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PERSONALISED
learning, inclusion and equity

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John Graham

Personalised learning received a headline boost after the publication of the Gonski 2.0 report – *Through Growth to Achievement* – which recommended moving from a standardised approach in curriculum and assessment to a more personalised strategy centred on the learning progress of each student and linked to individual learning plans. It argued that the present curriculum structures with their orientation to age and year level standards and the pervasive influence of standardised testing may be one of the reasons why the performance of Australian students in international testing has declined. It called for a freeing up of these structures and their eventual replacement by a new curriculum based upon formative assessment and learning progress.

This is an ambitious project not only because it would need to be negotiated through the populist politics of education, but also because the details of what it would mean at the school level and in the classroom and how it would be implemented across the system have not been spelt out. It offers a direction to move in rather than something which can be properly evaluated as a mainstream policy for all schools. The easiest part of it, and a first positive step, would be to eliminate high stakes population testing of students through NAPLAN, which has distorted school education for the last 10 years by conflating learning outcomes with snapshot test results in just a few areas of the curriculum. Promoting diagnostic formative assessment as a key learning improvement strategy, with some state and national sample testing for government quality assurance purposes, would remove the NAPLAN distraction and allow schools to concentrate on individual student progress.

The other parts of the Gonski agenda are far more problematic. The transformation of the curriculum from an age/year level-based construct to one based on learning progress would be complex and experimental. In his article in this edition of *Professional Voice*, Glenn Savage suggests that it has the potential to create wide-scale disruption ("a logistical nightmare" for

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teachers) and would "require a fundamental reworking of teaching and learning processes in schools". He also questions whether abandoning year levels would really have a positive impact, as the report spruiks its potential benefits without offering convincing research that it would work as an improvement strategy. Despite this, the federal government and various state governments appear to have adopted the idea as the way forward for school education.

Personalised learning

The wider question raised by the report is the nature and feasibility of 'personalised learning'. Many teachers, particularly in the primary sector, would argue that their prevailing pedagogy is already one of personalised learning, albeit within the constraints of tight global budgets, the mandated Victorian curriculum and the use of NAPLAN to judge schools and the quality of their teaching. Personalised learning gets many mentions in the Gonski report as *the* solution to lift student achievement, but there is no clear description of what this may mean and what teachers would be expected to do differently to implement it. The closest it comes to spelling out its view of what changes in classroom practice need to occur is in the section about formative assessment.

> *Using formative assessment, teachers can work together to assess a student's existing knowledge, develop personalised learning plans, set goals for where the student needs to be in one year's time and track the student's progress over time, intervening if progress stalls or regresses.* [1] (p.62)

Rather than a change in practice, this sounds more like an intensification of what is already happening in schools.

When the Office of Education Technology in the US examined a range of different approaches to personalised learning they identified five core principles: the pace of learning is adjusted; learning objectives, approaches, content, and tools are tailored and optimized for each learner; learning is driven by learner interests; learners are given choice in what, how, when, and where they learn; and learning is often supported by technology.[2] Translating this approach literally into the average classroom in Australia would not be easy, and would require a long time-line. What neither this definition nor the Gonski report canvasses is the resources needed to expand existing levels of personalised learning to the new frontiers they recommend, and the unacceptable workload for teachers without those resources. The level of work teachers face already in creating, implementing and reviewing individual learning plans within existing class sizes and teaching allotments, is an indication of how difficult

further personalisation would be. Glenn Savage ends his article on the following cautionary note:

> *But all the personalisation in the world means nothing if it isn't feasible to introduce in actually existing schools, if it comes at the expense of disciplinary knowledge, or in the absence of overarching commitments to equality of opportunity for all young people.*

The Gonski report links the ideal of personalised learning to a yet to be invented formative assessment technology "tool". This is in keeping with most proposals for personalised learning, which see the enabling capacities of ICT as central to its delivery. And to some extent it already functions in this way, either formally or informally, in the lives of most students. The technology behemoths have long since recognised the prospect of a world-wide personalised learning industry worth billions of dollars. Many of the large technology companies and their entrepreneurial founders (Bill Gates, Mark Zuckerberg etc) are at the forefront of various trial personalisation programs aimed at changing the traditional classroom model, ranging from students working on self-paced learning packages while teachers act as 'facilitators' and 'problem-solvers' to sophisticated artificial intelligence platforms where 'the teacher' is primarily a digital construct. The role of the (human) teacher is being gradually transformed by these developments. In some instances, it's being enhanced by adding a series of new learning tools to their armoury, in others it's being flattened out and narrowed as curriculum and pedagogical expertise is outsourced to corporate software developers.

The unanswered question about these innovations is whether they are helping or hindering student progress. There is presently a dearth of research validation of the tech giants' programs so there is no knowing whether student achievement (compared to existing conventional learning programs) rises, stays the same or falls through their use. Promotion by edu-business of the idea that algorithms are better than skilled teachers at adapting to students' abilities is more about bottom-line profit than valid evidence generated by reliable research. The interest of client authorities in such innovations rests somewhere between new ways to boost student achievement and new ways to cut costs.

Inclusive education

In his article, Umesh Sharma approaches the issue of personalised learning from the perspective of inclusive schooling, in particular the integration of students with special needs into mainstream schools. Personalised learning strategies are central to this

process. The first principle of an inclusive education, according to Sharma, is identifying and addressing the barriers to participation of *all* learners, including those with a disability. Similarly, he reminds us that inclusive teaching is above all good teaching. For example, research indicates that teaching strategies such as peer tutoring, co-operative learning and differentiated instruction not only improve the achievement of students with special needs but have a positive impact on the learning of all students. Two essential elements schools need to become more inclusive are school-wide professional learning and planning time. Professional learning enables the whole staff to have a consistent approach to needs-based curriculum and pedagogy and "to learn about how each student is different from another student irrespective of the label he or she has been given". Personalised learning however, only becomes a reality when there is sufficient time to collaborate and plan as "teaching in inclusive classrooms requires significant efforts in planning".

Equity

Inclusive schooling is underpinned by the principle of an equitable society where the life outcomes of people are not determined by their individual circumstances and backgrounds. Laura Perry's article outlines the distance Australia needs to travel to achieve equity in our schooling system.

> *Inequalities between students from different social backgrounds already exist when they start primary school. Worryingly, these inequalities increase as students progress through the education system.*

Understanding why this occurs is an important research priority. Perry identifies the large inequalities which exist between socially advantaged and disadvantaged schools in Australia, pointing out that the country has one of the largest resource gaps between advantaged and disadvantaged schools in the OECD. To improve the educational outcomes of students who are falling behind requires effective needs-based funding and a reduction in the level of social segregation in the schooling system. The difference between Australia and countries like Canada and New Zealand with less segregated schooling systems is that:

> *They have a much smaller proportion of schools that charge fees, and smaller qualitative differences between schools in terms of their facilities and resources.*

Perry believes that educational inequalities and underachievement in Australia will only be properly addressed when needs-based funding is in place and it is accompanied by a

broader reform of school funding policies specifically designed to decrease the qualitative differences between schools in terms of their resources and facilities.

NAPLAN

The main data sets which are used to plot the unequal outcomes of students in Australian schooling are derived from the standardised tests known as NAPLAN and PISA. Apart from one of these tests being national only and the other being international, a striking difference between the two testing programs is that one has no direct negative impact on learning in schools while the other does. PISA is a *sample* test of literacy, numeracy and science achievement of 15-year-old students in Australia and across the world. It does not identify individual schools (or their teachers) and the data it generates is high quality and can be used for a wide range of research purposes. NAPLAN on the other hand is a high stakes *population* test which has corroding effects on curriculum, pedagogy and student welfare and the data it produces is used to encourage the marketisation of schooling in Australia. Nicole Mockler steps the reader through the case against NAPLAN, pointing out the yawning gap between the claims made about its capacity to sort out the school sheep from the school goats, and the reality of its flawed data for anything other than national reporting. She calls for results from the testing program to be used "only for the purpose for which they are fit" while a broader conversation takes place about what constitutes good evidence of teaching and learning in schools.

Clinical teaching

Evidence-based practice in medicine has been described as "integrating individual clinical expertise with the best available external evidence from systematic research". Geoff Masters uses this definition to illuminate what he believes should be the basis of evidence-based practice in education. Discussion of evidence-based teaching often leaves out the first part of the definition, "clinical teaching practice", and bases itself on controlled research studies alone. Masters contends that teachers need a thorough understanding of where a student is in their learning and this may require a detailed diagnostic investigation of the errors they are making or the misunderstandings they have developed. This information can then be used "to guide and personalise teaching". He sees the Gonski focus on learning progress as the way forward for improving the quality of teaching practice.

> *Information about progress provides the most direct indicator of teaching effectiveness, as well as being key to the evaluation of educational policies, programs and teaching methods.*

Technology and the environment

Neil Selwyn is one of the most interesting and insightful researchers and commentators on the role of digital technologies in education. His many articles and books elucidate the ways in which teaching and learning are being transformed within schools which are now 'digitally dependent'. In this article he questions the long-term sustainability of the present use of digital technology because of its detrimental effect on the earth's environment. The article sets out the evidence of ecological damage under four headings: the raw ingredients of digital devices; the environmentally destructive manufacture and production of digital devices; the energy-greedy data infrastructures that lie behind digital transactions; and the environmental cost of dismantling and disposing digital hardware. His take-away message is a hard one.

> *Everyone in education therefore needs to ask themselves whether they are happy to continue being part of what is clearly a catastrophic drain on the planet and a fundamental threat to the living conditions and life chances of future generations. If not, then we urgently need to start rethinking the sorts of digital technology use that are* really *needed in education, and how these might be achieved in more sustainable ways.*

Teaching as a profession

The interview in this edition of *Professional Voice* is with Lawrence Ingvarson, one of the country's strongest voices in favour of greater professional status for Australian teachers. He contends that this goal will only be achieved when teachers themselves are controlling their own profession. This includes, for example, defining their own professional standards and certifying members who attain them, rather than having these processes carried out by employing authorities or government regulators. He is particularly critical of employing authorities for claiming "jurisdiction" over the assessment of teachers for certification at highly accomplished and lead teacher levels.

> *Showing a complete lack of understanding of what a professional certification is all about, many saw it as a "managerial prerogative", not an opportunity to encourage teaching to 'grow up' as a profession.*

Another longstanding concern of Ingvarson's is the failure by governments to improve the recruitment of people into teaching. The university entry data which shows teaching as the poor cousin of the other professional areas of study needs to be reversed so that teaching can compete successfully for the ablest graduates. He argues that just raising the bar for

entry does not address the recruitment problem and is as "tokenistic" as the Teach for Australia program. The profession needs better salaries, better working conditions, more decision-making control over their work and much better accountability systems. He sees the need for urgent change in all of these areas.

