

Briefings

Thought leadership for the independent schooling sector

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KEY REVIEWS TO DRIVE FUTURE SCHOOL INNOVATION AND IMPROVEMENT

From the Executive Director

Four key reports released over the past few months have the potential to be significant drivers of change in our schooling system into the future.

Most attention has been given to *Through Growth to Achievement: Report of the Review to Achieve Educational Excellence in Australian Schools*¹, led by Mr David Gonski AC. This review was commissioned by the Australian Government last year to build the evidence base needed to ensure the growing investment in school education is spent on initiatives proven to make a positive difference to student outcomes.

However, the *Independent Review into Regional, Rural and Remote Education*² led by Dr John Halsey and the *Optimising STEM Industry-School Partnerships: Inspiring Australia's Next Generation*³ report led by Australia's Chief Scientist, Dr Alan Finkel, also have significant recommendations for schooling.

The fourth report – *Lifting Our Game: Report of the Review to Achieve Educational Excellence in Australian Schools through Early Childhood Interventions*⁴ has a focus on early childhood education considering and making recommendations on the most effective interventions in early childhood for achieving academic success later in life.

Each of these national reports not unexpectedly take a high-level perspective and as a result many of their recommendations might be best described as motherhood statements.

It would be hard to argue against recommendations such as “create a continuously improving profession through the provision of high-quality professional learning for teachers” (Gonski Recommendation 13) or “ensure regional, rural and remote children start school with a strong foundation for learning” (Review into Regional, Rural and Remote Education Recommendation 4).

These reports highlight the potential disconnect between national policies and directions and what happens in the classroom on a day-to-day basis. It is one of the difficulties around the Australian Government's role in schooling. Whilst there is an expectation that the Federal Government should provide leadership, direction and funding for schooling, it does not own or operate any schools.

It is the state/territory governments and non-government schooling authorities which determine how their schools operate and in Australia's Federation sadly, history has shown there is rarely bi-partisan support for significant schooling initiatives.

At least the current Federal Minister for Education, Senator Simon Birmingham, appears to have a more pragmatic view than some past ministers, with the Commonwealth likely to set high level directions and systemic approaches because of the reviews rather than trying to prescribe specific measures that effectively can only ever be implemented by state/territory governments and non-government schooling authorities.

The Gonski review report, released on 30 April, concludes that “Australian Education has failed a generation of Australian school children by not enabling them to reach their full learning potential”. As evidence, the report references declining OECD and PISA and stagnating NAPLAN scores.

It makes 23 recommendations urging the need for national and bi-partisan commitment to address this performance slippage – “all governments and sectors of schooling must work collaboratively to have the greatest impact on lifting student outcomes”.

1 Available at <https://docs.education.gov.au/node/50516>

2 Available at <https://docs.education.gov.au/node/50281>

3 Available at <http://www.chiefscientist.gov.au/2018/05/optimising-stem-industry-school-partnerships-report-released/>

4 Available at <https://education.nsw.gov.au/early-childhood-education/whats-happening-in-the-early-childhood-education-sector/lifting-our-game-report>

KEY REVIEWS TO DRIVE FUTURE SCHOOL INNOVATION AND IMPROVEMENT

Gonski describes the current school system as “industrial” and more suited to the 20th century when mass education was the key aim.

Many of the recommendations focus on improving teacher quality and ensuring principals have the professional autonomy and accountability to lead school improvement.

However, the most significant changes recommended by the review involve a shift to a student-focused approach to schooling including from year-based curriculum to a curriculum based on learning progressions⁵ (with the expectation that each student should achieve at least one year’s growth throughout each year of schooling). A new online and on demand student learning assessment tool based on learning progressions is recommended, as is giving students the opportunity to be partners in their own learning.

This shift to learning progressions would require a revision of the Australian Curriculum progressively over the next five years (Recommendation 5).

The move to learning progressions coupled with a recommendation to strengthen the development of the general capabilities and to raise their status within curriculum delivery, will clearly require a concerted long-term effort across all schooling sectors. It will also have to overcome opposition from those who believe that this will simply lead to a further “dumbing down” of the curriculum and more focus should

be placed on rigorous content-based curriculum.

The Gonski plan would see the introduction of new reporting arrangements focusing on both learning attainment and learning gain in order “to provide meaningful information to students and their parents and carers about individual achievement and learning growth”.

Successful schools already embed individual student achievement and growth with high expectations and academic standards, so it is somewhat surprising that the Gonski focus on student growth and engagement is presented as a new direction for education.

Many schools are already successfully meeting the challenge of equipping students with 21st century skills within the context of a more traditional education.

