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A closed circuit of influence

Evidence, ‘the science of learning’ and education policy.

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Research discussion paper

A closed circuit of influence: Evidence, 'the science of learning' and education policy.

This report tracks the origins of the evidence-based discourse and its recent focus on the science of learning and the role of the Australian Education Research Organisation and other knowledge brokers in education policy.

The report analyses the rapid adoption of policies of science of learning, explicit/direct instruction, phonics and knowledge rich curriculum across education sectors and countries, and questions why now and with what effect on teacher professionalism and education research in Australia. What is different in 2025 is first, the mandating of how to teach literacy and numeracy using explicit instruction, phonics, the science of learning for all students by state and federal governments and Catholic education systems. Second, that federal funding agreements with state governments as outlined in the Better and Fairer agreement include how to teach. Third, the role of various policy actors (Productivity Commission, think-tanks, Australian Educational Research Organisation, philanthropists, online curriculum resource providers) in creating a closed circuit of influence advocating only one strand of the science of learning and a limited notion of what counts as 'evidence'. Fourth, the claims that such simple solutions for all students can address a perceived problem of underachievement and behaviour management in Australia. Finally, the rejection by these knowledge brokers of teacher professional expertise and the body of education research which provides significant evidence that such solutions cannot be generalised across diverse student populations and schools. It is this convergence on simple solutions of a few policy actors from a narrow base of evidence that needs to be analysed and its implications for teachers, student equity and the education research- policy nexus.

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In 2024, an early years' literacy teacher stated:

> "I don't know how many of you have been involved in teaching beginners to read but the new regime in Victorian education are extremely ignorant about it. This is the information primary school principals received today about the new literacy assessments for Foundation and Year 1. The English Online assessment which they are about to abandon altogether helps teachers to find out what children know about reading books when they start school, e.g. concepts of print (left to right, top to bottom) names of letters, book handling knowledge, etc. This is all the most important information for Foundation teachers to know where to start with each student in the teaching of reading. If students don't even yet know which is the right way up to hold a book, why would you start to teach letter- sound knowledge for reading? The new regime is not interested in any of that. They just want a phonics test." (Interview)

Literacy teachers had just been mandated in Victoria to teach phonics and maths, and science teachers to undertake explicit or direct instruction.

In NSW, a professional development day has focused on explicit teaching in all 2,200 government schools (NSW DET 2012, 2015). The teaching of phonics, explicit or direct instruction (often used interchangeably), and knowledge-rich curriculum based on the science of learning, as if there is only one science of learning, has been promoted in various reports on teacher education (Australian Government 2023) and by the Australian Education Research Organisation (AERO 2023), regardless of the discipline. AERO's *How Students Learn Best* (2023) report claims that 'cognitive load theory is about maximising learning by designing instruction to account for the limits of students "working memory" and cognitive overload.' The Catholic Education office, following Sarah Duggan, view explicit instruction and Cognitive Load Theory (CLT) as 'instructional revolution … leading to "failure-proof teaching". NSW DET Centre for Educational Statistics and Evaluation (CESE) published *Cognitive Load Theory in Practice* which claims that 'CLT is the single most important thing teachers need to know' (Centre for Education Statistics and Evaluation 2018: 1). Behaviour management has now become a key issue (e.g. Catholic Education in NSW (*Education HQ* 2025).

While the discourse of evidence-based policy and practice has been circulating for over 30 years, current debates and the upsurge of policy adoption in 2024 is distinctive. First, the speed and spread with which CLT, explicit/direct instruction and science of learning have been taken up and mandated across Australian Labor and Coalition governments and other education systems such as the UK (2021) and New Zealand (Stewart et al. 2024) has been astonishing.). Second, the mandating of how to teach literacy and numeracy for all students by state and federal governments and Catholic education systems is an unprecedented intervention telling teachers how to teach. Third, that for the first time such policies are a condition of the *Better and Fairer* agreements between Australian federal and state governments which provides funding for public schools, an agreement aimed at remedying the underfunding (and claimed underachievement) of public schools according to the Gonski report (Australian Government Department of Education 2024). Fourth, the substantive evidence of a range of policy actors (philanthropists, Productivity Commission, Australian Educational Research Organisation, online curriculum resource providers) promoting only one strand of the science of learning and a limited notion of what counts as 'evidence' specifically. Fifth, these proposals have been applauded by both the right-wing media (e.g. *The Australian*) and conservative think tanks (e.g. Centre for Independent Studies, Independent Public Affairs) and 'middle-of-the-road' think tanks such as the Grattan Institute (Lingard 2016). Finally, the resurgence of interest in 'evidence' arose with the possibilities of large-scale data bases and AI which were being developed by large ed-tech companies, the development of data infrastructure and large-scale global assessments such as PISA (Selwyn 2023; Williamson 2023) which have become critical modes of network governance across nation states. These large-scale databases have, with the discourse of evidence-based practice, led to the medicalisation of education in which big science and big data are to reengineer educational assessment and practice and promotion of Randomised Control Trials (RCT)(Lewis & Lingard 2015). I argue that each of these policy actors/ knowledge brokers (Rowe 2025) are citing each other in a closed circuit of influence in offering the same solutions to what is considered the problem of underachievement. It is this convergence that needs to be analysed and the implications for teachers and students and education research- policy nexus considered.

It is difficult as researchers to critique a discourse of evidence-based policy and practice because academics agree that evidence should inform policy and practice as this is a core objective of their research. The concern of many educational researchers and teachers currently is the narrow base of evidence of cognitive psychology, one branch of psychology and of the learning sciences, that is informing current policies. Secondly, the claim that the science of learning is settled goes against scientific practice which would never make such a claim on the assumption that there are not alternative positions or that knowledge is advanced. Third, that this approach is informing what are becoming universally imposed policies on teaching practice across Australia. Fourth, the false statements circulating that teachers currently do not teach phonics and that academics are anti-phonics. Finally, the claims of various policy actors that science of learning and explicit instruction will not only improve literacy, numeracy and science achievement but also classroom management.

In this paper, I question how a particularly narrow understanding of evidence has come to provide the universal solution for all students based on the notion of one field in the science of learning. Drawing from critical policy sociology of Bacchi (1999) I ask:

Why this policy trajectory towards the science of learning and explicit instruction now; what problem does it seek to address; what evidence is being used to justify this policy; what evidence is excluded; who is promoting these policies; and what will be the effect of this intervention on teachers' work and on educational research and practice broadly.

What is the problem? Why now?

So how is the problem to requires such policies represented (Bacchi 2025)? There has been political concern raised about the decline in literacy and numeracy of Australian students relative to other OECD countries in PISA tests (De Bortoli et al. 2023). PISA testing in literacy numeracy and science involves a sampling of Australian Year 10 students. These tests are not considered to be high stakes testing for schools, teachers or students but act as proxies for quality of education systems and are used politically to judge national progress against their own students and that of other countries (Gorur 2016).

As in many OECD countries, standardised testing has become the norm. In Australia Years 3, 6, and 9 has been undertaken by ACARA through NAPLAN testing all students since 2008. The 2024 report of NAPLAN states for Year 3:

> On average across all domains, a greater percentage of Indigenous students are in the Needs additional support proficiency level (33.9%) compared to non-Indigenous students (9.0%). By contrast the percentage of language background other than English (LBOTE) students in the Exceeding proficiency level is higher than for non-LBOTE students in all 5 testing domains, by 6.0 percentage points on average. Furthermore, percentages of students who need additional support are lower for students whose parents' hold a Bachelor degree or higher compared to those whose parents' highest level of education is Year 11 completion and below. The differences range from 18.3 percentage points in writing to 33.8 percentage points in grammar and punctuation. Percentages of students in the Needs Additional Support proficiency level are lowest across all 5 domains for students with parents in the senior managers and professionals occupation group, with percentages ranging from 1.9% in writing to 7.5% in grammar and punctuation. (ACARA 2024: n.p.)

These results have not improved by the fourth round of testing at Year 9. Likewise with numeracy. What is then is the source of this problem of underachievement? There is significant debate over whether standardised assessments such as NAPLAN inform teachers' capacity to address issues of literacy and numeracy better or shapes their practice to the detriment of that intent (Biesta 2017, Carter et al 2018, Lingard et al. 2015). As a standardised assessment, NAPLAN can inform systemic accountability and progress but does not necessarily offer the tools teachers need to make improvements and can often divert attention away from what may. To delve into NAPLAN 2024 results, we find firstly, that there are gender differences in maths and literacy, with girls' results declining in maths and boys' in literacy, which remain if not worsen by the end of Year 9. These gender differences in patterns of learning in literacy and numeracy are not specific to Australia, although perhaps more marked than in other OECD countries, and require focused responses and targeted programs to address this issue for boys in literacy and girls in numeracy as often the reason for this differs. Second, educational inequality was evident for Year 3 students with 33.9% Indigenous students not achieving and this worsens by Year 9. The system is failing Indigenous students generally as indicated by consecutive *Closing the Gap* reports which show poor health and housing etc. as well as high levels of poverty impacting on Indigenous communities are major factors contributing to issues of school attendance (and therefore underachievement) (Australian Institute of Health and Welfare 2025). Again, the needs of Indigenous students are highly specific to location, local knowledge and expertise and how education programs are being delivered and by whom (Lowe, Gollege et al. 2025; Lowe, Weuffen at al 2025; Dillon et al 2023). Third, socio-economic issues and parent education levels are clear indicators of disadvantage which are again reflected in student outcomes in NAPLAN and PISA as well as an established body of Australian qualitative and quantitative research (eg. Lamb 2020). This body of evidence confirms what PISA and NAPLAN show, that parental professional (socioeconomic and educational) background, often associated with location, makes a significant difference when it comes to student achievement in numeracy, literacy and science (Perry et al 2022).

With PISA results, Australia is considered to be high quality but low equity because of the wide disparity of achievement impacted by wide disparity of socio-economic conditions (OECD 2013) and the long tail largely due to results of Indigenous students. This analysis suggests that there are specific groups of students who are most in need of additional support–Indigenous students, students from low socio-economic status (SES), boys in early years in literacy and girls in maths. These are the equity groups also cited in the Grattan Report *Unpacking the NAPLAN Results 2024* (Haywood & Parkinson 2024). Other research evidence in the case of literacy as reviewed by Ewing (2018) shows that that from the outset that parents' education and socioeconomic status (Mullis et al, 2007; OECD, 2010) and cultural orientations to reading (Williams, 2000) have a significant impact on the likelihood of children's success in learning to read. Ewing (2018: 2) lists the predictors which are central to learning to read: a language and story-rich home environment, where reading and writing for different purposes is modelled and shared; frequent and diverse linguistically-rich parent/child oral interactions; the provision of a range of books in the home quality; literacy-rich preschool experiences; and access to libraries. In the case of Indigenous students, the Australian Institute of Health and Welfare (2025) argues other social determinants of student health and wellbeing are housing, isolation as well as educational engagement.

