be a significant determinant of

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<sup>14</sup> Thomson, S. (2021), Australia: PISA Australia—Excellence and Equity, in N. Crato (ed.), *Improving a Country’s Education, PISA 2018 Results in 10 Countries*, Chapter 2, Springer

<sup>15</sup> Heffernan, A. (2018). Power and the ‘autonomous’ principal: Autonomy, teacher development, and school leaders’ work. *Journal of educational administration and history*, 50(4), 379-396.

<sup>16</sup> Cited in Thomson, S. (2021), Australia: PISA Australia—Excellence and Equity, in N. Crato (ed.), *Improving a Country’s Education, PISA 2018 Results in 10 Countries*, Chapter 2, Springer

<sup>17</sup> Cranston, N., Kimber, M., Mulford, B., Reid, A., and Keating, J. (2010), Politics and school education in Australia: a case of shifting purposes. *Journal of Educational Administration*, 48(2), pp. 182-195.

<sup>18</sup> Adelaide Declaration on National Goals for Schooling in the Twenty-First Century, Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA)

educational outcomes.<sup>19</sup> In 2019, the Alice Springs (Mparntwe) Declaration<sup>20</sup> repeated the previous primary goal for excellence and equity and stated that governments and the education community must improve outcomes for educationally disadvantaged young Australians, such as those from low socio-economic backgrounds, indigenous students, and those from regional, rural and remote areas.<sup>21</sup>

The current Mparntwe Declaration has two aspirational goals; that the Australian education system promotes excellence and equity; and, that all young Australians become confident and creative individuals, successful lifelong learners, and active and informed members of the community – suggesting the purpose of education is democratic equality.

Despite the rhetoric and explicit goals in the various Declarations, policy, language and funding structures – the split of funding between government and non-government schools – remain aligned with the economic and private purposes of education, rather than equity and social justice.

### **Funding structures for schooling**

Australia has three sectors within its education system; government and non-government (catholic and independent) schools, each being recipients of both state and federal funding. Prior to the 1960s, only government schools were publicly funded. However, the post-World War II Baby Boom resulted in a substantial increase in demand for schooling across all three sectors. State governments sought funding support from the Federal Government to meet the growing educational needs, as did the non-Government sector. Given the increasing demand alongside the decentralisation process, by the 1970s the Federal Government was providing funding in various forms (with a particular focus on education infrastructure) to all three sectors in the education system, however, no agreed set of educational expectations or obligations associated with public funding were established.<sup>22</sup>

While the growth of the non-government sector provided increased choice in relation to schooling, the funding arrangements have resulted in ongoing repercussions including a change in the perception and role of public education over time. This lack of obligation associated with public funding is not seen in other countries and has resulted in Australia having one of the highest rates of non-government schooling in the OECD. In 2021, 65 per cent of schools were public, 20 per cent were catholic and 15 per cent were independent.<sup>23</sup> As such, Australia's education system is a hybrid one, with schools operating under a variety of different rules and obligations while being financially supported by two separate levels of government using different funding arrangements.<sup>24</sup>

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<sup>19</sup> Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), (2008), Melbourne Declaration on Educational Goals for Young Australians

<sup>20</sup> Council of Australian Governments (2019), Alice Springs (Mparntwe) Education Declaration. Canberra, Australian Capital Territory: Education Council.

<sup>21</sup> Ibid. p. 17

<sup>22</sup> Thomson, S. (2021), Australia: PISA Australia—Excellence and Equity, in N. Crato (ed.), *Improving a Country's Education, PISA 2018 Results in 10 Countries*, Chapter 2, Springer

<sup>23</sup> ABS, 2021, Schools, <https://www.abs.gov.au/statistics/people/education/schools/latest-release>

<sup>24</sup> Bonnor, C., Kidson, P., Piccoli, A., Sahlberg, P. & Wilson, R. (2021). *Structural Failure: Why Australia keeps falling short of its educational goals*. Sydney: UNSW Gonski Institute

Widespread dissatisfaction with educational performance in Australia and inequity in the funding system led to the Gonski Review in 2011<sup>25</sup>. The primary aim of the review was to “develop a funding system for Australian schooling which is transparent, fair, financially sustainable and effective in promoting excellent outcomes for all Australian students”.<sup>26</sup> Referencing the goals of the earlier Declarations, the review argued that funding should aim to ensure that differences in educational outcomes were not the result of non-school factors such as a student’s socio-economic background. However, the review’s recommendations have not been implemented as intended. The funding model recommended the implementation of the School Resourcing Standard (SRS) which estimates how much public funding a school requires to meet the educational needs of its students. The SRS provides a based figure for each primary and secondary student and then six loadings for additional funding based on a number of criteria, such as disadvantage, disability, remoteness, size, English language proficiency and indigeneity. This model was not implemented as envisaged in 2011 and successive governments have continued to modify the model so that, currently, government schools are funded at between 85 and 90 per cent of their SRS, while Catholic and independent schools are funded at levels either close to 100 per cent of their SRS or higher.<sup>27</sup>

Following further deterioration in Australia’s PISA performance in 2015, in 2017 the Australian Government convened a Panel to undertake the *Review to Achieve Educational Excellence in Australian Schools* and to provide advice on how to improve student achievement and school performance. Referred to as Gonski 2.0, the scope of the review was to “recommend ways that Australia could improve student outcomes, return to being one of the top education systems in the world, and ensure that school systems and schools truly prepare Australia’s young people for an ever-changing world.”<sup>28</sup>, rather than a further evaluation of the funding system. The key findings and recommendations were presented in the 2018 *Through Growth to Achievement Report*.

This review<sup>29</sup> guided the development of the National School Reform Agreement (NSRA) in 2018 between the Australian and State and Territory Governments. The NSRA sets out bilateral agreements, linked to funding arrangements informed by the SRS, in delivering on the shared goals of equity and excellence in schooling in Australia with the common aspiration that ‘all young Australians will become successful learners, confident and creative individuals and active and informed citizens’.<sup>30</sup> The Education Council of the Council of Australian Governments (COAG) is responsible for overseeing implementation of the NSRA.<sup>31</sup>

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<sup>25</sup> It must be noted that this review by David Gonski did not evaluate the Australian curriculum, pedagogy or teaching practices, and their role in the continuing deterioration of Australia’s education performance.

<sup>26</sup> Gonski, D., Boston, K., Greiner, K., Lawrence, C., Scales, B., & Tannock, P. (2011). *Review of funding for schooling: Final report*. p. xiii

<sup>27</sup> Thomson, S. (2021), *Australia: PISA Australia—Excellence and Equity*, in N. Crato (ed.), *Improving a Country’s Education, PISA 2018 Results in 10 Countries*, Chapter 2, Springer

<sup>28</sup> Gonski, D., Arcus, T., Boston, K., Gould, V., Johnson, W., O’Brien, L., Perry, L., and Roberts, M. (2018) *Through Growth to Achievement: Report of the Review to Achieve Educational Excellence in Australian Schools*, Australian Government, p. viii

<sup>29</sup> Along with other reviews such as the National Aboriginal and Torres Strait Islander Education Strategy 2015, the National Indigenous Reform Agreement, and sets out actions that will support efforts to lift outcomes for Aboriginal and Torres Strait Islander students, the Independent Review into Regional, Rural and Remote Education, the Review to Achieve Educational Excellence in Australian Schools through Early Childhood Interventions and the STEM Partnerships Forum.

<sup>30</sup> Council of Australian Governments (2018), *National School Reform Agreement (2018)* page 3

<sup>31</sup> With the replacement of COAG by the National Cabinet in 2020 it is assumed that the Education Ministers Meeting will continue this role.

Importantly, the NSRA sets out long-term national goals for school education in Australia and national targets and sub-outcomes to track progress towards these. To achieve the outcomes, the NSRA sets out reform directions supported by national policy initiatives and bilateral actions, creating, for the first time, a mutual obligations framework. The overarching objective of the NSRM is that Australian schooling provides a high quality and equitable education for all students suggesting that democratic equality is the purpose of schooling.

The findings, recommendations and outcomes related to the Review to Achieve Educational Excellence in Australian Schools and the National School Reform Agreement are discussed further in [Section 7: Recent developments in education policy in Australia](#).

***The changes over time to the purpose of education and the associated funding structures are implicit in Australia's deteriorating education performance and are further discussed in [Section 7](#).***

### 3. Educational outcomes in Australia

***Australia's educational performance has been deteriorating for many years across a number of standardised tests.***

Up to 10 per cent of all Australian students miss out on each educational milestone—from school entry right through to young adulthood.<sup>32</sup> Furthermore, more students fall behind than catch up as they progress through their schooling.<sup>33</sup> This is particularly true for students from low socio-economic backgrounds and remote areas.<sup>34</sup>

That Australia's current education system does not ensure that all students successfully complete school and enter adulthood fully prepared for productive citizenship means that one in four (26 per cent) of Australia's 24 year olds are disengaged from both study and work, and at-risk of long-term marginalisation.<sup>35</sup>

In undertaking the review for the 2018 Through Growth to Achievement Report, the Review Panel found the extent of decline in educational performance in Australia has been profound since 2000. The decline occurred in every domain, in every socio-economic quartile and in all school sectors which lead to the Review Panel stating that the extent of decline is so widespread it is equivalent to a generation of Australian school children falling short of their full learning potential.<sup>36</sup> Also evident was a wide range of educational outcomes in the same classroom or school, with the most advanced

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<sup>32</sup> Lamb, S, Jackson, J, Walstab, A & Huo, S (2015), Educational opportunity in Australia 2015: Who succeeds and who misses out, Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute, Melbourne: Mitchell Institute.

<sup>33</sup> Lamb, S., and Huo, S., (2017) Counting the costs of lost opportunity in Australian education. Mitchell Institute Report, 02/2017, Centre for International Research on Education Systems, Victoria University

<sup>34</sup> Goss, P., & Sonnemann, J. (2016). Widening gaps: What NAPLAN tells us about student progress. Grattan Institute; Lamb, S., Huo, S., Walstab, A., Wade, A., Maire, Q., Doecke, E., Jackson, J. & Endekov, Z. (2020). Educational opportunity in Australia 2020: Who succeeds and who misses out. Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute: Melbourne

<sup>35</sup> Lamb, S., Huo, S., Walstab, A., Wade, A., Maire, Q., Doecke, E., Jackson, J. & Endekov, Z. (2020). Educational opportunity in Australia 2020: Who succeeds and who misses out. Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute: Melbourne

<sup>36</sup> Gonski, D., Arcus, T., Boston, K., Gould, V., Johnson, W., O'Brien, L., Perry, L., and Roberts, M. (2018) Through Growth to Achievement: Report of the Review to Achieve Educational Excellence in Australian Schools, Australian Government, page ix

students in a year typically five to six years ahead of the least advanced students.<sup>37</sup> According to a report from the Grattan Institute<sup>38</sup>, by Year 9, the spread of achievement spans eight years. The spread of student achievement more than doubles as students move through school in Australia. The middle 60 per cent of students in Year 3 are working within a two-and-a-half year range. By Year 9, the spread for these students is five-and-a-half years. The top ten per cent of students are about eight years ahead of the bottom ten per cent. Because the NAPLAN minimum standard is set so low, a Year 9 student can meet the minimum standard even if they are reading below the level of a typical Year 5 student.<sup>39</sup>

In their most recent report, *Educational Opportunity in Australia 2020 - Who succeeds and who misses out*, The Mitchell Institute, found that about one-fifth to one-third of young Australians are behind or missing out on most educational indicators.<sup>40</sup> Despite the goals of the 2019 Alice Springs (Mparntwe) Education Declaration, many young Australians are not acquiring the lifelong learning skills nor mastering the knowledge and skills needed to become creative and confident individuals and active and informed citizens. Furthermore, when considered by socio-economic status, the difference between students from high- and low- socio-economic backgrounds is substantial and provides evidence that the Australian Governments are not meeting their goals of excellence and equity in education. The gaps exist across all domains, across all skill areas, and widen for subsequent years of schooling and into adulthood.

**Table 1. Proportion of Australian students achieving the educational milestones, by high and low socio-economic status**

		High SES	Low SES
Early years	Developmentally on track on all development domains	85.3%	67.7%
	Developmentally on track in literacy and numeracy	90.9%	74.3%
Middle years	Performing above the national minimum standard in both literacy and numeracy	91.3%	50.6%
	Performing at or above the international benchmark in science	85.0%	43.0%
Senior years	Attains a Year 12 certificate or equivalent	91.8%	66.8%
	Meets or exceeds international benchmark standard for age in mathematics, science and reading	86.2%	48.6%
Young adults	Engaged fully in education, training or work	82.0%	50.8%
	Gains post-school qualification	86.3%	52.9%

Source: Lamb, S., Huo, S., Walstab, A., Wade, A., Maire, Q., Doecke, E., Jackson, J. & Endekov, Z. (2020). *Educational opportunity in Australia 2020: Who succeeds and who misses out*. Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute: Melbourne

<sup>37</sup> Goss, P., & Sonnemann, J. (2016). *Widening gaps: What NAPLAN tells us about student progress*. Grattan Institute; Gonski, D., Arcus, T., Boston, K., Gould, V., Johnson, W., O'Brien, L., Perry, L., and Roberts, M. (2018) *Through Growth to Achievement: Report of the Review to Achieve Educational Excellence in Australian Schools*, Australian Government

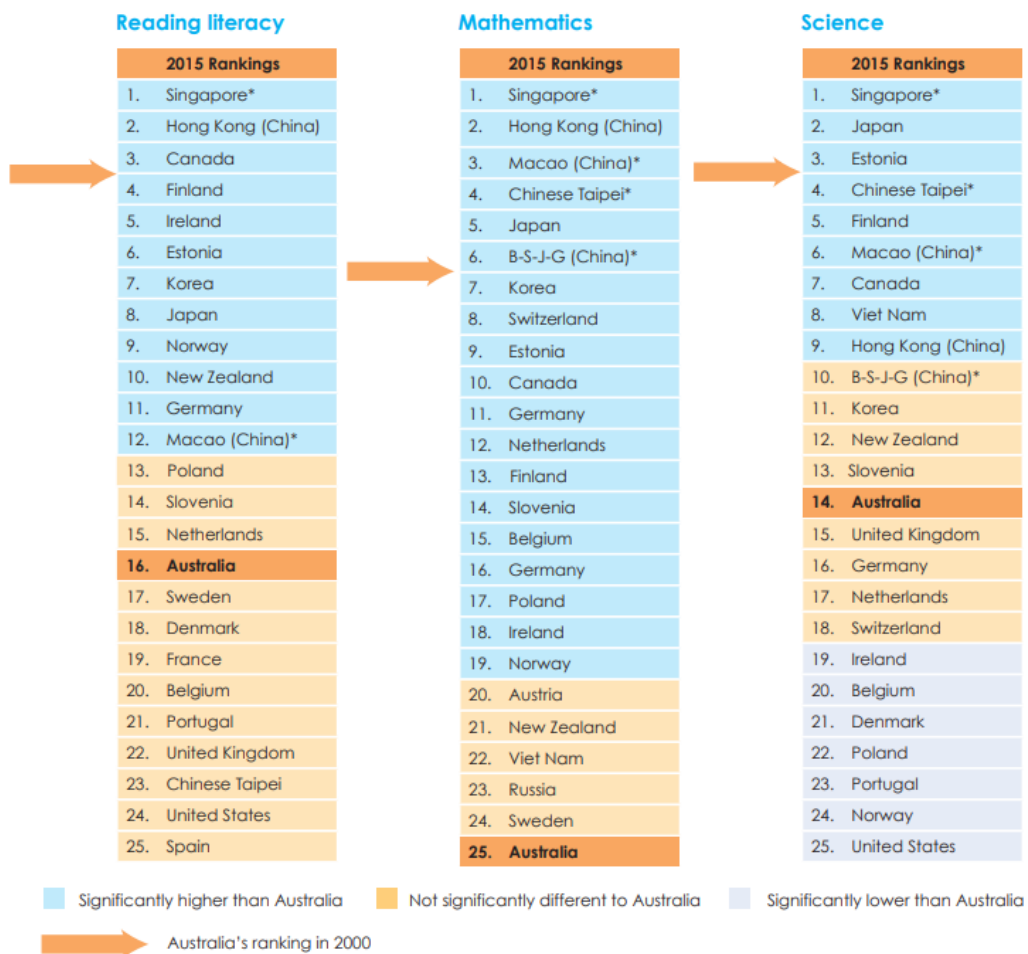
<sup>38</sup> Goss, P., & Sonnemann, J. (2016). *Widening gaps: What NAPLAN tells us about student progress*. Grattan Institute

<sup>39</sup> Ibid.

<sup>40</sup> Lamb, S., Huo, S., Walstab, A., Wade, A., Maire, Q., Doecke, E., Jackson, J. & Endekov, Z. (2020). *Educational opportunity in Australia 2020: Who succeeds and who misses out*. Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute: Melbourne

**Australia's rankings on international tests such as PISA have been falling for many years in most curriculum areas.**

Figure 1. International PISA Rankings, 2000 to 2015



Source: Derived from Organisation for Economic Co-operation and Development (OECD), *PISA 2000 database*; and OECD, *PISA 2015 database*.