> *If ever there was a time when the profession needed to be able to speak on equal terms with governments and other employing authorities about matters central to quality teaching and learning, such as the quality of entrants to teacher education programs, that time is now.*

Notes

1. David Gonski et al (2018), *Through Growth to Achievement*, Australian Government
2. The Office of Educational Technology (2017), *What is personalized learning?* **https://medium.com/personalizing-the-learning-experience-insights/what-is-personalized-learning-bc874799b6f**

The hope of radical personalisation[1]

Glenn C. Savage

Complex questions are being raised globally about the capacity of schools to prepare young people for the demands of the 21st Century. An increasingly dominant argument in policy, research and media debates is that traditional models of schooling have failed to evolve.

Schools, we are told, are relics of the past: tied to an 'industrial model' no longer relevant in contexts marked by rapid technological change, globalisation and 'knowledge based' economies that need 21st Century skills. It's not just what is taught that needs to change. Instead, the fundamental form and structure of schooling is seen as redundant and needing to be overhauled. New 21st Century models of schooling are required that transform schools into labs of the future.

A major thread of argument in these emerging debates is that new forms of personalised learning and assessment are urgently required. In contrast to the so-called industrial model, which is seen to have relied on uniformity, regulation and conformity, the personalisation agenda promises flexible, agile, individualised and student-centred learning experiences[2]. Hopes for personalisation place significant faith in technological developments, big data and advances in artificial intelligence (AI) to drive emerging forms of adaptive learning and assessment, which promise to better diagnose and monitor student learning and progress.

While not many educators, parents or students would see an industrial era 'one size fits all' model as ideal for contemporary schooling, there are good reasons to question some of the claims in favour of new forms of personalisation. There is not only a tendency for personalisation to be uncritically celebrated and for claims of an industrial model to be vastly overstated, but claims that radical change is needed are often unrealistic and disconnected from the realities and capacities of existing Australian schools.

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Gonski 2.0 and the promise of personalisation

For a taste of how the personalisation agenda is playing out in Australian schooling, the recent 'Review to Achieve Educational Excellence in Australian Schools' (sometimes referred to as Gonski 2.0) is a good place to start. The federally-commissioned report, based on a review chaired by David Gonski, places significant faith in the power of personalisation, data and technology to drive improvement and help the nation cast off the shackles of its so-called 'industrial model' of schooling.

While the report makes recommendations across a variety of areas, its most substantive and radical lie in the areas of curriculum, assessment and reporting. Central to the report is an argument that the Australian Curriculum, which is organised into year levels rather than levels of progress, leaves some students behind, fails to extend others, and limits opportunities to maximise personalised learning and growth. This argument strongly echoes recent work by Professor Geoff Masters, who has argued for a major re-visioning of the way we assess students to better focus on student growth[3].

The report portrays the traditional year level curriculum as a relic of the 20th century and as ill-suited to producing adaptive and personalised learning experiences. Scant detail is provided, however, to support claims that schools are chained to the industrial model (which is curious, as surely today's technologically rich and vibrant classrooms do differ considerably from when my mum went to school in the 1950s!). Nevertheless, the report argues for a shift away from the year level curriculum, recommending that over the next five years, the Australian Curriculum be reformed to present both learning areas and general capabilities as "learning progressions". This will ensure, the report argues, that individual student achievement can be better understood and catered for, rendering schools more agile and adaptive to personal needs.

Accompanying this is a related recommendation to introduce new reporting arrangements that not only focus on attainment, but also highlight "learning gain". This is designed to ensure young people and parents don't just have information on where young people sit relative to so-called "lockstep" level years, but would instead get more tailored information about individual progress. This recommendation speaks powerfully to the work of Professor John Hattie, who argues that young people should gain "a year of learning growth from a year of schooling"[4].

The report makes a number of other recommendations to supplement these reforms, including the development of an online and on-demand formative assessment tool, to be

based on revised national curriculum learning progressions, to help teachers monitor student progress in real time and better tailor and personalise teaching.

How radical would such reforms be in practice?

Regardless of whether we agree or not with the Gonski recommendations, it's important not to understate just how monumental some of the suggested changes would be in practice. Indeed, many recommendations would require a fundamental reworking of teaching and learning processes in schools. How realistic, therefore, are such hopes for radical transformation? And would the wide-scale disruption required to make it happen be worth it?

Take, for example, the central idea of moving away from an age-based curriculum towards one based on learning progressions. This is a very radical proposal and that should not be taken lightly. Again, while it might sound agile and innovative, it could also be a logistical nightmare for teachers working at the coal face. How many teachers, for example, are trained or equipped to abandon a year level curriculum? How many school leaders are equipped to guide teachers through such dramatic change processes?

While advances in technology claim a future of radical personalisation is on the horizon, with teachers potentially working as supplements to new learning apps and technologies (which could indeed be based on learning progressions and adapt to learners in highly individualised ways) it's very clear the technology is not 'there yet'. This means potential chaos, in the meantime, for teachers trying to develop learning experiences and assessments for classes that remain structured into year levels, but no longer have a year-level curriculum.

Aside from the fact that such changes would be far from easy to implement and potentially very costly, there is also a lack of evidence to suggest that doing away with year levels would have any major positive impact. My concern, therefore, is that the report makes a big leap from canvassing ideas relating to the potential benefits of abandoning year levels, to arguing that it should happen. It's a classic case of jumping the gun, going straight into the "let's do it!" phase. But a major step in the middle has been missed: that is, rigorous research to find out if doing so would actually have the desired result in a diverse range of Australian schools.

Think of the corporate sector. Successful major businesses don't just take ideas that sound good in theory, but lack solid contextualised testing and research, and roll them out globally. Instead, they undertake rigorous and targeted evaluations to understand impact before making an informed decision to roll out something new. We should be very concerned,

therefore, that the federal government's response to the report has been to accept all recommendations in principle and that it is now seeking to pursue the agenda through the Education Council and Council of Australian Governments.

Some state and territories are embracing the agenda

Many of the ideas central to the Gonski report are already alive and well in state and territory education systems. New South Wales is one state where core ideas associated with the Gonski report are being strongly echoed. The current 'NSW Curriculum Review', for example, is being chaired by Geoff Masters and has been flagged from the outset as an attempt to transform the state's curriculum to align with the Gonski proposals.

In a strange move for a state Minister for Education, Rob Stokes put the cart before the horse by arguing that the *yet to be conducted review* "puts David Gonski's report into practice and will tailor the national education reform agenda to the NSW context"[5]. While the review's Terms of Reference are more careful to pose questions rather than presuppose answers, the Gonski report is still specifically mentioned, stating that the review "will contribute appropriately to any related national processes"[6] associated with it.

The ACT is also embarking on a new personalisation agenda through its recently released 'Future of Education' strategy, which places a major focus on reforms to ensure "learning is personalised and flexible" and promises to harness the power of digital technologies to do so. The word 'personalised' features 19 times in the 18-page strategy. The announcement of the strategy drew immediate criticism when ACT's acting school improvement director, Kris Willis, made the startling claim that, "Facts and figures once held as paramount in classrooms, and knowing facts and figures, is no longer relevant in today's society". Willis appeared to be trying to argue that traditional subjects might give way to new personalised forms of learning focused on the teaching of 21st century skills. It wasn't a good look.

Launching an agenda focused on personalisation by arguing for a rejection of facts and figures is a classic example of how futures-oriented thinking about schooling can go awfully wrong. While we should absolutely be having rich and vibrant discussions about the future of schooling and the potential of personalisation, to link such conversations to an argument that curriculum knowledge might simply be supplanted by teaching skills is gravely concerning.

Do we actually need more grand plans?

The idea that a radical overhaul of curriculum, assessment and reporting is the primary way to drive schooling systems forward and stop Australia's declining student achievement feels

a bit like Groundhog Day. This was exactly the logic that drove the creation of the Australian Curriculum in the late 2000s and led to other unprecedented national reforms such as NAPLAN, My School and the Australian Professional Standards for Teachers. The main difference this time around is that it's a personalisation agenda driving calls for change, rather than a standardisation agenda.

The problem is, despite significant time, resources and investments committed to revolutionising Australian schooling, these grand designs of the past decade have done nothing to stop declining student achievement or make schools more equitable[7]. So, before we charge forth once again into the reform wilderness, serious debate should be had about whether these plans pass muster, and whether it's worth the investment to put Australian schooling under another round of major surgery when the last round had minimal impact.

As part of this, we need to (once again) question whether the contemporary reform fever does any more than treat symptoms while deeper structural conditions continue to ensure, as the original Gonski report on school funding put it, an 'unacceptable link' between young people's socioeconomic backgrounds and levels of achievement[8]. We need to be careful not to stray too far from where the first Gonski report started out. That is: addressing inequalities in Australian schooling through re-distributive funding.

This is not to suggest that pursuing personalised or adaptive learning is a fruitless endeavour. Indeed, I actually believe that in an ideal world (in which money, resources and capacities were no barriers), then personalisation coupled with a knowledge and skills based curriculum is rich with productive possibilities. But all the personalisation in the world means nothing if it isn't feasible to introduce in actually existing schools, if it comes at the expense of disciplinary knowledge, or in the absence of overarching commitments to equality of opportunity for all young people.

Oh… and will it ever actually happen?

It's also important to distinguish between the world of rhetoric and recommendations, on the one hand, and the actual translation of ideas into policies and practices, on the other hand. While federal, state and territory developments often imply an impending revolution, there are significant political hurdles to be overcome before any of the more radical proposals being put forward can actually be translated into action. For example, with regards to the Gonski 2.0 report, even though the federal government has signalled an interest in pursuing the recommendations, nearly all the suggested reforms relate to state and territory responsibilities.

The federal government needs to secure state and territory support to translate the recommendations into a national response, which is easier said than done. The federal Education Minister, Dan Tehan, faces many state ministers, not to mention senior bureaucrats, who are already suffering reform fatigue from the last decade of national reform and have limited appetite for further major changes. It's also very likely for resistance to come from within schools, where long-standing habits and cultures are difficult to break.

This said, if the appetite remains strong in big and powerful states like NSW, and if that state's curriculum review further endorses the kind of personalisation agenda promoted in Gonski 2.0, then you never know what might happen. After all, if past decade of national schooling reform has taught us anything, it's that the seas of reform are turbulent and subject to rapid change.

Notes

1. This article is an adapted and extended version of an article by the author, co-published in *The Conversation* and *ABC Online*, titled *'Gonski 2.0 reveals another grand plan to overhaul education, but do we really need it?'*. It also draws upon comments made by the author in an online interview with Greg Ashman, titled *'Glenn Savage on #Gonski2'*, available at: **https://gregashman.wordpress.com/2018/05/09/glenn-savage-on-gonski2/**

2. Reid, A. 2018. *Beyond certainty: A process for thinking about futures for Australian education*. Report commissioned by the Australian Secondary Principal's Association.