It is also curious that Gonski, having concluded that our schooling systems are still operating as though we are in the “industrial” age, didn’t explore potential structural changes to the schooling system that might be the catalyst for a movement towards individual student achievement and continuous learning progress. If our schooling system is to be genuinely based on individualised learning for each child, major structural changes will be required at the system, school and classroom level.

Several of the Gonski recommendations are aimed at improving national data quality to

improve the evidence base to inform policy development. This includes the implementation of a national unique student identifier (USI) and the establishment of an independent National Institute for School Excellence to inform teacher practice and policy development.

Whilst these recommendations are supported, implementation will need to focus on ensuring their relevance in the day-to-day classroom activities of teachers and school leaders.

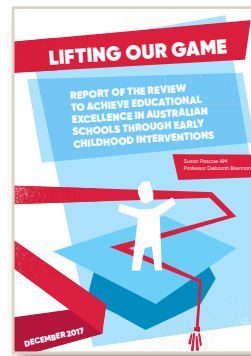
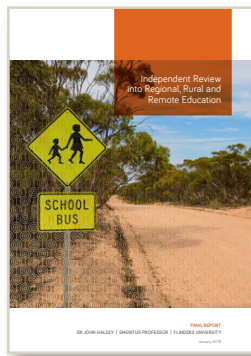
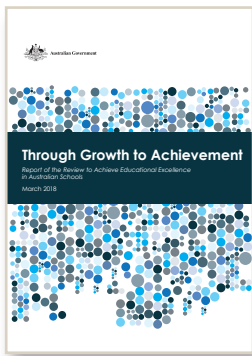
It would be difficult to not support recommendations to strengthen parent engagement in schooling and school-community engagement. These have been the subject of much promotion over many years and areas where independent schools can take pride in their activities.

One Gonski recommendation – to review the objectives, curriculum, assessment provision and delivery structures for senior secondary schooling – is unlikely to find much support in Queensland. Given the changes that are being made to Senior Assessment and Tertiary Entrance from 2019 (including a revision of all senior secondary syllabi and the replacement of OP with ATAR), there won’t be any desire for further change. In any case, states and territories have in the past strongly resisted any attempts to take a national approach to senior secondary. This is unlikely to have changed in recent years.

So, where to now with the many good ideas from the Gonski review report?

Whilst the Australian Government has indicated its support for the Gonski recommendations in-principle, it will need to work with the states and territories and non-government schooling authorities and other stakeholders if they are to be successfully implemented.

5 See <https://www.australiancurriculum.edu.au/resources/national-literacy-and-numeracy-learning-progressions/> for more information on learning progressions.



The four key reports recently released with the potential to be significant drivers of change in our schooling system.

The Gonski review report has already been considered by the Ministerial Council which comprises the Federal and state/territory Ministers for Education at a meeting on 4 May 2018. The Communique⁶ from the meeting noted “the report will be an important input into the forthcoming national schooling reform agreement”.

A new National Education Reform Agreement is currently the subject of negotiations between the Commonwealth and the states/territories. Such an Agreement is required under the *Australian Education Act 2013* (the Act) and will set key reforms and directions for Australian schooling as well as specific measures and targets that education authorities will be expected to meet in return for Commonwealth funding.

The Agreement is also required for Commonwealth funding for schooling to be paid to the states and territories as well as to independent schools.

Negotiations over the new Agreement have commenced and are expected to be finalised over the next few months before its signature by the Prime Minister and Premiers later this year.

Given the current highly charged political environment, negotiations are likely to feature plenty of robust discussion between the two parties. This will almost certainly be the case in relation to those aspects of the Agreement dealing with Commonwealth and state funding for schools. States will have the opportunity

to negotiate, in an accompanying bi-lateral agreement, the requirements of the Act in terms of the transition arrangements under the Gonski 2.0 funding model (including their 20% commitment to non-government schools).

Independent schools will be required to comply with both the National Education Reform Agreement and any bi-lateral arrangements negotiated at an individual state level. This requirement comes as a condition to receiving Commonwealth funding and will include a requirement for independent schools to work with their state government to implement agreed national reforms.

It would be expected that the reforms agreed to in the national Agreement will be at a high level whilst bi-lateral agreements with individual states will consider specific details at a state level, existing reform efforts and different starting points according to each jurisdiction. For national reforms and directions, specific timeframes are likely to be nominated along with which body might be responsible for carriage of the reform (for example, the Australian Curriculum, Assessment and Reporting Authority or the Australian Institute for Teaching and School Leadership).

In addition to the requirements of the new National Education Reform Agreement, currently independent schools will also be subject to the requirements outlined in the *Australian Education Regulation 2013*. This includes

matters such as participating in NAPLAN, implementation of the Australian Curriculum and reporting to parents.