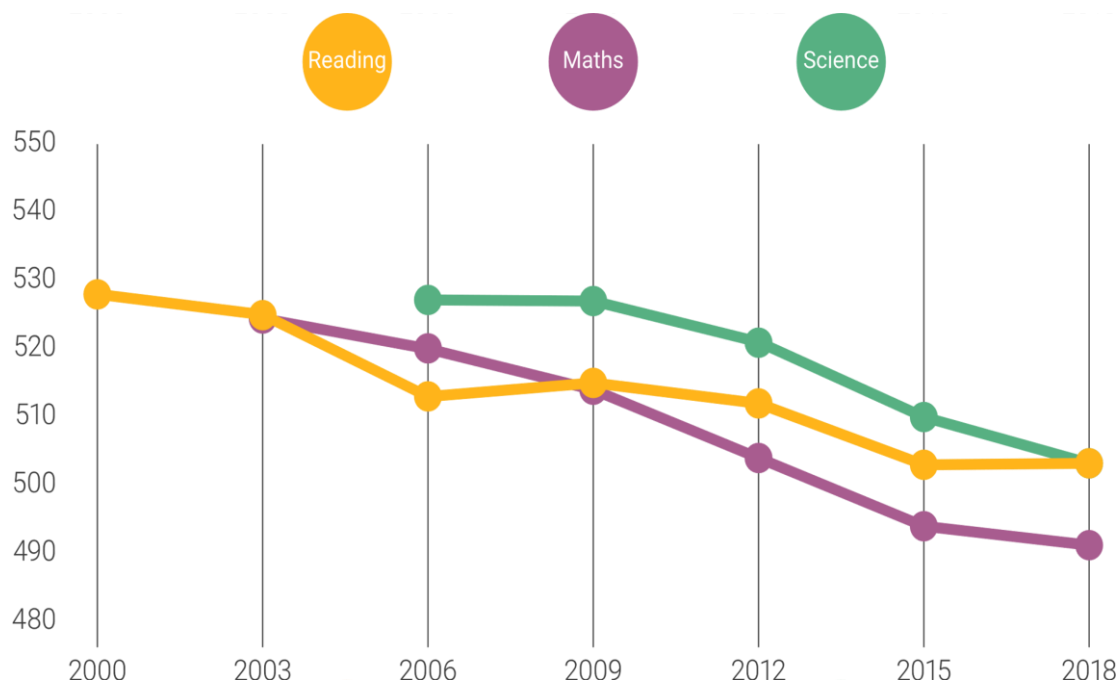
Notes: The exhibit compares PISA rankings for the years 2000 and 2015. \* Singapore and Chinese provinces (other than Hong Kong) did not participate in the 2000 study. B-S-J-G refers collectively to the Chinese provinces Beijing, Shanghai, Jiangsu and Guangdong. In 2015, 72 countries and economies took part in PISA; in 2000, 32 countries and economies took part in PISA.

Average (measured as the mean) performance in Australia has been declining in all three domains; reading, mathematics and science.

In reading, the decline since 2000 in the mean score was equivalent to around ¼ of a school year in terms of student ability. For maths, since 2003, the mean score declined by an equivalent of almost 1¼ years. For science, from initially high levels of performance, since 2006, the decline in mean score was equivalent to almost one full year of schooling<sup>41</sup>.

<sup>41</sup> Thomson, S., De Bortoli, L., Underwood, C., and Schmid, M. (2019), *PISA 2018: Reporting Australia's Results. Student Performance*, Australian Council for Education Research

Figure 2. PISA mean scores for Australia over time, 2000 to 2018



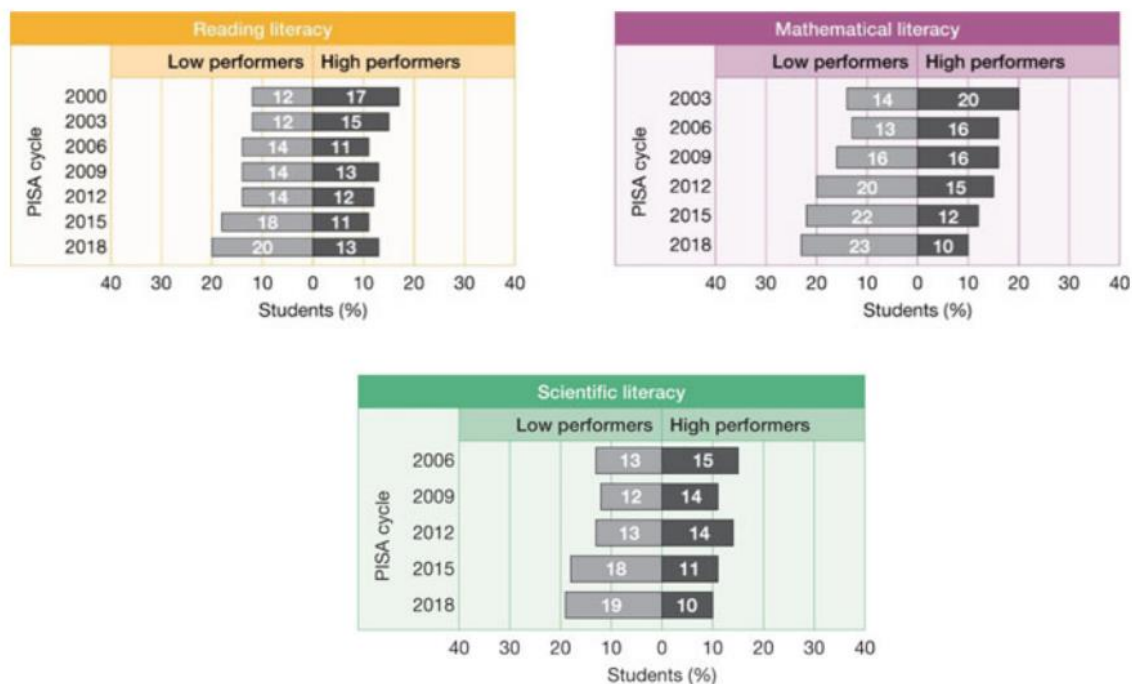
Source: Thomson, S., De Bortoli, L., Underwood, C., and Schmid, M. (2019), PISA 2018: Reporting Australia's Results. Student Performance, Australian Council for Education Research

Perhaps contrary to popular belief, this decline in average proficiency is not solely attributable to low performers. The proportion of high performers – those achieving proficiency level 5 and above – has also declined, however not to the same extent as the increase in the proportion of low performers. As a result, over time, the gap between the high achievers and the low achievers has increased, particularly in reading.

In 2000, the difference between the highest and lowest per centiles for reading was equivalent to almost 8 years of schooling. By 2018, this increased to 8.6 years of schooling. For mathematical literacy, scores at the 10th per centile declined by about one school year, and at the 90th per centile by about 1¼ school years, so that the difference between the highest and lowest remained roughly the same from 2003 to 2018. Changes in scientific literacy were similar; declines for both the highest and lowest performers equivalent to almost one year of schooling between 2006 and 2018<sup>42</sup>.

<sup>42</sup>Thomson, S. (2021), Australia: PISA Australia—Excellence and Equity, in N. Crato (ed.), Improving a Country's Education, PISA 2018 Results in 10 Countries, Chapter 2, Springer

Figure 3. Percentages of high and low performers, PISA, 2000–2018, Australia



Source: Thomson, S. (2021), Australia: PISA Australia—Excellence and Equity, in N. Crato (ed.), *Improving a Country's Education, PISA 2018 Results in 10 Countries*, Chapter 2, Springer

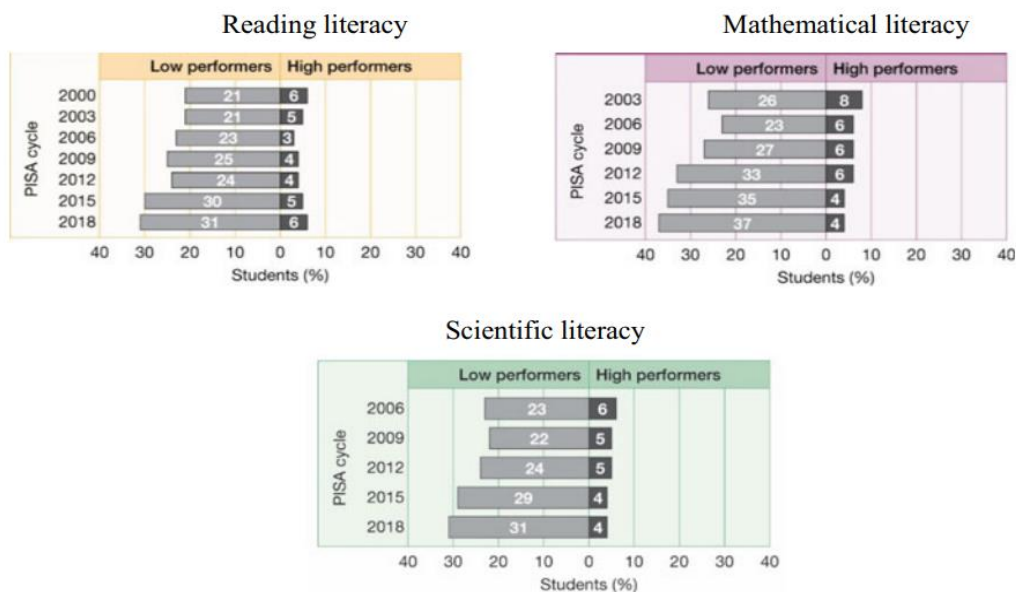
From an equity perspective, the gap between advantaged and disadvantaged students has narrowed slightly over time in all domains. However, in reality, this narrowing is due to the larger decline in the average scores of the advantaged students in all areas.<sup>43</sup> In 2018, the difference was equivalent to 2.7 years of schooling in reading (3 years in 2000), 2.9 years of schooling in mathematics (3.3 years in 2003) and 3.1 years for science (3.4 years in 2006).

Even so, in 2000, 21 per cent of disadvantaged students were low achievers in reading literacy, by 2018, this proportion had increased to 31 per cent. For maths, in 2003, 26 per cent of disadvantaged students were low achievers, by 2018, 37 per cent were low achievers. For science, in 2006, 23 per cent of disadvantaged students were low performers, by 2018, it was 31 per cent.

<sup>43</sup> Thomson, S. (2021), Australia: PISA Australia—Excellence and Equity, in N. Crato (ed.), *Improving a Country's Education, PISA 2018 Results in 10 Countries*, Chapter 2, Springer



Figure 4. Proportions of low and high performers in reading, mathematical and scientific literacy for students from a low socioeconomic background over time, PISA 2000–2018, Australia



Source: Thomson, S. (2021), Australia: PISA Australia—Excellence and Equity, in N. Crato (ed.), Improving a Country's Education, PISA 2018 Results in 10 Countries, Chapter 2, Springer

### The National School Reform Agenda 2018

The National School Reform Agenda 2018 sets target outcomes and measures that each jurisdiction agreed to progress 'to promote a culture that strives for continuous improvements in the performance of Australia's schooling system'<sup>44</sup>. These measures include tracking academic progress for all students, including priority equity cohorts<sup>45</sup>, student engagement and that students gain the skills they need to transition to further study and/or work and life success.

<sup>44</sup> National School Reform Agenda, section 37, page 7

<sup>45</sup> Priority equity cohorts include Aboriginal and Torres Strait Islander students, students living in regional, rural and remote locations, students with a disability and students from educationally disadvantaged backgrounds.

Table 2. Outcome measures, the National School Reform Agenda, 2018

1.1	Lower the proportion of students in the bottom levels and increase the proportion of students in the top levels of performance (bottom two and top two bands) in the National Assessment Program—Literacy and Numeracy (NAPLAN) Literacy and Numeracy, of Years 3, 5, 7 and 9.
1.2	Lower the proportion of Australian students in the bottom levels and increase the proportion of students in the top levels of performance (proficiency Levels 1 and 2 and proficiency Levels 5 and 6) for the Organisation for Economic Cooperation and Development’s (OECD) Programme for International Student Assessment (PISA) testing in reading, mathematics and science.
1.3	Lower the proportion of students from priority equity cohorts in the bottom levels and increase the proportion of students in the top levels of performance (bottom two and top two bands) in NAPLAN Literacy and Numeracy, for Years 3, 5, 7 and 9.
1.4	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.
1.5	Increase the proportion of young people from priority equity cohorts, who have completed year 12 or equivalent or gained a qualification at the Australian Qualifications Framework (AQF) Certificate III or above.
2.1	Increase the proportion of students attending school 90 per cent or more of the time, including students from priority equity cohorts.
3.1	Increase the proportion of young people who have completed year 12 or equivalent or gained a qualification at AQF Certificate III or above.

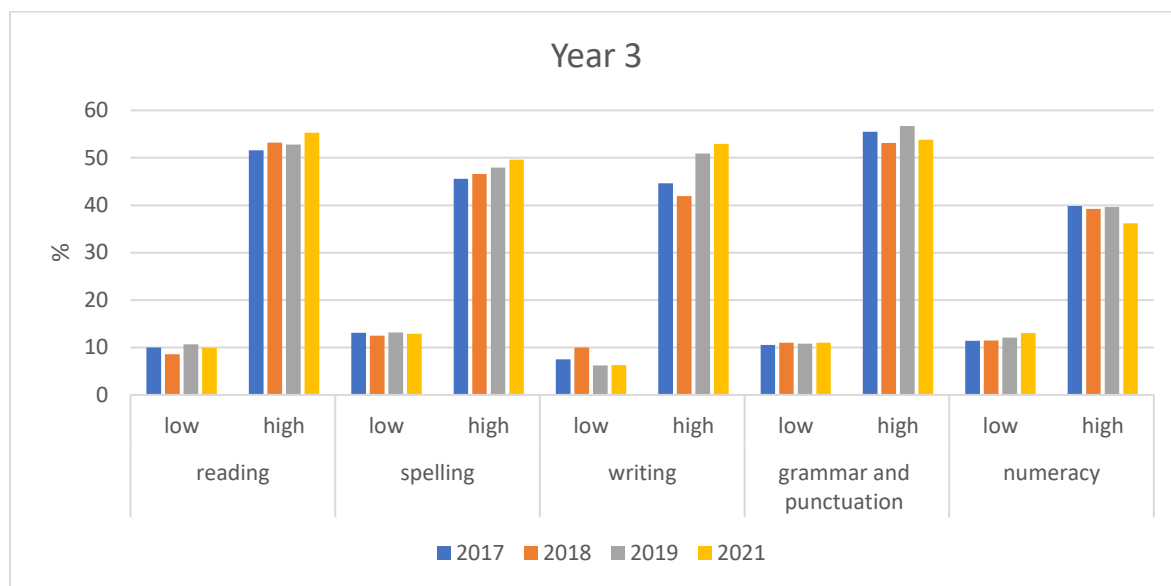
Analysis of 2021 NAPLAN data suggests that the Australian education system has some way to go to achieve its stated targets. While available NAPLAN data does not allow for analysis confined to the bottom and top two bands, the below analysis uses the data for below the National Minimum Standard (NMS)<sup>46</sup> (between 2 and 5 bands, depending on year level) and the available top bands (2 to 3 bands, depending on year level). The analysis shows that for each subsequent year level, the proportion below the NMS is increasing for most domains and the proportion of high performers is declining. This is likely due to students not receiving the intervention and support they need in the earlier year levels to meet the expected level, particularly for those who meet the ‘at expected level’ benchmark. This is because students who are performing *at* the national minimum standard may also require additional assistance to enable them to achieve their potential<sup>47</sup>. If they don’t receive intervention and support to accelerate their learning, then they are more likely to slip below the NMS level for subsequent NAPLAN assessments.

For year 3, improvement since 2017 is evident for the proportion of high performers in the literacy domains, except for grammar and punctuation. However, there is little improvement in the proportion of those below the NMS. Performance in numeracy has deteriorated for both the low and high proficiency bands.

<sup>46</sup> Students who are below the national minimum standard have not achieved the learning outcomes expected for their year level. They are at risk of being unable to progress satisfactorily at school without targeted intervention.

<sup>47</sup> <https://www.nap.edu.au/results-and-reports/how-to-interpret/standards>

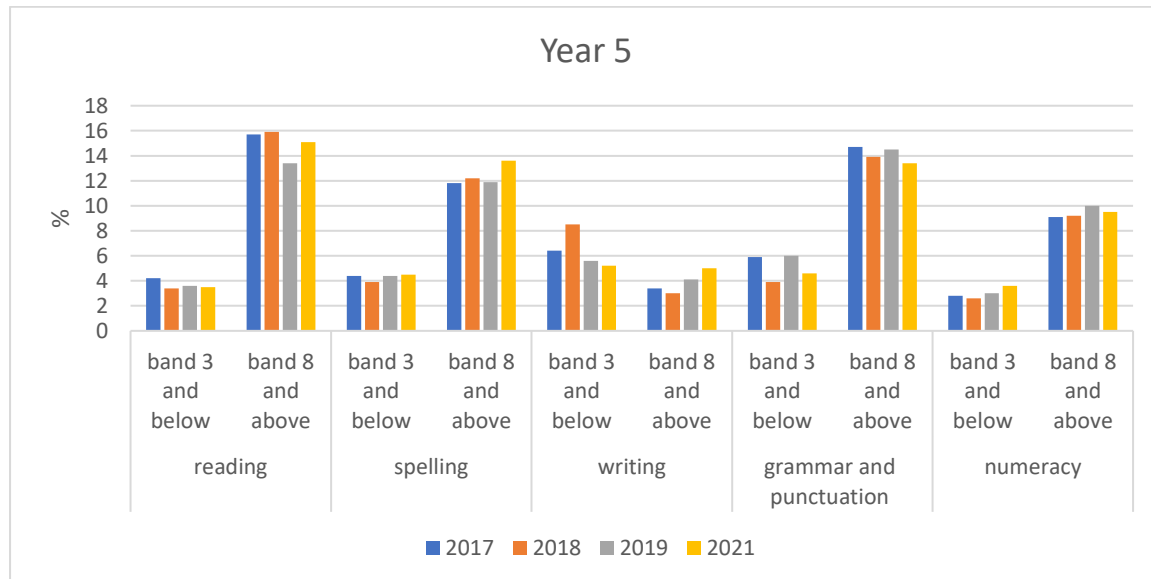
Figure 5. Proportion of year 3 low and high performers, NAPLAN, 2017 to 2021



Source: NAPLAN data, author calculations

For year 5, the results are mixed. The proportion in the top bands for spelling and writing have improved since 2017, however, reading and grammar and punctuation have declined. For the proportion below the NMS, improvements are evident for reading, writing and grammar and punctuation compared with the average, whereas spelling and numeracy have deteriorated.