The advantages of class and Indigeneity can be mapped onto socio-geographical inequality and inequitable school provision across Australia with an increased spread of achievement between students in high SES urban areas and rural, regional and/or low SES context (Lamb 2020). These socio geographical differences have been exacerbated over the last 50 years due to market driven parental choice producing a highly segmented school provision in three distinct education sectors (Rowe & Parry 2023). Children from disadvantaged or at-risk backgrounds require a higher level of support in early childhood contexts and at school. The schools that have higher enrolments of disadvantaged children subsequently require the best resources to meet their needs (Cobbold 2025).

Context matters and impacts on how children learn. Socio-economic background and location are critical factors as well as the richness of student experiences inside and outside the classroom which could include the arts, music, and sport where students also gain a sense of success. The student is not isolated from their context and their capacity to achieve is impacted on by the conditions of their learning. A student's socio cultural, linguistic and socio-economic background are also important in learning to read, particularly in a second language, or understanding science (Tytler 2024). Australian curriculum texts recognise that children come to school with differing capacities to read depending on access to preschool kindergartens and differing linguistic backgrounds. Many are highly competent readers for their age, many are multilingual, others less so because they do not have the same opportunities. Reading as meaning making is recognised in the Australian curriculum which all states and territories agree to after significant negotiation (Yates 2011; Luke & Woods 2013). It defines reading as:

> "processing words, symbols or actions to derive and/or construct meaning. Reading includes interpreting, critically analysing and reflecting upon the meaning of a wide range of written and visual, print and non-print texts." Meaning making depends on the text type, the purpose of the text, the background of both the reader and the writer, and the wider cultural context (ACARA p. 127).

Other influences on learning include the health and wellbeing of the child, disabilities in many forms, a sense of belonging and feeling safe in their school in that they do not experience bullying, discrimination, homophobia, racism or sexism (Halse 2018) and what is called culturally responsive curriculum and teaching (Lowe et al 2025b; Martin et al 2025). Furthermore, there is significant research on the plasticity of the brain which indicates how neural pathways alter according to lived experience and therefore on memory and other functions central to learning (Claxton 2021).

In science education, as argued by Tytler (2024), how children learn science is informed by their pre(mis)conceptions of how the world works which is about context, familial background, experience etc. While direct instruction could be used to address such misconceptions, other pedagogical approaches could do the same. Direct instruction may have more value at building foundational knowledge, provide scaffolding, and modelling scientific thinking but its effectiveness is only when combined with student-centred, inquiry-based or balanced approach. (Pressley et al 2023) Students develop both knowledge and skills when given opportunities to actively engage in and reflect on these practices. Tytler argues, drawing on a large body of research evidence in the teaching of science, that direct instruction alone in science can involve the total separation of writing in science with a) any comprehensive linguistic account of grammar as resource for meaning in text construction, b) any critical perspective on the function of the writing to make sense of science, and c) any attention to the commitment of teachers of science to developing the science ideas. This ignores, he argues, the large body of Australian-based research evidence about the different literacy genres in specific disciplines. More specifically, Tytler and colleagues show in multiple studies how students 'write to learn' in science and that 'Australian researchers have over decades in literacy are world leaders in thinking about the functions of text in generating meaning across different genres (Fenwick & Herrington, 2022) and writing to learn in science (Halliday & Martin, 1993; Maton et al., 2021; Tang, 2020; Tang et al., 2021; Unsworth et al., 2022)'. Learning to read (write and comprehend) as well as numeracy and science cannot be abstracted from socio-cultural and economic context of the student and the cultural, economic and embodied baggage they bring to a particular school context.

Successful performers?

With PISA assessments, often other countries are cited about how to resolve what is considered to be 'the problem' of underachievement in Australia. Shanghai and Finland are often held up as models of success in PISA. It is necessary to understand that the global rankings of national PISA performance are aggregations such as 'average' scores which do not recognise the particularities of place, culture and the complexities of national school systems in which there are no like schools or examples of 'best practice' (Gorur & Wu 2015). Furthermore, as more countries get involved, the rankings change. Finally, Chinese education scholars who are researching Shanghai's approach by undertaking teacher professional development (Zhang 2024) show that Shanghai's success can be attributed to high levels of investment in teacher professional development and a homogenous student population located in a rich metropolis that is atypical nationally. The test for Shanghai's model is that those leading this success story are now being asked to fund and scale up their model in areas of China where there is greater educational inequality and diversity. Similarly, Finland was lauded for its success in PISA, which can again be attributed to significant long-term investment over decades in teacher professional development, well-paid teachers and public schools in a relatively monocultural society. Yet

Finland's PISA results are now also in decline because they have an increasingly culturally and linguistically diverse population and growing inequality (Sahlberg, 2013).

The OECD reports indicate that strong performers and successful reformer countries 'that have improved their reading performance over the years have done so by reducing the proportion of poor-performing students, increasing the share of high performers, and/or weakening the impact of students' socio-economic status on their performance' (OECD 2013: 1). This differentiated approach recognises the different needs of particular groups of children, the significance of socio-economic status and also the need to enhance the learning of high performers. Over 60% of Australian students achieve at level and exceeding in literacy and numeracy. Will standardisation and imposed explicit teaching and phonics enhance the learning of the high performing student?

Furthermore, in PISA, of those who do not reach the standard, a large proportion are in public schools where they lack the specific disciplinary expertise, supports and professional development for teachers typical of success stories such as in Shanghai or Finland (Hobbs & Porsch 2022). Public schools bear the greatest burden of disadvantage but are not resourced to overcome its effect on learning outcomes. Income per student in public schools in 2023 is 91.5% of the income of Catholic schools but the percentage of students from low socio-educationally advantaged (SEA) families in public schools is nearly 200% of that in Catholic schools. Income per student in public schools is only 70.5% of that of Independent schools while their percentage of low SEA students is 285.6% of that were in Independent schools (Cobbold 2025). In 2023, 31.1% of students in public schools were in the lowest SEA quartile compared with 15.9% in Catholic schools and 10.9% were in Independent schools. Only 20.3% of students in public schools are from the highest SEA quartile compared with 41.8% in Independent schools and 26% in Catholic schools. The proportion of students in the top two SEA quartiles in public schools is 42.8% compared with 70.1% of Independent schools and 56.7% for Catholic schools. Public schools enrol the majority of students from the lowest SEA quartile. 80.5% of low SEA students attend public schools compared to 11.8% in Catholic schools and only 7.7% were in Independent schools. In 2023, 90.9% of schools with more than 50% of their students in the lowest SEA quartile were public schools, only 4% were Catholic schools and 5.2% were in Independent schools. 29% of public schools have over 50% of their students from the lowest SEA quartile compared to only 5% of Catholic schools and 9% of Independent schools (Cobbold 2025).

Despite this, the Catholic and Independent sectors have received from the federal government over 104% of their required funding and public schools only 95%, although in 2025 further federal investment of 5% to government schools was negotiated, but not to be achieved until 2030. Finally, Catholic and Independent schools do not offer the wide ranging vocational and academic courses that public schools do and are also able to exclude students or discriminate against teachers (and indirectly students) on religious grounds. An extreme teacher shortage nationally is worse in government schools with many teachers teaching out of field, particularly in maths, science and English and particularly in disadvantaged schools (Hobbs & Porsch 2022). There is therefore less government investment in the conditions of teaching and learning enabling teachers to address literacy and numeracy for students whose needs are greatest.

While unfair funding cannot be a justification for children not being able to read, the above evidence does indicate that there are specific groups of students, schools, sectors and teachers who require additional targeted assistance. The question then is, why are phonics and explicit instruction mandated for all students? Phonics and explicit instruction may be needed for some students, but that depends also on the individual needs of the student, many are neurodiverse, autistic, suffering anxiety, racism, bullying or have learning difficulties, and phonics may not be the remedy (Molle 2023). The question for the majority of students above who are meeting and are above standards is will the focus on phonics and explicit instruction improve high performers achievement? How can any one approach to literacy and numeracy be successful without also remedying wider structural systemic issues which impact on underachievement? What is the most appropriate way of teaching literacy to different students, in different contexts, and who decides? How does the time taken on the basics of literacy and numeracy reduce other opportunities for students to experience and show success in other activities such as the creative arts, sport or music where literacy and numeracy are also learnt and are more relevant to the task ie meaningful? (Comber & Kamler 2006).

Evidence based policy and practice: the genealogy of the discourse of 'what works'

The next question is on what evidence are phonics and other policies such as explicit teaching justified by what is called the science of learning? This section considers the genealogy of the discourse of what works and the rise of the dominance of one perspective of the science of learning in policy in Australia and internationally.

During the 2000s, political and epistemological debates over the relationship between research, policy and practice emerged with a focus on 'evidence' and 'what works.' The 'what works' discussion focused on applied knowledge and interdisciplinary approaches to solve wicked problems. Its origins in the 1990s was driven in part by conservative political agendas in the context of intersection of epistemological debates about the nature of knowledge production (Mode 1 pure and Mode 2 applied), the role of university-based research in relation to policy and in England where to locate—school or university based. In the UK, it led to the formation of the Teacher Training Agency which became school based with the later move to stand alone Academies and creation

of a system-less education system in England (Gunter 2010). In Australia, teacher education remained in universities based on Canadian model of external registration and accreditation authorities being established e.g. Institutes of Teaching in each state. After multiple reviews of ITE, there has been an intensified accountability regime which has led to increased standardisation of Initial Teacher Education (ITE) programs. Most recently, the TEEP review has mandated ITE programs must have a unit on The Brain and Learning.

In the UK, the discourse of evidence-based teaching began with an education professor, David Hargreaves (1996), arguing that educational research was remote from practice, of poor quality and a waste of public money. Teaching, he argued, should be evidence based as in medicine and 'what works', and that teachers over rely on procedural craft knowledge rather than making a balanced use of craft and declarative research knowledge as in medical practice (McKnight & Morgan 2019) The *Tooley and Darby Report* in 1998 argued that educational researchers were too theoretical and lacked rigour in what was fundamentally a clear attack (given the selection of examples) on qualitative research and feminism in universities. In Australia, taking up the same discourse, the Howard government (1996-2007) attacked teacher education as not being practical and having too much theory. It also instigated and encouraged the culture wars against feminism, multiculturalism, Indigenous people and initiated a 'what about the boys' discourse (Mills et al 2007). Yet, a federally funded review, *Impact of Australian Education Research on Policy and Practice* (DETYA 2000), found through 5 rigorous research studies that Australian educational researchers 'punched above their weight internationally' in citations, that education policy was informed by research, and that teachers used the concepts from educational research to good effect in their classrooms.

