Submission to the Review to Inform a Better and Fairer Education System Consultation

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There is clear and mounting evidence for the effectiveness of two school practices: explicit teaching and a carefully sequenced, knowledge-rich curriculum. Explicit teaching is a whole system that gradually releases control from teachers to students and is supported by cognitive science. Knowledge is what we think with and is not arbitrary or interchangeable. We need an assessment system that builds on NAPLAN and enables us to intervene early. This will include additional screening measures. When considering wellbeing, a key issue to address is classroom behaviour, an area where Australia performs poorly. Rather than eliminating sources of stress, we need to better teach students how to manage it. Michaela Community School in London is an example of a school that has put many of these measures into practice.

I initially attempted to complete the survey rather than produce a standalone submission. However, with 38 open questions to address, many of which overlapped with each other, I found this a challenge. Instead, in my submission, I will focus on curriculum and teaching, assessment and wellbeing. I will then outline a case study of an innovative and successful school and the policy measures that allowed it to develop. I will address other aspects of the terms of reference as they arise in these contexts.

Curriculum and teaching

There is growing evidence to support two key practices in school education. The first is explicit teaching and the second is a carefully sequenced, knowledge-rich curriculum.

Academic knowledge is not something we have evolved to acquire. It is quite unlike learning our local language as infants. As a species, we have been speaking and listening to each other for hundreds of thousand, perhaps millions, of years. This has provided enough time for evolution to shape the ability to acquire this knowledge. Evolutionary psychologist David C. Geary (1995) refers to such a capacity as 'biologically primary.' However, writing has only been in existence for a few thousand years and for much of that time, it has been the preserve of a clerical class. We have therefore not evolved to automatically learn reading and writing in the way we learn speaking and listening, although reading and writing obviously build on the skills of speaking and listening. Instead, reading and writing and all the academic knowledge and skills derived from them, including symbolic mathematics, are, 'biologically secondary.'

Over the centuries, many observers have noticed the slow and effortful way we teach literacy in schoolrooms and longed for a more 'natural' alternative, contrasting this process with the way children learn biologically primary knowledge through immersion and play. However, there is no reason to suppose biologically secondary knowledge can be efficiently learnt this way and many reasons to suppose it cannot.

In cognitive load theory (see e.g. Sweller, van Merriënboer, & Paas, 2019), when dealing with biologically secondary knowledge, the mind is modelled as consisting of an extremely limited 'working

memory' that can process about four new items at a time and an effectively limitless 'long-term memory.' Working memory is essentially the thoughts we are conscious of having at any one time.

However, the constraints of working memory fall away entirely when dealing with knowledge held in long-term memory. To a novice, $3x=18$ consists of many items to process – the figures, the letter representing a number, the principle that both sides are the same, the relationships between the items – but anyone with a grounding in algebra will have conclude that $x=6$ before reaching this point in the paragraph. The effortlessness with which we can recall and, critically, use the knowledge held in long-term memory leads to the illusion that such knowledge is unimportant. Experts find it hard to empathise with novices who lack such knowledge. Instead of emphasising the value of foundational knowledge, experts are inclined to talk in lofty terms about the importance of creativity or critical thinking.

This is because many of us assume that knowledge in long-term memory is somewhat inert, interchangeable and arbitrary. We imagine the equivalent of a little person – a homunculus – wandering around long-term memory, browsing the shelves and picking up knowledge as needed. The key is to train that homunculus to be swifter, more adept, more critical, more creative and so on so it can better process and use the information it finds. This leads to a paradox – if the mind is controlled by a homunculus, what is controlling the homunculus? Is there a homunculus inside the homunculus and so on?

Cognitive load theory resolves this problem (Sweller, Ayres, & Kalyuga, 2011). There is no homunculus. Knowledge is what we think *with*. It is an interaction between the environment and long-term memory, mediated by working memory, that determines what we pay attention to. If we want creative, critical thinkers, we need to build lots of knowledge in long-term memory. And this is not just facts and figures. Knowledge includes the knowledge of how to solve certain classes of problem. It includes knowledge of how an art critic may interpret a painting. It includes knowledge of how to evaluate a scientific experiment.

Cognitive load theory is ultimately a model and, as the late statistician George Box (1979) suggested, "All models and wrong but some are useful." Cognitive load theory is useful in the sense that it makes testable predictions that are supported by a wide variety of available evidence.