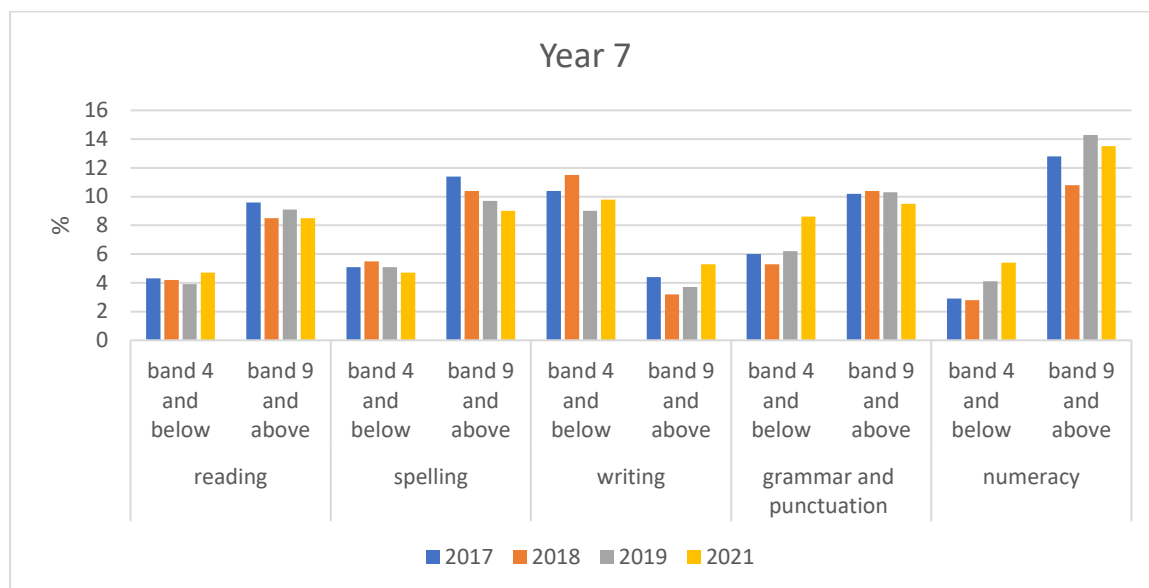
Figure 6. Proportion of year 5 low and high performers, NAPLAN, 2017 to 2021



Source: NAPLAN data, author calculations

For year 7, the proportion of top performers has declined considerably for the literacy domains except writing, while numeracy has improved compared to the average. The proportion below the NMS has increased compared with the average for numeracy and all literacy domains except spelling and punctuation and grammar. This indicates that students previously at the expected minimum standard have not received the support and invention they needed in earlier year levels to maintain their proficiency and have fallen into the below NMS bands.

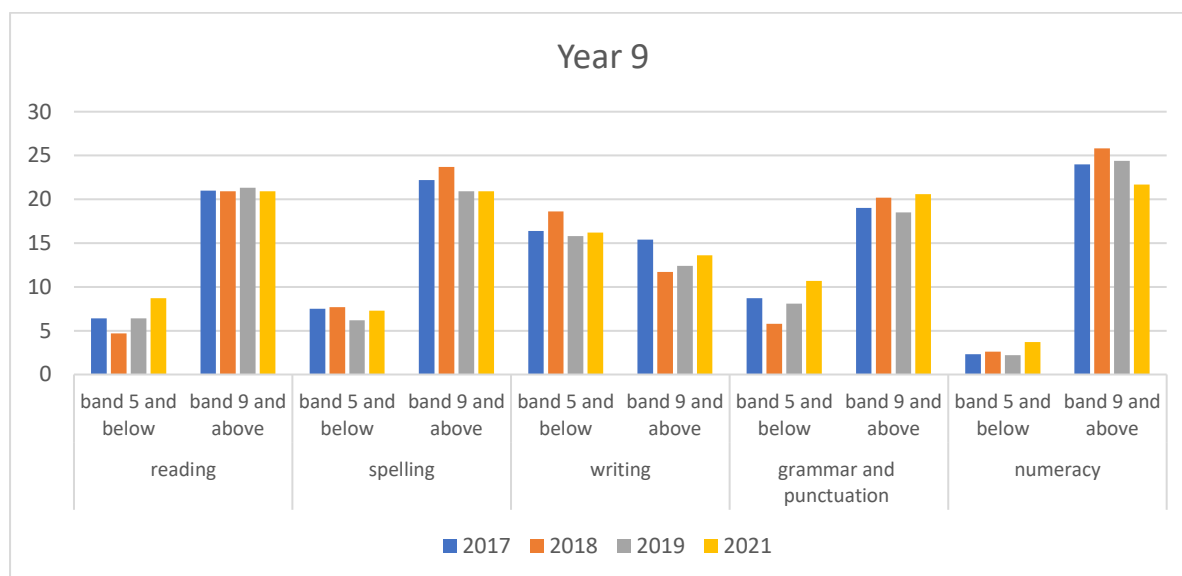
Figure 7. Proportion of year 7 low and high performers, NAPLAN, 2017 to 2021



Source: NAPLAN data, author calculations

For year 9, the proportion of top performers has improved for writing and punctuation and grammar, and declined for all other domains, compared with the average. The proportion below the NMS has increased for all domains except writing when compared with the average.

Figure 8. Proportion of year 9 low and high performers, NAPLAN, 2017 to 2021



Source: NAPLAN data, author calculations

These results are concerning and show that the Australian education system is not achieving its intended goals of excellence and equity as set out in the various Education Declarations and also in the National School Reform Agenda. If students are not achieving the expected level in primary school, nor provided the opportunity to accelerate their learning to meet the expected standards, then they do not catch up organically, and education achievement deteriorates further. Prior achievement predicts successive education performance, if students are not consolidating their foundational skills in primary school, then successful school completion is unlikely. [Section 6](#) explains how primary school outcomes predict year 11 and 12 performance.

## 4. Consequences of poor educational outcomes

The consequences of poor educational outcomes are not confined to the opportunities lost for an individual but have far-reaching economic, fiscal and social costs into the future.

For an individual, the costs relate to the opportunity for occupation prospects, secure employment, adequate income, career pathways and job satisfaction as well as health and well-being.

The implications for the economy are foregone productivity potential, economic growth, innovation and wealth accumulation.

The fiscal costs include reduced tax revenue as well as increased public expenditure on health, welfare, crime, housing, income support and associated services. This results in opportunity costs for the government in expenditure planning, or requires increased taxes.

### Fiscal and social costs

Every young Australian student who fails to complete Year 12 or equivalent qualifications, or every young person who is not able to actively engage in work or study after they leave school, produces a direct cost for the government through lower tax revenues, higher dependence on public health, welfare and associated services as well as higher costs on crime and the law enforcement system<sup>48</sup>.

In its 2017 *Counting the costs of lost opportunity in Australian education*, The Mitchell Institute created a lifetime economic and social profile model for early leavers who were likely to remain lifetime early leavers<sup>49</sup> in comparison to those who completed Year 12 or equivalent qualifications, and for disengaged young people<sup>50</sup> in comparison to other young people. It then used these models to calculate the economic and social costs over a lifetime of poor educational outcomes at the individual and cohort level for annual and lifetime periods.

The profiles are expressed as present values at age 19 for early leavers and at age 24 for disengaged young people and are estimated in 2014 prices. Estimates of annual and lifetime (working age) costs are derived in the areas of health, government assistance, crime, earnings and employment.

The report also notes that the cost estimates should be considered as very conservative, and that the actual costs to the nation from early leaving and disengagement are likely to be much larger than those estimated.

Using 2014 data, the report found that around 12 per cent of the 19-year-old population would be lifetime early leavers (15.7% for males, 8.1% for females). Based on their model, the fiscal cost to the government for that cohort equates to \$12.6 billion over their lifetime. The social costs over a lifetime equate to \$23.2 million. See Figure 9.

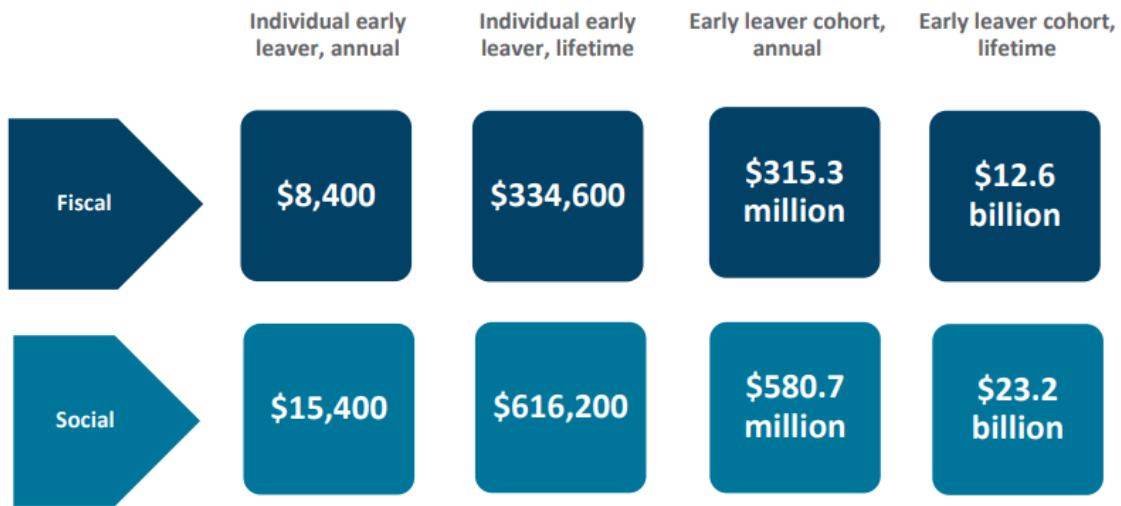
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<sup>48</sup> Lamb, S., and Huo, S., (2017) Counting the costs of lost opportunity in Australian education. Mitchell Institute Report, 02/2017, Centre for International Research on Education Systems, Victoria University

<sup>49</sup> The model includes only those early leavers aged 19 who were likely to remain lifetime early leavers

<sup>50</sup> Disengaged young people are defined as those not in full-time work or study at age 24 and not likely to be in full-time work or study for more than half of their adult life.

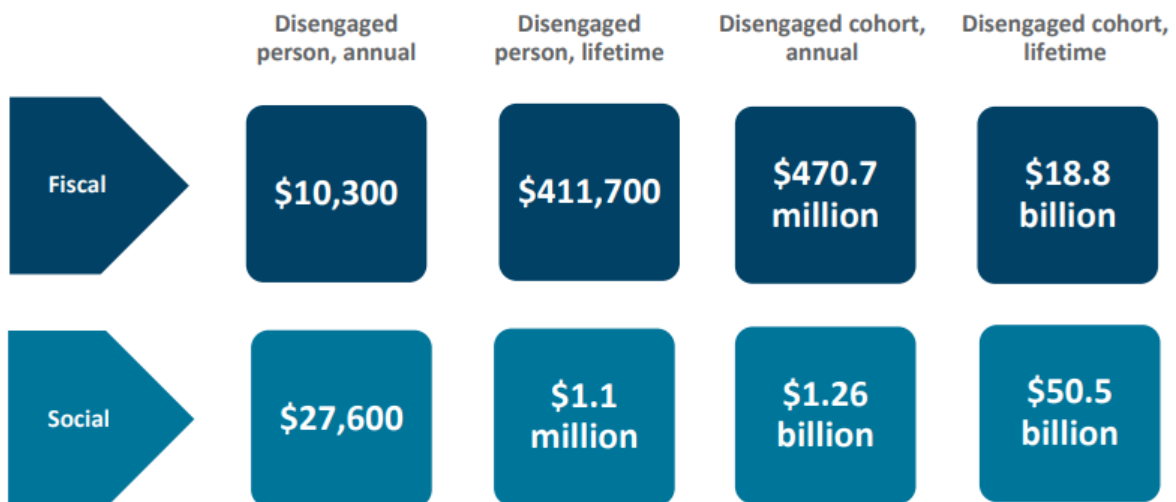
Figure 9. Fiscal and social costs of early school leaving at the 2014 net present value (\$)



Source: Lamb, S., and Huo, S., (2017) Counting the costs of lost opportunity in Australian education. Mitchell Institute Report, 02/2017, Centre for International Research on Education Systems, Victoria University

For 24-year-olds, the model estimated that 13 per cent would be disengaged from full time work and study over half their lifetime (18.9% females, 7.2% male). The fiscal costs across their lifetime equates to \$18.8 billion while the lifetime social costs equates to 50.5 billion. See Figure 10.

Figure 10. Fiscal and social costs of lifetime disengagement at the 2014 net present value (\$)



Source: Lamb, S., and Huo, S., (2017) Counting the costs of lost opportunity in Australian education. Mitchell Institute Report, 02/2017, Centre for International Research on Education Systems, Victoria University

## School-to-prison pipeline

Disengagement from education and barriers to literacy and learning ranging from trauma through to unmet learning or well-being needs are exacerbating the trajectory of young people into the justice system.

The “school-to-prison pipeline” refers to the notion that some young people, because of a confluence of risks in early life, face a high probability of early educational departure (typically via suspensions and exclusions), without the requisite literacy and numeracy skills for engagement in the social and economic mainstream, many of whom ultimately end up incarcerated in the justice system<sup>51</sup>.

These students typically come from disadvantaged backgrounds who have not benefited from the protective factors which support early learning experiences and achievement. These students often find themselves in under-performing schools which focus on behaviour management and disciplinary policies rather than providing them with the right to an education.<sup>52</sup>

A key link between inequitable school policies and prisons is low-quality education or a lack of education.<sup>53</sup> Time spent out of the classroom due to exclusion contributes to widening the achievement gap. It is the lack of acquiring the necessary foundational knowledge and skills which widens this gap. In particular, it is poor language and literacy skills and low-quality literacy education which promotes critical literacy above the need for sound reading and writing skills.<sup>54</sup>

The result of the school-to prison-pipeline - youth incarceration - is a poor investment economically<sup>55</sup> and, rather than deter crime<sup>56</sup>, it entrenches existing disadvantage and trauma, increasing the likelihood of ongoing criminal justice system involvement often across multiple generations, particularly given that over half (58.3%) of youth involved in the justice system will be under supervision again within 12 months.<sup>57</sup>

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<sup>51</sup> Snow, P. (2017) Public Submission made to the Review to Achieve Educational Excellence in Australian Schools, La Trobe University

<sup>52</sup> Winn, M., Behizadeh, N., Duncan, G., Fine, M., Duncan, G., and Gadsen, V. (2011), The Right to Be Literate: Literacy, Education, and the School-to-Prison Pipeline, Review of Research in Education, 2011, Vol. 35, Youth Cultures, Language, and Literacy (2011), pp. 147-173, American Educational Research Association

<sup>53</sup> Ibid.

<sup>54</sup> Snow, P. (2017) Public Submission made to the Review to Achieve Educational Excellence in Australian Schools, La Trobe University; Winn, M., Behizadeh, N., Duncan, G., Fine, M., Duncan, G., and Gadsen, V. (2011), The Right to Be Literate: Literacy, Education, and the School-to-Prison Pipeline, Review of Research in Education, 2011, Vol. 35, Youth Cultures, Language, and Literacy (2011), pp. 147-173, American Educational Research Association

<sup>55</sup> Back on Track – Speech Pathology in Youth Justice Custodial Education, Speech Pathology Australia Ltd and Monash University, 2013

<sup>56</sup> Australian Government Productivity Commission, Report on Government Services 2022, Part F Community Services, Section 17 Youth Justice Services, 25 January 2022

<sup>57</sup> Weatherburn, D, Imprisonment, reoffending and Australia's crime decline, Judicial Officers Bulletin, September 2021, Vol. 33, No. 8

## Health and well-being

Not only does poor primary school outcomes detract from educational outcomes and prosperity over the lifespan, it can also have a detrimental impact on well-being.

Engagement, wellbeing and non-cognitive skills are important elements of development in primary school, particularly in qualities such as persistence, conscientiousness, and a sense of self-efficacy as a learner. Engagement and achievement also contribute to feelings of belonging and purpose<sup>58</sup>.

Difficulties with learning and achievement can severely affect children's lives. The notion that children who struggle experience poor self-esteem is widely reported, anecdotally and empirically, and many adults also report that having learning challenges had a devastating impact on their self-esteem as they navigated their way through schooling.

The scientific literature confirms that children with reading difficulties are at elevated risk of experiencing emotional difficulties, including poor self-esteem, as well as symptoms of both anxiety and depression.<sup>59</sup> This systematic review and meta-analysis concluded that the links between reading difficulties and emotional health difficulties are very real.<sup>60</sup> The relationship between poor reading and average self-concept was both reliable and moderately strong whereby self-concept is an individual's belief about themselves, which is developed through experience and interactions with their environment in different domains of life, such as academia, school, work, home, social life, and physical appearance.