In the USA, the focus was on data driven decision-making by principals and teachers which led to the *No Child Left Behind report* (Department of Education 2001) which required Random Controlled Trials (RCTs) as the norm for funding and the only form of evidence to be used in policy. Likewise, there was a minority report, the *National Reading Panel* in the USA which is cited as evidence to promote synthetic phonics. Multiple critiques argued that the research did not justify the conclusions of the Panel (Allington 2002). For example, Allington concluded that:

> 'the push for evidence-based reading instruction is but a thinly disguised ideological push for a national reading methodology, for reading instruction that meets the 'phonics first' emphasis of the Republican Party platform and the direct-instruction entrepreneurs, those who profit financially when federal and state governments mandate the use of curricular materials like the ones they produce' (p. 256)

Despite this, the USA PISA results continue to show how SES impacts on student achievement based on location, funding, race and class (OECD 2022).

In 2000, the UK government funded the Evidence Informed Policy and Practice Information and coordinating centre (EPPI Centre). Systematic reviews undertaken by EPPI were based predominantly on large-scale statistical analysis which through its protocols of what was significant, ignored well-established bodies of university qualitative or survey research on any specific issue (Blackmore 2002). The argument then was that education research should assume a medical model such as the Cochrane Collaboration, which itself widened its criteria to include qualitative research, and the Campbell Collaboration, which also provided systematic research synthesis in social science and policy. That is, both Cochrane and Campbell approaches sought to widen not narrow their definition of evidence beyond RCTs because the method relied upon the question being asked. In NZ, within the Ministry of Education, an Iterative Best Evidence Synthesis Unit was established which encapsulated both qualitative and quantitative evidence and resulted in comprehensive reports on Quality of Teachers, inequality, gender etc. which were of value to both schools and teachers. That is, there was recognition that quantitative and qualitative research (often referred to as mixed methods) answered different questions in a complementary fashion.

Claxton (2021) maps out how cognitive load theory and knowledge-rich curriculum were promoted by a small group which was then informing policy in the UK from 2000s and was taken up seriously by conservative governments in the 2010s. The assumption, Claxton argues, was that students had to have knowledge imparted to them by direct instruction and a knowledge-rich curriculum (traditional grammar school disciplinary based curriculum of Western culture) before they could be critical thinkers and that memorisation is a precondition to understanding. Claxton also notes that it continues to be a small group of researchers who have created an in-group who cite each other, and who rely on research undertaken 30 years ago. Indeed, this group publicly derides research that does not fit with their view even within the wider field of sciences of learning (eg. Ashram blog). Any criticism of the regressive nature of such thinking and policies by a significant number of researchers was criticised by Michael Gove, the Secretary of State for Education (2010-2014) (Claxton 2021). The media in search of a story continues to offer examples in 2025 of how schools were turned around through adopting these approaches and rejecting inquiry-based learning, collaborative group work, explanatory talk etc.

In Australia, Hattie's (2009) *Visible Learning* made similar claims based on a metanalysis (synthesis of many different studies across levels of schooling (early childhood, primary, secondary and tertiary), types of schooling (e.g. mainstream schools, special education) and discipline areas (e.g. English, Mathematics)) of 800 studies arguing that quality teaching should be the focus for improvement. Hattie's research and claims were criticised as he admitted that he ignored context, and questions were raised over

his statistical methodology (e.g. aggregation and averaging of studies) and therefore the 'evidence' from which he drew his conclusions (Lilley, 2022; Bergeron & Rivard, 2017). Hattie's (2009) *Visible Learning* (and the textbooks that promoted it) informed Victorian governments' High Impact Teaching Strategies (HITS) in which the top ten strategies are unsurprisingly part of every teacher's set of competencies. Explicit teaching, Hattie (2009) argues, is **one of** the 10 high impact teaching strategies or instructional practices presented which also include collaborative learning, multiple exposures, questioning, feedback, metacognitive strategies and differentiated teaching. HITS was only one of other effective strategies used by teachers (Brown 2024). Since then, across Australian schools there have been a range of impositions on how to teach for example, using lesson plans and most recently, the science of learning's focus on explicit teaching and phonics. These policies reference directly to AERO and Grattan Institute who are promoting the ideas of this small group of cognitive psychologists informed by John Sweller's work and imported from the UK and USA.

This focus on teacher quality, defined narrowly rather than broadly, and by the profession (e.g. Gore et al. 2016) as the solution has deflected attention from more difficult questions of educational inequality and teacher work intensification and overload (Riley et al 2021). Furthermore, the mandating of phonics and explicit instruction ignores evidence that both phonics and direct instruction are already part of the teaching repertoire. Teachers draw on a range of methods to teach literacy, what is called balanced literacy approach which includes both immersion and phonics, as is appropriate for their students (PETAA 2024). Likewise in science, teachers recognise different understandings about how the world works through processes of inquiry (Tytler 2024). Mandating explicit instruction takes away from the professional judgement of teachers and shrinks their pedagogical repertoire rather than expanding it to meet increasing diversity of student needs and addressing complex nature of teaching (OECD 2025).

Teacher education

Teacher education has also been a focus of reform. Teacher education has experienced multiple reviews over decades (100 over 43 years) (Louden 2014), an easy target because it is not funded by state governments and is regulated by state accreditation bodies but is federally funded as located in universities. Focusing on teacher education has been an easy distraction from wider systemic issues such as the underfunding of public schools over decades and work intensification of teaching. Multiple attacks on teacher education have been fuelled by an international discourse of 'crisis in education' in the media as teachers are not 'job ready' (Mockler 2022) and by conservative politicians railing against education 'progressivism.' Education has been fecund ground for social conservatism (culture and literacy wars) and economic radicalism (neoliberal strategies of marketisation and privatisation). Each review has added to the compliance regime required of initial teacher education providers by accreditation bodies.

The most recent is the Teacher Education Expert Panel (TEEP) which was established by the Australian Government to improve initial teacher education to boost graduation rates and ensure graduating teachers were better prepared for the classroom. The commissioned research called upon by TEEP had AERO, dandolopartners pty ltd, the Australian Catholic University Institute for Learning Sciences and Teacher Education, the Behavioural Economics Team of the Australian Government, and the Social Research Centre to conduct eight research pieces. AERO provided three reports on evidence-based teaching practices; incorporating evidence-based teaching into ITE; and understanding current ITE delivery and identifying opportunities.

The report led to a *Strong Beginnings (Transition) Fund* to support higher education providers to embed mandatory core content in their initial teacher education (ITE) courses by the end of 2025 mandating phonics, units called the Brain and Learning and explicit instruction (Australian Government 2023). AERO also has its own 'how to fix' teacher education five step plan which requires everyone to have the same vision of teaching practice, content based on evidence etc., stating that you cannot have one unit teaching explicit instruction and another unit teaching inquiry learning, creating a false divide. Again, this ignores what actually is taught in universities where both approaches are part of the pedagogical repertoire that teachers are encouraged to use. But AERO in their report recommends ITE to all teach explicit instruction and has through the Director's position on TEEP gained that aim. Now all ITE providers are required to have units on the Brain and Learning and explicit instruction as set by accreditation authorities.

The new neuromyth of the learning sciences (Heyes 2018)

The science of learning, narrowed to explicit instruction, is the new neuro-myth. There is no such things as the learning science. The learning sciences (plural) include experimental psychology, social and affective neuroscience, cognitive anthropology, developmental psychology, robotics and AI, neurology, systems theory and many others (e.g. Heyes 2016, Immondino -Yang 2021). But neuroscience and cognitive psychology rather than social or behavioural psychology have been positioned well in this surge of interest in evidence-based policy and practice because of its use of statistics and controlled experiments. Neuroscience has been viewed as the next frontier with the capacity to inform educational practice. But Walsh et al. (2024) state:

> The translation of findings from neuroscience to educational practice has been challenging and contentious …in part due to disciplinary and philosophical divides … For example, the science of the human brain, how it develops and is shaped, may be considered unnecessarily reductionist by scholars with a strong sociological standpoint that privileges the holistic nature of early development and its multiplicity of social and environmental influences… The proliferation of neuromyths, or misunderstandings about the human brain, as part of a growing field of "neuroeducation" has also been held to scrutiny…despite scholarship suggesting that beliefs in neuromyths may be "pedagogically harmless" (p.2)

Concerns are raised when populist psychology is integrated into curriculum. Hattie and O'Leary (2025) for example refer to myths about learning styles and left and right brain and learning which have been imported into policy and pedagogical discourse and practice. Hattie and O'Leary (2025) state there is no evidence that there are learning styles, and that there 'needs to be a shift … toward teaching students adaptable and effective learning (p. 1). They argue that we do not still know how we learn and that cognitive load theory is still not settled. They suggest that we need to 'focus on how to teach students to self-regulate so they know alternative strategies when their first choices are not effective, how to engage in error management, how to align the optimal learning strategy with the context of the task, and how to articulate and have a language of learning' (p. 21). That is, focus on learning strategies dependent on student needs and encouraging thinking why and for what purpose.

The common justification of the science of learning is the focus is on 'rigor' and 'science.' In many instances, the notion of what constitutes scientific method is narrowly defined as randomised controlled trials (RCTs), reminiscent of the positivistic thinking of the 1950s and 1960s which claimed scientific objectivity could be established only through statistical analysis of large databases. The danger now is the increasing trend for those who undertake large-scale RCTs to argue they have a solution which can then be implemented universally. For example, Oxford University's *What Works Hub for Global Education* website states their research findings can be implemented across multiple countries:

> Finding out what works through controlled studies has been a critical first step. Now, the challenge is implementation. Putting evidence-based ideas into widespread practice, all the way into millions of individual classrooms, is the next frontier[1]. Using large scale quantitative studies with thousands of students in 4 countries this study found that targeted instruction works i.e. addressing the level at which the learner is at in literacy and numeracy and not according to grade, and that implementation was also critical in terms of teacher commitment to undertaking change.

At the most general level, none of these conclusions differ from the body of qualitative research which has developed over 30 years but this claim ignores cultural difference and context considered to be critical factors in learning.