3. See, for example: Masters, G. (2013). *Towards a growth mindset in assessment*. ACER occasional essays. Melbourne: Australian Council for Educational Research (ACER).

4. **https://www.youtube.com/watch?v=021nSlhhrj8**

5. **https://education.nsw.gov.au/news/media-releases/nsw-launches-school-cur...**

6. **https://nswcurriculumreview.nesa.nsw.edu.au/home/siteAreaContent/a044385...**

7. **https://theconversation.com/educating-australia-why-our-schools-arent-im...**

8. **https://docs.education.gov.au/documents/review-funding-schooling-final-r...**

Teaching students with disabilities in inclusive classrooms

From policy to practice in Australian schools

Umesh Sharma

It is important to understand that in the past inclusive education was mainly focussed on educating students with disabilities in mainstream classrooms. Now inclusive education does not just relate to the education of students with disabilities, it encompasses *all* students who learn differently because of their learning styles, sexual orientations, language backgrounds or learning abilities, including those with a disability. Inclusive education is about identifying and addressing barriers to participation of *all* learners in regular classrooms. While I fully acknowledge that inclusive education is about all students, a major focus of this paper is on the education of students with disabilities in regular schools.

A school can be confident in claiming that they are inclusive when they can demonstrate that *all* students, including those with a disability, meet four key critical aspects. These are: *presence* (i.e. the school welcomes and enrols any student with a disability and those students attend the school on a regular basis); *participation* (i.e. these students participate across full range of school activities); *achievement* (they achieve in academic, social domains and other important areas); and *acceptance* (are fully accepted by peers, parents and the schooling community). Clearly, this definition suggests that inclusion is much more than placement of a student with disability in a regular school. It means schools spending considerable time and effort in ensuring that students with disabilities and their carers are respected members of the school community.

Policy background

Schools in Australia cannot refuse to admit a student if he or she has a disability irrespective of the type or severity (Disability Discrimination Act, 1992) (see Anderson & Boyle, 2015

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for more details on the relevant Australian policies). Schools are also required to make reasonable adjustments to address the learning needs of students with disabilities (as mandated through the *Disability Standards of Education*, 2005). I personally believe that the inclusion agenda should not be enforced by legislative or policy mandates as it means that the agenda is driven by external agencies. Inclusion initiatives should be driven by educators. The legislation and policies then become additional resources available to schools to support what they believe in. I do not deny that implementing inclusive education is difficult. It requires schools to spend considerable time and effort in planning numerous activities to support inclusion. It also requires schools to work closely with a range of professionals and community organisations.

The end result is very high-quality education for all students. The Commonwealth of Australia has recognised that implementing inclusive education necessitates schools making significant adjustments and accommodations to classroom material, activities and curriculum content. Schools are now asked to collect data about the levels of adjustments they make for a student because he or she has a disability and report this data through the Nationally Consistent Collection of Data on students with disability (NCCD). The data is largely based on what teachers do within their classrooms/school settings to support the learning of students with disability. Within the model 'teacher judgment' plays a paramount role. Clearly, it is extra work for schools to collect and report this data each year. However, it is important to acknowledge that Australia is perhaps the only country where 'teacher judgement' with respect to what adjustments schools make for each student is given so much prominence.

The NCCD data is now guiding how much funding each school should receive to support the education of students with disability. In 2018, Australian schools received additional funding based on the levels of adjustments made for each student. The funding ranged from $4,600 for the lowest level of adjustment (i.e. supplementary) to $34,173 for the highest level of adjustment (i.e. extensive) based on the data provided by teachers on the levels of adjustment for each student. Schools that embrace the data-driven policy of NCCD and use the information to plan personalised education and support activities for students with disability have found that the NCCD policy is a significant resource to support implementation of inclusive education rather than seeing it as 'extra work'.

Questions about inclusion

In this next section, I will address a number of questions that are frequently asked by colleagues relating to inclusive education which have direct practical implications for school educators.

1. Why should we include students with disabilities into regular classrooms/schools?

There are three main reasons we should teach students with disabilities in inclusive classrooms. First, there is a large body of research that shows that students with disabilities who are educated in inclusive classrooms tend to have relatively better academic and social outcomes compared to students of similar abilities who are educated in segregated settings (see McLesky & Waldron,2011; Rujis & Peetsma, 2009). The reason for better academic and social outcomes could be attributed to challenging curriculum in regular schools and increased opportunities to interact with the same age peers in mainstream schooling. In inclusive classrooms, students with disabilities acquire skills in the natural environments that they will need to function effectively in as part of the mainstream of society. It thus enhances the chances of generalisation of acquired skills in natural settings.

Some researchers have found promising long-term outcomes for students with disabilities who attend regular schools compared to those students who attend specialist settings. The long- term positive outcomes include students with disabilities gaining employment in the open market, earning higher salaries, and being engaged and married when compared to their peers who always attended specialist settings (Ryndak, Ward, Alper, Storch & Montgomery, 2010). My colleagues in specialist settings might be a little concerned that the research that I have reported strongly favours inclusive education.

The majority of the research that has compared impact of placement on student outcomes in specialist and inclusive settings indeed does favour inclusion. It is important to note that students educated in specialist settings also make positive gains. However, when compared to their peers in mainstream classrooms the gains in both academic and social domains are less positive. Also, the amount of effort and resources required to make similar gains in specialist settings are much higher. I strongly believe that specialist schools will continue to play important roles in the lives of students with disabilities now and in the future. However, I do think the roles of specialist schools will change in future. Many countries have already started moving in this direction (e.g. Canada and Italy). The specialist schools will play an important part by becoming resource centres and supporting regular schools in implementing inclusive practices.

The second reason for us to support inclusion is cost-effectiveness of the inclusion model (see UNenable report). Some researchers have examined the cost-effectiveness of supporting students with disabilities in regular vs specialist settings. It is important to acknowledge that research on this topic is limited but tends to support inclusive education as the most cost-effective means of supporting education of students with disabilities. I would like to highlight that cost-effectiveness on its own should not be a strong rationale for

inclusion. Implementing effective inclusive education requires that we pay close attention to providing all the necessary support that schools, and most importantly teachers, require to include *all* learners, including those who have a disability. If we mandate schools to implement inclusive education but fail to provide necessary resources to schools, the outcomes of the inclusive education model could be detrimental to both students (with and without disability) and the school personnel.

The third reason we should support inclusion is perhaps the most convincing to me. Inclusion is an opportunity. Teachers and schools need to understand that when they successfully include students with disabilities, they become better overall in everything they do in their teaching. Implementing inclusion provides opportunities for teachers to learn highly sophisticated skills that make them a better teacher for *all* learners with a range of diverse abilities. Teachers who never get an opportunity to teach in inclusive classrooms are disadvantaged as they never get to learn and practise skills that could have made them a fully accomplished teacher. A teacher who has not learnt to teach effectively in inclusive classrooms, clearly needs more support and ongoing professional learning to make the best use of the opportunity that he or she will have when they start teaching in this environment.

2. What kind of professional learning prepares teachers to teach effectively in an inclusive classroom?

Schools in Australia are inundated with professional learning opportunities. It's possible many teachers find it difficult to decide which professional learning program they should undertake to be competent to teach in inclusive classrooms. I believe sometimes the information that we present during our teacher education or professional learning programs is potentially misleading and complicates the messages about effective teaching (Sharma & Loreman, 2014; Sharma, 2018). For example, historically inclusive teacher education programs have focussed on covering information about various disabling conditions, characteristics of students with disabilities and how to teach students with a specific disability in regular classrooms. What we have learnt from our own and other colleagues' research is that too much focus on disabling conditions may enhance the anxiety of teachers and does not always help them become better inclusive teachers. Most recent research and large-scale implementation of inclusive education models across countries of the North and the South suggest that teachers need to acquire some core skills to be highly effective inclusive teachers. These skills are learning about:

- How each student learns differently from other students;
- How to motivate *all* students;
- How to determine if a student is learning (or assessment for learning);

- What to teach by taking into consideration the interests and preferences of students;
- How to modify curriculum so that the class activities are challenging and stimulating for *all* students;
- How to use existing resources in the class/school (including class peers, parents and community members);
- How to apply teaching strategies that make a positive impact on the learning of *all* students (e.g. peer tutoring, co-operative learning and differentiated instruction);
- How to work effectively with other adults Including parents and other para-professionals; and lastly,
- How to address challenging behaviours in the classroom.

As you read this list you will notice that it does not include "learning more about any particular disability". The omission is critical to note, as we know that not any two students with the same label (e.g. Autism Spectrum Disorder) are the same. They will differ in their abilities, strengths, interests and preferences so it does not really make good sense to learn about various disabling conditions in greater detail. What might be more helpful is to learn about how each student is different from another student irrespective of the label he or she has been given. I am reasonably confident that any teacher who is fairly competent in all of the above nine areas will be able to include all students very well. It's possible that a teacher may not have acquired all the necessary skills listed above so should he or she wait to acquire the skills? The answer is "no". There is an expectation that once a student is enrolled the school will provide high quality education for them. The concluding part of this paper provides some of the core activities a teacher can do to support inclusion of a learner with a disability.

3. How should we (or schools/system) support teachers in ensuring that they can provide high quality education to all learners?

Support for teachers is extremely critical for the success of inclusion programs. Research on the topic has shown that teachers need support mainly in three areas (Sharma & Desai, 2008). First, we need to recognise that teaching in inclusive classrooms requires significant efforts in planning. One critical resource with respect to planning is 'availability of time'. School leaders can support their staff by providing sufficient *time to plan* personalised learning and teaching plans and activities. The second most critical resource for teachers or schools is to have *access to expert staff* who can assist them with a specific aspect of successfully including a student with disability in their classrooms. The expert could be a visiting teacher who knows more about supporting students with a specific need (e.g. for example, supporting a student who is totally blind and needs the material in an alternate format). The expert could also be someone that teachers could use to clarify any questions

that they may have about developing personalised educational plans/strategies for a particular student. Lastly, the teachers need to be provided *adequate opportunities to undertake relevant professional learning programs* that would assist them with their inclusive teaching. Sometimes the programs could be identified by the teachers themselves, other times school leadership could identify programs that are relevant to the majority of staff in their school. One of the better ways to offer professional learning is to have a whole school professional learning program. Such programs allow all school staff to be on the same page. The school leadership team can then identify necessary material and human resources that will allow the school to implement new learning acquired through the professional learning programs.

4. What should a teacher do if he or she has not received any training in special education?

I fully acknowledge that in order to teach effectively students with a disability, a teacher must receive adequate training in special and or inclusive education. However, there is a possibility that a teacher may not have received the necessary training or the training he or she has received through pre-service or in-service programs may not be adequate. As discussed earlier, a teacher cannot refuse to teach a student with a disability whether or not he or she has received any training. A teacher with limited training in special and/or inclusive education may find some of the following tips helpful when teaching students with disabilities. It is also helpful to remember that inclusive teaching is good teaching.