Associated with low self-esteem for a considerable proportion of children with reading difficulties are behavioural difficulties and social-emotional difficulties: that is, being disruptive in class, withdrawn or lacking in concentration, or showing other behavioural disturbances. Research shows that although students may be assessed with emotional and behavioural difficulties (EBD), this may actually mask the real problem, which is that the student is struggling with basic literacy skills.<sup>61</sup>

The impact of reading difficulties on wellbeing also permeates higher education. A recent study of university students found that those with a history of reading difficulties had lower academic achievement than those without such a history, are more likely to withdraw from their first year of study, and are at higher risk of not completing their degree.<sup>62</sup> The difficulties encountered by university students often involve poor reading fluency (accuracy and speed of reading) and low reading comprehension. The research also found that university students with reading difficulties not only struggle academically at university, but they are also vulnerable to experiencing anxiety.

Without effective intervention, negative reading self-concepts spread to generalised negative academic self-concepts: that is, enduring reading problems tend to spread to the wider curriculum. Persistent early reading difficulties typically result in ongoing academic underachievement and negative trajectories related to school engagement, behaviour, and attendance.

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<sup>58</sup> Lamb, S, Jackson, J, Walstab, A & Huo, S (2015), Educational opportunity in Australia 2015: Who succeeds and who misses out, Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute, Melbourne: Mitchell Institute.

<sup>59</sup> McArthur, G. M., Filardi, N., Francis, D.A., Boyes, M.E, & Badcock, N.A. (2020). Self-concept in poor readers: a systematic review and meta-analysis. *PeerJ*, 8:e8772.

<sup>60</sup> Francis, D., McArthur, G. (2020) Poor reading, poor self-concept, and anxiety: A review of the evidence and some practical advice, *The Bulletin, Learning Difficulties Australia*

<sup>61</sup> Nicholson, T. (2020). What do you call someone who is disruptive in class?, *The Bulletin, Learning Difficulties Australia*

<sup>62</sup> Soares, S. and Badcock, N. (2020). Does reading anxiety impact on academic achievement at university?, *The Bulletin, Learning Difficulties Australia*



The consequences of learning difficulties leading to poor self-esteem and behavioural issues can include disengaged and disruptive behaviour, suspension and exclusion, early school leaving, under- and unemployment, and engagement with the youth justice system.<sup>63</sup>

## 5. Education and the economy

In the past, education systems have received considerable attention and investment by policy-makers under the assumption that improving educational attainment (quantity of schooling) provides a direct relationship with improved economic growth and productivity. However, this outcome has not necessarily translated as effectively as was expected. It is important that any reform agenda focuses on improving the *outcomes* of education and improving the knowledge capacity of the population.

### The economics of education

In the past, investment in human capital accumulation through education and training has been considered one of the easiest policy levers to manipulate to achieve improved economic and social outcomes at the individual and macro levels, particularly in relation to productivity enhancement. As a result, considerable investment has been made over the decades to increase access and participation in education to complete school successfully and to pursue further education and training.

However, numerous empirical studies show that the increase in the quantity of education, measured by levels of educational attainment or years of schooling, has not resulted in a corresponding increase in productivity growth, as was expected by policy-makers. As a result, it is often conceded that the contribution of education to economic growth may be overestimated.

Primary Focus disagrees and argues that the measurement and quantification of education's contribution to economic growth and productivity is not complete.

Primary Focus argues that access to and participation in schooling and educational attainment (i.e. the quantity of schooling) are very incomplete and ineffective measures of the relevant knowledge and skills required in the economy and therefore serve as an imperfect basis for setting economic policy for economic growth and productivity improvement.<sup>64</sup> Measurement should focus on the outcomes achieved through education (i.e. the quality of education) rather than solely the quantity of education. Using the quantity of education (i.e., years of schooling) assumes that education is homogenous and does not differentiate between the quality of educational outputs.

### Education and the production function

It is widely accepted, and empirically proven, that economic growth, and associated productivity performance, determines the future economic and social well-being of a nation. Therefore, better

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<sup>63</sup> Graham, L.J., White, S.L.J., Tancredi, H.A., Snow, P. C., & Cologon, K. (2020). A longitudinal analysis of the alignment between children's early word-level reading trajectories, teachers' reported concerns and supports provided. *Reading and Writing: An Interdisciplinary Journal*

<sup>64</sup> Hanushek, E. (2020). Quality Education and Economic Development. In *Anticipating and Preparing for Emerging Skills and Jobs* (pp. 25-32). Springer, Singapore.

understanding the determinants of growth is a high-priority area of economic research and policy-making.

The extensive body of theoretical and empirical analysis relating to economic growth includes education as a central element.

“...the growing importance of knowledge in the society, the increased uncertainty in the labour market and the more complicated ways in which people acquire skills... requires economists to investigate the production and use of human capital more explicitly. Many questions that at first sight appear to be educational, turn out to have important economic aspects.”<sup>65</sup>

The foundations for the theoretical framework linking education to economic growth and productivity is referred to as human capital theory (HCT)<sup>66</sup>. Individuals accumulate human capital over their lifetime. It is their stock of knowledge, skills and personal characteristics acquired formally through schooling, education and training and the provision of health services and also informally through family, social networks and workplaces. Human capital can be defined as the potential productive wealth embodied in labour, skills and knowledge and is included in the factors of production to determine the output of an economy, alongside capital, labour and technology. The overarching premise of HCT is that both individuals and the broader society and economy derive benefit from investment in human capital, particularly through education and health policy measures. The benefit attached to individuals is evident in improved lifetime earnings, and to the economy in the form of economic growth.

More specifically, the theoretical supposition is that higher levels of education increase the human capital inherent in the labour force which, in turn, increases labour productivity. Greater human capital also increases the innovative capacity of the workforce and economy. This supports the development of new technologies, products and processes, including the diffusion and transmission of the knowledge needed to understand and process new information to successfully imitate new technologies, which influence economic growth.<sup>67</sup>

Despite this theoretical understanding, policy measures and the associated increase in spending to improve access to, participation in, and successful completion of school have not resulted in the expected increase in productivity growth.

**The economic impact of improving schooling quality by a 10% lift in education performance would make Australia one of the most advanced education systems in the world resulting in a 1.5% increase in GDP once realised. For high-skilled occupations, a 1% increase in the quality of educational achievement would lead to an 0.23% higher wage level.**

**Deloitte Access Economics, 'The economic impact of improving schooling quality', Department of Education and Training, 2016.**

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<sup>65</sup> Borghans, L & Heijke, H 2005, 'The production and use of human capital: Introduction', Education Economics, vol. 13, no. 2, pp. 133.

<sup>66</sup> Becker, GS 1962, 'Investment in human capital: A theoretical analysis', The journal of political economy,

<sup>67</sup> Hanushek, E. A., & Woessmann, L. (2020). Education, knowledge capital, and economic growth. The economics of education, 171-182.

Most human capital empirical models in the production function focus on the economic returns to differing levels of school attainment<sup>68</sup>, so much so that human capital has become synonymous with educational attainment. Using educational attainment alone as a proxy for human capital, combined with the inability to clearly define the problem, led Blaug<sup>69</sup> to conclude that, in terms of empirical analysis of HCT, “everyone has been wrong and everyone has been right because the problem proved to be more complicated than was originally envisaged.”

This is because human capital is a constructed means of production, and cannot be assumed to be homogenous.<sup>70</sup> Three decades of intensive analysis by Hanushek and colleagues (and others) has concluded that the lack of correlation relates to the measurement of human capital, rather than education per se. They conclude from their extensive research that the relationship between the quality of education, that is aggregate cognitive skills - the knowledge capacity of a population-, and the long-run economic growth rate is extraordinarily strong.<sup>71</sup>

Using a quantity measure (i.e., level of educational attainment or years of schooling) as the human capital measure assumes that a year of schooling is homogenous and that it delivers the same increase in knowledge and skills regardless of the school, sector or system. This may be because relevant data is readily observable, consistent, available and measurable. It also wrongly assumes that formal schooling is the primary source of education and that variations in the quality of non-school factors affecting learning and improving human capital have a negligible effect on education outcomes<sup>72</sup>. Using a quantity measure also neglects the qualitative differences in the knowledge and cognitive skills acquired through the schooling experience and other sources of learning and development. Further, it distorts both the empirical analysis and resulting policy development. Rather than just quantity measures alone, including achievement outcomes, such as cognitive skill measures in literacy and numeracy, when estimating the effect of education on economic growth would be more prudent and provide a truer reflection of the value of education to the economy. This has important policy implications because policies that extend years of schooling may be very different from the best policies to improve cognitive skills and the quality of educational outcomes.

In reality, knowledge capacity and cognitive skills are a product of both the quantity and quality of schooling.

Using measures of educational achievement captures variations in the knowledge and skills that the education system aims to produce and those also acquired through other sources such as through family and social networks as well as inherent ability. Importantly, by allowing for differences in educational achievement and quantity of schooling in calculating the economic effects of education, the opportunity to develop different policies designed to affect the quality aspects of education systems is enabled.

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<sup>68</sup> Sweetland, SR 1996, 'Human capital theory: Foundations of a field of inquiry', *Review of Educational Research*, vol. 66, no. 3, pp. 341.

<sup>69</sup> Blaug, M 1976, 'The empirical status of human capital theory: a slightly jaundiced survey', *Journal of economic literature*, vol. 14, no. 3, pp. 827.

<sup>70</sup> Bowles, S & Gintis, H 1975, 'The problem with human capital theory--a Marxian critique', *The American Economic Review*, vol. 65, no. 2, pp. 74.

<sup>71</sup> Hanushek, E. A., & Woessmann, L. (2020). *Education and Economic Growth*, ifo Institute, Ludwig Maximilian University of Munich

<sup>72</sup> Ibid.

## Cognitive capacity not years in education

Empirical evidence over three decades suggests that the quality of education, measured by knowledge and cognitive skills – demonstrated through standardised tests in literacy, numeracy and science - that students gain during their schooling years is substantially more important for economic growth than the mere quantity of schooling.<sup>73</sup> This research shows that ignoring differences in the quality of education significantly distorts the picture of how education and economic outcomes are related.

When the cognitive skills of the population are included in the production function, a statistically and economically significant positive effect of the quality of education on economic growth is apparent. This effect is far larger than the association between the quantity of schooling and economic growth. Further, when cognitive capacity is included in the model, the association between years of schooling and economic growth turns insignificant and is reduced to close to zero.<sup>74</sup> In fact, models that include direct measures of cognitive skills can account for about three times the variation in economic growth than models that include only years of schooling.<sup>75</sup> Ignoring quality differences in education very significantly misses the true relationship between education and economic growth and thus productivity.<sup>76</sup>

Several recent studies distinguish between the effect of high- and low-quality education on the economy and suggest that education is important both as an investment in human capital as well as in facilitating research and development and the diffusion of technologies. The studies conclude that lower levels of education are more important for imitation and that higher quality education is more important for innovation and productivity.<sup>77</sup> Both require quality outcomes to be achieved in primary school.

**Several studies conclude that lower levels of education are more important for imitation and that higher quality education is more important for innovation and productivity.**

**Hanushek and Woessmann, 2020**

The accumulated evidence from analyses of economic outcomes is that the quality of education - measured as an outcome basis of cognitive skills - has powerful economic effects and is substantially more important for economic growth and productivity than the quantity of education.

An OECD working paper found that a sustained improvement in PISA student test scores (cognitive skills) by 5.14 per cent is estimated to increase multi-factor productivity (MFP) by between 3.4 and 4.1 per cent in the long run. Comparatively, an increase in mean years of schooling (of 9.3%) generates an increase in MFP of between 1.8 and 2.2 per cent over the same period.<sup>78</sup> The paper concluded that over the long run, improvements in students' skills has a greater impact on improving productivity performance than improvement in product market regulation (see Figure 11).

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<sup>73</sup> Ibid.

<sup>74</sup> Hanushek, E. A., & Woessmann, L. (2008). The role of cognitive skills in economic development. *Journal of economic literature*, 46(3), 607-68.

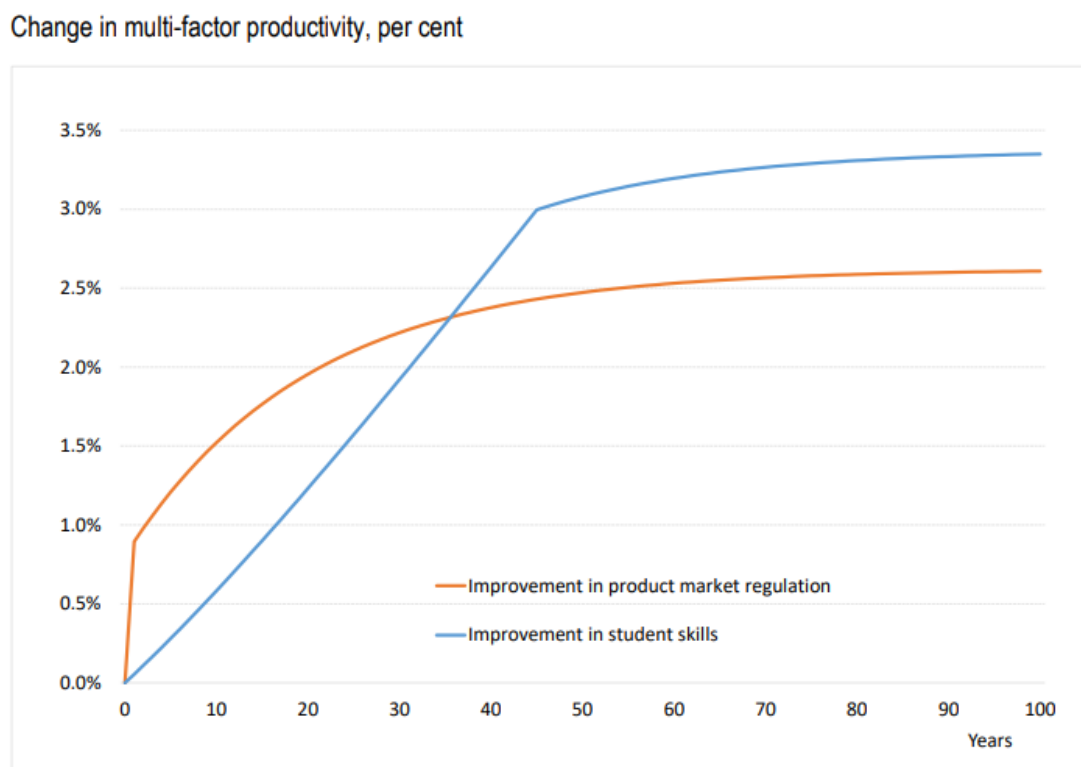
<sup>75</sup> Ibid.

<sup>76</sup> Hanushek, E. A., & Woessmann, L. (2020). Education, knowledge capital, and economic growth. *The economics of education*, 171-182.

<sup>77</sup> Ibid.

<sup>78</sup> Egert, B., de la Maisonnette, C., and Turner, D. (2022), A new macroeconomic measure of human capital exploiting PISA and PIAAC: Linking education policies to productivity, OECD Economics Department Working Papers No. 1709, OECD.

Figure 11. Change in multifactor productivity over time



Source: Egert, B., de la Maisonneuve, C., and Turner, D. (2022), A new macroeconomic measure of human capital exploiting PISA and PIAAC: Linking education policies to productivity, OECD Economics Department Working Papers No. 1709, OECD.

The accumulated evidence is powerful. The quality of education - measured as educational achievement in cognitive skills - has powerful economic effects. Economic growth is strongly affected by the knowledge capital of the workforce. Knowledge capital accrues first in primary school. Economic policies must therefore prioritise the quality of the education system in primary school. There is no substitute to improving Australia's long-term productivity performance than improving educational outcomes, rather than outputs.

As Hanushek and colleagues<sup>79</sup> show in their model, a twenty-year reform plan to improve educational outcomes would yield a 5 per cent increase in GDP (compared with an economy with no increase in cognitive skills).<sup>80</sup> They explain that five per cent of GDP is significantly greater than a typical country's spending on all primary and secondary schooling, providing evidence that the significant change would enable the growth dividend to more than exceed the cost of investment in improving primary and secondary school outcomes. Projecting these net gains from improved educational achievement in cognitive skills further past the reform period shows clearly the long run impacts of reform. For example, over a seventy-five-year horizon, a twenty year reform yields a real GDP that is 36 per cent higher than would be with no change in cognitive skills.

<sup>79</sup> Hanushek, E. A., & Woessmann, L. (2008). The role of cognitive skills in economic development. *Journal of economic literature*, 46(3), 607-68.

<sup>80</sup> Based on 2008 figures in the US.

Over time, as students succeed in completing school and pursuing further education and work, the knowledge capital of the nation will increase, and better educated young Australians will enter the workforce as more productive members of our labour force, contributing to the sought-after economic dynamism.

## 6. Primary school predicts outcomes

The decades-long decline in Australia's educational performance is associated with poor primary school outcomes. The proportion of students missing out on educational opportunities increases steadily between the early years and completing primary school. By the time they start year 7, around 28.4 per cent of Australian students have not acquired the core knowledge, literacy or numeracy skills required to access and engage in further educational opportunity.<sup>81</sup> While three quarters of a school cohort go on to complete year 12, only 6 in 10 students are engaged fully in employment, education or training by age 24.<sup>82</sup> Not completing Year 12 and not achieving well in school are predictors of later work and life outcomes which have serious long-term implications for productivity and equity, social cohesion and creativity.