Certainly, RCTs can add to, or 'triangulate,' but should not replace, existing bodies of qualitative research that confirm first, that teachers adopt the appropriate pedagogies for the student. Second, policy sociology studies, which had considered how policies are enacted into practice, have long argued that teacher ownership of and system support for implementation and professional development is critical (e.g., Ball et al. 2012). What qualitative studies also explain is why and how and in what context and with what effect on different groups (country, culture, school, teacher expertise, student etc.) and how these matter in terms of appropriateness and take up of any policy. The *What Works* 'controlled' research, often taken out of one context and at a high level of abstraction, is given greater legitimacy because of its methodology and its claims of generalisability and reach, all appealing to politicians who seek a solution delivered at scale. This site also raises questions about its funding source (big tech, global organisations, government and philanthropists) as does the funding of think tanks (Rowe 2025).

There are also internal contradictions of RCTs and the claims made about the brain and learning. Parra and Edwards (2024: 3) contend that:

> i) the comparison groups created through randomisation lose comparability over time;
>
> ii) RCT reliance on significance testing (and avoidance of social theory) to validate their findings is misplaced; iii) the (inevitable) unbalancing (i.e. incomparability) of treatment and control groups means that RCT results are not generalisable; and iv) given that RCTs, by themselves, add nothing to the identification of causal mechanisms triggered by (educational) interventions, their results are uninformative for decision making (both within and beyond a given context).

They conclude that there is real world risk in uncritically using RCT to inform education policy because 'narrow technocratic preferences toward experimental research might contribute to reproducing the vested interests of organisations that sponsor specific knowledge production and mobilisation, with potentially adverse effects on the opportunities for transformative education system reform, particularly in low and middle-income contexts' (Parra & Edwards 2024: 2).

[1] IT IS A MULTI-YEAR COLLABORATIVE RESEARCH INITIATIVE BETWEEN THE BLAVATNIK SCHOOL OF GOVERNMENT, THE UK GOVERNMENT'S FOREIGN, COMMONWEALTH & DEVELOPMENT OFFICE (FCDO), THE BILL & MELINDA GATES FOUNDATION, THE WORLD BANK, USAID, UNICEF, UNESCO-IIEP, THE LEARNING GENERATION INITIATIVE, AND THE BRITISH COUNCIL. THE FOCUS IS ON INDIA, PAKISTAN, RWANDA AND TANZANIA.

Any systematic research synthesis which makes overarching claims as to their applicability or metanalysis used to justify certain evidence needs to be explicit about its methodology of inclusion and exclusion. Care should be taken about generalisability from a narrow base of findings. The issue is not in the meta-analysis but in how it is used in a simplistic fashion and claims made. Statistical precision does not mean there is conceptual clarity. In 2022 Labor has taken up evidence-based policy under the initiative of Labor MP Andrew Leigh by establishing an Evaluation Unit within Federal government. The website provides a review, *Randomised trials in public policy in Australia* which states:

> There is more to evaluation than just randomised trials, and often the most useful randomised trials are ones that are complemented by other research methods that, in combination, yield greater insights. Nonetheless, randomised trials are a valuable and under-utilised part of the evaluation toolkit…Beyond the volume of evaluation, there is also room for improvement on other dimensions: randomised trials must be ethical and culturally appropriate, well-designed, and used thoughtfully to inform policy. (Rehill et al. 2025: p. 4)

There is widespread recognition in the field of public policy that RCTs are just one tool of evaluation.

What is of concern is that mandating of the science of learning as equated to direct instruction and knowledge-rich curriculum is that it is based largely on a narrow field of cognitive psychology and Sweller's (1988) cognitive load theory which has been used to justify direct instruction as opposed to inquiry-based pedagogies. This fails to recognise that knowledge formation in any field of research is based on contestation, debate etc., over evidence and theory. For example, Kim et al. (2024) argue that Sweller's cognitive load theory has severe limitations because of the assumptions about how we learn and that Sweller's notion of working memory and language learning is limited. Kim et al. (2024) reject the transient nature of working memory and the core notion of cognitive load to propose another way in which learning occurs, one which is 'predictive (not reactive), embodied, neuronally plastic, nonlinear, dynamically self- organising and inherently emotional' (p. 1). They also argue that Sweller ignores teacher's professional knowledge. Drawing from new understandings informed by cognitive philosophy, also one of the learning sciences, Kim et al. (2024:6) cite evidence of how the learning of language occurs through repetition, observation, modelling, for example by parents teaching children how to cook or make things. Again, this conclusion is not new and confirms the body of literature on home literacy in terms of how children learn language and how to read and count (Salinskas et al. 2020).

Kim et al. (2024: 6) agree that metacognitive strategies assist students' memory of what is being learnt but 'not because they ease a putative load on working memory.' Rather metacognitive strategies 'enhance *attention*, employ Hebbian *repetition*, utilise *error monitoring and feedback*, and make learning more *emotionally salient* and *meaningful*' (p.6). They consider *repetition* for most school learning is important; but argue that *value, and emotional salience* play in neural *plasticity neural connectivity*, and hence learning and memory formation (Kim et al. 2024: 6). Kim et al. (2024) refer to the 'Bayesian *predictive and embodied* brain (Friston, 2012; Clark, 2015) and the importance of *attention* and *salience* in active inference and learning (Parr & Friston, 2017) … which operates as a *feedback-control system* (Pezzulo & Cisek, 2016)' (p. 6).That is, Kim et al. (2024) do not view students as empty vessels and passive as assumed in notions of explicit instruction or cognitive load theory but that they are active in terms of the *non-linear*, *dynamic, self-organising, and emergent processes* involved in learning and development (Thelen & Smith, 1994; Van Geert, 1994).

Finally, Kim et al. (2024) suggest that there is a necessary 'formative role that *emotion* plays in human rationality (Damasio, 1994) and hence learning at school (Immordino-Yang, 2016), and how emotions are created in the *interoceptive* (Barrett, 2017), *homeostatic* (Damasio & Dimasio 2018) brain' (p, 6). This again delves into the working of the brain and how that impacts learning. Recognising emotions recognises other aspects of the student's lives as impacting on learning—their sense of wellbeing, belonging etc. and other feelings. Again, a body of qualitative research indicates that emotional salience is a factor in girls' attitudes to maths (Fernandez et al. 2024) and boys to reading (Comber & Kamler 2016) and their emotional literacy. This more encompassing view of the brain and learning recognises how a student is constantly responding to their lived experience of the physical, social and emotional world as embodied beings within a network of relationships.

Kim et al.'s (2024) research is another example of how there is contestation within the field of learning sciences and psychology itself in terms of understanding learning and the role of the brain (See Claxton 2021). Their research considers context and other aspects of the student such as emotions but form a more inclusive perspective supported by bodies of qualitative research. Cognitive load theory and explicit instruction are not, as claimed by the advocates of explicit instruction and cognate load theory, uncontested in terms of how we understand learning. Yet in responding to an article by de Jong (2023) arguing that both inquiry and explicit instruction in science teaching were required, Sweller, Zhang, Ashman et al. (2025) refuted de Jong by citing 18 of the 25 references by Sweller or his co-authors' publications, a rather unusual academic practice.

There are also contradictions between the science of learning and Australian education policies. Many of the AERO reports argue for the increased standardisation of curriculum by advocating a knowledge-rich curriculum design. The knowledge-rich curriculum report commissioned by the New South Wales Education Standards argues, would go towards achieving Australia's educational goals in the Alice Springs Declaration and should be underpinned by the cognitive science on how students learn (AERO 2023). Yet

this report contradicts other policies on teacher professional standards set by AITSL (2022) and ACARA curriculum texts which impart greater capacity to teachers to use their professional judgement. AERO has a particularly outdated view of knowledge and the learner as stated in their document on a knowledge-rich curriculum as being selective, coherent, carefully, sequenced, specific and clear. AERO (2024) states that, 'a knowledge-rich curriculum does not rely on students' assumed knowledge – rather it promotes equity by providing all students with access to a common body of knowledge, regardless of background' (p.8). This assumes that knowledge is uncontested, that curriculum changes over time and that students are empty vessels (Lowe et al. 2025). This report is indicative of the lack of awareness about young people, their agency and what influences their thinking and approach to learning (e.g. social media) as well as the impact of prior learning in specific areas such as literacy (or lack of it) and the impact of disadvantage and advantage. Not to tailor curriculum and pedagogy to student needs currently and for the future as curricula change by advocating one way of teaching and one body of knowledge is a return to an outdated notion of the canon which fails to address the needs of the 21st C student and society. Finally, many of the AERO reports promote false dichotomies—knowledge-rich vs skills-based curriculum, explicit vs inquiry instruction, phonics vs balanced language instruction, brain vs emotions, dichotomies which are not useful or evident in teacher practice.

The themes I have outlined above are first, as in any form of systematic inquiry (in sociology or psychology) the evidence is never 'settled' and is always under review. Second, the greater legitimation given to RCTs or studies undertaken in a controlled environment as the only form of evidence to be valued is dangerous. Medical practitioners talk about how RCTs provide probabilities and patterns, but these do not necessarily apply to an individual case which is where they as practitioners with professional expertise make judgements for a patient-in-context to personalise their treatment (McKnight & Miller 2019). Third, that the science of learning, explicit or direct instruction and phonics cannot be promoted as the universal solution to perceived literacy and numeracy underachievement because the needs of students vary as do contexts. Such claims of generalisability are based on a narrow evidence base of cognitive psychology about what works for some students extrapolated to all students. Fourth, the claim that explicit instruction improves behaviour management again fails to define the nature of behavioural disruption (low level lack of attention, talking etc) and how explicit instruction (as providing structure, teacher directed etc) are defined. Teachers now confront multiple factors impacting on student behaviour arising from Covid (Fray et al 2021, Miller et al 2022, Gore et al 2023), technologies, high levels of student anxiety, neurodiverse students etc. Finally, the advocates of explicit instruction or phonics ignore what and how teachers already teach literacy as balanced instruction includes phonics (Hicks & O'Mara 2024). Using their professional judgement, teachers use explicit instruction in some instances (which assumes linear building block approach) and inquiry-based learning in others (which focuses on problem solving and capacity of student to think critically). Both make assumptions about the learner and how learning occurs and that is still contested in the literature even within the field of cognitive psychology (Claxton 2021).

The next section considers the origins of the 'what works' and 'evidence-based' policy in Australia and the actors involved leading to the current policy of mandatory teaching of phonics, explicit instruction based on the learning sciences.

