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Nomanis

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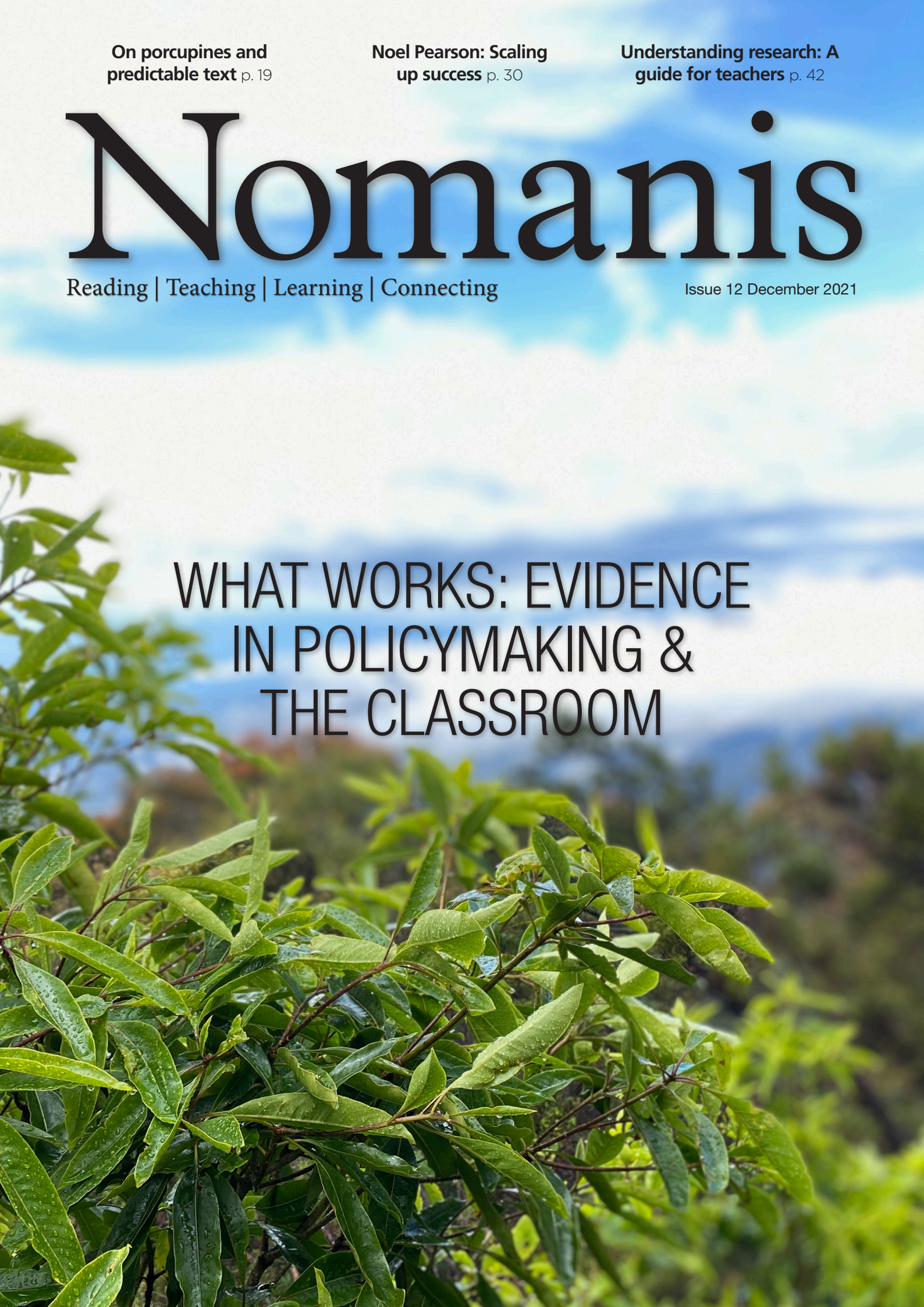

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A worm in your ear

Kevin Wheldall

Have you ever had a worm in your ear? Not a real live worm, of course (but commiserations if you have!). No, I mean what we commonly refer to as earworms – intrusive songs that come into our consciousness, unbidden and unwanted. Quite frequently they are songs we do not want to hear. For my sins, I am plagued by 'Scarlet ribbons', a song I first heard in a panto when I was in primary school. Even worse, 'Little white bull' by Tommy Steele, one of the first records I bought as a child, frequently pays an uninvited visit! And that's the thing – rarely are they songs one wants to hear. They are usually atrocious.

These unbidden earworm songs 'play' from deep within our brains into our consciousness; nothing to do with our ears at all. Of course, we can summon up songs to play willingly and 'listen' to them with such accuracy that we can take over mid-lyric and sing the song out loud, if we so choose. In fact, I often use this technique deliberately to banish earworms. As soon as that little white bull makes its presence known, I call up something infinitely more pleasing such as Dylan's 'She belongs to me' or 'My back pages'. We can do this with any piece of music we know well, be it modern or classical.