### Primary school as a predictor of performance

Successful completion of year 12 is associated with prior achievement in literacy and numeracy throughout the schooling experience, more so than parental education or socio-economic background.<sup>83</sup> It is year 9 academic results that predict year 11 and 12 performance.<sup>84</sup>

Further, it is sound writing skills, a key component of literacy, that is regarded as a critical prerequisite for employment and higher education in adult life by graduates, employers and higher education institutions.<sup>85</sup> Writing skills are also correlated with year 11 and 12 performance.<sup>86</sup> Underpinning proficient writing skills is the ability to use and manipulate multiple language conventions efficiently; spelling, grammar and punctuation, all taught and learnt in primary school.

### Literacy as a predictor of year 11 and 12 performance

Several studies using multivariate analysis<sup>87</sup> to predict academic performance have concluded that it is prior achievement in primary school which has the most influence on young people's overall educational outcomes, followed by parental education and/or occupation.

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<sup>81</sup> Lamb, S, Jackson, J, Walstab, A & Huo, S (2015), Educational opportunity in Australia 2015: Who succeeds and who misses out, Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute, Melbourne: Mitchell Institute.

<sup>82</sup> Ibid.

<sup>83</sup> Brendan Houg and Moshe Justman (2014), NAPLAN Scores as Predictors of Access to Higher Education in Victoria, Working Paper No. 22/14 October 2014, Melbourne Institute of Applied Economic and Social Research; Getenet, S., & Beswick, K. (2021). Predictors of children's achievement: analysis of the Australian National Numeracy Assessment Program. Educational Assessment, Evaluation and Accountability, 33(4), 591-620. Goss, P., & Sonnemann, J. (2016). Widening gaps: What NAPLAN tells us about student progress. Grattan Institute.

<sup>84</sup> ABS (2014a) 'Educational outcomes, experimental estimates, Tasmania 2006-2013'

<sup>85</sup> Daffern, T., Mackenzie, N. M., & Hemmings, B. (2017). Predictors of writing success: How important are spelling, grammar and punctuation?. Australian Journal of Education, 61(1), 75-87.

<sup>86</sup> NSW Centre for Education Statistics and Evaluation, Analysis of Writing, 2021

<sup>87</sup> Using variables such gender, indigenous status, language background, geolocation, sector, parents' educational background, parents' occupation status and children's prior achievement

While there is a plethora of longstanding evidence that the early (pre-school) skills of language, cognitive development, communication and general knowledge are key predictors of future academic performance<sup>88</sup> which has influenced policy development in the early childhood development sector, a large body of research also shows that the proportion of students not meeting the expected standard for their age increases steadily as they progress from the early years to primary school to secondary school.<sup>89</sup> Not only do those that ‘start behind, stay behind’, the spread of student achievement more than doubles as students move through school with the majority of the learning gap developing between years 3 and 9, not before year 3.<sup>90</sup>

For this reason, education policy reform must focus on ensuring that foundational literacy and numeracy knowledge and skills are learnt proficiently in primary school and supported as students progress through their schooling.

Analysis undertaken in 2021 by the NSW Government Centre for Education Statistics and Evaluation (CESE) found that Year 9 NAPLAN writing results were the strongest predictor of year 11 and year 12 performance, more so than reading, spelling, grammar or numeracy.<sup>91</sup> Writing ability is predicted jointly by spelling, grammar and punctuation, with spelling being the strongest predictor.<sup>92</sup> Further, proficiency in English is a strong predictor of mathematical achievement.<sup>93</sup>

A proficient writer is able to efficiently use and manipulate language conventions such as vocabulary, spelling and syntax when composing written text. Writing well requires deliberate choices at the word, sentence, paragraph and whole-text levels to meet the purpose of communication.<sup>94</sup>

Yet, year 9 Australian students’ writing performance on the NAPLAN writing test has been declining considerably since 2011 for both male and female students. Several studies reveal a picture of accelerating negative change.<sup>95</sup> The average student in 2018 performed nearly 1.5 years behind the average student in 2011.<sup>96</sup> Not only does under-achievement in writing in year 9 impact successful school completion, it filters through to the Australian workforce, economy and broader society.

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<sup>88</sup> Duncan, R. J., Duncan, G. J., Stanley, L., Aguilar, E., & Halfon, N. (2020). The kindergarten Early Development Instrument predicts third grade academic proficiency. *Early childhood research quarterly*, 53, 287-300.; Brinkman, S., Gregory, T., Harris, J., Hart, B., Blackmore, S., & Janus, M. (2013). Associations between the early development instrument at age 5, and reading and numeracy skills at ages 8, 10 and 12: a prospective linked data study. *Child Indicators Research*, 6(4), 695-708.

<sup>89</sup> Lamb, S, Jackson, J, Walstab, A & Huo, S (2015), Educational opportunity in Australia 2015: Who succeeds and who misses out, Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute, Melbourne: Mitchell Institute.; Goss, P., & Sonnemann, J. (2016). Widening gaps: What NAPLAN tells us about student progress. Grattan Institute; Adams, E. K., Hancock, K. J., & Taylor, C. L. (2020). Student achievement against national minimum standards for reading and numeracy in Years 3, 5, 7 and 9: A regression discontinuity analysis. *Australian Journal of Social Issues*, 55(3), 275-301.

<sup>90</sup> Goss, P., & Sonnemann, J. (2016). Widening gaps: What NAPLAN tells us about student progress. Grattan Institute.

<sup>91</sup> Baker, J. (2021), Year 9 NAPLAN writing results the best predictor of HSC success: study, *Sydney Morning Herald*

<sup>92</sup> Daffern, T., Mackenzie, N. M., & Hemmings, B. (2017). Predictors of writing success: How important are spelling, grammar and punctuation?. *Australian Journal of Education*, 61(1), 75-87.

<sup>93</sup> Getenet, S., & Beswick, K. (2021). Predictors of children’s achievement: analysis of the Australian National Numeracy Assessment Program. *Educational Assessment, Evaluation and Accountability*, 33(4), 591-620.

<sup>94</sup> Thomas, D (2020), Rapid decline and gender disparities in the NAPLAN writing data, *The Australian Educational Researcher* (2020) 47:777–796; Daffern, T., Mackenzie, N. M., & Hemmings, B. (2017). Predictors of writing success: How important are spelling, grammar and punctuation?. *Australian Journal of Education*, 61(1), 75-87.

<sup>95</sup> Wyatt-Smith, C and Jackson, C, (2016), NAPLAN data on writing: A picture of accelerating negative change, *Australian Journal of Language and Literacy*, Vol. 39, No. 3,

<sup>96</sup> Thomas, D (2020), Rapid decline and gender disparities in the NAPLAN writing data, *The Australian Educational Researcher* (2020) 47:777–796

Poor writing is problematic for children and adults alike. To become effective writers in year 9, students must be proficient in spelling, grammar and punctuation, skills learnt in primary school.

However, primary school students' progress in writing lags behind that of reading because they are not receiving effective instruction in spelling and other language conventions. When the cognitive demands of writing are heightened by the arduous task of spelling, effective writing is compromised, also impacting confidence and motivation. As a result, many children fail to achieve standards of writing to support their personal and academic needs at secondary school and beyond.<sup>97</sup> Students who experience difficulty with writing may be less likely to use writing to support and extend their learning to the wider curriculum. This impacts eventual school completion and the flow on effects to the economy and society.

### **Literacy and wages**

Not only are literacy skills correlated with year 11 and 12 performance, but also income. Cognitive skills, as measured by international tests of mathematics, science and reading, are powerfully related to individual earnings, to the distribution of income and the economic growth of a nation.<sup>98</sup>

Research undertaken by the Productivity Commission in 2014 found that up to 40 per cent of the association between education and employment is attributable to literacy and numeracy skills and that an increase in literacy and numeracy by one skill level is associated with an increased likelihood of employment of 2.4 and 4.3 per centage points for men and women, respectively.<sup>99</sup> The analysis also found that, regardless of highest level of educational attainment, an increase in literacy and numeracy by one skill level is associated with about a 10 per cent increase in wages for both men and women.<sup>100</sup>

The report identified that proficient literacy and numeracy skills and knowledge are a critical foundation for developing higher order skills that contribute to a more productive workforce. The report further acknowledged that the increasing demands for improved productivity enhancing innovation, technology and adaptation in the economy are grounded in analytical and communication skills. These skills are underpinned by literacy and numeracy knowledge and skills acquired progressively throughout the schooling system, from primary school to secondary school.

**An increase in literacy and numeracy by one skill level is associated with an increased likelihood of employment of 2.4 and 4.3 per centage points for men and women, respectively.**

**Shomas and Forbes, 2014**

These findings are consistent with a 2013 study undertaken by the National Centre for Vocational Education Research (NCVER) which found that both educational qualifications and literacy skill levels are positively associated with income and that income increases with literacy skill level, regardless of

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<sup>97</sup> Daffern, T., Mackenzie, N. M., & Hemmings, B. (2017). Predictors of writing success: How important are spelling, grammar and punctuation?. *Australian Journal of Education*, 61(1), 75-87.

<sup>98</sup> Shomas, A. and Forbes, M. (2014), *Literacy and Numeracy Skills and Labour Market Outcomes in Australia*, Productivity Commission Staff Working Paper, May 2014; Thomson, S., De Bortoli, L., Underwood, C., and Schmid, M. (2019), *PISA 2018: Reporting Australia's Results. Student Performance*, Australian Council for Education Research

<sup>99</sup> Shomas, A. and Forbes, M. (2014), *Literacy and Numeracy Skills and Labour Market Outcomes in Australia*, Productivity Commission Staff Working Paper, May 2014

<sup>100</sup> Ibid.



level of educational attainment.<sup>101</sup> Further, the analysis found that inclusion of literacy skills lowers the estimated income effects of qualifications, reducing the effect by around two thirds for men and 80 per cent for women, concluding that both education levels and literacy skill levels are important in determining income. The NCVER report also commented that it is the skills of workers which explain a considerable part of their earnings that may not be attributable to formal education, so much so that within education levels, the labour market operates in such a way that more skilled individuals in literacy receive higher remuneration.

The NCVER report concludes that qualifications or credentials are not all-important in determining labour market outcomes and that it is the quality of the education and training systems in providing the requisite skills not just for positive labour market outcomes but for income.

## 7. The way forward

The 2018 Through Growth to Achievement Report repositioned Australia's education reform agenda to focus on educational outcomes and enable all students to realise their full learning potential. The key finding by the Review Panel was that to achieve educational excellence in Australian schools a focus on achievement through learning growth for all students will be required, complemented by policies which support an adaptive, innovative and continuously improving education system.

Some of the recommendations in the report, if implemented with fidelity, will go some way to repairing the detrimental impacts of past policy decisions, provided the Australian and State Governments remain committed to the reform agenda over the long-term. At the time of writing this Positioning Paper, not all recommendations have been actioned and not all those that have been implemented have been done so as intended. This is a risk.

Critically, the importance of primary school outcomes is not specifically identified in either the Report or the NSRA. This is also a risk.

In order to maintain the course, and not deviate from the goal of excellence and equity, it is important to understand the historical context in Australian education policy. Any future policy making decisions need to be cognisant of the effects of past policy decisions and avoid repeating what went wrong; a perpetual imbalance between the three purposes of education, ineffective funding systems creating structural inequity and pedagogical practices not keeping pace with the scientific evidence of how people learn best, acquire knowledge and successfully complete their schooling. These structural and systemic failures need to be considered alongside the evidence of how people learn best to improve educational outcomes for all.

In his 2021 edited book, *Improving a Country's Education; PISA 2018 Results in 10 Countries*, Nuno Crato concluded that key factors such as investment, curriculum, teaching, and student assessment are important in improving educational outcomes; but, particularly, that curriculum coherence, an emphasis on knowledge, student observable outcomes, assessment, and public transparency are critical<sup>102</sup>.

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<sup>101</sup> Chesters, J., Ryan, C., & Sinning, M. (2013). *The returns to literacy skills in Australia*. National Centre for Vocational Education Research.

<sup>102</sup> Crato, N. (2021), Setting up the Scene: Lessons Learned from PISA 2018 Statistics and Other International Student Assessments, in N. Crato (ed.), *Improving a Country's Education, PISA 2018 Results in 10 Countries*, Chapter 1, Springer

In the introductory chapter, Crato makes 10 conclusions in relation to improving educational outcomes based on the analysis within the edited book. While Crato sets these out in a sequential format, it is the tenth factor which should be at the forefront of decision making in Australia; education policies need to be evaluated according to students' results, rather than by policies' intentions.

1. Everything starts with the **curriculum**. As the education founding document, without clear learning goals no education system can progress effectively.
2. The curriculum should be **ambitious, demanding, and set clear objectives**. These objectives must be sequenced, setting solid foundations for students' progress. Critically, knowledge is a necessary foundation to develop skills and values.
3. There needs to be coherence around curricular goals. **Curriculum coherence** is where instruction, assessment, standards, resources and materials are carefully and deliberately aligned. This provides a starting point for standards, schools and teachers' accountability, professional practice, institutional development and all subsequent aspects of the educational system.
4. The education system needs to **simultaneously nurture quality and improve low performing students' achievement**. An ambitious curriculum is not mutually exclusive.
5. **Pedagogy matters**. There needs to be a good balance between innovating with new pedagogical approaches and new technology and paying attention to proven methods. Students are not born discovery or inquiry experts who will learn all the knowledge by themselves. However, they can become experts if guided through the necessary intermediate steps, explicitly.
6. **Assessment is crucial**. An educational system can only progress if it introduces frequent and reliable formative and summative assessment, if student learning goals are verified, and, if a robust, independent testing system is in place.
7. **Teachers are the essential knowledge agents of a school system**. If teachers' initial training is weak, on-the-job training will not remedy the deficiency. The whole process of teachers' initial training, hiring selection, professional development, and promotion is critical to improving educational outcomes.
8. **Inform and involve the public**. Bring them on the journey.
9. Pay attention to what is essential. When reflecting upon education there is one goal above all others: **students' progress**. This includes their skills, attitudes and overall development. While the plethora of political discussions, professional interests and daily news may diverge to many topics, focus must remain on progress.
10. **Education policies need to be judged by students' results, rather than by policies' intentions.**<sup>103</sup>

### The impact of past policy decisions in Australia

Across four separate Declarations since 1999, the goals of excellence and equity have been reiterated and repeated, however, despite increased funding by both Commonwealth and State Governments, excellence and equity have not been achieved. In fact, education performance has deteriorated and inequality is worsening.

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<sup>103</sup> Paraphrased from Crato, N. (2021), Setting up the Scene: Lessons Learned from PISA 2018 Statistics and Other International Student Assessments, in N. Crato (ed.), Improving a Country's Education, PISA 2018 Results in 10 Countries, Chapter 1, Springer

Two key factors have contributed to this failure.

- 1) Decentralisation and the devolution of decision-making responsibilities and the rise of the autonomy of Principals and schools led to the failure to keep pace with the evidence of best practice in teaching instruction, pedagogical ideology and the shift to inquiry-based, student-directed learning.
- 2) The funding structure has created an uneven playing field within the schooling system and failed to align the investment with the purpose of education and, in particular, where it is needed most to achieve the aspirational goals within the education Declarations.

The original intent of the decentralisation of the education system in Australia and the devolution of decision-making to schools and communities was set out in the 1973 Karmel Report to advance social justice and ameliorate educational outcomes for disadvantaged students. This was based on the premise that there was a need for more localised input including professional autonomy at a school and teacher level combined with greater input from parents and the community. This would support greater diversity and choice in education and greater equality of opportunity for all students. The role of the central bureaucracy was to provide redistributive funding – needs-based funding - to ensure equality of educational opportunity for all. However, given the administration of schooling is the constitutional responsibility of the states and territories, the degree of decentralisation at a state level varied between jurisdictions, contributing to the complexity of the national education system today.

Despite the intention, there is no compelling body of evidence that directly links the efficacy of school autonomy to improve educational outcomes. Rather, the evidence points to increased inequalities at both the school and system level across Anglophone nations which have pursued the school-based management reform.<sup>104</sup>

School-based management was argued to create conditions for school leaders to respond appropriately to local needs, promote innovation and produce resource efficiencies at the school level which would in turn aggregate to system-wide efficiencies and improvements. The increase in school autonomy meant that schools had greater decision-making power in curricula, assessment, recruitment, training, resourcing and budgets. Principals were given greater responsibility and flexibility. At the same time however, the devolving of decision-making to schools operating within a system increased the risk for the system itself.<sup>105</sup> As a result, this led to increased accountability of the schools in terms of compliance with national standards in curriculum and professionalism as well as participation in standardised assessments to evaluate student outcomes.

Increased autonomy for school leaders has intensified the workload, often in areas in which principals have no expertise nor experience, for example, administrative reporting, recruitment, staff management, marketing, infrastructure and asset management and maintenance, budgeting and payroll. This expanded workload comes at the expense of the time and energy to focus on educational leadership and maintaining currency in best practice; evidence-based teaching and

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<sup>104</sup> MacDonald, K., Keddle, A., Blackmore, J., Mahoney, C., Wilkinson, J., Gobby, B., Niesche, R., & Eacott, S. (2021). School autonomy reform and social justice: a policy overview of Australian public education (1970s to present). *The Australian Educational Researcher*, 1-21.; Niesche, R. and Eacott, S., 2021. School autonomy reform and social justice: a policy overview of Australian public education (1970s to present), *The Australian Educational Researcher*, pp.1-21.