- *Always use Person First language when referring to persons with disability.* Person first language means being respectful of differences a student may have due to disability or any other unique characteristics. One must always avoid labelling students with the condition. For example, a student who is diagnosed with autism spectrum disorder could be referred as "the autistic boy". The use of such terminology tends to highlight and create an identity of the person that is defined by only one of the many characteristics (abilities, interests, strengths and preferences) that the student has. The best practice in terms of using Person First Language is to refer to the student with his or her first name. If it is necessary to refer to the condition of the student, consider using language where the emphasis is on the person first and the condition second. For example, a student with autism or a student with vision impairment. A brief article by Snow is an excellent resource for educators who wish to learn more about the topic (https://www.floridainclusionnetwork.com/wp-content/uploads/2014/02/People-First-Language.pdf)
- *Build positive relationships with family and carers.* Positive relationships with all parents and carers is good practice. The practice is even more critical when we teach students with a disability. Some of the practices that may facilitate a positive relationship with

families are: ongoing communication about student progress (focus on the positive), providing useful resources that can assist the family to support the student's learning, personalised emails or letters at the beginning or end of the school term/year, and, making the family feel comfortable to communicate with the teacher through various means.

- *Collaborate and consult.* It is impossible to teach in inclusive classrooms without collaborating and consulting other key stakeholders. Collaboration is built on the foundation that no one person knows everything about supporting a student who learns differently. When an educator collaborates and consults other members (e.g. a school psychologist, social worker, itinerant teacher or teacher assistant), the outcomes are most likely to be positive for the student and the teacher.
- *Be a creative resource finder.* Most successful inclusive education teachers are creative in solving some of the challenges they face when teaching in inclusive classrooms. There are a number of resources available in almost all classrooms irrespective of whether we teach in resource-rich classrooms in Australia, Canada or USA or in countries with limited resources (e.g. Bangladesh or Ethiopia). The resourceful teachers identify how best the existing resources could be used within their context. One perfect example of a resource in almost all classrooms around the world is peers. Peers can be used in structured teaching activities to support all learners (e.g. peer tutoring and co-operative learning). Parents could also be a highly effective resource who could be instrumental in building inclusive communities.
- *Be a reflective teacher.* Research (Sharma, 2010) suggests that one of the core attributes of effective and inclusive teachers is their ability to reflect. Asking questions about how you as a teacher can best address the learning needs of a student from their own perspective, and that of their peers and parents, can be a very powerful tool to enact inclusive practices. Reflective teachers through their act of reflection show that they care about their students and their learning and are prepared to change their teaching activities. Their actions create classrooms where student and parent voices can result in changes to practices and create positive classrooms for all learners.

Conclusion

I would like to conclude this article with two key messages that may influence how effective a teacher or school will be in implementing inclusive education. First, it is helpful to consider that 'inclusive education' is an opportunity. Inclusion should not be seen an action just oriented towards creating better opportunities for students. It is about our well-being and our self-concept. When school leaders and teachers view inclusion as an opportunity, they enjoy addressing the challenges of implementing inclusion and they become better educators for all learners. The act of inclusion transforms us from a learner with an L-plate to an expert

teacher with a full licence to teach all learners. Second, schools do not become inclusive overnight - it takes time and we need to enjoy the journey. We need to understand that we are not perfect and do not always get things right. When mistakes are made, we need to be sure that they have been made with the intention of creating better learning environments for all and making us better and more reflective teachers.

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Educational inequality in Australia and policies for reducing it

Laura B. Perry

According to the Organisation for Economic Cooperation and Development (OECD, 2015), 17 per cent of Australian young people leave secondary school without achieving basic educational skill levels. This underachievement has negative impacts for young people themselves, which in turn has negative impacts for the larger society. Low educational outcomes are related to diminished health (Australian Bureau of Statistics (ABS), 2011), unemployment (Rumberger & Lamb, 2003), low wages (ABS, 2010), social exclusion (Azpitarte, 2012), crime and incarceration (Australian Red Cross, 2016), and teenage pregnancy (Jeon, Kalb, & Vu, 2011). Eliminating school underperformance would reap enough fiscal benefits to pay for the country's entire school system (OECD 2015).

School underperformance is not randomly distributed throughout society. Rather, some groups are more vulnerable to educational disadvantage and underperformance than others. These groups include Indigenous students, students who reside in rural/regional areas, and students from low income or lower socioeconomic status backgrounds (Thomson & De Bortoli, 2008). Inequalities between students from different social backgrounds already exist when they start primary school. Worryingly, these inequalities increase as students progress through the education system.

Educational inequality is a serious topic, and not just one that concerns the teaching profession or socially minded citizens. The negative consequences of educational inequality are so substantial that they attract the concern and attention of public policymakers.

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Educational inequality

Educational inequality can be categorised into inequalities of educational opportunities, experiences, and outcomes.

Educational opportunities comprise inputs and resources, structures and access. They include, for example, qualified and experienced teachers, particular forms of curriculum, facilities and resources. Educational experiences are the processes and interactions that occur in schools, such as classroom disciplinary climate, student-teacher relations, teacher expectations, pedagogical practices, and relations with peers. Ensuring equity of educational opportunities and experiences is important because they are related to equity of educational outcomes. Just as importantly, however, all students should have equal access to quality learning environments, regardless of whether they impact on their educational outcomes or not. All students, regardless of where they live or go to school, have a right to enjoy supportive relationships with their teachers, or to have a safe and orderly classroom. Thus, ensuring equity of educational opportunities and experiences is important for ensuring equity of educational outcomes, as well as a matter of equity in its own right.

Educational outcomes are the values, skills, qualifications, attributes and characteristics that schooling develops in young people. They include secondary school completion qualifications, tertiary participation and completion, scores on standardised tests and evaluations, and grades from school-based assessments. Educational outcomes also include cognitive skills such as writing, analysis, critical and creative thinking, and "soft" skills related to interpersonal communication, emotional and social intelligence, teamwork and intercultural understanding, among others. Finally, educational outcomes include disciplinary knowledge, literacy and numeracy skills, and cultural knowledge. These various forms of knowledge and literacies are measured in Australia by the National Assessment Program - Literacy and Numeracy (NAPLAN). Australia also participates in the Programme for International Student Assessment (PISA), which is administered by the OECD to a nationally representative sample of 15 year-olds in member countries every three years.

Inequality of educational outcomes

Stark inequalities of educational outcomes exist in Australia, as measured by NAPLAN and PISA.

Analysis of NAPLAN has uncovered the following inequalities:

- 62 per cent of Year 7 Indigenous students did not meet the international benchmark, compared to 27 per cent of non-Indigenous students (Lamb et al., 2015).
- 50 per cent of Year 7 students whose parents did not complete Year 12 (a proxy for socioeconomic status) did not meet the international benchmark, compared to 13 per cent of students whose parents have completed Year 12 (Lamb et al., 2015).
- Among Year 5 students, achievement gaps between students from high and low educated parents was the equivalent of more than 2 years of learning in reading and approximately two years in writing and numeracy; in Year 9, the gaps were approximately four years in reading and numeracy and 4 years in writing (Cobbold, 2017a)

Data from PISA show similar inequalities. Australian students from the highest socio-economic status (SES) quartile substantially outperform those from the lowest SES quartile in reading, maths and science. The equity gap represents almost three years of schooling in all three domains (Thomson, De Bortoli, & Underwood, 2016).

These inequalities of educational outcomes are partly driven by poverty and disadvantage outside the school. But these inequalities are then amplified by schooling. This is because socially advantaged students in Australia often receive more educational advantages than their less privileged peers, not less.

Inequality of educational opportunities and experiences

Large inequalities between socially advantaged and disadvantaged schools exist in Australia. In fact, Australia has one of the largest resource gaps between advantaged and disadvantaged schools in the OECD (Cobbold, 2017b). Australia has the largest gap in the shortage of teachers between disadvantaged and advantaged schools among all OECD countries (Cobbold, 2017b). Disadvantaged schools in Australia also have far fewer educational materials (books, facilities, laboratories) than high SES schools (Cobbold, 2017b). This gap is the third largest in the OECD, with only Chile and Turkey showing larger inequalities between schools. Data from PISA also shows large inequalities in students' educational experiences between advantaged and disadvantaged schools, particularly in regards to classroom disciplinary climate, teachers' use of stimulating instructional strategies, and supportive relationships with teachers (Perry, Lubienski, & Ladwig, 2016).

Policies for tackling underachievement

To tackle underachievement, two approaches are especially effective.

First, we should give early, targeted and intensive support to students as soon as they start to fall behind. This is what Finland does, with almost 30 per cent of its students receiving such an intervention at one time or another (Graham & Jahnukainen, 2011). It is one of the best ways to ensure students do not fall between the cracks. But it requires resources, so we need to give more money to the schools and students who need it. This is where needs-based funding plays a role.

Second, we should make our schools more socially integrated. It is the most effective way to raise achievement (Gorard, 2010; Kahlenberg, 2001). A socially mixed or average student composition creates conditions that facilitate teaching and learning. Middle-class and/or socially mixed schools are also much less expensive to operate because they have fewer students with high needs. Less expensive running costs frees up funds which can be used for targeted and intensive support for students who need it.

And how can we reduce school social segregation? If we look to Commonwealth countries that have less segregated schooling than Australia, such as New Zealand, Canada and the UK, we can see two inter-related things. They have a much smaller proportion of schools that charge fees, and smaller qualitative differences between schools in terms of their facilities and resources.

These countries show both of these things can be done while maintaining diverse schooling options. We can still have schools with different faiths, philosophies and orientations, in addition to a strong and robust public school system.

The role of funding

As highlighted in the previous section, funding plays a large role in reducing educational disadvantage and inequality. Australia's school funding approach is based on an inherent contradiction that reduces its effectiveness, however. On the one hand, we have a funding policy that promotes unequal resourcing between schools via a large fee-paying school sector. This inevitably leads to a socially stratified school system, which increases educational inequalities and underachievement.

We then try to mitigate those negative consequences of our funding policy with a different funding policy (redistribution via needs-based funding). The two prongs are working against each other, which is not only educationally ineffective but also fiscally inefficient.

Needs-based funding is necessary, but it can only do so much. It is much more effective if we do not have schools with high concentrations of poverty and disadvantage. Needs-based funding will not be much more than a band-aid if it is not accompanied by greater structural reform in the way we fund and organise schools. Needs-based funding redistributes some funding from schools with lower needs to those with greater needs, but it will do little to reduce school segregation, a major cause of educational inequality.

Conclusion

While schooling in Australia is generally considered high-quality, educational disadvantage and inequality are a cause for concern. Inequalities of educational outcomes in Australia are of a similar magnitude as the US, and are greater than in the UK or Canada (Lamb et al., 2015). This is a striking finding, and one that is perhaps surprising given our national identity as an egalitarian society that gives everyone a fair go.