One prediction is that for relative novices learning something new, their working memories can be easily overloaded. If we place them in an environment where we ask them to solve real-world problems or figure out key principles for themselves then we will overload working memory and they will learn little. Research from teacher effectiveness studies, randomised controlled trials and PISA surveys all point to the effectiveness of what has been ambiguously labelled 'direct instruction' but that I will term 'explicit teaching,' when compared to more implicit teaching methods (Rosenshine, 2009).

In explicit teaching (Rosenshine, 2012):

- Concepts are fully explained and procedures are fully demonstrated before students are asked to apply those concepts or procedures.
- Initial instruction proceeds in small steps to not overload working memory.
- Instruction is highly interactive with responses required from most or all students to questions posed by the teacher.
- There is a gradual release of control from teacher to student that proceeds from teacher modelling to guided practice to independent practice and ever more sophisticated uses of the target knowledge.

This definition describes a *whole system* of teaching that eventually leads to students solving challenging problems or producing

complex products independently. The key point of different with methods such as inquiry learning is that concepts and procedures are fully explained at the outset.

In recent years, there has been a trend to suggest that approaches such as inquiry learning *include* episodes of explicit teaching. If so, the term, 'explicit teaching,' perhaps meaning a brief episode of teacher explanation, is being used in a different way to the form of explicit teaching for which there is a large body of evidence.

Still, there is much resistance to explicit teaching. It is characterised as, 'just telling,' or, 'drill and kill.' Despite the evidence to the contrary, there are those who remain convinced that discovering a principle for ourselves means that we somehow learn it better, when evidence suggests this is not the case (see e.g. Klahr & Nigam, 2004). This seems a strange position to hold in a context where if we could describe anything as a human superpower, it is our ability to share knowledge so that each individual may start where the last left off. This is how we build complex cultures, societies and technologies. It is at the heart of the concept of human progress.

If knowledge is what we think with then the knowledge we select to teach students is not inert, interchangeable and arbitrary, it is critical to what students are later able to do.

In the U.S., E. D. Hirsch Jr and Professor Daniel Willingham have made this case most fluently in the context of reading comprehension (see e.g. Hirsch, 2003; Willingham, 2006). A widely accepted model of reading is known as, 'The Simple View of Reading,' (Gough & Tunmer, 1986) and it models reading comprehension as the product of decoding – turning the squiggles on a page into words – and language comprehension – knowing what those words mean and being able to build a mental model of what is being described.

Decoding is aided by the explicit teaching of letter-sound relationships, commonly known as, 'phonics,' and it is good to see this now being prioritised in more Australian states, despite the ideological resistance of some in academia.

Language comprehension depends greatly on knowledge of the world. To successfully read and understand a news article about tensions in The Gaza Strip requires us to be able to deploy a wide range of historical, political and geographical knowledge. So, reading comprehension is not really like a muscle that can be strengthened by being exercised in a variety of random contexts – the implicit theory behind much reading instruction. It is highly dependent on knowledge.

There is growing evidence from the U.S. that schools that adopt an intentionally knowledge-building curriculum see reading comprehension gains (Cabell & Hwang, 2020; Grissmer et al., 2023). Given that reading is the gateway to all other academic subjects, this is significant, not only for learning those subjects but for engagement with school.

I work in a school where we have taken a whole-school approach to knowledge building. We jointly plan to the extent that a new teacher joining the school will not initially have to plan a lesson, although they will need to prepare by ensuring they are across the lesson content. This saves time and is far more efficient. Instead of each teacher starting with a blank sheet of paper and perhaps stuck at their computer at midnight, searching the web for a relevant worksheet, teachers can benefit from each other's work. The Grattan Institute suggests this saves teachers about three hours per week (Hunter et al., 2022). This is significant in the context of a teacher recruitment and retention crisis and the questions the Review poses about this issue.

An additional advantage of a centrally stored and shared curriculum is that it can be iteratively improved. We can track it against assessment data and decide what to keep and what to work on. This has been part of the improvement plan in my school for over ten years and it has coincided with substantial improvements on a range of

outcomes measures such as NAPLAN and VCE.

Assessment

Which brings us to the issue of assessment and what kinds of targets the next National School Reform Agreement (NRSA) should focus on. I have less to write on the latter point, other than one broad principle: Against a backdrop of declining standards, we should be establishing a baseline and then looking to improve on that baseline. Anything more ambitious seems too optimistic.