<sup>105</sup> Bonnor, C., Kidson, P., Piccoli, A., Sahlberg, P. & Wilson, R. (2021). *Structural Failure: Why Australia keeps falling short of its educational goals*. Sydney: UNSW Gonski Institute.; MacDonald, K., Keddle, A., Blackmore, J., Mahoney, C., Wilkinson, J., Gobby, B., Niesche, R., & Eacott, S. (2021). School autonomy reform and social justice: a policy overview of Australian public education (1970s to present). *The Australian Educational Researcher*, 1-21

learning. Principals themselves acknowledge that this complex workload has led to difficulty in balancing the responsibilities of managing schools and leading teacher development.<sup>106</sup> This is despite principals being the instructional leaders of teaching and learning practices leading to improved student outcomes.

At a system level, school-based decision making does not necessarily lead to socially just outcomes for all unless there are systemic accountabilities in place that focus on equity for all groups, which are funded accordingly. This reinforces the critical role for the state in devolved systems to intervene to support and embed equity within, between, and across schools.<sup>107</sup>

These effects have been further exacerbated by the funding structure.

The fragmented evolution of Australia's schooling system over five decades has resulted in a quasi-marketplace for education. While the expansion of choice provides opportunity for some, but not all, in Australia's case, this choice had *not* been accompanied by a mutual obligation framework, until the establishment of the National School Reform Agreement in 2018. It also created a competitive environment for schooling whereby schools compete for enrolments between and within sectors. Combined with devolved decision-making, principals have been forced to become entrepreneurial in an environment where schools are run more like businesses having to compete in the education marketplace.<sup>108</sup> To gain a competitive edge and improve their enrolment profile, schools seek funding or investment in tangible infrastructure and resources to increase their attractiveness rather than intangible assets such as teaching and learning practices.

While schooling choice may have expanded, affordability excludes many students. Competition, encouraged through school choice, can produce greater levels of segregation which can have "adverse consequences for equity in learning opportunities and outcomes".<sup>109</sup> The concentration of students from low socio-economic backgrounds in government schools has increased since the 1970s. This has led to schools in Australian states and territories being more regressive, divided and socially segregated over time than in most other like countries.<sup>110</sup> There is a trend of increasing concentration of disadvantaged students in disadvantaged schools, predominantly public schools, so that Australia's schools are increasingly characterised less by what they do and more by who they enrol.<sup>111</sup> This entrenchment is further exacerbated by zoning regulations that restrict choice, particularly for the disadvantaged, resulting in increasing levels of inequity and stratification within and between schools. This carries serious implications for overall student achievement.

While there is a substantial evidence-base which associates low-socio-economic status with poorer educational outcomes, there is also a growing body of evidence which shows that prior educational performance has a greater impact on subsequent educational outcomes than parental background

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<sup>106</sup> Heffernan, A. (2018). Power and the 'autonomous' principal: Autonomy, teacher development, and school leaders' work. *Journal of educational administration and history*, 50(4), 379-396.

<sup>107</sup> MacDonald, K., Keddie, A., Blackmore, J., Mahoney, C., Wilkinson, J., Gobby, B., Niesche, R., & Eacott, S. (2021). School autonomy reform and social justice: a policy overview of Australian public education (1970s to present). *The Australian Educational Researcher*, 1-21

<sup>108</sup> Niesche, R. and Eacott, S., 2021. School autonomy reform and social justice: a policy overview of Australian public education (1970s to present), *The Australian Educational Researcher*, pp.1-21.

<sup>109</sup> MacDonald, K., Keddie, A., Blackmore, J., Mahoney, C., Wilkinson, J., Gobby, B., Niesche, R., & Eacott, S. (2021). School autonomy reform and social justice: a policy overview of Australian public education (1970s to present). *The Australian Educational Researcher*, 1-21

<sup>110</sup> Bonnor, C., Kidson, P., Piccoli, A., Sahlberg, P. & Wilson, R. (2021). *Structural Failure: Why Australia keeps falling short of its educational goals*. Sydney: UNSW Gonski Institute

<sup>111</sup> *Ibid.*

([see the previous section](#)). Effort to improve successful educational attainment must therefore focus on student progress from school entry age.

The challenge in focussing on student progress from school entry age in an education system characterised by social segregation and the concentration of disadvantaged students in disadvantaged schools is significant. Increasing disadvantage in some schools has a two-fold effect. First, as evidenced, the association of disadvantage on a student's own educational outcomes and, also, a collective impact, or multiplier, on other students' outcomes, classroom behaviour, expectations, teacher workload, teacher morale, school resourcing, attractiveness of the school to teachers and other families as well as student and teacher resilience and well-being.<sup>112</sup>

In summary, public funding in schooling has not been directed to where it has most been needed to achieve excellence and equity in education. In fact, the funding structure has exacerbated the gap between the advantaged and disadvantaged students and deteriorating overall educational performance. Competition, encouraged through school choice, has produced greater levels of segregation which has had adverse consequences for equity in learning opportunities and outcomes. This divergence is likely to continue given that the 2021 Productivity Commission ROGS data<sup>113</sup> shows that government funding for non-government schools continues to grow at a faster rate than for public schools. PISA data confirms a widening inequality gap and differences between advantaged and disadvantaged schools in terms of shortage of teachers and shortage or inadequacy of educational material and physical infrastructure as well as one of the highest levels of school social segregation relative to comparable nations.<sup>114</sup>

The relationship of inequity between and within education systems, school funding structures and school autonomy policies provides the necessary insight to inform the policy reform required to achieve excellence and equity in education. Perceptions of the Australian education system are that it has evolved into a 'systemless system' in which schools, principals and teachers are held accountable for improving learning without the systemic support or funding and services.<sup>115</sup>

It is argued that the huge disparity of resource allocation across the three sectors and school autonomy has led to competition and choice and has underpinned the worsening equity outcomes in Australia.<sup>116</sup> The OECD argues that to achieve equity, system-level policies must carefully manage school choice to eliminate segregation and that funding strategies must meet the needs of students and schools most in need.<sup>117</sup> At a system-level, school-based decision making does not necessarily

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<sup>112</sup> Ibid.

<sup>113</sup> Productivity Commission (2022) Report on Government Services, <https://www.pc.gov.au/research/ongoing/report-on-government-services>

<sup>114</sup> Bonnor, C., Kidson, P., Piccoli, A., Sahlberg, P. & Wilson, R. (2021). Structural Failure: Why Australia keeps falling short of its educational goals. Sydney: UNSW Gonski Institute; Wilkinson, J., & Brooks, J. S. (2018), Educational Leadership in Australia, Asia Pacific Education: Leadership, Governance and Administration, 31.

<sup>115</sup> Wilkinson, J., & Brooks, J. S. (2018), Educational Leadership in Australia, Asia Pacific Education: Leadership, Governance and Administration, 31

<sup>116</sup> MacDonald, K., Keddle, A., Blackmore, J., Mahoney, C., Wilkinson, J., Gobby, B., Niesche, R., & Eacott, S. (2021). School autonomy reform and social justice: a policy overview of Australian public education (1970s to present). The Australian Educational Researcher, 1-21

<sup>117</sup> Organisation for Economic Co-operation and Development. (2012). Equity and quality in education - Supporting disadvantaged students and schools. Organisation for Economic Co-operation and Development.

lead to improved equity outcomes unless there are systemic accountabilities in place that focus on equity for all groups and are funded accordingly.<sup>118</sup>

The most recent review, the 2017 Review to Achieve Educational Excellence in Australian Schools and subsequent 2018 Through Growth to Achievement Report informed the development of the 2018 National School Reform Agreement – the current education policy framework - which established a mutual obligations framework including bilateral actions linked to funding arrangements to pursue the common goals of excellence and equity in schooling in Australia. The NSRA includes a particular emphasis on the critical importance of supporting and facilitating the achievement of priority equity cohorts, including Aboriginal and Torres Strait Islander students, students living in regional, rural and remote locations, students with a disability and students from educationally disadvantaged backgrounds. The outcomes of this report are outlined in the section: [Recent developments in education policy](#).

### **Pedagogical ideology – not keeping pace with the evidence**

At the same time as the decentralisation process and changes to the funding structure for school education in Australia began, so too did the pedagogical ideology governing teaching practices. Under the evolving school-based management approach, principals were provided the autonomy to pursue their own interests under a loose curriculum, in a participatory community framework.<sup>119</sup> Through networks, these entrepreneurial interests converged with others creating a pedagogical shift without consideration to the wider needs of the economy or society nor the evidence of best practice teaching and learning. The consequences of transitioning from a collective and centralised education system to individualisation had associated risks.<sup>120</sup> The results of which are now being exposed.

John Sweller and colleagues correlate Australia's deteriorating academic performance with the pedagogical shift to 'inquiry-based' learning over explicit instruction in Australian classrooms.<sup>121</sup>

This evolution of discovery learning began in the 1960s, predominantly in science education, based on assumptions that flowed from the understanding of human cognition at that time.<sup>122</sup> The concept is founded in students discovering ideas for themselves rather than relying on teachers providing the information first.<sup>123</sup> As such, the teacher's role turned to a facilitator of the learning process instead of a direct provider of information.

Over six decades, discovery learning evolved to be known as inquiry-based learning and permeated through to dominate pedagogical practices in other disciplines. At the core of inquiry-based learning

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<sup>118</sup> MacDonald, K., Keddie, A., Blackmore, J., Mahoney, C., Wilkinson, J., Gobby, B., Niesche, R., & Eacott, S. (2021). School autonomy reform and social justice: a policy overview of Australian public education (1970s to present). *The Australian Educational Researcher*, 1-21

<sup>119</sup> Niesche, R. and Eacott, S., 2021. School autonomy reform and social justice: a policy overview of Australian public education (1970s to present), *The Australian Educational Researcher*, pp.1-21.

<sup>120</sup> Ibid.

<sup>121</sup> Sweller, J (2021), *Why Inquiry-based Approaches Harm Students' Learning*, Analysis Paper 24, The Centre for Independent Studies; Kirschner, P., Sweller, J., & Clark, R. E. (2006). Why unguided learning does not work: An analysis of the failure of discovery learning, problem-based learning, experiential learning and inquiry-based learning. *Educational Psychologist*, 41(2), 75-86; Ashman, G., Kalyuga, S., & Sweller, J. (2020). Problem-solving or explicit instruction: Which should go first when element interactivity is high? *Educational Psychology Review*, 32(1), 229-247.

<sup>122</sup> Sweller, J (2021), *Why Inquiry-based Approaches Harm Students' Learning*, Analysis Paper 24, The Centre for Independent Studies

<sup>123</sup> Baetsle, L. C. (2021). Impact of inquiry science courses on preservice elementary students' ideas on science. PhD Thesis, University of Northern Iowa

is student autonomy.<sup>124</sup> It allows students to individually dictate the subjects and issues they want to investigate, to experiment and to learn in a more natural, individualised manner. That is, rather than being presented with essential information by teachers, students need to discover or construct essential knowledge for themselves.<sup>125</sup> Inquiry-based teaching has been defined as “the art of developing challenging situations in which students are asked to observe and question phenomena; pose explanations of what they observe; devise and conduct experiments in which data are collected to support or contradict their theories; analyse data; draw conclusions experimental data; design and build models; or any combination of these.”<sup>126</sup> While inquiry-based learning approaches have been shown to improve intrinsic motivation which can lead to increased interest, enjoyment, self-regulation and well-being<sup>127</sup>, there is little empirical evidence that the approach improves educational outcomes.<sup>128</sup> In fact, five decades of empirical research has provided overwhelming and unambiguous evidence that minimal teacher direction during instruction is significantly less effective and efficient than guidance specifically designed to support the cognitive processing necessary for learning and acquiring knowledge.<sup>129</sup>

However, there has been no resolve at a system, policy or education reform level to rectify these harmful pedagogical practices, perhaps due to the decentralised nature of Australia’s education system.

In fact, throughout the decentralisation process and the changes to the distribution of school funding combined with the persistent decline in educational outcomes, there has been only one large-scale review which investigated the role of classroom practices to identify which practices are most effective in producing positive student learning outcomes. The Queensland School Report Longitudinal Study Queensland in the late 1990s, through a study of classroom practices, identified the importance of pedagogy in enhancing student outcomes. The study examined which school structures, support and systemic policies were necessary to facilitate classroom practices that produced positive student learning outcomes, both academic and social. The evaluation found that it was pedagogically focussed leadership which created the school culture for professionalism and responsibility in improving school outcomes.<sup>130</sup>

### **Knowledge matters**

In more recent times, calls for Australian education to reform for the 21st Century in response to the Fourth Industry Revolution and the creation of a knowledge economy, have further fuelled these unproven ideas about how best to develop higher-order skills and competencies such as the 4C’s –

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<sup>124</sup> Dediu, A. Understanding the impact of inquiry learning. The Great School Libraries campaign, 4.

<sup>125</sup> Kirschner, P., Sweller, J., & Clark, R. E. (2006). Why unguided learning does not work: An analysis of the failure of discovery learning, problem-based learning, experiential learning and inquiry-based learning. *Educational Psychologist*, 41(2), 75-86

<sup>126</sup> Dediu, A. Understanding the impact of inquiry learning. The Great School Libraries campaign, 4.

<sup>127</sup> Ibid.

<sup>128</sup> Sweller, J (2021), Why Inquiry-based Approaches Harm Students’ Learning, Analysis Paper 24, The Centre for Independent Studies; Kirschner, P., Sweller, J., & Clark, R. E. (2006). Why unguided learning does not work: An analysis of the failure of discovery learning, problem-based learning, experiential learning and inquiry-based learning. *Educational Psychologist*, 41(2), 75-86

<sup>129</sup> Kirschner, P., Sweller, J., & Clark, R. E. (2006). Why unguided learning does not work: An analysis of the failure of discovery learning, problem-based learning, experiential learning and inquiry-based learning. *Educational Psychologist*, 41(2), page 76.

<sup>130</sup> Wilkinson, J., & Brooks, J. S. (2018), *Educational Leadership in Australia*, Asia Pacific Education: Leadership, Governance and Administration, 31

communication, collaboration, critical thinking and creativity.<sup>131</sup> This is evident in the Australian Professional Standards for Teachers which requires teachers at all levels to demonstrate the use of teaching strategies to develop student’s “knowledge, skills, problem-solving and critical and creative thinking”.

The 21<sup>st</sup> Century approach to education and the development of competencies and skills demands that the curriculum focus on the application of knowledge without prioritising the acquisition of foundational knowledge first.<sup>132</sup>

However, it can be argued that competencies are a mixture of knowledge, skills, attitudes, values and capacity for solving applied problems. Therefore, it is the mobilisation of these cognitive skills – knowledge, literacy and numeracy – and social components which enable people to think critically and creatively, collaborate and communicate to solve practical problems and be productive citizens.<sup>133</sup> As such, these cognitive skills should be the starting point in the curriculum. Important also, is that competencies and skills are essentially discipline or subject specific. To be expected to develop general transferable skills with no foundational knowledge, metacognition strategies or curricular specific knowledge is unproductive and inefficient. Foundational knowledge and literacy and numeracy skills are the essential tools for interpretation, for generalisation and for application.<sup>134</sup>

However, education systems have been captured by the 21st Century skills zeitgeist and have implemented policies, programs and practices that refocused pedagogy, curriculum and teaching completely on developing only these higher-order skills and competencies. This misinterpretation of how to cultivate 21st Century skills has had a detrimental impact on the quality of Australia’s educational outcomes.

“There is no evidence-base to validate that teaching students critical and creative thinking will improve their cognitive capacity. To improve cognitive capacity, you need knowledge - knowledge is what we think with.”<sup>135</sup>

Cognitive scientists show that while students are able to acquire knowledge and information slowly and with considerable effort via inquiry learning, students can also acquire it far more rapidly and easily via explicit instruction from other people, such as teachers.<sup>136</sup>

What has been lost in these ideological changes is that a strong foundation in literacy and numeracy – taught and learnt in primary school - is necessary for the development of advanced skills and competences for the future.

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<sup>131</sup> Centre for Education Statistics and Evaluation (2019), *General Capabilities: A perspective from cognitive science*, NSW Government

<sup>132</sup> Crato, N. (2021), *Setting up the Scene: Lessons Learned from PISA 2018 Statistics and Other International Student Assessments*, in N. Crato (ed.), *Improving a Country’s Education, PISA 2018 Results in 10 Countries*, Chapter 1, Springer

<sup>133</sup> Ibid.

<sup>134</sup> Ibid.

<sup>135</sup> Ashman, G. (2022) *Dud Teachers and Red Herrings*, Filling the Pail blog, <https://fillingthepail.substack.com/p/dud-teachers-and-red-herrings?s=r>

<sup>136</sup> Sweller, J (2021), *Why Inquiry-based Approaches Harm Students’ Learning*, Analysis Paper 24, The Centre for Independent Studies; Kirschner, P., Sweller, J., & Clark, R. E. (2006). *Why unguided learning does not work: An analysis of the failure of discovery learning, problem-based learning, experiential learning and inquiry-based learning*. *Educational Psychologist*, 41(2), 75-86.



Extensive theory and empirical evidence support explicit instruction (i.e., teaching practices) as a more effective and efficient method for teaching new knowledge and the cognitive skills of literacy and numeracy than inquiry-based learning.