Australian provenance of the 'what works,' 'evidence-based' policy discourse

The discourse of evidence-based policy arose from multiple but interconnected policy actors. In Australia, a Productivity Commission report on Evidence Base Policy (2016) suggested a national research body modelled on The *Education Endowment Foundation* (2011) (the idea of UK conservative politician Michael Gove)(McKnight & Miller 2019). Previously, in 2012 the Gonski report (Gonski being the architect of reforms in the early 2000s under the John Howard Government) was established by the Labor PM Gillard, which sought to rejig the imbalance of funding that had occurred over a decade favouring non-government schools. The Gonski 2.0 Report (*Through Growth to Achievement: Review to Achieve Educational Excellence in Australian Schools)* (Australian Government 2018) recommended the establishment of an independent national institution tasked with gathering, producing and disseminating 'evidence-based' educational research models. While Gonski carries considerable weight as an advocate for public schooling, he is also Chair of Australian Philanthropic Services (APS) holding company of venture philanthropic organisation *Social Ventures Australia* (Rowe 2024). This advocacy echoed the Australian Government Productivity Commission (2016) and *Social Ventures Australia* (SVA) recommendations. *Social Ventures Australia* is the brainchild of a former McKinsey and Company Director. As an organisation it joined with McKinsey and Company, Boston Consulting Group, Macquarie Bank etc. to put pressure for AERO to be established modelled on the Education Endowment Foundation (EEF).

Australian researchers in 2016 wrote submissions to the Productivity Draft Report advocating the establishment of AERO arguing that childhood education and care (ECEC) and school-based practice is more complex than acknowledged. The models being promoted for linking data and evidence were seen to privilege quantitative large-scale data at a population level, with the effect that issues of translation of policy and research findings into different environments of classrooms and schools, and recognition of context, were ignored or silenced. These submissions argued that there was a need to expand understandings of evidence beyond quantitative data sets. A further risk was that a medical model of epidemiological research being simply applied to the education sector would fail to address the social, emotional, physical nature of learning as well as contextual factors that inform learning. Judgment of effectiveness was reliant on the completeness of the database in terms of its relevance to the aims of a program and

its capacity to address the multiplicity of student/child outcomes. The data referred to within the draft report related to relatively simplistic models of learning and high stakes tests based on narrow outcomes and as such these have been shown to have a distorting effect on practice. In particular, these submissions argued that having one government funded 'research' body to inform policy would lead to undue influence by such a body on policy.

Despite these concerns, AERO was established in 2020, funded by the Ministers of Education federally and in each state and territory. As stated on the website AERO is based on 'Ministerial ownership to inform policy and teacher practice.' This immediately privileges and legitimises its reports as well as giving AERO staff direct access to policymakers. On the website, the strategic plan states that AERO exists to *generate* 'high-quality' evidence; *distribute* 'high-quality' evidence that is relevant and accessible; and *accelerate* the use of evidence in the classroom, practice and policy (AERO, 2021d; Donovan, 2021). AERO claims being *bipartisan as* an independent 'evidence broker' (AERO, 2021b, 2021c, 2021d).

The website also explains that at AERO:

> We employ staff from all over Australia. With staff based in every state and territory, our team brings together a wealth of experience and diversity of backgrounds. Our staff include many past and practising teachers and educators from schools and early childhood education and care.

Given the significant privileged position in education policymaking and claims made about its representativeness and expertise, who are the key AERO staff listed online? The Board of AERO comprises the Chair, Lisa O'Brien who is a University of Technology Sydney Pro-Vice-chancellor (and former Director of Smith Family, co-author of the *Better & Fairer Report* and a former medical practitioner). Other Board members are: Colleen Hayward, a senior Noongar woman from Western Australia; Dr Emma Burns, a DECRA fellow with a BA in neuroscience from Boston University and a PhD in educational psychology (Uni NSW) who researches socio-motivational factors impacting adolescents' adaptive engagement, achievement and development, especially in STEM and social cognitive theory using quantitative research methodology. A principal of a new NSW High School who had won the NSW Teaching Quality Award in 2007, a secondary principals Fellowship and NSW ACEL award in 2014. Dr Anne Kennedy, is an early childhood education researcher and consultant, honorary at University of Melbourne and non- Executive Director of Board of The Front Project. She was a member of the Governments' Preschool Outcomes Measure Ministerial Advisory Group in 2021. Dr Leslie Loble is Industry Professor (University of Technology Sydney), a Fellow of the Paul Ramsay Foundation, chair of the Australian Network for Quality Digital Education, is a member of the national council on early childhood development, and is Deputy Chair of the Australian Curriculum, Assessment and Report Authority (ACARA). Previously she served as Deputy Secretary in NSW Education when she established the Centre for Education Statistics and Evaluation (CESE), NSW. Other members are Dr Robyn Mildon, who has a PhD and specialises in research translation and implementation science, program and policy evaluations, better evidence in policy and practice settings, improving the quality and effectiveness of health, education and human services. She was founding CEO of the Centre for Evidence and Implementation (CEI), a global social purpose organisation and from the Campbell Collaboration for outstanding contributions to knowledge translation and the dissemination and implementation of evidence. Barry Sandison's previous roles have included CEO of the Australian Institute of Health and Welfare (AIHW) and Deputy Secretary within the Australian Government Department of Human Services. He had a research Fellowship with the Paul Ramsay Foundation.

The AERO key staff named on the website comprises Dr Jenny Donovan as the inaugural CEO. She previously established and led the NSW Centre for Education Statistics and Evaluation (CESE) as Executive Director and was Deputy Director of a not-for-profit education assessment agency at the University of NSW. In 2024, she was Member of Teacher Education Expert Panel (TEEP). Dr Donovan claims on the AERO website, that 'as a result of her presence (on TEEP) an evidence-based core curriculum will be implemented in all initial teacher education.' This includes the teaching of phonics, brain and learning and explicit instruction. Rowena Finnane, Strategy and Operations Manager, played a leading role in establishing the NSW Centre for Education Statistics and Evaluation (CESE) and has led senior policy and strategic planning projects. Dr Zid Mancenido, the Senior Manager of Research and Evaluation, has worked internationally on education policy, practice and research with organisations Teach For Australia and the Australian Government. David Boyd, (M. Educ, Harvard; B. of Arts (Social Policy) (Hons) Uni Sydney) is Chief of Staff. He was senior education specialist and head of education policy and workforce development and advisor to Education Ministers in NSW and Australia.

In summary, the online bios show that the AERO Board and key staff have expertise predominantly in large-scale statistical methods, most come from the field of cognitive psychology, implementation, assessment and management of education systems. There are no sociologists, historians or curriculum specialists. Most are experts in public policy based on generic evaluation and implementation studies but lack specific educational research expertise or practitioner experience. Few have undertaken educational research at a doctoral level. Both the Board and AERO staff are NSW-centric despite the claims on the webpage of being representative nationally, although their state based staff may be more local. A significant number of key staff moved directly from NSW CESE, a Dept of Education in NSW, to AERO. There are links to philanthropic organisations such as Paul Ramsay Foundation which historically has had Liberal Party connections. There is little evidence of AERO expertise in researching teaching

practice, pedagogy, student and teacher health and wellbeing, education policy, sociology or teacher education for which Australian researchers have an international reputation as recognized in research assessment outcomes and citations as being above world standard (Perry 2017).

What is the evidence used by AERO?

Importantly, AERO, while claiming to be the key organisation on educational research informing policy and practice, does not draw on university-based research. For example, an AERO report on implementation of education programs had largely citations from *Implementation Science* in health. The assumption is that the process of implementation works similarly across all public sectors—education, health, welfare. This ignores a significant body of evidence in multiple peer reviewed journals of how policy is enacted in schools which points to greater complexity in education contexts on issues of 'translation' (Ball et al. 2012).

Likewise with the science of learning and explicit instruction. AERO has provided a practice guide on 'Writing in Science.' While such guides are not new in education, and indeed proliferate in commercial fields, the issue is that it is decontextualised. As Tytler (2025) argues, 'the advice is the total separation of writing in science with a) any comprehensive linguistic account of grammar as resource for meaning in text construction, b) any critical perspective on the function of the writing to make sense of science, and c) any attention to the commitment of teachers of science to developing the science ideas' (p.). Explicit instruction assumes a narrow view of how teachers teach, AERO's 'evidence based' model of a 'science of learning' is based on results from experimental and control conditions that in no way replicate classrooms, measuring what is immeasurable in real life situations. In science, there are multiple factors which impact on student learning—their attitudes and aspirations, knowledge of the nature of scientific practices, scientific literacy, and impact of disadvantage that does not have a false inquiry/direct instruction binary but utilises the pedagogy that is appropriate for which students and when.

More worrying is that Dr Donovan on her website states an implicit criticism of 'progressivism' in education implied by her reference to 'minimally guided teaching techniques,' a term used widely by advocates internationally as if there is such a thing (Claxton 2021), and as the justification of her advocacy of direct instruction.

> The most impressive scientific evidence on how children learn - from experts like Paul Kirschner, Richard E Clark and John Sweller - all points towards the importance of direct instruction. Their work on 'why minimally guided teaching techniques do not work' is hugely powerful.

Kirschner, Clark and Sweller are all cognitive psychologists. Additionally, Dr Donovan gave evidence to the Senate Select Committee on Education and Employment (June 7, 2024, pp 96-8) regarding the Better and Fairer Schools (Funding and Reform) Bill 2024 [Provisions]. The following are direct quotes from the questions she was asked by Green's Senator Allman-Payne. The Senator asked how AERO engaged with the 'established education research community'.

> Dr Donovan: …Do you mean the university sector?
>
> Senator ALLMAN-PAYNE: Yes.
>
> Dr Donovan: There are other bodies, like ACER, for example, that are part of an established community as well. We very often commission work from them. When we have a project we'll often tender and seek expressions of interest, or partners, to work with us. … I have met with the Council of Deans on a couple of occasions—not very recently.

The Australian Council of Deans of Education comprises heads of school and this amounts to consultation information and not use of university research. The Australian Council of Educational Research is a commercial body which, for example, is commissioned to develop PISA assessments and is no longer funded by the government as it had been historically. ACER also undertake commissioned research on specific issues for AERO. This response indicates that Dr Donovan does not value university-based research in education, much of which has been funded by the Australian Research Council after being rigorously peer reviewed internationally (Perry 2017). Dr Donovan made clear her position regarding educational research undertaken in universities, having stated publicly that:

> In the past, the education debate has been dominated by education academics - which is why so much of the research and evidence on how children actually learn has been so poor (Senate Estimates 2024, p. 96).

This echoed the statement by Michael Gove in UK in 2013. https://www.gov.uk/government/speeches/michael-gove-speaks-about-the-importance-of-teaching

This negative attitude towards the body of education research evidence other than cognitive sciences is illustrated below.

> Senator ALLMAN-PAYNE: I note that AERO has produced a lot of work around explicit instruction, and you were just talking about that earlier, and the science of learning… Would you say explicit instruction is settled science?

Dr Donovan: Yes.