One of the possible ironic outcomes of the Gonski review recommendations is an increasing level of prescription around what schools need to teach, how they teach it and how they report it. Increased levels of prescription in terms of requirements placed on schools is always problematic for independent schools whose success is significantly driven by high levels of autonomy and responsiveness to the needs of parents and local communities.

At a time when the Gonski review is advocating for a more individualised approach to student learning, hopefully the conditions placed on schools through the National Education Reform Agreement will not be such to stifle an individual school approach.



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6 Available at <http://www.educationcouncil.edu.au/EC-Communiqués-and-Media-Releases.aspx>

BUSTING THE NEUROMYTHS IN TEACHING



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It is likely that every teacher uses teaching strategies that they believe are effective and appropriate for the students they are teaching. It is also likely that teachers assume those strategies are based on evidence and research.

What if that assumption is wrong? What if particular strategies have no evidence to support them? Why would a teacher use a strategy with no evidence or research that supports its efficacy and how might we persuade that teacher to try a different strategy instead?

Neuromyths are defined as “a misconception generated by a misunderstanding, a misreading, or a misquoting of facts scientifically established” (Dekker et al, 2012, p. 1).

The adoption of strategies based on neuromyths with little or usually no evidence, can lead to many teachers being less effective than they could be. Also, there is an opportunity cost to both students and teachers. Time and energy expended in the implementation of an activity that is ineffectual is time and energy not spent on activities that have been shown to be more effective for student learning. While the expectations for teachers to try to meet the personalised learning needs for all students increase, so too does the purposeful, evidence-driven approach to maximising student’s learning while avoiding the perils of neuromyths.

Why people believe in neuromyths

Researchers argue that many neuromyths are rampant in classrooms. Often, people more generally are seduced by neuroscientific explanations. McCabe and Castel, Weisberg et al, (as cited in MacDonald et al 2017) found that many people have a cognitive bias to judge arguments as more satisfying and logical when they include neuroscience, even if this neuroscience is unrelated to the argument.

While this unfounded bias is concerning enough in the general population, it appears that similar findings are found in studies of teachers.

Dekker et al (2012) investigated the prevalence and predictors of neuromyths among teachers in selected regions in the United Kingdom and the Netherlands. More than 200 primary and secondary teachers who had an interest in neuroscience were sampled using an online survey containing 32 statements about the brain and learning, of which 15 were neuromyths.

Results showed that on average, teachers believed nearly half of the neuromyths. This suggests that

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teachers who are enthusiastic about applying neuroscience in their teaching find it difficult to establish pseudoscience from science.

Perhaps in the six years since the Dekker et al study the level of knowledge of relevant neuroscience for learning has significantly developed. In a study by MacDonald et al (2017) it was revealed that neuroscience misconceptions are stubbornly popular. The study included 3000 members of the general public and 600 teachers. Participants were asked to rate 32 statements as either true or false. Table 1, adapted from MacDonald et al shows the most common neuromyths broken down into general public and educators.

Clustering of neuromyths

Another interesting finding from the study was that a number of neuromyths are clustered together statistically. If a person believed one of the neuromyths in Table 1, they were more likely to believe more of them. The researchers conclude that, "it is unclear why this might be the case, although one speculation is that a few misunderstandings about the complexity of learning and the brain will make one susceptible to a myriad of neuromyths. Alternatively, it is possible that these neuromyths are taught explicitly and simultaneously in some professional contexts" (MacDonald et al, 2017, p. 10).

Learning styles

A particularly pervasive neuromyth is that students have a particular learning style that needs to be catered for if they are to successfully learn. Simmonds (2014) found that the learning styles neuromyth was the most common neuromyth with 76% of teachers indicating that they currently use this approach in their teaching.

Table 1: Neuromyth Endorsement by Group

Neuromyth items (ranked by % incorrect)	Correct Answer	General Public (% wrong)	Educator (% wrong)
Individuals learn better when they receive information in their preferred learning style	FALSE	93	76
Children have learning styles that are dominated by particular senses	FALSE	88	71
A common sign of dyslexia is seeing letters backwards	FALSE	76	59
Listening to classical music increases children's reasoning ability	FALSE	59	55
Some of us are 'left brained' and some are 'right brained'; this helps explain differences in learning	FALSE	64	49
We only use 10% of our brain	FALSE	36	33

With learning styles, students are commonly categorised as visual, auditory or kinaesthetic (VAK) learners. It is expected that teachers will assess the preferred learning styles of the students in their class in order to present information in a mode that matches the learner's style. So, if a student is a visual learner information should be presented visually, via graphs, diagrams etc. For kinaesthetic learners, there needs to be an opportunity for them to manipulate materials. A failure to cater for these different learning styles could then mean that learning is ineffective. On a superficial level there is appeal in this thinking. As Pashler et al (2008, p. 105) state:

Our review of the literature disclosed ample evidence that children and adults will, if asked, express preferences about how they prefer information to be presented to them.