School funding is an important lever for reducing educational inequality. Needs-based school funding is crucial for addressing the additional challenges that socially disadvantaged students and schools face. Needs-based funding is not sufficient, however. Even more importantly, school funding formulas should be designed to reduce, not increase, qualitative differences between schools in terms of their resources and facilities.

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- Perry, L.B. (April 20, 2018). To reduce inequality in Australian schools, make them less socially segregated. The Conversation, **https://theconversation.com/to-reduce-inequality-in-australian-schools-make-them-less-socially-segregated-95034**.
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The Trouble with NAPLAN[1]

Nicole Mockler

In May this year, the NSW Minister for Education, Rob Stokes, called for the "urgent dumping" (https://www.smh.com.au/education/naplan-is-being-used-abused-and-must-be-urgently-dumped-stokes-20180503-p4zd3z.html) of the National Assessment Program – Literacy and Numeracy (NAPLAN) (Baker, 2018). The surprise call was rejected by the then Federal Minister for Education, Simon Birmingham, who argued that "parents like it" (https://www.theguardian.com/australia-news/2018/may/04/nsw-governments-call-to-scrap-naplan-rejected-by-simon-birmingham). One month later, the Education Council, comprised of all Ministers of Education from Australian states and territories, ordered a review of NAPLAN data presentation, and the publication of the 2018 NAPLAN data on the My School website has been delayed until after the presentation of an interim review report to the Council.

A look at social media at the time of the release of results each year suggests that Minister Birmingham was right in his assessment, with many parents claiming that NAPLAN scores are one of the few precise indications they get of their children's performance at school. And of course, it's entirely understandable that parents seek a good, clear indication of their children's progress in their learning. But the question remains as to whether NAPLAN is the best way to achieve this.

So, what's the trouble with NAPLAN? First, there's the question of accuracy. How 'precise' is the tool, really? While communication of results to parents suggests a very high level of precision, the technical report issued by ACARA each year (https://www.nap.edu.au/results-and-reports/national-reports) (ACARA 2018) suggests something quite different. Margaret Wu, a world-leading expert in educational measurement and statistics, has done excellent sustained work over a number of years on what national testing data can and cannot tell us (see, for example, Wu, 2010, 2016). Her work demonstrates that while parents are provided with an indication of their child's performance that looks very precise, the real story is quite different. The NAPLAN tests ask a relatively small number of questions in each

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section, sections that are then used to estimate a child's performance for each (very large) assessment area. This leads to a lot of what statisticians call 'measurement error'. By way of illustration, Figure A is based on performance on the 2016 Year 7 Grammar and Punctuation test: in this case, the student has achieved a score of 615, placing them in the middle of Band 8. We can see that on this basis, we might conclude that they are performing above their school average of about 590 and well above the national average of 540. Furthermore, the student's performance appears to be just in the top 20% (represented by the unshaded area) of students nationally.

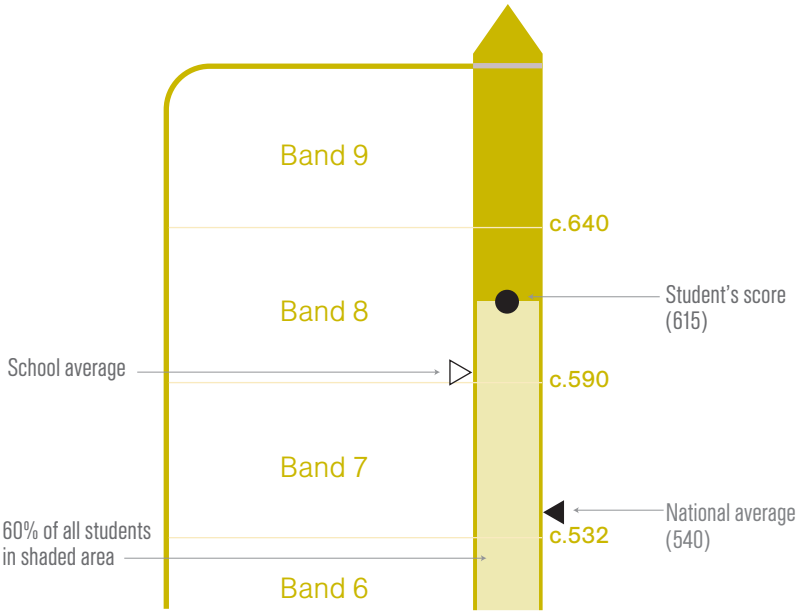

Figure A

However, Figure B tells a different story. Here we have the same result, with the 'error bars' added (using the figures provided in the 2016 NAPLAN Technical Report, and a 90% Confidence Interval consistent with the My School website). The solid error bars on Figure B indicate that while the student has received a score of 615 on this particular test, we can be 90% confident that their true ability in grammar and punctuation lies somewhere between 558 and 672, about two bands' worth. If we were to use a 95% confidence interval, which is the standard in educational statistics, the span would be even wider, from 547 to 683 (shown

by the dotted error bars). In other words, the student might be very close to the national average, toward the bottom of Band 7, or quite close to the top of Band 9. That's quite a wide 'window' indeed.

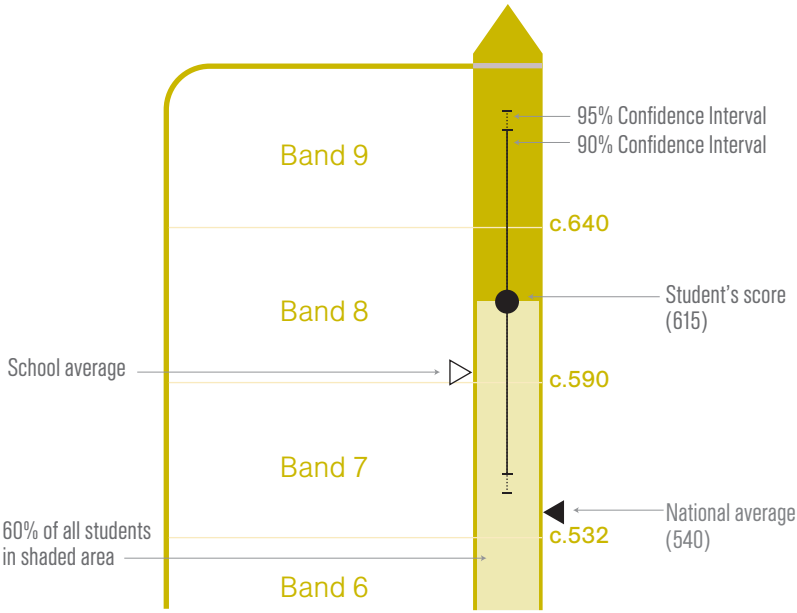

Figure B

So the 'precision of individual results' argument doesn't really hold. Any teacher worth their salt, especially one who hadn't felt the pressure to engage in weeks of NAPLAN preparation with their students, would be far more precise than this in assessing their students' ability based on the substantial evidence they collect in class. In the words of the Secretary of the NSW Department of Education, Mark Scott, it is "these smaller tests, these regular ongoing assessments that take place by teachers in classrooms to monitor progress" that make for "good assessment" (Robinson 2018).

Wu also notes that NAPLAN is not very good at representing student ability at the class or school level because of what statisticians call 'sampling error'. The sampling error in NAPLAN results goes down as the cohort size goes up – for example, while the margin of error (at the 90% confidence interval reported on the My School website) for a school with a large cohort of approximately 180 students might be only 10 points, for a school with a far smaller

cohort of only 40 students, the margin of error on the same test might be around 50 points.[2] The problem is that this representation of student performance on a school level is what the MySchool website is built on, through which Australian parents are encouraged to choose a school for their child. Research also suggests that the NAPLAN/My School nexus has played a driving role in Australian teachers and students experiencing NAPLAN as 'high stakes' (see, for example, Dulfer, Polesel & Rice, 2012; Gannon 2012; Hardy 2017).

At the national level, however, the story is different. What NAPLAN *is* good for, and indeed what it was originally designed for, is providing a national snapshot of student performance, and conducting comparisons between different groups on a national level (for example, students with a language background other than English and students from English-speaking backgrounds). There are, however, other ways to achieve this. Rather than testing every student in every school, a rigorous sampling method would be a lot more cost effective, both financially and in terms of other costs to our education system, and much easier on students, parents and teachers.

So, does NAPLAN need to be dumped? To my mind, the answer to that is both yes and no. Our current *use* of NAPLAN data does need to be urgently dumped. We need to start using NAPLAN results for, and only for, the purpose for which they are fit. At the very least, we need to get NAPLAN results off the My School website, cut out the hype and anxiety about the tests and start being honest with parents about what NAPLAN tells them and does not tell them about their children's learning.

The *Review of NAPLAN Data Presentation* agreed to by the Education Council at its 2018 June meeting may go some way toward such action, if it lives up to its own terms of reference, which are presented below.

The review will inform the Education Council about:

- Current presentation on My School of school, system, sector and jurisdiction performance data, in the context of the initial (2009) principles and protocols for reporting on schooling:
  - Principle 1: Reporting should be in the broad public interest.
  - Principle 2: Reporting on the outcomes of schooling should use data that is valid, reliable and contextualised.
  - Principle 3: Reporting should be sufficiently comprehensive to enable proper interpretation and understanding of the information.
  - Principle 4: Reporting should involve balancing the community's right to know with the need to avoid the misinterpretation or misuse of the information.

- The extent to which current presentation of data to schools and their communities supports their understanding of student progress and achievement.
- perceptions of NAPLAN reporting and My School data and the extent to which they meet reasonable public accountability and transparency expectations and requirements, including considering any misinterpretation and misuse of information and subsequent consequences.
- how teachers and school leaders use NAPLAN and its results and My School data to inform teaching practice.
- how teachers and school leaders communicate NAPLAN results and My School data to students and parents.
- international best practice for teacher, school and system level transparency and accountability.

(Education Council, 2018, my emphasis)

At present, it could be claimed that the information presented to parents, as highlighted above, does not 'enable proper interpretation and understanding of the information'. Some of my own current research, conducted with Dr Meghan Stacey of the University of Sydney as part of the *Teachers, Educational Data and Evidence-informed Practice*[3] (http://www.nicolemockler.com/TEDEP.html) (TEDEP) project, suggests that teachers too struggle with both the meaning and utility of NAPLAN data and how best to use it to inform their teaching practice. While it seems that the process for the review is yet to be announced, according to the Education Council (http://www.educationcouncil.edu.au/site/DefaultSite/filesystem/documents/EC%20Communiques%20and%20media%20releases/Education%20Council%20Communique%2022%20June%202018%20-%20final.pdf) (2018), it will involve consultation "with parents, teachers, students, school leaders, peak bodies and independent experts as appropriate, as well as government and non-government education authorities", so there should be an opportunity for all of us to join in the conversation about what happens to and with NAPLAN data.