**There's a growing sense of confusion about what we actually mean when we speak of a 'twenty-first century education' ... I say 'engage children through real-world problems' – and people hear 'great, let's toss out the textbooks.' I say 'children should develop the passion to learn' – and people hear 'let's leave it up to the children to decide what they want to be taught'. I can't explain why so many well-meaning people associate being a twenty-first century worker with knowing less and talking more ... in 2018, there is still a fundamental duty to teach students content: concepts, facts and principles. Taught by teachers trained as experts in that content, with all the status and resources and professional development that we would demand in any other expert occupation.'**

*Dr Alan Finkel, Australia's Chief Scientist*

### **Human cognitive architecture**

Over a number of decades, scholars in the fields of cognitive science and educational psychology have been able to develop an architecture of how people learn, think and solve problems. This discipline is known as **human cognitive architecture**. Knowledge of this architecture should inform teaching and learning practices.

**Knowledge** - the storage of information in the long-term memory - is acquired in two ways. One, through the process of evolution and exposure to a wide range of experiences; which do not need to be explicitly taught, referred to as *biologically primary knowledge*; and two, domain-specific, *biologically secondary knowledge*, which is not acquired naturally and unconsciously, and needs to be explicitly taught. The purpose of the education system is to teach this domain-specific, biologically secondary knowledge.

**While students are able to acquire information slowly and with considerable effort via inquiry learning, students can also acquire it far more rapidly and easily via explicit instruction from other people, such as teachers.**

**Sweller, 2022**

Cognitive scientists further argue that if knowledge is not being added to long-term memory efficiently then education practices are not effective.

It should be this evidence-based knowledge and understanding of human cognitive architecture and the process of knowledge acquisition which informs Australia's education systems, pedagogy, curriculum and teaching practices.

Differences in cognitive abilities and the impact on learning outcomes within a classroom can be positively (and negatively) impacted by teacher instruction.

Given that skills are essentially domain specific, goals to develop generic transferable skills with no foundations in basic subject matter, in memory activation, or curricular knowledge will be ineffective.<sup>137</sup>

Cognitive scientists assert that unless a student has extensive prior domain-specific knowledge and is able to retrieve that information with automaticity to apply in their learning process, then educational instruction in the classroom should be explicit, particularly for younger, more 'novice' students such as those in primary school.<sup>138</sup>

Once domain-specific knowledge is acquired, training in interpretation, generalisation, and application is appropriate and important, but foundational knowledge and skills are the essential tools for this educational purpose.<sup>139</sup>

Starting in primary school, children apply their cognitive abilities to learn (acquire knowledge) first and then, as they get older, apply existing knowledge to enhance their knowledge and learning as well as utilise emerging metacognition skills to reflect on their learning process.

Cognitive science shows that creativity and critical thinking cannot be taught as our cognitive architecture has evolved to do this innately without instruction.<sup>140</sup> What requires teaching is the knowledge base from which students are able to apply their 21<sup>st</sup> century skills to; knowledge held in long-term memory is the first prerequisite of critical and creative thinking. Evidence also shows that differences in students' creativity and critical thinking is not due to differences in thinking strategies, but rather on differences in students' knowledge.

***In order to reverse Australia's deteriorating academic performance, urgent reform of the education system and teaching practices is required, with a particular emphasis on primary school education and informed by human cognitive architecture and the Science of Learning.***

### **Recent developments in education policy**

Unfortunately, the various iterations of education policies, reviews and funding structures did not consider classroom teaching and learning practices nor the quality of Initial Teacher Education (ITE) qualifications in contributing to the deterioration of Australia's educational performance, relatively and absolutely, and the widening gap between those Australians from advantaged backgrounds and those who are not until the 2017 Review to Achieve Educational Excellence in Australian Schools. This review resulted in the 2018 Through Growth to Achievement Report which made several key findings and recommendations to improve educational outcomes in Australia. This review also guided the development of the National School Reform Agreement which establishes, for the first time, a mutual obligations framework for achieving excellence and equity in Australian schooling. The National School Reform Agreement is the current education policy framework governing the administration of education in Australia.

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<sup>137</sup> Crato, N. (2021), Setting up the Scene: Lessons Learned from PISA 2018 Statistics and Other International Student Assessments, in N. Crato (ed.), Improving a Country's Education, PISA 2018 Results in 10 Countries, Chapter 1, Springer

<sup>138</sup> Sweller, J. (2016). Working memory, long-term memory, and instructional design. *Journal of Applied Research in Memory and Cognition*, 5(4), 360-367.; Sweller, J., van Merriënboer, J. J. G., & Paas, F. (2019). Cognitive architecture and instructional design: 20 Years later. *Educational Psychology Review*, 31(2), 261-292.

<sup>139</sup> Crato, N. (2021), Setting up the Scene: Lessons Learned from PISA 2018 Statistics and Other International Student Assessments, in N. Crato (ed.), Improving a Country's Education, PISA 2018 Results in 10 Countries, Chapter 1, Springer

<sup>140</sup> Sweller, J (2022), Some Critical Thoughts about Critical and Creative Thinking, Analysis Paper 32, The Centre for Independent Studies

Given the extent of decline in educational performance in Australia in every domain, in every socio-economic quartile and in all school sectors found when undertaking the review for the 2018 Through Growth to Achievement Report, the Panel recommended focus on 3 priority areas:

- 1) Deliver at least one year’s growth in learning for every student every year;
- 2) Equip every child to be a creative, connected and engaged learner in a rapidly changing world; and
- 3) Cultivate an adaptive, innovative and continuously improving education system.

While the Review Panel specifically recommended a review of the purpose, content and structure of secondary education and how it prepares students for post-school employment, training, higher education, the report did not identify the importance of primary school in preparing young students for secondary schooling success. However, some recommendations specifically relate to the role of primary schools and are evident in the national policy initiatives within the 2018 National School Reform Agreement<sup>141</sup>.

*Table 3. Selection Recommendations relating to primary school, 2018 Through Growth to Achievement Report*

Recommendation 1	Embedded focus on individual student achievement through continuous learning progress in the policies and practices of all schools and systems, with the expectation that each student should achieve at least one year’s growth throughout each year of schooling.
Recommendation 4	Introduce new reporting arrangements with a focus on both learning attainment and learning gain, to provide meaningful information to students and their parents and carers about individual achievement and learning growth.
Recommendation 5	Revise the structure of the Australian Curriculum progressively over the next five years to present the learning areas and general capabilities as learning progressions.
Recommendation 6	Prioritise the implementation of learning progressions for literacy and numeracy in curriculum delivery during the early years of schooling to ensure the core foundations for learning are developed by all children by the age of eight.
Recommendation 7	Strengthen the development of the general capabilities, and raise their status within curriculum delivery, by using learning progressions to support clear and structured approaches to their teaching, assessment, reporting and integration with learning areas
Recommendation 12	Create the conditions necessary to enable teachers to effectively engage and benefit from professional learning in the use of the Australian Curriculum learning progressions, the new online formative assessment tool and tailored teaching practices to maximise student learning growth.
Recommendation 13	Create a continuously improving profession through the provision of high-quality professional learning for teachers; appropriate to their career stage, development needs and the changes rapidly occurring in society.
Recommendation 17	Review and revise the Australian Professional Standard for Principals to prioritise leadership of learning and make maximising the learning growth of every student every year the key focus.

<sup>141</sup> See Part 3 – Reform Activity of the National Schools Reform Agreement

Also since this review, the Australian Education Research Organisation (AERO) has been established (Recommendation 23), two key reviews have been undertaken in relation to the quality of Initial Teacher Education courses and the importance of adult literacy as well as the release of a new Australian Curriculum.

### **Australian Education Research Organisation (AERO)**

The Australian Education Research Organisation (AERO) is a centralised body to synthesise, produce and provide the evidence-base to improve educational outcomes to its stakeholders; the Australian Government and State and Territory Governments.

The establishment of a national evidence body was a key recommendation from the 2017 Review to Achieve Educational Excellence in Australian Schools; Through Growth to Achievement Report (also known as the Gonski Review 2.0).

In December 2019, all Australian governments agreed to create an institute to position Australia's educators at the forefront of education research to improve learning outcomes for all children and young people.

AERO was incorporated in 2021, with the vision to achieve excellence and equity in educational outcomes for all children and young people through effective use of evidence.

The creation of the Australian Education Research Organisation (AERO) signals the Australian government's increasing understanding that the focus for improved educational outcomes needs to be on evidence-based pedagogy, curriculum and knowledge acquisition.

### **The Quality Initial Teacher Education Review**

Next Steps, the report of the Quality Initial Teacher Education (ITE) Review was released on 24 February 2022.

The Expert Panel heard from many teachers that they had felt underprepared by their ITE program for the practical aspects of teaching including phonemic awareness and phonics in teaching reading, classroom management, cultural responsiveness, supporting diverse learners and students with a disability, working with families and carers and working in regional settings.

The report contains 17 recommendations addressing issues ranging from raising the status of teaching and attracting high-quality candidates to ensuring that ITE programs are high-quality, evidence-based, and practically relevant.

In response to the Review, the Australian Government announced it will establish a new Initial Teacher Education Quality Assessment Expert Panel, which will develop new minimum and excellence threshold standards for ITE courses.

### **Standing Committee on Employment, Education and Training Inquiry into Adult Literacy**

The Standing Committee on Employment, Education and Training undertook an inquiry into adult literacy and its importance. The inquiry examined the importance of developing strong language, literacy, numeracy, and digital literacy (LLND) skills, overcoming barriers to learning, and the ability of existing adult education programs and providers to meet demand.

The Committee released its report and recommendations on 22 March 2022.

It found that while Australia aspires to a world class school system, which provides universal access to quality education, the reality is that too many children are falling through the cracks. This failure at a school system level has a detrimental impact on work and life choices as an adult.

Too many Australians leave school with language, literacy, numeracy, and digital literacy (LLND) skills gaps that limit opportunities and life choices including reduced labour force participation and wages, poorer health outcomes and incarceration.

The Committee made 15 recommendations to be undertaken within a specified time frame, by March 2023. A number of these recommendations highlight the inadequacy of the schooling system in supporting marginalised students, those with learning disabilities, of Aboriginal and/or Torres Strait Islander descent or those when English is not their first language.

### **Australian Curriculum**

The Australian Curriculum sets the expectations for what all young Australians should be taught, regardless of where they live in Australia or their background.

In response to deteriorating educational outcomes, the rationale for the introduction of a centralised Australian Curriculum in 2010 was to ensure a system-wide focus on improving the quality, equity and transparency of Australia's education system.

The Australian Government justified the need for a national curriculum as “education plays a critical role in shaping the lives of young Australians and contributing to a democratic, equitable and just society that is prosperous, cohesive and culturally diverse.”

The Australian Government further argued that the commitment to develop a national curriculum reflected a willingness for jurisdictions to work together, across geographical and school-sector boundaries, to provide a world-class education for all young Australians. They claim that working nationally makes it possible to harness collective expertise and effort to pursue the goals of the education Declarations. A centralised curriculum is also argued to provide the potential for economies of scale and a substantial reduction in the duplication of time, effort and resources.

A review of the Australian Curriculum was undertaken in 2020 and 2021 and was specifically tasked with refining and reducing the amount of content across all eight learning areas of the Australian Curriculum F-10, with a priority on the primary years, to focus on essential content or core concepts.

Following an extensive consultation process, a program of research, advocacy from evidence-based scholars and practitioners, on 1 April 2022, Australia's Education Ministers endorsed a revised Version 9.0 of the Australian Curriculum.

### **Productivity Commission Inquiry into Australia's Productivity Performance**

In April 2022, the Productivity Commission (PC) announced three focal areas for the next stage of its Inquiry into Australia's Productivity Performance; 1) dynamic, flexible markets, 2) the future workforce and 3) leveraging new technologies and innovation.

The future workforce focal area includes the school system with the PC stating that “the experiences of the past few years have highlighted the critical role our education system can play in providing both the basic training for our future workforce and options for supporting lifelong learning, including rapid reskilling of those displaced from their current jobs. Skill formation is fundamental to future productivity growth. For example, improving the quality of labour in the services sector is

likely to be key to delivering improvements in the quality and accessibility of services. Some tasks across the economy will continue to become automated and STEM skills will be important for those workers enabling an effective digital progression. But tasks that require the judgement, empathy or decision-making of a person will also likely remain areas where skilled workers are in demand. How our schools, higher education and vocational training institutions, and other skills development processes can be most efficiently and effectively used to skill our future workforce, will be a focus in this inquiry”.

Primary Focus made a submission to the Productivity Commission advocating that Primary School Efficacy is the best policy lever the Government has to improve the nation’s productivity.

The final report with the PC recommendations is due to be presented to the Australian Government in March 2023.

### **Clear evidence of what needs to be done**

Progress is happening. The 2018 Through Growth to Achievement Report instigated a focus on educational outcomes in Australia’s school reform agenda, however, primary school outcomes do not appear to be a priority focus of that agenda.

The report recommended repositioning Australia’s education policy reform agenda to focus on individual student progress. However, given that primary school outcomes predict future school performance, Primary Focus contends that primary school performance should be specifically prioritised in the reform agenda. Further, while individual student progress could be interpreted as school-based reform, the key recommendation in the report clearly articulates that individual student achievement through continuous learning progress needs to be embedded within the policies and practices of all schools and systems. This needs to start in primary school.

Acknowledging that school-based reforms can help, but that system and structural change is much more effective<sup>142</sup>, this section discusses how the recent policy reforms within the complex and diverse system of education in Australia fare according to Crato’s 10 principles for improving educational performance.

#### **1. Policy. Are Australia’s education policies evaluated on students’ results, rather than by policies’ intentions?**

Recognition of Australia’s deteriorating educational performance over a number of decades has shifted education policy discussion to student outcomes rather than the previous focus of equity and funding structures, as is evident from the 2017 Review to Achieve Educational Excellence in Australian Schools Review and subsequent report; Through Growth to Achievement. However, student outcomes, equity and funding structures are not mutually exclusive. There is considerably more to be done. There are still substantial gaps in policy making and implementation in terms of pedagogical practices and the scientific evidence underpinning how students learn as well as ensuring that pre-service teachers and practicing teachers are equipped with the evidence-based knowledge and skills to effectively teach all Australian students.

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<sup>142</sup> Wilkinson, J., & Brooks, J. S. (2018), Educational Leadership in Australia, Asia Pacific Education: Leadership, Governance and Administration, 31

While there is a growing community of practice of over 250 Australian schools<sup>143</sup> who are pursuing an entirely evidence-based approach to teaching and learning in every classroom, this is largely school-based reform, whereas system and structural changes are much more effective over the long-term.

It is also important to note that the outcomes of policies focussed on student progress and performance will take some time to be realised. Evidence will be dependent on ongoing assessment of student learning progress, individually and at scale, using standardised tests such as the National Assessment Program – Literacy and Numeracy (NAPLAN) and PISA.

As the 2018 Through Growth to Achievement Report stated, to accelerate individual learning growth at scale, Australia needs to commit to the goal of growth, and to undertake long-term, consistent and coordinated action throughout all school systems and schools to enable schools and educators to meet it.

2. **Curriculum.** *Does Australia’s curriculum have clear learning goals? Is it coherent? Is it ambitious and demanding, and does it set clear, sequenced objectives?*

Australia has had a national curriculum since 2011 which is ratified in the Australian Education Act 2013. While the national curriculum sets the standards for what all young Australians should be taught, given the Australian Constitution allocates the administrative responsibility for schooling to the States and Territories, it is the jurisdictions, schools and principals themselves which have the ultimate autonomy over the detail of what, and how, students are taught in their respective schools and states.

In addition to the challenges associated with the flexibility of the national curriculum, numerous education scholars, reading scientists and well-informed educators argued that the national curriculum was not aligned with evidence-based practices of how students learn and the sequential process of knowledge acquisition to be successful learners across several domains – reading and, more broadly, literacy, maths and science.

Following the 2018 Through Growth to Achievement Report recommendation to ‘revise the structure of the Australian Curriculum progressively over the next five years to present the learning areas and general capabilities as learning progressions’,<sup>144</sup> the national curriculum undertook a review during 2020 and 2021. The Report further stated that “Australia needs to start by setting higher expectations for students, educators and schools, and rejecting the idea that there are natural performance plateaus.”

In particular, the Report recommended limiting the burden of non-core activities and placing increased emphasis on teaching general capabilities in the F-10 Australian Curriculum. It stated that general capabilities need to be at the core of curriculum and teaching practice, and, more specifically, prioritise the implementation of learning progressions for literacy and numeracy in curriculum delivery during the early years of schooling to ensure the core foundations for learning are developed by all children by the age of eight.<sup>145</sup> This recommendation sits squarely with the responsibilities of primary schools.

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<sup>143</sup> over 150 schools participating in the Fogarty EDvance program in Western Australia, one 56 school system – Canberra Goulburn Catholic Education, the Kimberly Schools Project and numerous individual schools throughout Australia.

<sup>144</sup> Recommendation 5

<sup>145</sup> Recommendation 6

Additionally, Recommendation 7 of the report suggests an aspiration to achieve curriculum coherence for Australia; Strengthen the development of the general capabilities, and raise their status within curriculum delivery, by using learning progressions to support clear and structured approaches to their teaching, assessment, reporting and integration with learning areas.

Despite the intent of the recommendations in relation to Australia's national curriculum, there is still some way to go to achieve clear, ambitious learning goals which progress sequentially through the curriculum and which are implemented consistently within and between schools across the nation. A high-quality curriculum is shown to have a larger cumulative impact on student achievement than many other school improvement intentions, and at a lower cost.<sup>146</sup> Curriculum coherence should therefore be a priority of the national education reform agenda.