What are the purposes of a national assessment system? I propose the following:

- To give parents *objective* data on their child's performance and how this compares with national standards.
- To identify students who need additional support and resources.
- To give schools data on how their students compare with students at other schools and with national standards. Ideally, this is broken down to a level where schools can identify specific skill or knowledge areas to focus on.
- To map different teaching methods and other school practices against school data to see whether certain methods and practices are associated with higher performance and should therefore be recommended to other schools.

Part of any baseline should come from the existing suite of NAPLAN assessments with the reset of 2023 as the point from which we should seek improvement. NAPLAN is not perfect by any means, and it does not deliver well on the objectives outlined above.

There is debate to be had about NAPLAN writing tasks and whether shorter writing tasks should also be included. The NAPLAN reading contexts draw from an essentially random set of topics. This advantages those students who have wider knowledge of the world due to their home background. A fairer and more equitable reading assessment would draw at least some of the contexts from the previous year's Australian Curriculum. This would give schools a chance to teach the relevant background knowledge and would provide a disincentive to missing it out in favour of NAPLAN practice. To be fair, the Australian Curriculum is a weak document that could not in any way be described as 'knowledge rich,' but such a measure would be a start.

The numeracy assessments also downplay the value of being able to do mathematics without a calculator. In Years 7 and 9, students are only required to answer eight questions without a calculator. This is hardly a thorough test of a rigorous curriculum.

We can add practical problems to these more principled ones. There is an absurd delay between students sitting NAPLAN and schools and parents receiving the results, making it hard to intervene in a timely fashion. This is despite most of the tasks being marked electronically such that the results should be available instantaneously.

Nevertheless, imperfect as they are, they tell us something. A student cannot do well on a test of mathematics or writing unless they are good at mathematics and writing. So, it provides a measure we can track. However, NAPLAN is probably too late and too imprecise to help target meaningful intervention. For that we need screens.

In an ad hoc way, Australia is already adopting one such screen – the phonics screening check. This assesses young children's knowledge of letter-sound relationships. Logically, it should be standardised and tracked across Australia.

We also need other screens such as for early handwriting, numeracy, world knowledge and so on. We need a screen to ensure that all students entering secondary school have memorised multiplication facts up to 12 x 12.

Another disadvantage of NAPLAN is its sole focus on literacy and numeracy. Literacy and numeracy are important, but there are other key 'ways of knowing' that are not assessed, such as science and history. A school history department that wishes to improve has only one check available to it on how its students compare with those from different schools – the exams at the end of Year 12. At this point, it is too late to do anything to intervene with that cohort and it takes a lot of guesswork to extrapolate back to what any such evidence means for, say, Year 8 history teaching. Contrast this with the situation in England where there is a suite of GCSE exams that students take at the end of Year 10.

Imposing a new set of national assessments in science and history would quickly drain political capital and spark resistance and debate. On the other hand, offering schools the *option* to take part in high-quality, nationally standardised assessments based on the Australian Curriculum – setting its faults aside for now – would address the issue of the notional history department that wishes to improve. Integrated into a more autonomous school system, where school leaders rather than education departments make decisions about whether to participate in such initiatives, such assessments could be a key driver of improvement.

Finally, to what extent should this data be disaggregated by different identities such as Aboriginal and Torres Strait Islander or disability? This is not my area of expertise and so I am not sure. I think that as a nation, we would want to address educational underperformance wherever we find it, regardless of group membership. However, identifying the specific challenges some groups face could be helpful.

Wellbeing

During each round of the Programme for International Student Assessment (PISA) conducted by the Organisation for Economic Co-operation and Development (OECD), students of around fifteen years of age are surveyed to construct an index of disciplinary climate. This index is based on their perceptions of disruption in Australian classrooms. In 2018, Australia finished 69 out of 76 jurisdictions (OECD, 2019). Similarly, in 2015, we finished 63 out of 68 (OECD, 2016). This is consistently poor position. It is worth noting that the 2015 survey asked about experiences in science classes and the 2018 survey asked about experiences in English classes. So, we can assume this finding is not limited to a particular subject area.

However, the years since 2018 have been affected by the COVID-19 pandemic and so it is worth looking for measures that span before and after the 2020 outbreak.