At the same time, and this is very much the focus of our current project, we need to open up a broader conversation about what constitutes good evidence of teaching and learning. Such evidence is not necessarily generated 'out there' through external testing; nor must it rely on the existence of tools generated by 'Big 5' consulting firms, despite the enthusiasm about this in the wake of the publication of the *Through Growth to Achievement* (https://docs.education.gov.au/node/50516) report (Gonski et. al. 2018). Furthermore, valid and reliable evidence in education generated at the local level relies on strong teacher professional judgement. It's in all our interests that we have a teaching profession with robust,

and well-honed professional judgement, and that we trust teachers to get on with the job that the vast majority of them do so well for relatively little return. Teachers have a good sense of what such evidence looks like, and as part of the TEDEP project, they're telling us. For example, from three of the questionnaire participants in our study:

> *I know I'm teaching well based on how well my students synthesise their knowledge and readily apply it in different contexts. Also by the quality of their questions they ask me and each other in class. They come prepared to debate. Also when they help each other and are not afraid to take risks. When they send me essays and ideas they might be thinking about. Essentially I know I'm teaching well because the relationship is positive and students can articulate what they're doing, why they're doing it and can also show they understand, by teaching their peers.* (102)

> *Pre and post testing informs whether you have made an impact in learning. The data comparison will inform how you modify practice to achieve learning gain.* (124)

> *I am working on formative assessment, especially trying to build skills with repeated use, student self-assessment and application of feedback. I feel I am teaching well when there is genuine thinking and problem solving in the room and students are learning from each other as well as the teacher. It's the vibe.* (130)

While these are excerpts of responses from only three participants, it is clear from the hundreds of responses we have received that the kinds of evidence teachers collect, and that they value, are complex, diverse, and gathered continuously. It's also clear that these forms of evidence are closely tied to the actual work of teachers in classrooms, and need to be: you can't capture 'the vibe' through a national standardised census test.

Recognising, valuing, and working to understand and develop these local-level knowledge production processes inherent in teachers' everyday work is the important next step in the assessment debate. In the process of taking this step, perhaps we might free up some classroom time for more productive things than test preparation.

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Notes

1. This article is based on a post on the Australian Association for Research in Education (AARE) Blog, published in May 2018. The AARE Blog is designed as a conduit between educational researchers and teachers, system leaders, policy makers and the general public, and is available at **www.aare.edu.au/blog/**

2. Using as the example here the performance of two differently sized public primary schools (Russell Lea and Chatswood Primary Schools, said to be statistically similar on the My School Website) on the Year 3 2017 NAPLAN Numeracy test.

3. More information available at **www.nicolemockler.com/TEDEP.html**

Evidence-based teaching and learning

Geoff Masters

Evidence-based teaching involves the use of evidence to: (1) establish where students are in their learning; (2) decide on appropriate teaching strategies and interventions; and (3) monitor student progress and evaluate teaching effectiveness.

The term 'evidence-based' is now firmly entrenched in the education lexicon. And with good reason; improvements in student learning and educational outcomes depend on the wider use of reliable evidence in classroom practice. However, much discussion of evidence-based teaching is based on a narrow definition that would benefit from a broader recognition of the role of evidence in teaching and learning.

The concept of evidence-based practice has its origins in medicine. The essential idea is that decisions made by medical practitioners should be based on the best available evidence collected through rigorous research – ideally, through randomised controlled trials. Research studies in the form of carefully controlled experiments are seen as providing the strongest and most dependable forms of evidence to guide practice.

However, everyday medical practice uses multiple forms of evidence. In addition to evidence from external research studies, medical practitioners gather and use evidence relating to patients' presenting conditions and symptoms – for example, by taking patient histories and ordering diagnostic tests. Evidence of this kind is essential to informed decision making. So, too, is evidence about the subsequent effectiveness of a practitioner's decisions. Such evidence plays a crucial role in monitoring a patient's progress and evaluating the impact of treatments and interventions.

Most definitions of evidence-based medicine recognise the role and importance of these different forms of evidence. One of the earliest and most cited definitions (Sacket et al, 1996)

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describes evidence-based practice as 'integrating individual clinical expertise with the best available external evidence from systematic research.'

Evidence-based teaching similarly involves more than the implementation of practices that have been shown to be effective in controlled research studies. As in medicine, evidence-based practice depends on the integration of reliable, local, practitioner-collected evidence with evidence from systematic, external research. Policies and discussions of 'evidence-based teaching' sometimes overlook the importance of this broader, more integrated understanding of the role of evidence in teaching and learning.

Evidence to identify starting points for teaching and learning

A first, essential form of evidence for teaching is information about the points individual learners have reached in their learning. This usually means establishing what they know, understand and can do as starting points for teaching and to ensure that individuals are provided with well-targeted learning opportunities and appropriately challenging learning goals. The parallel in medical practice is diagnosing the state of a patient's health to guide appropriate treatment. Understanding where learners are in their learning is as essential to clinical teaching practice as understanding a patient's symptoms and health is to effective medical practice.

The process of establishing where students are in their learning may involve the review of available historical evidence – for example, evidence from a previous teacher or evidence from past assessments. It also may involve administering tests or other assessments to identify appropriate starting points.

One view of teaching – now largely outmoded – sees it merely as the delivery of the appropriate year-level curriculum to all students. Under this view, the role of teachers is to deliver the relevant curriculum; the job of students is to learn what teachers teach; and the role of assessment is to establish how well students have learnt what teachers have taught and to grade them accordingly. In contrast, 'evidence-based' teaching uses evidence about where students are in their learning to guide and personalise teaching. The objective is to develop a good understanding of where each student is in their learning so that they can be provided with appropriately targeted teaching and learning opportunities.

Evidence-based teaching of this kind depends on a frame of reference against which learning can be monitored – a 'roadmap' that describes and illustrates what it means to grow and become more proficient in a learning area. Learning is depicted as an ongoing process

through which students develop progressively higher levels of knowledge, understanding and skill over extended periods of time.

In evidence-based teaching, assessments are undertaken to gather evidence and draw conclusions about where students are in their learning. The objective is to use observations of students' performances and work to draw inferences about their current levels of attainment. A thorough understanding of where a student is in their learning may require a detailed diagnostic investigation of the errors they are making or the misunderstandings they have developed – often essential evidence for addressing obstacles to further progress and a key element of clinical teaching practice. Reports of student attainment are then expressed not as percentages or grades, but as the points individuals have reached, interpreted by reference to what they know, understand and can do.

Evidence to inform teaching strategies and interventions

A second, powerful form of evidence for promoting student learning is evidence from research into effective teaching strategies and interventions. Knowing where students are in their learning provides a starting point; however, the crucial next question is how to promote further learning. Which interventions are likely to improve students' levels of understanding and skill? What teaching strategies have been shown to work in practice? For which learners? Under what conditions? Answers to questions of this kind are derived from rigorous, systematic research and professional teaching experience.

As a general principle, effective teaching builds on and extends learners' existing knowledge, skills and understandings. Teachers need to know how to do this, which in turn depends on a deep understanding of the learning domain itself and, in particular, typical paths and sequences of student learning. How does learning build on prior learning and lay the foundations for further learning? How does prerequisite knowledge influence future learning success? What are the foundational, enabling skills that students must develop before they can progress to higher levels of attainment? Learning research has a crucial role to play in answering these questions, elucidating the nature of learning, in particular learning domains, and generating research evidence to inform teaching practice.

Research also has an important role to play in uncovering the kinds of misunderstandings and alternative conceptions that students commonly develop. Such research adds to an understanding of how learning occurs within a particular learning domain. As well as recognising typical and logical sequences of development, teachers require an appreciation of the side-tracks that some students go down and how these impede learning

progress. Research that provides evidence in the form of insights into common errors and misconceptions assists teachers in diagnosing and addressing the difficulties that individuals experience.

Importantly, research evidence of these kinds is domain specific. Because teachers teach subjects, they generally benefit from research into how students learn those subjects. For example, the evidence likely to be most useful to teachers of reading is evidence about how students learn to read, including the role of pre-reading and early reading skills in establishing the foundations for subsequent reading development. The evidence likely to be most useful to teachers of science is evidence about how students progressively learn science, including evidence relating to the development of deeper understandings of scientific concepts and principles, and the kinds of misunderstandings that students commonly develop.

'Evidence-based' educational practices sometimes take the form of general solutions such as 'individualised learning', 'early years intervention', 'metacognition', 'homework', 'peer tutoring' and 'feedback'. However, general solutions of these kinds must be interpreted and implemented in the contexts of the subjects teachers teach. What kind of homework? For whom? Feedback of what kind? When? In general, teachers require evidence about the best ways to implement effective teaching strategies and interventions in subject-specific contexts.

Evidence to evaluate student progress and teaching effectiveness

A third form of evidence for teaching is information about the progress students make in their learning over time. This is important information for evaluating learning success and for making judgements about the effectiveness of teaching strategies and interventions.

A traditional approach to evaluating learning is to compare students' performances with expectations based on their age or year level. For example, a Year 5 student's learning success is commonly assessed and graded against Year 5 performance expectations. However, this approach takes no account of where students are in their long-term learning at the beginning of a school year and so does not reflect the progress (or growth) they have made. Under this approach, two students may achieve the same grade, one having made significant progress during the year, the other having made very little.

An alternative is to define learning success in terms of the progress individuals make. This approach assumes that learning is reflected in, and can be evaluated in terms of, improvements in students' levels of knowledge, understanding and skill – for example, over the course of a school year.

Evidence about the progress students make is crucial information for teaching. It provides a basis for establishing whether, and how effectively, individuals are learning. Low levels of progress may indicate lack of student effort and/or ineffective teaching, and so warrant closer investigation. Information about progress provides the most direct indicator of teaching effectiveness, as well as being key to the evaluation of educational policies, programs and teaching methods.

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EdTech is killing us all

Facing up to the environmental consequences of digital education

Neil Selwyn

Digital technology is now a major part of education. Even the smallest schools are stuffed full of digital devices, display screens and projectors. Anything that can be digitized is stored online. Lessons are live-streamed, resources are downloadable, and school communications take place through apps and email. Behind the scenes, schools maintain their own servers, host campus-wide Wi-Fi and run complex management systems and other platforms. All told, schooling today is dependent on substantial amounts of digital technology.

This digital dependency is rarely seen as a problem. Any gripes usually centre on potential risks of digital distraction, cyberbullying, breaches of data privacy and so on. These issues prompt vigorous debates over the 'appropriate' and 'right' ways in which technology should be implemented. At no point, however, is there serious consideration of the long-term sustainability of digital technology use.

To be blunt, digital technology is damaging the environment. I believe the use of digital technology in education (EdTech) is not sustainable in the ways we have grown accustomed to using it.