Senator ALLMAN-PAYNE: What evidence are you drawing on to justify that?

Dr Donovan: We have a document on our website which summarises the literature review of the research. It is very longstanding research. There have been decades of empirical research now that backs this in, but the other thing that we have that confirms that this is the most robustly evidence-based approach is cognitive science and our more recent understanding of how brains learn and how information and knowledge are absorbed and retained in long-term memory. What we have, therefore, is an understanding of how the brain learns and an approach to teaching that matches the way brains learn. Students will get overloaded if you try and give them too much—if you make them do the guesswork. If you can chunk down what you want them to learn into small pieces and you can build the connections with them, and you give them the chance to practise and you ensure their mastery—that they have learned—before you move to the next concept, then they'll be successful learners.

The Senator then asks:

Is it your position that all education academics in this country believe that is the only approach?

Dr Donovan: Sorry; can you repeat that.

Senator ALLMAN-PAYNE: That that is the only approach—that explicit instruction is the way?

Dr Donovan: Are we talking about teaching of reading at the moment or explicit teaching generally?

Senator ALLMAN-PAYNE: Teaching of reading.

Dr Donovan: And the question is, 'Would everybody agree?' No, of course not. But the most robust evidence base is behind a synthetic phonics approach as part of a five-element approach to the teaching of reading.

With regard to explicit teaching Dr Donovan stated:

We looked at what the evidence says about the best way to manage disruption and disengagement in the classroom, and the evidence came down behind the explicit teaching approach. It's often described as the 'behaviour curriculum', but that's really reflecting the sense that, like other parts of the curriculum, it needs to be explicitly taught.

When asked about the modelling of AERO on Education Endowment Fund in the UK and the capacity of AERO to raise funds, the Senator added that one of the EEF's major donors is BHP Billiton. Dr Donovan responded: ‘We have talked to the Paul Ramsay Foundation in the past about the work that we currently do.’ Senator ALLMAN-PAYNE queried AERO’s. independence: ‘why would a company give money if they didn't want something in return?

Finally, the Senator asks about how AERO measures the impact of its work.

Dr Donovan: It's a really interesting question... Our impact is not that direct. Our impact really relies on jurisdictions—on systems and sectors—being engaged and interested in the work we do, to the extent they will promote and advocate it to their workforce.

Given the positioning of AERO as being the only national body funded by federal and state Ministers of Education on education research it is therefore represented in any national reviews e.g teacher education. AERO also has direct access to Ministers more than any other researcher or university research centre. This influence was made evident in the TEEP (2023) report and the quick take up of policies mandating phonics (and a phonics test), explicit instruction and the brain and learning by state and federal governments as well as teacher accreditation authorities in 2024. AERO has been influential in part because of their Ministerial funding but also their willingness to offer a simple solution to what are complex issues that can be generalised across multiple contexts. This claim is appealing not only to politicians but also to the press and public and the promotion of these policies have been fuelled by other policy actors offering the same solutions.

AERO advocates that all students to be taught using explicit teaching. There is an overt refusal of AERO to engage with the significant body of established Australian and international educational research which can directly inform policy and practice, much of it funded by the Australian Research Council and undertaken by scholars of international repute. Claims such as explicit teaching resolving behaviour management or that the science of learning or phonics is settled would be rejected outright in any peer review and is contested within the field of science of learning (Claxton. 2021). Furthermore, there is a body of Australian and international research in literacy, numeracy etc., which shows that phonics has not improved literacy outcomes in the countries where it has been implemented such as the England (Clark 2017, 2018; Gerritsen 2024) or the USA earlier (Allington 2002).

For example, a report (Campbell & Kelly 2024) undertaken by the Education Policy Institute used census data 2009-18 for all children in England in Year 1 and considered stage 1 reading and writing results. The report concluded that there is no evidence (i) that key stage 1 reading results improved as a direct result of the Phonic Screening (PSC) introduction in 2012 and indeed an

upward trend occurring before its implementation halted; (ii) key stage 1 writing results improved due to the introduction of the check once other pupil and school factors are accounted for. The impact of the test was muddied by other reforms; and (iii) that the PSC impacted positively to narrow gaps between high and low performing students at key stage 1 or key stage 2.

Finally, the report concluded that children who 'fail' the phonics screening check are more likely to be newly recorded as having special educational needs and disabilities in year 2. That is, the screening serves as a diagnostic tool rather than a means to improve reading and writing for all children. This counters the various claims made by AERO about phonics.

As summed up by Tytler (2024), the failure to draw on multiple forms and bodies of research has an impact:

> This story of ignoring a wealth of sophisticated Australian and international research to enforce a simplistic instructional model is repeated across multiple curriculum areas, including in science and in mathematics. In both these subjects, AERO's 'evidence based' model of a 'science of learning' has been exclusively based on a methodology involving experimental and control conditions that inevitably restrict the range of teaching and learning strategies compared to those found in real classrooms, and the outcomes to those immediately measurable.

Who else is promoting the Science of Learning?

Over the past decades, various philanthropic and corporate organisations have been proactively promoting their own resources into schools (Rowe 2024). The *Education Endowment Foundation* (2011), upon which AERO is modelled, developed the 'Teaching and Learning Toolkits' with the Australian version of the EEF's 'Teaching and Learning Toolkits' promoting Evidence for Learning. The Institute of Public Affairs (an Australian conservative thinktank) is now offering a history game on the First Fleet to schools in which the content de-emphasises Indigenous land rights and the impact of colonialism etc. The Centre for Independent Studies published S. Merlo (2024)*The Science of Maths and How to Apply It* was sponsored by the Cormack Foundation. This Foundation is the largest single donor to the Liberal Party, to the Centre for Independent Studies and the Institute of Public Affairs. Merlo is, as stated on website, also a psychologist and Learning Intervention Teacher focusing on Cognitive Load Theory and has worked extensively with students exhibiting specific and pervasive learning difficulties, social-emotional and behavioural difficulties. These think tanks are also actively criticising Australian teachers, ITE and curriculum while promoting a knowledge-rich curriculum. In April 2025 Colleen Harkin, Director of the Institute of Public Affair (IPA)'s School's program stated on LinkedIn that Singapore Maths Curriculum was only 80 pages long for K-10 and that for Australian Curriculum was 273 pages long and full of ideologies of climate change, Indigenous and Torres Strait Islanders and social justice. ACARA corrected her version stating the core curriculum was only 33 pages long with the remainder being optional, a post which was rejected by Harkin. IPA has long history of anti-woke presenters including Tony Abbott and Harkin has proposed abolishing ACARA.

Teach for Australia (TFA), a not-for-profit program Teach for All imported from the USA in 2010 (Thomas et al 2020), claims that recruiting talented graduates to be trained over a fast-track program of 2 years to teach in disadvantaged schools will improve student outcomes (Moss et al 2023). TFA has gained significant government funding in Australia and is also promoting its own materials such as a costly product 'Maths Pathway', to be implemented in their partner schools ('Maths Pathway' was developed by TFA Alumni) (Teach for Australia, 2016). TFA has been criticised for its cost[2] and diversion of significant funds from where they would count in ITE and lack of any evaluation of its effectiveness. While principals are glad to have TFA staff teaching in areas such as STEM, systemically TFA has high rates of attrition, raising questions about cost-benefit (Louden 2014).

The Director of TFA left to join a no-for-profit OCHRE- an online curriculum resource for teachers- which again promotes evidence based effective teaching practices which include 'explicit instruction, formative assessment and retrieval and spaced practice', knowledge and 'vocabulary rich curriculum'; 'sequenced and mapped' pedagogy which 'presents new materials incrementally, connecting new content to prior learning, and giving students ample opportunities to practice'. This is direct adoption of one strand of the science of learning (https://ochre.org.au). The co-founder of OCHRE is Reid, a teacher and Head of Curriculum, Assessment and Instruction at a 3 yo – Y12 independent school, Ballarat Clarendon College, Victoria. Greg Ashman, Deputy Principal at Ballarat Clarendon College, has been a vocal online promoter of explicit instruction targeting researchers in field of maths who do not agree. Ashman is from the UK, is a former Ph D student of Sweller's and co-author with him on cognitive load theory (Sweller, Zhanng, Ashman et al. 2024). Another online resource with webinars etc. is Think Forward Educators which states it is a community of teachers and school leaders who are passionate about the Science of Learning (https://thinkforwardeducators.org). That is, available resources for teachers are heavily skewed towards one way of teaching.

Other influential policy actors such as the Grattan Institute, have also advocated the science of learning, knowledge-rich curriculum and phonics (Hunter, Stobart & Haywood 2024). In the Grattan Reading Guarantee Report, Hunter et al. (2024) state:

2 MELBOURNE UNIVERSITY PROGRAM OF TFA HAD 50 GRADUATES A YEAR IN AN INDUSTRY THAT PRODUCES MORE THAN 16,000 GRADUATES ANNUALLY. IT COSTS JUST UNDER $100,000 PER GRADUATE COMPARED WITH AN INDUSTRY AVERAGE OF ABOUT $23,000 (LOUDEN 2014)

> The evidence is clear: there should be a strong focus on phonics-based decoding skills in the early years. Students also need a knowledge-rich curriculum to build the vocabulary and background knowledge that are critical for successful reading comprehension all through school. And schools need to track student progress, so they can intervene early to help struggling students to catch-up. (p. 3)

These are direct adoption of the AERO paper on knowledge-rich materials. Certainly, much of the report is uncontestable: we need to improve literacy levels, develop reading comprehension and track student progress. How this is achieved is an issue. The Grattan report again recommends the work of AERO:

> Develop national teaching practice guidelines on reading instruction and catch-up supports through a process led by the Australian Education Research Organisation. (p. 4)
>
> As a priority, governments should invest in primary school knowledge-rich materials for the Humanities and Social Sciences (HaSS), Science, and English, and reading intervention programs and assessment tools for students in secondary school. (p. 4)

This was followed by a Maths Guarantee in 2025 preceding the election promoting the same approaches. Yet the US National Council of Teachers of Mathematics identifies seven, not one, effective mathematics teaching practices some but not all of which involve direct instruction. An OECD analysis of PISA-related data identified three dominant mathematics teaching strategies of which direct instruction was the most prevalent and least related to mathematics performance, with active learning and engagement strategies being more effective.

Also issued prior to the 2025 federal election with significant widespread implications for educational practice was the Grattan Orange Book. In this the Grattan Education put forward the following recommendations for school education which echo those of AERO to increase oversight of teachers, as well as drawing on the 'best practice' discourse. They argue the need to

- Invest in an independent quality-assurance process for curriculum materials
- Mandate a Year 1 Phonics Screening Check with a Year 2 re-sit for those students not at benchmark
- Strengthen the evidence base and guidance on best-practice instruction (p. 3).