Researchers from Monash University surveyed a sample of teachers before the pandemic (Heffernan et al., 2019) and then three years later (Longmuir et al., 2022), using the same survey instrument. During this time, the number of teachers who reported they feel unsafe at work rose from around a fifth to around a quarter, with the majority of those responding indicating students as a source of their concerns. It is not difficult to imagine this may be a factor in the current teacher recruitment and retention crisis.

Anecdotal feedback from teachers presented in these surveys is often disturbing. In 2019, one respondent wrote:

"I've had to confiscate knives from students and I've been punched in the stomach while pregnant by a student."

In the 2022, a respondent wrote:

"I have been assaulted by a student which involved both physical, sexual and emotional attacks for an extended period of time. Often, I have to make a decision on if I should protect students from other students and put myself at physical risk. All advice is to never do this which means the psychological guilt of not protecting an innocent child comes into play."

The NEiTA Foundation conducted a similar survey of teachers in 2021 and found:

"Behaviour management was… frequently nominated by teachers as the greatest challenge they face. Teachers explained that just a small minority of disruptive students can have a large and negative impact on the majority, and that managing these behaviours takes even further time away from teaching. Sixty-eight per cent of teachers indicated that they spend more than 10% of their day managing individual student behavioural issues. Seventeen per cent said that this consumes over half their day."

Universities and state education systems do not have a positive track record of practical responses to behaviour issues. This may be because of a reluctance to address these issues. Australia has signed-up to various international treaties that promote 'inclusive' education. In addition, the Australian Government (2005) has developed the Disability Standards for Education (DSE) with its obligation on schools and teachers to provide, 'reasonable adjustments'. Together, these are widely seen as mandating a system of, 'full inclusion,' in which all students, whatever their needs, should be included in mainstream classrooms and that any failures associated with such an approach arise as a result of not sufficiently meeting individual needs. This is despite the DSE making clear there is no requirement to make 'unreasonable adjustments,' for students.

Taken to the extreme, full inclusion is not logical. There will be some needs which make a mainstream classroom highly inappropriate. Mainstream classrooms are organised around one teacher and 25-30 students. This means that whatever measures the teacher has in place, they cannot replicate a one-to-one therapeutic relationship, something that allied professionals, such as the educational psychologists who suggest reasonable adjustments for students, may fail to appreciate. In addition, the documentation of these adjustments and its attendant bureaucracy has become a source of significant workload for teachers.

One paper that is typical of the full inclusion philosophy and has been influential within Australian state education systems (Cologon, 2019) has recently been critiqued by special education researchers (Stephenson & Ganguly, 2022).

There is also a substantial crossover between the full inclusion argument and traditional methods of managing extreme behaviour. Suspending or expelling students from school has come to be seen as not inclusive, even if the alternative is the highly undesirable one of placing victims and perpetrators back in the same classroom.

I believe that everyone involved in education wishes to see a reduction in suspensions and exclusions. The question is whether this is done by a top-down, coercive approach in which regulations effectively prevent schools from using these measures, or whether it is achieved by an improvement in the behaviour, wellbeing and safety of school students and their teachers.

I favour the latter approach.

It must be miserable to go to classes that are constantly disrupted by a small number of peers, where bullying is endemic and students feel unsafe. Such schools likely have a negative impact on wellbeing.

What can be done about this? Interestingly, there is plenty of research from the field of behavioural science that can be used to manage classrooms more effectively (see e.g. Ashman, 2018). These include techniques that consider antecedents, behaviours and consequences. Antecedents are the precursors to behaviour and reflect the fact that context affects behaviour. For example, having students facing the teacher rather than each other has been shown to impact positively on learning behaviours (Wheldall & Bradd, 2013). Consequences should include positive reinforcement of desired behaviours and

must include less frequent option of a negative response. Although unfashionable, these techniques are well documented, work most of the time with most students and can be taught to trainee teachers.

Of course, no strategy works all the time for all students. They are humans and humans are unique. However, by reducing the number of disruptive incidents that teachers and school leaders must deal with, effective classroom management allows a diversion of more intensive resources to the students who need them most.

'Response to Intervention' is model of intervention that applies to a range of needs, from reading difficulties to behavioural issues (see e.g. Hawken et al., 2008). All students receive 'tier 1' of the model. In this case, it would mean good, basic classroom management from the teacher. A small group of students who do not respond to tier 1 may be brought together for a more intensive 'tier 2' intervention, perhaps focused on building specific learning habits and skills. Finally, those most in need receive 'tier 3' individualised interventions, perhaps delivered by allied mental health professionals.