First, let us dispel any thoughts that the increased use of digital technology in schools is somehow environmentally beneficial. For sure, there are obvious environmental benefits in reduced paper use, using Skype to attend remote meetings, and installing 'green tech' such as smart lighting and smart metering. It might also be argued that online classes reduce the carbon footprint of schools and colleges, not least by reducing travel-related emissions (https://www.sciencedirect.com/science/article/pii/S1877343517300349) of students coming onto campus.

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All these uses of technologies offer some recompense, but they in no way offset the hugely detrimental life-cycles of the digital products and processes that education is now reliant on. Instead, the end-to-end environmental consequences of any form of digital technology use quickly eclipse any hopes of digital education somehow being a green option. As such, every use of digital technology contributes to the degradation of our planet in ways that education urgently needs to face up to. This includes:

- The raw ingredients of digital devices – what Toby Miller terms (https://theconversation.com/the-internet-of-things-will-be-an-internet-of-obsolete-junk-36814) the "dirty, material origins" of digital technology. Behind the sleek chrome and glass exteriors, every digital device is constructed from dozens of different metals, and numerous 'rare earth elements'. From lithium batteries through to copper cabling, EdTech inherently involves the earth being depleted of non-renewable resources. In the short-term, this extraction causes considerable environmental contamination and pollution. In the longer-term this extraction is simply non-sustainable. Alongside the rapid loss of scarce minerals, for example, more than half the copper (https://dl.acm.org/citation.cfm?id=3084083) that will ever be extracted from the earth has already gone. In basic geological terms, we cannot continue to produce digital technology in the ways we currently do.
- The environmentally destructive manufacture and production of digital devices. Regardless of how they are actually used in a classroom, between 70 per cent and 80 per cent of energy expended during the life-time of a digital device occurs during its initial manufacture (https://www.greenpeace.org/usa/reports/greener-electronics-2017/). As Crawford and Joler's forensic 'anatomy' (https://anatomyof.ai/) of Amazon's Echo device illustrates, the production of any digital technology "requires a vast planetary network" to facilitate the smelting, processing and mixing of raw materials that are shipped halfway around the world to be assembled. Each of these stages involves the accumulation of harmful waste products, hazardous chemicals and toxic waste disposal.
- The energy-greedy data infrastructures that lie behind digital transactions. In contrast to the abstract notion of data processing and storage occurring somewhere 'in the cloud', is the rather less romantic reality of brown-field, climate controlled data-centres and server-farms. It is estimated that data-centers (https://www.independent.co.uk/environment/global-warming-data-centres-to-consume-three-times-as-much-energy-in-next-decade-experts-warn-a6830086.html) consume up to 3 percent of all global electricity production and account for about 2 per cent of total greenhouse gas emissions. These figures are fast-rising (https://www.theguardian.com/environment/2017/dec/11/tsunami-of-data-could-consume-fifth-global-

electricity-by-2025), and already place the digital data industry roughly equivalent to the airline industry, and mean that educational internet use takes up a significant amount of energy. For example, even a one-off internet search generates a telling amount (https://www.fastcompany.com/90171268/internet_impact_visualized) of CO2. As soon as a student or teacher does anything 'online' the impact is felt around the world.

- The environmental cost of dismantling and disposing digital hardware. As the growing problem of 'e-waste' show, microelectronics is an extremely difficult and costly product to recycle. The recycling (often simply the dumping) of devices that are deemed to have outlived their usefulness leads to heightened levels of pollution, contamination and toxic waste in some of the poorest regions of the world. In this sense, the continued imperative to upgrade and keep EdTech 'up-to-date' is one of its most destructive qualities.

In light of all these costs and consequences, it is difficult to see how education can continue for much longer with its excessive levels of technology consumption and use. In a near-future of rising sea-levels, climate mass migration and low-carbon restrictions, much of the current hype that surrounds EdTech is likely to quickly seem inappropriate if not obscene. Demands for 'One Device Per Student', unlimited data storage, live streaming and the expectation for everyone to be 'Always-On' will seem as anachronistic as twentieth century attitudes toward smoking cigarettes and burning fossil fuels.

In a practical sense, then, it now makes sense to prepare for a near-future where there are insufficient natural resources to produce and sustain the educational use of digital technologies at the levels we have come to expect. If you are not fully convinced by these ecological arguments, then there are also good moral reasons for doing this. Indeed, the environmental issues just outlined are underpinned by a litany of associated ethical failings in terms of exploitation of human labour, the illicit trade in rare earth elements, and the deadly money trail associated with so-called conflict minerals such as tin, tantalum, tungsten and gold. As Ingrid Burrington put it (https://twitter.com/techfestivalcph/status/1038416889658179584), alongside the environmental degradation "there is blood in every piece of your technology".

These are all controversies that no-one in education should be comfortable being implicated in. Yet as it currently stands, EdTech is exacerbating all of these issues. Everyone in education therefore needs to ask themselves whether they are happy to continue being part of what is clearly a catastrophic drain on the planet *and* a fundamental threat to the living conditions

and life chances of future generations. If not, then we urgently need to start rethinking the sorts of digital technology use that are *really* needed in education, and how these might be achieved in more sustainable ways.

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Lawrence Ingvarson on the situation and future of the teaching profession in Australia

Interview by John Graham

JG *I'll ask you a couple of "big" questions to begin with and then look at some specific areas.*

How would you sum up the state of the teaching profession in Australia at present?

What do you see as the main challenges facing the profession and to what extent do you think they are being properly addressed?

LI I think it is clear from many indicators, such as performance on international tests of student achievement, that Australia has had a strong teaching profession. However, it is also clear that our performance on those tests has declined over the same period that has seen a dramatic decline in the attractiveness of teaching to academically successful students.

The lack of vigorous recruitment policies at both levels of government is one of the most serious threats to the quality and equity in Australia's school system. I don't think it is a coincidence that the teachers who retired over this period, with thirty to forty years of experience, were recruited with relatively strong academic credentials for teaching. Back then, governments took their responsibility to ensure teaching was an attractive career choice with bursaries, scholarships, low course fees and competitive salaries.

In contrast, current recruitment policies are passive. It is hoped that sufficient numbers of students will turn up, and they do by and large, but few with the capacity to apply successfully for professions offering higher status and better salaries. Ensuring a high

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quality teaching profession calls for concerted, stable long term policies. High achieving countries know this and have the recruitment policies to match.

The evidence indicates a widening gap between the kind of teachers needed in the future, given increasingly ambitious expectations for student outcomes and welfare, and the quality of people being recruited into teaching. Despite what the Deans of Education claim in their recent media release, research shows that the quality of teacher education programs and the quality of graduates from those programs depends more on the academic quality of the students recruited to those programs than the programs themselves.

I don't see the state of the profession lifting significantly unless our governments accept that ultimately the responsibility to reverse the decline with recruitment policies that enable teaching to compete successfully with other professions for our ablest graduates rests with them; no one else. Not teacher educators, not teachers. Setting a high bar for entry to teacher education does not address the recruitment problem – it makes governments look like they are doing something when they are not. Teach for Australia falls into the same tokenistic category.

I'd like to see each political party, before upcoming elections, asked "What are your policies for steadily lifting the proportion of entrants to initial teacher education with ATAR scores above 70, or equivalent, to 100 per cent over the next five years?" I'd also like to see measures in place to track progress toward meeting that target. I suspect that such a campaign would mobilise surprisingly wide public support.

Our recent workload studies of teachers and principals also clearly show that far too many teachers and principals are working under stressful conditions that are having a detrimental effect on the quality of teaching they can provide to their students, and consequently their job satisfaction.

Third, we must carefully consider the appropriateness of the accountability structures that are created for teachers and teacher leaders. If we want to hold teachers more accountable for student learning, then we must provide them with additional control over the teaching/ learning process. Similarly, if teachers want to have more influence over their profession and their professional lives, they must assume greater responsibility for policies and student results.

If we want to encourage teachers to work collaboratively, then we need to consider whether teacher evaluation or compensation systems that focus on the individual

teacher are appropriate, or whether it is more useful to create evaluation tools and systems that recognize and reward teamwork and collaboration. We also must consider how systems should recognize individuals in formalized teacher leader roles versus those that recognize teacher leadership as an expectation for all teachers in the school.

The role of the profession

JG *You have been a long time campaigner for the profession to take control of its own destiny - the notion that the profession itself should have the guiding role in matters such as qualifications, curriculum, professional standards, professional learning and governance. Why do you support this approach?*

LI Basically, because it is in the public interest to have a teaching profession with a strong sense of ownership of and commitment to its professional standards. The defining credential for professional status is the ability to define what members should know and be able to do – and the ability to distinguish members who meet those standards from those who do not. Standards are the way other professions control their own professional learning and certification systems.

Back in the 1990s, I saw standards as the means by which teachers could resist the deprofessionalising policies of that time and gain a stronger voice in professional matters such as who enters their profession, who trains them and who decides what teachers should get better at with experience. Standards that reflected the complexity of successful teaching, not the generic standards we have now, were always a tool for empowering the profession. I worked with English, mathematics and science teacher associations to develop their own standards for highly accomplished practice.

Many other associations followed. The passion and commitment of teachers to their standards was palpable. The quality of their standards was higher than those developed by employing authorities. The wonder for me is why governments and employing authorities have not seen that it is in their best interest to capitalise on the power of ownership and trust teachers with the responsibilities of a profession.

I'm with Dick Elmore, when he says:

> *I used to think that policy was the solution. And now I think policy is the problem… To policy makers, every idea about what schools should be doing is as credible as every other idea, and any new idea that can command a political constituency can be used as an excuse for telling schools to do*

something. Elected officials... generate electoral credit by initiating new ideas, not by making the kind of steady investments in people that are required to make the educator sector more effective. The result is an education sector that is overwhelmed with policy, conditioned to respond to the immediate demands of whoever controls the political agenda, and not in investing in the long-term health of the sector and the people who work in it.

For the future, I am putting my energy into building a stronger profession, not into trying to repair a desperately dysfunctional political system.

JG *To what extent do you think the profession is playing a 'guiding role' at present?*

Have you seen any improvement in this area over the past few years?

It has been argued that teaching has some particular complexities as a professional occupation which hamper its professional control - its size, the nature of its employment, the government role in managing (and at times micro-managing) schools and teachers, and the way the Australian education system is structured. Would you like to comment on this?

What steps need to be taken for the profession to gain a greater control over the professional issues which serve to define it as a profession?

LI There's a long history here. How far back do you want to go? In 1959, as the Australian College of Education was being established, James Darling wrote that:

Despite its importance, the teaching profession as a whole has never yet had a voice with which to speak. There are innumerable professional associations, at different levels and of different degrees of specialised interest, but there is no organisation to speak for education as a whole in matters of principle, which concern the whole body of those who teach. There are acknowledged leaders in specialized fields, but no leaders of the profession as a whole.