There is also plentiful evidence arguing that people differ in the degree to which they have some fairly specific aptitudes for different kinds of thinking and for processing different types of information.

Another, very understandable, part of the appeal of the learning-styles idea may reflect the fact that people are concerned that they, and their children, be seen and treated by educators as

unique individuals. It is also natural and appealing to think that all people have the potential to learn effectively and easily if only instruction is tailored to their individual learning styles.

Unfortunately for proponents of learning styles theory, after reviewing findings from rigorous research studies Pasher et al (2008, p.105) conclude: "If classification of student learning styles has practical utility, it remains to be demonstrated. We conclude that at present, there is no adequate evidence base to justify incorporating learning styles assessments into general educational practice."

Additionally, Geake (as cited in Howard-Jones, 2013) found that "VAK might, if it has any effect at all, be actually harming the academic prospects of children."

This debunking is further reinforced in an open letter from a group of 30 leading neuroscientists, cognitive scientists, psychologists, other prominent researchers and scholars informing teachers that learning styles is a neuromyth that "creates a false impression of individuals' abilities, leading to expectations and excuses that are detrimental to learning in general" (No evidence to back idea of learning styles, 2017).

BUSTING THE NEUROMYTHS IN TEACHING CONTINUED

Why it persists

With no credible evidence that learning styles theory has value, why do so many teachers continue to believe it? While disproving some neuromyths might simply involve providing teachers with more information, learning style is more complex because presenting information in a variety of modes can be useful. But, the usefulness is not because a teacher is trying to mesh a student's preference with the mode of delivery; the time spent fruitlessly trying to create that meshing distracts teachers from strategies that have been proven to be effective.

As stated by Smith and Weinstein, (2016, para. 7)

When we discuss verbal and visual materials, it does sound like we could be referring to learning styles. However, it is important to remember that a great deal of research has shown that assessing your learning style and then matching your study to that "style" is not useful, and does not improve learning. So, remember, regardless of any "learning style" you may or may not possess, or think you possess, matching the specific way you are studying to this style will not improve learning! You may have a preference for verbal materials or visual materials, but that does not mean that you learn better with those types of materials.

The bigger issue of how to eliminate belief in neuromyths generally is complex. Teachers who believe in learning styles for example, will not necessarily be dissuaded just by the information in this briefing. Deans for Impact urge anyone trying to influence teachers to take into account the questions below (Pershan & Riley, 2017).

1

What do educators already believe about how learning takes place and why?

It is believed that people learn by referring to what they already know i.e. Building on prior knowledge. With reference to learning styles then the question might be why teachers believe it with the aim of getting to the thinking/motivation behind it.

It could be that teachers conflate using multiple modalities with learning styles as though they are the same thing. By being clear as to what teachers think about an issue, and what is driving that, it becomes clearer what the most important belief is and allows you to focus on that.

Whatever opportunities are provided, it is essential that they take into account teachers' own sense of their professional efficacy and autonomy. Teachers want to be empowered and well informed so they can improve student learning in their classes.

2

What scientific insights about learning are important for educators to understand?

Mental models and representations guide our decisions. Some people intending to influence others believe that simply providing evidence-based information will be sufficient in changing someone's mind. It rarely is. Instead, time should be spent on helping teachers to understand different models of learning, such as dual coding, which might meet the teachers' desire for using a range of modalities while at the same time being effective and evidence-based.

3

How might we create opportunities for teachers to practise their understanding of learning science?

The development of training modules, blog posts, opinion pieces etc. could all be useful in dealing with neuromyths but more complex is the creation of opportunities for teachers to practice or test their new understanding. Some of those opportunities could include activities such as Independent Schools Queensland's (ISQ) Action Research and Research in Schools programs.

Conclusion

Whatever opportunities are provided, it is essential that they take into account teachers' own sense of their professional efficacy and autonomy. Teachers want to be empowered and well informed so they can improve student learning in their classes. They want to protect their autonomy and do not take kindly to what they see as top-down directives or an implication that what they are doing is not good enough. As Pershan and Riley (2017, para. 24) argue:

There is a way forward. We need more teaching – and less preaching – to influence the beliefs of educators. To achieve this, advocates of learning science should borrow from the playbooks of good science teachers. These teachers do not prioritize getting students to reject their existing beliefs, but instead seek to foster new scientific knowledge in their students. They replace scientific misconceptions, rather than debunk them.

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