As with AERO, the focus of Grattan is on the classroom and teachers, on evidence based 'best' practice to resolve what are wider systemic issues. Again, as with AERO reports, Grattan reports would not pass peer review (the academic version of the pub test). Cited in the Reading Guarantee for example was the Mississippi Miracle study as evidence of phonics working. This study has since been shown to falsify its data and therefore its findings. Yet on the basis of often slim evidence, the authors feel able to propose major shifts and systemic reforms in educational policy and practice. Australian academics who research on and with schools and who experience review by experts in the field would consider being more careful about claims about 'what works' and for whom.

The Grattan Institute is integral to the closed circuit of influence I have described. The authors of these reports have public policy, consultancy and commercial backgrounds and do not have educational research backgrounds. Grattan is funded by the Victorian Government, BHP and Melbourne University. The Director of the Education program is Dr Jordana Hunter. She previously held policy roles in the Department of Prime Minister and Cabinet, Victorian Department of Premier and Cabinet, and the Australian Competition and Consumer Commission and has consulted to Australian school systems, education service providers, and individual schools. She has a PhD from the School of Social and Political Sciences and Honours degree in Law and Commerce (Economics)at the University of Melbourne and no post graduate qualification in education.

The Deputy Director of Education at Grattan is Amy Haywood, a TFA graduate, who has written study guides for McMillan Education, worked as manager at Deloitte Access Economics Policy team. She has BSC and Master of Teaching (Melbourne) but no PhD. Nick Parkinson, a Senior Associate in the Education Program was a consultant at Nous Group (consultancy in public policy), is undertaking a M. Teach from the Melbourne Graduate School of Education and has a B. Arts and Dip. Languages at the University of Melbourne. In universities, a teaching and research position in Education faculties, having a PhD in education has become a basic requisite. The previous director of Grattan currently chairs the Productivity Commission, which takes a highly economistic approach to education. Earlier the Commission had proposed the establishment of AERO in 2016.

Other actors within the university sector are gaining authority and funds around the science of learning. Despite this contestation within the research, multiple academics in universities internationally and nationally are caught up in the rush and pressure to be relevant and impactful as well as gain funding. Following and responding to policy trends means some academics have quickly jumped onto the evidence-based policy and practice bandwagon and more specifically the science of learning to promote explicit instruction, phonics etc. The University of Adelaide has developed a new micro-credential for teachers, funded by the Federal government as announced by Minister Jason Clare, 'Teaching Phonics' will show 'how to teach synthetic phonics in a systematic and explicit way using contemporary, evidence-based practices.' It is the third in a Commonwealth-Uni Adelaide series, joining, **'**Explicit Teaching' and **'**Classroom Management**.'**

Latrobe University hosts the Science of Language and Reading (SOLAR) Lab. SOLAR research focuses on developmental language and the transition to reading, writing and spelling in the school years. According to the website, Professor Pamela Snow's field of research is 'cognitive psychology, speech-language pathology, developmental processes and risks in childhood and adolescence, evidence in the language-to-literacy transition in the early years of school; the oral language skills of high-risk young people (youth offenders and those in the state care system), the role of oral language competence as an academic and mental health protective factor in childhood and adolescence; and linguistic aspects of investigative interviewing with children / adolescents as witnesses, suspects, victims in criminal investigations'. While this focus was on learning difficulties and working with individual children, again the claims are made that phonics is the solution for all students in all classrooms. SOLAR also advocates the universal application of the science of learning based on cognitive psychology and the concept of cognitive load. SOLAR has received major funding of in a partnership in 2024 with AERO to extend a pilot project to 20 schools using semi-randomised controlled trial methodology to measure impact which includes $1.5 million to fund SOLAR Lab professional learning and coaching over two years (https://solar.blogs.latrobe.edu.au/research/our-projects/).

Again, this is not to argue that explicit instruction and phonics are not part of any teacher's repertoire. Rather it is to question why these are being mandated as the solution to complex issues plaguing educational achievement, why now and by whom and what gets displaced in the pedagogical repertoire necessary for individualised learning and student diversity.

What effect will this have on teaching and educational research

This analysis shows there is a consolidation of influence of a small cohort of policy actors / knowledge brokers defining the problem and offering the same solutions. A closed circuit of influence of certain knowledge brokers is being exerted on policymakers with the worrying convergence of Grattan, AERO and the Centre for Independent Studies and IPA (NSW) (both right-wing think tanks) and commercial and philanthropic organisations promoting phonics, explicit instruction, rich knowledge and the science of learning based on limited evidence of one strand (and one theory of cognitive load) of the sciences of learning. The issue is that many of these actors have little research expertise in education and /or draw on a narrow evidence base of decontextualised and disembodied cognitive science. Ignoring context and students' backgrounds and needs is contrary to a wider established body of anonymised peer reviewed research and knowledge of contemporary teaching practice. The assumption is that generic public policy approaches are appropriate in education when there is 30 years of research on education policy translation into practice that is ignored.

Together, these knowledge brokers are significant policy actors impacting on everyday educational practices. To summarise the points made earlier.

> Knowledge brokers often work in networks. For example, the Education Endowment Foundation (EEF) established the 'Evidence for Education network', and as part of this network, funded 'Evidence for Learning' (as owned by Social Venture Australia). Evidence for Learning distributes EEF's 'evidence based' toolkits. It also served as a 'pilot' for the Australian Education Research Organisation (AERO). The Australian Education Research Organisation works with other knowledge brokers, such as 'The Centre for Evidence and Implementation (CEI)' (as was demonstrated in the Strong Beginnings Report). Their role is to 'broker' knowledge, advance reform agendas, build 'evidence' to support particular agendas and influence policy. They often share similar reform agendas, such as an emphasis on 'what works.' (Rowe 2025 p.12)

These actors and networks are increasingly outside the field of educational research and practice and their remedy is often to benefit commercial and political interests externally. Further questions arise when such interventionist policies have been applauded by the conservative media and politicians who have enjoyed over decades attacking 'progressives' portrayed often as teacher educators and teachers creating a false opposition between progressive and traditional approaches (Claxton 2021).

The capacity of bodies such as AERO, Grattan and right wing think tanks to influence policy is clear in terms of recent rapid imposition of policies mandating how teachers teach reading, maths and science and what teacher educators must teach to gain accreditation. Mandating of how to teach not only de-professionalises teachers but is also counter to how there is recognition of the specificity of how education policy is written and implemented (Keddie et al 2023, Arnold & Rahimi 2025). It contradicts most of the research in the field of education policy that focuses on how education policy can be adopted with the best effect ie. bottom-up and top-down design as well as place-based (OECD 2020). The increased influence of public policy organisations and think tanks which don't do research in education and who offer a generalist approach to policy and implementation (e.g. *Implementation Sciences*) has devalued expertise both in specific fields of education research and teaching.

Mandating how to teach and the discourse of best practice assumes there is one way of doing things. Yet all practices are situated and contingent. Enhancing rather than retracting a teacher's pedagogical repertoire is what is needed for an increasingly diverse student population. Developing principles of practice and frameworks in policy which recognise complexity are more likely to enable professional expertise to be mobilised to have a more lasting effect and which address 21st century learners' needs (Ball et al. 2012). For example, an OECD (2020) report synthesises inputs from a wide range of stakeholders including policy makers,

academic experts, school leaders, teachers, NGOs, social partners and, most importantly, students on the evolution of the maths curriculum for the 21st century. It focuses on future-oriented competencies alongside rigorous content into mathematics curriculum and proposes principles for curriculum design to meet 21st-century needs, emphasising the integration of critical thinking, problem-solving, and digital literacy.

Furthermore, the focus of current policy mandates is on individual teachers, students and classrooms as if that is where the issue of student underachievement resides, putting considerable pressure on schools and teachers in more disadvantaged areas (Arnold & Rahimi 2025). Yet decades of research across the multi-disciplinary field of education indicate that multiple factors impact on student learning—poverty, undernourishment, poor health, family violence, bullying, lack of necessary resources, out-dated technology, intergenerational trauma, familial chronic under- or unemployment, lack of extra-curriculum activities etc. (Mission Australia 2022). Add to this the conditions of teaching in particular schools which are the conditions of learning with teachers teaching out of field, teacher overwork, teaching to the test but not according to student need (Hobbs & Porsch 2022; Rahimi & Arnold 2025a, 2025b). Finally, the impact of Covid is still evident in terms of student and teacher health and wellbeing and student learning (Miller et al. 2023, Fray et al. 2022).

And then the question is with little time and a crowded curriculum. What does time spent teaching phonics displace when early childhood teachers have to adhere to one hour of phonics daily? Does phonics replace proven play-based pedagogies? To return to the teacher of literacy cited earlier:

> I am particularly keen for all of you to be aware of what is happening because it's much worse than schools being mandated to teach phonics in a particular way. That decision has led to the removal of an excellent literacy curriculum and a replacement curriculum being written by a group of inexperienced people who lack the knowledge required for such a task. Their bias towards 'synthetic phonics only' is harmful but they also do not know what else should be included in a literacy curriculum and the changes they have made to the assessment of Foundation and Year 1 students will have an extremely negative impact, especially on the most needy children in Victoria.

This analysis indicates that teacher education and education policies are increasingly being determined from actors outside the field of education—ed tech, philanthropists, think tanks, and government funded authorities without educational expertise. Most of the staff are generalists, trained in public policy, have worked in consultant or in commercial firms but not necessarily with research in education. They adopt generic approaches to policy production and implementation and ignore education research that offers evidence about impact of policies on target groups necessary to address real issues of inequality. These bodies do not necessarily undertake education research as writing reports is their full-time job. They selectively adopt from the available research, or outsource research that addresses their agendas, often to promote a particular ideological stance or populist push, of a small group of policy actors. This closed circuit of like minds of these knowledge brokers is influential as Grattan as other think tanks are also easy 'go to' places for journalists who are too lazy to look up university websites where it is possible to search for an expert or which confirm what position they often want to adopt.

Finally, these reports are not subject to peer review by international and national scholars who undertake education research. Ortegon et al.(2024) argue, that 'grants actors such as philanthropists involved in knowledge-making practices have the power to steer educational realities according to particular judgments and normativities' (p. 1) adding to the already influential International Organizations (IOs) like the OECD which have been central in the production of particular forms of quantitative evidence for decades (Gorur 2016; Grek 2024). These actors—including in thinks tanks—often involve public and private alliances which are not at first glance transparent.