Nearly sixty years have passed since Darling wrote those words and still the teaching profession remains leaderless and powerless in the sense he identified. Progress has been made, but the old obstacles remain and new ones have been created.

I was inspired by the vision of teaching as a profession responsible for its own standards in the 1972 Karmel Report. There have been many similar statements over the past 40 to 50 years. For example, in 2003, 15 teacher associations including the AEU put together a *National Statement from the Teaching Profession on Teacher Standards, Quality and Professionalism*, which recommended that

> *A nationally coordinated, rigorous and consistent system should be established to provide recognition to teachers who demonstrate advanced standards… The enterprise bargaining process between employers and unions will be an important mechanism for providing recognition for professional certification. All employing authorities should be encouraged to provide recognition and support for professional certification as the process comes to demonstrate its credibility and its effects on professional learning (p. 4).*

That Statement encapsulated the mutual responsibility that the teaching profession and governments have for ensuring all students have quality opportunities to learn. If teachers want recognition for accomplished practice, they must be able to demonstrate that they can set high standards and identify those who have attained them. If governments want to lift student performance they must place high value on teachers who attain those standards and create a strong market for them.

Several attempts have been made to establish a national body for the teaching profession. We had the Australian Teaching Council in the 1990s. Howard killed that. We had Teaching Australia in the 2000s, established by Brendon Nelson. It lost its way and lacked the essential support of both employing authorities and the unions. By 2008 all the main stakeholders were in favour of establishing a national professional standards body with responsibilities that included a certification system for recognising and rewarding highly accomplished teachers.

AITSL was established with that responsibility, but to the surprise of many, if not dismay, its Board was not representative of all of the stakeholders needed to ensure its programs gained the full commitment of the profession. No teachers were on its board. As a Ministerial agency it was not a body the profession could identify with readily. Earlier standards development work by teacher associations was disregarded. A clearly expressed readiness by teacher associations, at the time, to provide certification in collaboration with AITSL was ignored.

For me, the capacity to define standards and certify members who attain them are the essential credentials if teachers want to claim professional status. If ever there was a time when the profession needed to be able to speak on equal terms with governments and other employing authorities about matters central to quality teaching and learning, such as the quality of entrants to teacher education programs, that time is now.

In a strange twist of logic, and to the amazement of other professions, employing authorities claimed that they had "jurisdiction" over any system for assessing teachers for certification at highly accomplished and lead teacher levels. Showing a complete lack of understanding of what a professional certification is all about, many saw it as a "managerial prerogative", not an opportunity to encourage teaching to 'grow up' as a profession.

We now have the unfortunate situation where there are many different certifying authorities across states, territories and school systems and the long-standing vision of a profession taking responsibility for setting high standards and providing certification to teachers who attained them faded again. It is recognised that the current system for assessing candidates for certification lacks evidence of its validity and reliability, is expensive and cumbersome and is unlikely to go to scale. We need to establish one rigorous national certification system for which the profession has a major responsibility.

This history makes me wonder why it is that those responsible for the administration of education in Australia, unlike high achieving countries, regularly resist or thwart any genuine movement toward the professionalization of teaching.

Initial teacher education

JG *Recently every report which has come out with anything to do with school education includes recommendations about the need to improve initial teacher education. There have also been a plethora of reviews of initial teacher education over the last twenty or thirty years.*

After all of that focus do you think initial teacher education is now on a sustainable improvement track? If not, why not?

What do you think needs to happen to improve the quality and outcomes of initial teacher education?

LI I have no doubt that, generally speaking, teacher education programs are better than they were thirty to forty years ago. However, as we pointed out in the background paper ACER prepared for the Teacher Education Ministerial Advisory Group, we lack the information to know much at all about the quality of our teacher education programs or what graduates from those programs know and can do. So it is difficult to know whether they are improving or not. I suspect they are in many respects, but teacher educators need to give more support to measures that would give the profession greater assurance that they are doing a good job.

These measures would benefit greatly if teacher educators for each field of teaching were to put their heads together nationally and come to some level of agreement about what, for example, a graduating primary teacher should know and be able to do about recent research in teaching reading or mathematics. The current standards for graduate teachers need to be elaborated in the form of what I have previously called a national curriculum for teacher education – that recognises the depth of knowledge needed for each field of teaching. This is a responsibility that teacher educators should embrace, supported by the profession.

A need I won't go into here is for far more attention to be paid to the preparation of teacher educators.

However, as mentioned, recruitment is a much greater problem. Of all the stages in the quality assurance pipeline, recruitment is the most important as its effects flow through to influence the quality of teacher education programs and the quality of graduates and new teachers.[1] No matter how rigorous selection, accreditation and new outcome measures such as final year teacher performance assessments might be, they are unlikely to compensate for the lack of recruitment policies that attract sufficient numbers of high-quality students to meet the demand.

Recent data on enrolments indicates that Australia has lost control over the academic quality of students entering teacher education programs. Some universities are behaving irresponsibly and teacher registration bodies are letting them get away with it by not applying their own accreditation standards rigorously. Teachers have little say in who gains entry to their profession.

Australia needs an agency with the authority that state governments once had, to be able to match the supply of new teachers to the demand, in the interests of the tax-

paying public and the profession. Ensuring that the supply of new teachers matches the demand is too important to be left to the vagaries of university admission policies.

The Australian Council of Deans of Education has been running a self-serving campaign to discredit the use of ATAR scores in selection. They are by no means perfect, but we do not have any better predictors on which to base selection – nor do the Deans. What they fail to mention is that the academic quality of students entering teacher education programs directly, not through the Tertiary Admission Councils, is much weaker.

Teacher supply and demand

JG *How do you deal with the dilemma of a looming teacher supply problem with the demographic data forecasting a massive increase in the numbers of students who will enter Victoria's schools over the next five years and new measures to tighten the entry requirements for initial teacher education courses?*

LI The problem we need to address is the quality of the supply problem, much more than the quantity of the supply.

If Australia is to achieve excellence in its school system, we must press our governments to meet their responsibility to ensure that, over the next few years, increasing numbers of academically successful students enter teaching, sufficient to meet the demand. Relative salaries and status are the main reasons why few academically successful students are choosing teaching.[2]

OECD data show that Australia stands out as a country that has lifted starting salaries for beginning teachers much more than salaries for experienced teachers.[3] However, international research shows that it is not the salaries for beginning teachers that distinguishes countries with higher levels of student achievement. Rather, it is the ratio of salaries of experienced teachers *relative to GDP per capita*[4] and on this measure, teacher salaries in Australia have been declining for many years.[5]

As I have argued for many years, a rigorous and well rewarded national system for the certification of highly accomplished teachers and school leaders is essential to achieving that purpose. Build it and they will come.

School leadership

JG *How significant is the relationship between school leadership and the achievement outcomes of students?*

Some of the issues impacting on those in the principal class include workload and its consequences (health and welfare), the burden of compliance and red tape preventing principals from acting as educational leaders and a fall-off in teachers applying for principal positions.

How do you see this situation and what do you think needs to be done to address it?

LI The research supports what most people know, that there is no doubt that the quality of school leadership has a major influence on student outcomes (and many other aspects of the rich communities that schools are). But it is an indirect influence mainly. Leadership standards synthesise this research. It is through their capacity to create a strong and accountable professional learning community among staff members that school leaders improve outcomes for students.

However, we need to ensure conditions are in place that enable school leaders to establish strong professional communities and focus on leadership for learning. Compared with high achieving countries, Australia lacks rigorous and sustained programs for preparing school leaders and workloads are dangerously high.

Principals rely on the values and expertise that teachers bring to the school if their initiatives are to be successful. They also rely on teachers who are strongly motivated to attain profession-defined standards for highly accomplished practice. In other words, school leaders are more likely to be successful it they can depend on a strong profession.

Research shows that school leaders who themselves are highly accomplished teachers and teacher leaders are more effective principals. It follows that we should move steadily to a situation over the next ten to twenty years where all school leaders have gained certification at the Highly Accomplished and Lead Teacher levels.

To achieve this, a major need is to build a better integration between career ladders from teacher, to teacher leadership positions and on to school leadership, as defined in current EBAs across the school systems, and the career stages as defined by the

current Australian Professional Standards for Teachers at the Highly Accomplished and Lead Teacher stages.

When asked what would make their work more manageable, principals rank highly the need to attract and retain good teachers. This calls for needs-based funding that will ensure principals in all schools have the resources to compete on an equal footing for well-qualified and competent teachers.

Notes

1. Ingvarson, L., Schwille, J., Rowley, G., Peck, R., Tatto, M. T., Senk, S. L. (2013). *An Analysis of Teacher Education Context, Structure and Quality Assurance Arrangements in TEDS-M Countries*. Amsterdam, NL: International Association for the Evaluation of Educational Achievement.

2. Department of Education, Science and Training (2006). *Attitudes to teaching as a career: A synthesis of attitudinal research*. Canberra: Commonwealth of Australia.

3. OECD (2015). *Education at a Glance*. Paris: OECD.

4. Akiba, M., Ciu, Y., Shimizu, K., & Lang, G. (2012). Teacher salary and student achievement: A cross-national analysis of 30 countries. *International Journal of Educational Research, 53*, 171–181.

5. Productivity Commission (2012). Schools Workforce. op. cit.

Professional Voice

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PV11.3: What works (and what doesn't)

is an examination for the evidence on the theory and practice that is working - or not working - in school and early childhood education. In an age of ideologically driven policy and 'alternative facts', our articles are sourced from authors due to their research expertise and the depth and quality of their work in these areas.

PV 11.2: Teaching in context

This edition is about the conditions and context of teaching. The authors challenge some of the current "truths" about education such as the need for greater school autonomy and choice, the unimportance of class size, the unalloyed benefits for teachers of the new digital environment, the negligible need for mainstream gender diversity education and the quality of private schooling.

PV 11.1: School choice

The theme of the Autumn 2016 edition of Professional Voice is school choice. There are four articles directly related to the theme. Two of them describe and analyse research studies of school choice in Melbourne. The other two have an international flavour and investigate charter schools in America and academies in the UK.

PV 10.3: Teaching "teaching"

This edition's focus is initial teacher education. Three authors comment on the national (TEMAG) report into teacher education and give their views about how to improve the quality of pre-service education. There is also new evidence about the decline in equity in Australian schools and an article about diagnosing and accommodating in schools the increasingly common Autism Spectrum Disorder.

PV 10.2 Public, Private and Edu-business

This edition looks at the relationship between the public and private education sectors and busts the myth that education offered in private schools is superior to that offered in public schools. We also examine the alarming rise of edu-business in Australia.

PV 10.1: Testing Times

From NAPLAN to PISA, tests have become a defining feature of global education systems. But how much do testing regimes really tell us about education systems and how much do they distort the very thing they report on?

Personalised learning, inclusion and equity