In addition to setting standards of learning expectations, a high-quality curriculum needs to support effective, research-based pedagogy and must be content-rich (also referred to as knowledge-rich). That is, it must reflect the evidence-base of effective teaching and learning.<sup>147</sup>

In terms of the content of Version 9.0 of the Australian Curriculum, reading scientists report that the final revised version for English in Foundation to Year 6 is substantially sound compared with earlier drafts. The revised curriculum places due emphasis on the sequential development of students' ability to read and spell words using phonics, as well as giving more explicit guidelines on the development of vocabulary, grammar, and comprehension, acknowledging that content and skills cannot be separated from each other.<sup>148</sup> However, some argue that the curriculum needs to be more specific about exactly what all students are expected to learn in each of the first three years of school. This is particularly important for students who are experiencing disadvantage and those most likely to change schools.<sup>149</sup> Consistency within and between schools in the early years for foundational knowledge and skills ensures that students do not miss out on being taught core capabilities.

In relation to science content, one reputable education scholar and practitioner suggests that the revised curriculum "is underwhelming and will do nothing at all to address our precipitous decline in science achievement as assessed by the Programme for International Student Assessment (PISA)"<sup>150</sup>. A similar response is reported for the revised mathematics content, albeit less severe<sup>151</sup>.

Without curriculum coherence - where instruction, assessment, standards, resources and materials are carefully and deliberately aligned – implementation of the curriculum – what to teach and how - remains the responsibility of the classroom teacher, under the guidance of the autonomous principal. Without clear, sequential learning goals within a centralised curriculum, there is no clear

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<sup>146</sup> Steiner, D., Magee, J., and Jensen, B. (2018) What we teach matters. How quality curriculum improves student outcomes, John Hopkins School of Education and Learning First.

<sup>147</sup> Ibid.

<sup>148</sup> Buckingham, J. (2022), Ten years after the first version, the Australian Curriculum gets it right on reading, Five from Five. <https://fivefromfive.com.au/uncategorized/ten-years-after-the-first-version-the-australian-curriculum-gets-it-right-on-reading/>; <https://www.smh.com.au/politics/federal/phonics-to-the-fore-in-pared-back-australian-curriculum-20220509-p5ajrx.html>

<sup>149</sup> Clarke, A. (2022) The Australian Curriculum version 9.0, Spelfabet <https://www.spelfabet.com.au/2022/06/the-australian-curriculum-version-9-0/>

<sup>150</sup> Ashman, G. (2022), It could have been worse, I suppose. <https://fillingthepail.substack.com/p/it-could-have-been-worse-i-suppose?s=r>

<sup>151</sup> Ibid.



starting point for standards, schools and teachers' accountability, professional practice, institutional development and all subsequent aspects of the educational system.<sup>152</sup>

**3. Focus on student progress.** *Is there frequent and reliable formative and summative assessment as well as independent assessment taking place? Does the education system simultaneously nurture quality and improve low performing students' achievement?*

The best way to improve overall educational performance is to focus on individual learning progress.<sup>153</sup> Focusing on student growth, not just achievement at a point in time, matters because it enables every student to progress regardless of their starting point or capabilities. Student growth is a measure of the individual progress a student makes over time along a defined learning progression. Student progress measures provide an insight into how much students improve from one year to the next. Students who fall behind will never catch up unless their rate of learning accelerates.<sup>154</sup>

Further, the extent of variance in educational achievement in Australian classrooms, as evident by research from the Grattan Institute and Mitchell Institute, contributes substantially to the workloads of educators in providing differentiated teaching and learning opportunities. Classes that progress together at the expected level will reduce planning demands, workload and enable teachers to focus on progress.

Assessment is critical in tracking student growth and their learning progress. Assessment can, and should, take several forms; formative, summative, independent and standardised.

Australia has an independent and standardised National Assessment Program – Literacy and Numeracy (NAPLAN).<sup>155</sup> This assessment program is designed to collect, analyse and report nationally comparable data on student achievement in literacy and numeracy and is undertaken annually by all Australian students in years 3, 5, 7 and 9. First implemented in 2008, NAPLAN, which replaced a raft of tests administered by Australian states and territories, has a number of important functions, as well as enabling comparison of students' results across states and territories. It also provides the opportunity to improve accountability and respond accordingly.

NAPLAN is critically useful for a number of reasons.<sup>156</sup> However, while NAPLAN data provides multiple layers of insight into education performance, it is also clear that the data is not being used to its fullest potential to drive improvement in educational outcomes.<sup>157</sup>

At a system level NAPLAN provides information to governments, education authorities and schools on the literacy and numeracy performance of students, enabling evaluation of education policies,

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<sup>152</sup> Crato, N. (2021), Setting up the Scene: Lessons Learned from PISA 2018 Statistics and Other International Student Assessments, in N. Crato (ed.), Improving a Country's Education, PISA 2018 Results in 10 Countries, Chapter 1, Springer

<sup>153</sup> Goss, P., Sonnemann, J., Chisholm, C., Nelson, L., 2016, Widening gaps: what NAPLAN tells us about student progress, Grattan Institute

<sup>154</sup> Ibid.

<sup>155</sup> See <https://www.nap.edu.au/about>

<sup>156</sup> See for more information Goss, P., (2018) NAPLAN tests are vital: here are five reasons why, The Conversation, <https://www.theguardian.com/australia-news/2018/may/15/naplan-tests-are-vital-here-are-five-reasons-why>; Joseph, B. (2018), Why we need NAPLAN, Research Report, Centre for Independent Studies <https://www.cis.org.au/wp-content/uploads/2018/05/rr36.pdf>; Goss, P., Sonnemann, J., Chisholm, C., Nelson, L., 2016, Widening gaps: what NAPLAN tells us about student progress, Grattan Institute

<sup>157</sup> The pros and cons of NAPLAN, Education Matters, <https://www.educationmattersmag.com.au/the-pros-and-cons-of-naplan/>; Joseph, B. (2018), Why we need NAPLAN, Research Report, Centre for Independent Studies <https://www.cis.org.au/wp-content/uploads/2018/05/rr36.pdf>; Goss, P., Sonnemann, J., Chisholm, C., Nelson, L., 2016, Widening gaps: what NAPLAN tells us about student progress, Grattan Institute

programs and practices and identifying areas for improvement at the region, school, cohort and/or domain level.

For teachers and schools, NAPLAN provides a point-in-time assessment of students' acquired literacy and numeracy knowledge and skills, providing alternative insights to complement formative and summative assessment, as well as monitor student progress over time. It can help identify where students need additional support and intervention to achieve the expected level for their age and year.

For students and their parents, NAPLAN also provides an insight into their learning journey and progress over time.

NAPLAN provides valuable data not available by any other means to inform policy making at national and state level, forward planning, allocating and resourcing support, tracking progress of individual students, cohorts of students and schools as well as regions on the school improvement journey and should be used more effectively. It provides for greater accountability on many levels; systems, schools and classrooms.

In terms of formative and summative assessment, the Through Growth to Achievement Report recommended the development of a new online and on demand student learning assessment tool based on the Australian Curriculum learning progressions.<sup>158</sup> This recommendation was endorsed in the 2018 National School Reform Agreement and extended to require links to student learning resources and prioritising early years foundation skills.<sup>159</sup> Design and development of this tool began in 2019. The current status is that it is being assessed by Education Ministers as to whether or not it will progress further into the Beta phase.<sup>160</sup>

**4. Pedagogy.** *Is there a good balance between innovating with new pedagogical approaches and new technology and paying attention to empirically proven methods?*

As discussed in the [pedagogical ideology](#) section, pedagogical practices have not been keeping pace with the scientific evidence of how students learn best.

Cognitive scientists correlate Australia's deteriorating academic performance with a decades-long pedagogical shift to 'inquiry-based learning' over explicit instruction in Australian classrooms.

Inquiry-based learning has meant that pedagogical practices have shifted to focusing on the application of knowledge in the learning process rather than the acquisition of knowledge. Through inquiry processes, students are required to apply abstract concepts to problem solving and to engage in self-directed learning to develop the capability to transfer their learning to other contexts, however, this is empirically proven to be an ineffective pedagogical practice.

There is still some way to go to shift pedagogical practices to be informed by the evidence of the Science of Learning. The establishment of AERO should support the disbursement of the evidence-base within the education system.

AERO has also developed a rubric to help evaluate the effectiveness of a new or existing policy, program or practice against standards of evidence. The evidence rubric can be used to analyse a

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<sup>158</sup> Recommendation 11

<sup>159</sup> See Part 44 (A) ii of the National School Reform Agreement

<sup>160</sup> See the initiative website for further information [Home - Online Formative Assessment Initiative \(ofai.edu.au\)](https://ofai.edu.au)

particular approach in two ways: to decide whether or not to implement a certain approach in context or to assess confidence in the effectiveness of an existing approach.

**5. Teachers.** *Is the Initial Teaching Education (ITE) qualification providing teachers with the knowledge and skills they need to teach effectively? Are teachers engaging in evidence-based professional learning, reskilling, upskilling and retraining?*

The Quality Initial Teacher Education (ITE) Review, released in February 2022, found that many teachers reported they felt underprepared by their ITE program for the practical aspects of teaching.

In terms of evidence-based reading instruction, a 2019 report<sup>161</sup> shows that in 81 (70%) of the 116 literacy units reviewed in ITE courses, none of the five essential elements (phonemic awareness, phonics, fluency, vocabulary, and comprehension) of effective evidence-based reading instruction were mentioned in the unit outlines. All five essential elements were referred to in only 6 per cent of literacy unit outlines.

In response to the Review, the Australian Government announced it will establish a new Initial Teacher Education Quality Assessment Expert Panel, which will develop new minimum and excellence threshold standards for ITE courses.

Given the extent of under-preparedness of the ITE courses and the increasing awareness of evidence-based teaching practices by classroom teachers; the Science of Learning and the Science of Reading, as well as a lack of curriculum resources and materials, there is a growing network of educators, scholars and professionals sharing their knowledge and experiences in improving educational outcomes through improved teaching practices. Think Forward Educators and Reading Science in Schools have evolved to fill the knowledge gap, as well as numerous social media groups sharing ideas and resources.

**6. Public.** *Is the public on the journey to improve educational outcomes in Australia?*

While there is heightened awareness of Australia's deteriorating educational performance in wide-ranging networks and in public discourse, there appears little consensus in the understanding of how to improve Australia's education outcomes. Employer groups, economists, unions, scholars, educators, professionals, practitioners, politicians, policy-makers, parents and advocates all call for a commitment to improve educational outcomes for all Australians, however, few understand the cause of the deteriorating outcomes.

Much greater effort needs to be committed to communicating the cause of Australia's deteriorating educational performance and how to improve it. The solution starts with understanding the importance of primary school outcomes from a systemic, policy-making perspective and the need for educators to be knowledgeable and skilled in the Science of Learning. The current perception that primary school does not matter, that students catch up, that boys learn differently and that children will learn when they are ready is wrong. This narrative needs to be corrected. Primary School Matters.

Several organisations made submissions to the Productivity Commission Inquiry into Australia's Productivity Performance citing skill shortages, low literacy and numeracy, increasing demand for STEM related skills and a general lack of suitable labour. None acknowledged the role of primary school in providing the foundations for these skills and rather sought improved investment in

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<sup>161</sup> Buckingham, J. and Meeks, L., (2019), Short-changed: Preparation to teaching reading in Initial Teacher Education, Research Report, MultiLit and Five from Five.

vocational education and training (VET), including VET in schools, and secondary school programs which provide career pathway planning. If young Australians do not consolidate their literacy and numeracy knowledge and skills, nor develop an interest in maths or science, in primary school, then it is unlikely that they will engage in associated secondary school subjects nor pursue higher skilled careers. VET and University are bounded by the limits of achievement at earlier levels of schooling. Poor primary school outcomes make poor students at any stage of education.

In its submission to the Productivity Commission's Inquiry into Australia's Productivity Performance, The Smith Family focussed on the importance of education in enabling all Australians to realise their economic and social potential. In particular, it emphasised the need to address the non-school factors which contribute to the widening inequity gap, including the need to ensure that the policy intention for 'needs-based funding' is actually realised.

Business representative organisations such as the Business Council of Australia, the ACCI and the Australian Industry Group regularly lament that poor communication, literacy and numeracy skills, critical to the workforce, significantly impact the productivity of their workforces, their organisations and their industries.

In its *The Modern Worker, A Guide to What Employers Want*, the Business Council of Australia outlines the minimum capability requirements for trade and technical jobs as well as professional roles. These skills include occupation-specific reading comprehension, writing and oral communication skills, numeracy capabilities and digital literacy. These occupation specific skills cannot be acquired without solid foundational language, literacy and numeracy knowledge and skills in the first place.

In its *Workforce Development Needs 2018* report, the Australian Industry Group found that 99 per cent of employers are affected in some way by low levels of literacy and numeracy in their workforce with 39 per cent highly affected. The employers reported dissatisfaction with the use of English and basic numeracy and literacy levels of over one-fifth of school leaver workforce entrants. The most significant effect on the business was cited as poor completion of workplace documents and reports followed by teamwork and communication problems. The impact of these low levels of literacy and numeracy include time and/or material wastage, unsafe work practices, financial loss, teamwork challenges, and lack of confidence. Due to a lack of specific workplace literacy and numeracy programs, employers are increasing their internal resources to militate the effect of the problem in the workplace, at considerable cost.

**'[Australia's international literacy and numeracy performance] deepen our concern about the level of foundation skills in the workforce and are a continuing drag on the nation's productivity.'**

**AI Group Chief Executive, Innes Willox,  
Tackling Foundation Skills in the Workforce**

## 8. Conclusion

***Primary Focus argues that to achieve equity and excellence in education in Australia, focus must shift to education policies which embrace a centralised curriculum and resources, promote evidence-based teaching practices – the Science of Learning - , track student progress and design and implement an effective needs-based funding redistribution structure.***

Despite the explicit goals set in the Australian Education Ministers' Declarations since 1999, the 2011 Gonski review and the more recent 2018 Gonski 2.0 review, Australia's educational performance has continued to deteriorate. Despite the rhetoric and the policy reform agenda, this is because individual student progress, and the scientific evidence relating to curriculum and pedagogy have not been prioritised in policy reform design and implementation nor teaching practice.

The reality is, there can be no educational excellence for our nation without equity, so much so that education, equity and excellence are inseparable.<sup>162</sup> The goal that young Australians become confident and creative individuals, successful lifelong learners, and active and informed members of the community cannot be achieved without achieving the first goal of excellence and equity.

While there is a significant problem in funding redistribution given the inequitable funding for the areas and schools with the most resource need, and that over 80 per cent of disadvantaged students attend government schools<sup>163</sup>, this should not be the only focal area for improving educational performance in Australia. As is evident, structural inequity across both government and non-government schooling sectors is increasing and performance is declining despite the addition of significant financial resources to education from both state and Commonwealth governments.

Policy reform focus must also extend to the curriculum, pedagogy, teacher training and the centrality of policy and resources. Critically, primary school outcomes must be prioritised.

Improving Australia's educational performance to achieve equity and excellence, productivity and social cohesion, must begin in primary school.

Cognitive skills - the foundational knowledge and skills of literacy and numeracy learnt in primary school - predict school completion and educational attainment and the potential for a productive workforce and social prosperity.

Primary schools must be supported to be well run and ensure that all teachers are using the evidence-based best practice in curriculum, pedagogy and assessment. The task of every primary school should be to ensure that all Australian students exceed the expected level in the foundational cognitive skills of literacy and numeracy before they start high school. These are the cognitive skills which predict school completion.

There is a growing community of practice of over 250 Australian schools including over 150 schools participating in the Fogarty EDvance program in Western Australia<sup>164</sup>, one 56 school system<sup>165</sup>, the

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<sup>162</sup> Bonnor, C., Kidson, P., Piccoli, A., Sahlberg, P. & Wilson, R. (2021). Structural Failure: Why Australia keeps falling short of its educational goals. Sydney: UNSW Gonski Institute

<sup>163</sup> Thomson, S. (2021), Australia: PISA Australia—Excellence and Equity, in N. Crato (ed.), Improving a Country's Education, PISA 2018 Results in 10 Countries, Chapter 2, Springer

<sup>164</sup> Fogarty Edvance (2021), Impact Report: Cohort 5, School Improvement Program, 2018-2020

<sup>165</sup> Catholic Education Canberra Goulburn

Kimberly Schools Project<sup>166</sup> and numerous individual schools throughout Australia who are pursuing an entirely evidence-based approach to teaching and learning in every classroom.

While Primary Focus acknowledges that its assertion that primary school is the best policy lever the government has to improve both economic and social prosperity in Australia, we also acknowledge it is a long horizon to realise the return on investment in primary school reform. The process will involve a lengthy time period until the school students and future generations become adults, join the workforce and are productive and independent citizens in our society. This will require policy-makers and successive governments to be patient and track the incremental progress which will be achieved firstly through improved primary school outcomes and then school completion, participation in further education and training and then the labour force. It will also be evidenced through greater equality, social cohesion and health and well-being.

Primary Focus believes the time is now right for this reform agenda – the momentum has begun, the success of over 250 schools in Australia already pursuing evidence-based approaches shows the potential to improve educational outcomes - it is time to refocus energies at national and state level on system-wide education reform, particularly in primary school.

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<sup>166</sup> For more information see <https://kdc.wa.gov.au/our-region/kimberley-schools-project/>