These reductionist responses also distract from the real issue which would make a difference in Australia as PISA and NAPLAN indicate. They focus on individual teachers and students when a major issue confronting teachers is one of increasing educational inequality which would require more fundamental changes in education policies e.g. more equitable funding of public education, better resourcing of schools in need, Closing the Gap for Indigenous students. They also ignore the different forms of evidence teachers use every day in classrooms: observation of student behaviour in and out of classrooms; peer discussions in teams; interpersonal relationships; learning artefacts; a range of visual texts; intuitive knowledge based on experience; research including post graduate research; formal student and system assessments (NAPLAN); student and parent surveys; the health and wellbeing of students and their sense of belonging- all contributing to student learning.

The role of these policy actors impact on education research as a field and on teacher professionalism and are contributing factors to the crisis in retention as many teachers' feel their professional expertise and judgement is being ignored (Rahimi & Arnold 2025a, 2025b, Arnold & Rahimi 2025). As the VATE survey found 'identity as an English teacher is extremely important to an individual English teacher's commitment to the English teaching profession and their commitment to remaining as a teacher' (Hicks & O'Mara 2024). Teachers and teacher educators and educational researchers in universities are being treated as ideologues rather than professional experts. This is a legacy of New Public Administration of the 1980s and part of the neoliberal agenda which treated professionals in the attack on the welfare state as having captured a field (education, health, welfare) for their own self-interest and therefore needing to have generic managers to oversee each area as professionals could not be

trusted (Gunter 2010). It led to the hollowing out of expertise in bureaucracies which is now having detrimental impacts on policy formation generally in Australia (Wigan & Andrews 2025). This denigration of expertise—whether educational researchers or teacher practitioners—is dangerous in context of misinformation and attacks on expertise generally. It also raises significant questions about the marginalisation of Australian educational research in the research-policy nexus (Reid 2016) and the quality of research informing government policy.

Policy-research nexus

Fields of education policy sociology and policy studies generally agree there isn't and has never been a direct or immediate relationship between research undertaken in universities and policy (DETYA 2000). Usually, little evaluation is undertaken prior to policies being adopted or scaled up domestically or internationally. Academics talk about complexity and are considered to be too critical and not positive enough given simple solutions and the time lapse between educational research (e.g. ARC) and need for quick solutions for policymakers. There are large well-established bodies of research on a wide range of educational issues, yet these are rarely called on because they are not readily consumable by politicians. At the core is that politicians want simple solutions to complex problems (Reid 2016). Governments impose policies that are often a mix of ideology, economic theory and political expediency rather than evidence, undertake symbolic and performative exercises where the research is irrelevant or select the research which supports their predetermined ideas. The issue for academics is how to both gain access to and to convince politicians what the body of evidence recommends.

Policies travel through networks of governance and global organisations as well as education systems (Rizvi & Lingard 2009; Ball 2012). While the right accuse academic researchers in education as progressivist ideologues, it was John Howard who imported the culture wars into Australia after 1996 initiating an ideological attack on education research. In the USA, Allington argues that, 'The push for evidence-based reading instruction is but a thinly disguised ideological push for a national reading methodology, for reading instruction that meets the 'phonics first' emphasis of the Republican Party platform and the direct-instruction entrepreneurs, those who profit financially when federal and state governments mandate the use of curricular materials like the ones they produce' (Allington 2022.p. 265). In the UK, only one Scottish piece of research was cited to justify a national policy on phonics (Clark 2016).

The case of phonics and explicit instruction taps into common sense ideas in the media and general populace about pedagogy being teacher driven and reading is just about sounding out which was how they may have learnt (Mockler 2022). For these reasons, ideas such as 'best practice' and 'evidence-based practice' which focus on studies that provide numbers and measurement of progress, are appealing. The claims about explicit instruction as solving behaviour management, 'best practice', 'evidence-based practice' and 'what works' to improve student learning outcomes ignore the complexity of school context or processes of learning. They are quickly taken up by even the progressive press because few reporters stay as education reporters for long and going to think tanks is easier than searching university websites for an expert on a specific issue.

Furthermore, Masden (2014) in a *Therapeutic Turn* refers to *the* increasing prevalence of psychology in several areas of Western society: Western consumer culture, contemporary Christianity, self-help, sport and politics. As if 'the more psychology, the better for everyone'. But he also argues psychological solutions provide individual solutions to structural problems, thus increasing the burden on the shoulders of the people they are meant to help and reducing the collective capacity to understand wider historical and political changes in society that must be addressed. The current focus on the brain and learning as a quick solution is indicative of what Zembylas (2024) calls neuro-liberalism because it claims to be the 'science of learning.' Just as there was a fad on emotional intelligence, 'learning styles' and different sides of the brain from populist brain science, so too with cognitive load theory (Hattie & O Leary 2025; Beale 2020). The Centre for Teaching and Teacher Research in University of Newcastle submission to *Better and Fairer Schools Review* in 2023 stated:

> "Evidence-based practices" currently in vogue derived from brain and learning science have not, in many cases, been rigorously tested in school classrooms under randomised controlled trial conditions. Proponents often assume a straightforward link between laboratory-based scientific evidence and its practical application in the classroom. This does not mean such practices should not be in the mix…. Frustratingly, evidence-based teaching practices are often simplified and pitched in opposition to each other (for example, explicit instruction versus inquiry approaches) when what matters most is the quality of the pedagogy. By reducing teaching to a set of techniques or "practices" we overlook the fact that it is possible to teach well or badly using any method (including explicit instruction and inquiry approaches)…. Effective teaching requires more than knowledge of and skills in delivering specific practices. It requires understanding of the social and emotional contexts of schools and classrooms, and the capacity to adapt to students' needs and to classroom dynamics. It requires an understanding of how to employ specific techniques in ways that deliver quality learning outcomes. Depending on the context, the lesson, the needs of the students, all these teaching approaches (explicit instruction, inquiry-based, phonics, balanced literacy, etc.) can be valid and impactful. They are complementary rather than competing. (p. 21).

Mandating one approach is dangerous in that it ignores all the social and economic conditions as well as their identities that position students differently in terms of how they learn (Gore et al. 2022).

The second danger is that it creates false binaries between qualitative /quantitative research methods, explicit instruction /inquiry, phonics /whole of language; cognitive /social sciences which in teacher practice and university-based research had arguably dissipated since the 1980s. The dilemma for academic researchers in literacy, numeracy and science as well as teachers and teacher educators is that in pointing out that the evidence base of cognitive psychology is only one form of evidence, even within the field of the sciences of learning relevant to the teaching of literacy, numeracy and science, and more specifically for students with learning difficulties, they are seen to be attacking evidence-based teaching. Their main concern is about using high quality evidence appropriate for students and pedagogical approach.

Finally, for teachers of English, Maths and Science where there are currently extreme shortages of teachers particular in more disadvantaged schools, it is even more important to recognise teacher competence, their love of teaching and connection to their subject rather than to erode and undermine teachers connection to their subject and students by telling teachers how to teach rather than according to the needs of the students in their classroom and their professional expertise (Hicks & O'Mara 2024). What departments can do is to address the teaching out of field issue, provide mentors to nurture subject expertise and provide students with the resources they need (Teaching and Teacher Research Centre 2024).

Conservative forces including the media can argue, as they have in the past, that criticisms of such policies by teacher unions, professional associations and academic researchers are idealogues or progressivists as pejorative terms (without indicating what that means) with little understanding about either the research or what teachers do in their classrooms. Teachers and teacher educators are positioned as being resistors or anti-phonics, when the research and teachers view phonics as one method of teaching reading (Clark 2017, 2018). Explicit instruction is used by teachers, together with other strategies depending on who and what is taught and what stage of learning. Academic researchers and teachers of English, Maths and Science who have produced a comprehensive body of expertise gained through professional practice and peer-reviewed research argue that this view of the sciences of learning is only one form of evidence, and that phonics is one way of teaching reading. Explicit and direct instruction have a place but that none of these alone will remedy the ill-defined problem of underachievement or behaviour management. The question should be what evidence is called upon for what issue and student(s), and what is appropriate rather than what works for all students (Sanderson 2010, Reid 2021).

For politicians to ignore the position of teachers and educational researchers is dangerous in the political context in which professional expertise is under threat. Explicit instruction, phonics and the science of learning is not what is required for the 21st century learner who needs to be a critical thinker, inquiry focused, adaptable, flexible, resilient as stated in Australian policy texts (e.g. Alice Springs (Mparntwe) Declaration). Furthermore, it is contrary to how education policy implementation is being understood as an OECD Policy Paper (2020: p. 1) indicates in offering a framework.

> This framework recognises that education policy has become more complex and requires balancing traditional top-down implementation processes with more bottom-up approaches that leave room for co-construction and local adaptation. It suggests that to accomplish education change in schools, policy makers need to shape a coherent, actionable and well-communicated implementation strategy that engages stakeholders early on and takes into account the environment as part of the policy design.

I have argued in this paper the case that while research will not always inform policy and practice, or the process may be more indirect than direct, it is possible and necessary to have transparency about what research evidence is called upon, its source and the assumptions that are made about teaching and learning.

A larger question is the role of think tanks and government funded research organisations in a democracy. Varghese's (2024) *Independent Review of Commonwealth funding for strategic policy work* argued that Australia does not have the same range of think tanks as in US, and that they provide 'contestability' which is:

> a critical component of a liberal democracy. The real value of contestability is that it can improve policy by explaining where a policy is not working or where its analytical foundations are either weak or wrong. Good policy making rests on a contest of ideas and the testing of assumptions. Policy making cannot be an endless debate. But unless different perspectives are rigorously sifted and weighed up, policy conclusions are more likely to be flawed. (p i)

He goes on to argue that governments often commission research but again suggests that 'the research outputs are variable, often lacking diverse views and at times straying from fact-based analysis into opinion-based commentary. This undermines quality and diminishes trust in the sector' (p.ii). He proposes government commissioned work be co-designed, through a transparent process and that it would benefit from a multi-disciplinary perspective that is better able to weave together the geopolitical, economic, technological and social threads of policy. This is where education policy and research should be going and not back to the 1960s thinking about teaching and learning driven by a narrow based of evidence or top down policy implementation. As argued by the University of Newcastle's Teaching and Teacher Research Centre's submission to the *Better and*

Fairer Review, teachers need to have greater agency in terms of their profession. The government needs to 'allocate dedicated, protected time for teachers to collaborate, plan, and participate in evidence-based, pedagogy-focused professional development, to improve teaching quality and teacher retention' and to 'develop a comprehensive suite of policy initiatives aimed at valuing the profession, in collaboration with key groups such as teacher and principal associations, unions, and researchers' rather than imposed solutions to the complex work of teaching and learning.

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