As with lesson planning, there are additional benefits to having a school-wide approach. A consistent set of rules, routines and consequences applied across a school makes it easier and more transparent for students. Conditions no longer vary from idiosyncratic teacher to idiosyncratic teacher. It also forms part of a wider culture-building project. Successful charter schools in America, and free schools and academies, in England, are noted for their whole-school approach to school culture, with behaviour being one component of that culture. Schools in England, for example, have experimented with introducing approaches based on the ancient philosophy of Stoicism (Kirby, 2017).

Other assertions are often made about wellbeing that have an impact on school. Should students spend less time on electronic devices and outside, engaged in open play? Perhaps.

However, one issue that is often raised is the stress of standardised testing and so this issue is relevant to the recommendations of the Review.

One common misconception about sources of stress is that the best way to deal with them is to remove them. However, approaches such as cognitive behavioural therapy, an effective psychological intervention that has philosophical similarities to Stoicism, often focus more on changing an individual's attitude and response to the source of stress. A recent randomised controlled trial found that a package of training for parents of anxious children that sought to reduce the parents' inclination to remove stressors was as successful for reducing the anxiety of their children as enrolling the children in cognitive behavioural therapy (Lebowitz et al., 2020).

Rather than remove mild sources of anxiety such as standardised tests, we should help students to manage and cope with these situations. If children do not learn how to cope with school assessments, they are likely to find many other life events overwhelmingly stressful, such as being interviewed for a job or buying a house.

A school visit

In July of this year, I was lucky enough to visit Michaela Community School in Wembley, London. Michaela is a Free School, outside the purview of local government, with considerable autonomy over its philosophy and how it structures its programmes. It is hard to imagine a similar school being established in Australia under our current structures.

The current form of school autonomy in England was introduced under the Labour governments of Tony Blair and Gordon Gordon Brown before being expanded in scope by the present Conservative administration.

Michaela takes students from the local area under the same admissions scheme as other local schools. It is not selective and its students are drawn from a relatively disadvantaged population. Nevertheless, they achieve extraordinary results.

The key accountability measure for secondary schools is 'Progress 8'. This is a measure of the amount of progress students have made between finishing primary school and sitting their GCSEs in the equivalent of Australia's Year 10. Critically, it is not a threshold measure that counts the number of students performing beyond some threshold and instead, it depends on the progress of all students, including the most vulnerable. In 2022, Michaela posted the highest Progress 8 score of any government school in England (UK Government, 2022).

During my visit, I was shown around by a Year 7 and a Year 9 student who I will call Mary and John. Both were articulate and took me to a range of classes. Michaela has an open-door policy where anyone, including visitors, may enter a classroom, stand at the back and observe the lesson. At one point, as another group of visitors entered the same classroom we were observing, Mary took charge and decided we should leave to prevent it becoming too crowded.

The classes are arranged so that all students face the teacher. The teacher leads the class, instructing and asking students questions that students either respond to on mini whiteboards or, following a discussion with the person next to them, by being called upon by the teacher. All students are expected to raise their hands to answer questions.

Despite its reputation as a 'strict' school, I did not see a teacher admonish a child for the entire time I was there. Instead, relationships between teachers and students were friendly and businesslike. This included during the lunch break in the yard when teacher spent time chatting to students.

When I asked about the difference between Michaela and her primary school, Mary remarked that Michaela was much better because there was 'no bullying'. Mary told me she aspires to be a neuroscientist and John wishes to become a pilot.

Students and teachers eat lunch together – this is known as 'family lunch'. The head of year sets a discussion topic. Ours was sportsmanship, following a recent incident in an Australia versus England cricket match. Students and staff also must articulate things they are grateful for and some of these are fed back to the whole lunch hall. A boy on my table explained to the hall, clearly and articulately, that he was grateful to me for coming all the way from Australia to visit his school.

During my tour, I quizzed Mary and John on the various teaching strategies we observed. They could explain the purpose of them to me, demonstrating that this was not a school where students robotically followed orders but one where they were invested in the culture and the processes that sit within that culture.

Michaela is a unique school, even for England. However, while I was there, other visitors from schools in England were observing classes and making observations that they could take back and implement in their own contexts.

We need a system in Australia that allows innovative government schools like Michaela to trial new approaches and influence the system more widely.

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