This is a remarkable facility when you come to think about it … and it is not limited to music. A similar process occurs when we learn to read via the orthographic mapping of phonemes to letters or letter combinations. When we have had sufficient experience, or 'reps' of a decoded word, we learn to read it as a whole; we no longer need to rely on sounding out. This is something that critics of phonics frequently misunderstand. They think that we are arguing for phonics as a means of reading: that we sound out words phonetically every time we encounter them. If this were the case, reading would continue to be a very laborious and time-consuming process. This is because critics often confuse the process of reading with learning how to read. Phonics is a teaching mechanism, not a reading method.

Of course, the number of reps we need varies considerably from child to child. Some children need very few reps, not even with paradigmatic clarity; they just seem to pick it up out of nowhere, sometimes by themselves. They crack the code intuitively. On the other hand, those we call 'low-progress readers' need many, many reps, presented with optimal paradigmatic clarity, to catch on. Most children fall in the middle of these extremes.

These learned words are often incorrectly referred to as 'sight words' (mea culpa for my own past transgressions in this regard). But sight has relatively little to with it once the visual input of the letters is received from the word on the page, in the same way that earworms have nothing to do with the ears once the song has been initially registered in the brain. We do not learn words as shapes or pictograms, we learn something much deeper than visual patterns. This is evidenced by the fact that once we know a word we can read it in any color, size or font or combinations thereof. I like to think of this as being like learning the platonic universals of words.

This brings me to my favourite joke of the moment (bear with, bear with):

A moth makes an after-hours drop-in visit to an optometrist

O: How can I help you?

M: Well, I'm having a terrible time of it at the moment. My wife is threatening to leave me, my son's been suspended from school …

O: That sounds terrible!

M: But that's not all. My mother is very, very ill and my dad's become an alcoholic. I could go on …

O: Now hang on! It sounds to me like you need to see a psychologist or a psychiatrist. Why have you come to see me? I'm an optometrist.

M: Well … your light was on.

And the point of this is, of course, that one needs to go to the right specialist when presenting with a specific problem. Far too often, parents are seduced into going to see an expert about their child's reading difficulties, who might superficially appear to be relevant ('your light was on') but who is, in fact, inappropriately qualified or not suitably qualified at all.

So, going to see an audiologist might be a good idea, to check whether a hearing problem is making it harder for a child to learn to read. But fixing a hearing problem will not teach the kid to read per se. Ditto going to see an optometrist. It makes good sense to have both your child's hearing and vision checked if they are experiencing reading difficulties. If there is a problem in either modality, it will certainly make learning to read more difficult for them and needs attention. But it will not fix the reading problem.

For far too long dyslexia and reading difficulties generally have been thought to be visual problems. But as we noted above, reading takes place much deeper in the brain than the level of simple visual input. This means that Irlen lenses, coloured overlays, vision exercises, etc., are of little or no value in teaching a child to read because the accepted science tells us that reading difficulties are largely the result of a phonological processing problem, arising as a result of poor or insufficient reading instruction ('instructional casualties') and/or an inherent compromised processing difficulty. Whatever the cause, we now know that a focus on the explicit, systematic teaching of letter-sound relationships – phonics – is an essential component of any reading intervention.

Kevin Wheldall, Joint Editor

. . . critics often confuse the process of reading with learning how to read. Phonics is a teaching mechanism, not a reading method.

What we've been reading

Anne-marie Van Duinen

This issue, I've traded hotel quarantine for lockdown and, with no access to the MultiLit library (for covert borrowing purposes), I've been thrown back on my own devices. Here are the results.

Twenty Letters to a Friend by Svetlana Alliluyeva was first published in 1967 and it is both profound and profoundly disturbing – perhaps not surprising given that the author was the daughter of Joseph Stalin. Smuggled out of Russia in 1966 and published after her defection to the United States in 1967, the book is a memoir of Svetlana's early life and her struggle to come to terms with the atrocities committed by her father, even on members of her own family. As a companion piece, Rosemary Sullivan's 2015 multi award-winning biography, *Stalin's Daughter* is also highly recommended. It follows the latter half of Svetlana's life until she died in penury and obscurity in 2011.

The School by Brendan James Murray is a much more contemporary tome. A semi-fictionalised account of one year of the author's teaching career, this book is a candid and thoughtful reflection on all aspects of school life both personal and political. As a teacher, I found the portrayals of the students deeply affecting. I have met a version of every one of them.

And to finish, *Disability Rights and Wrongs Revisited* by Tom Shakespeare provides a nuanced discussion of disability practice and policy focusing on the social model of disability. Tom, who is a professor of disability research at the London School of Hygiene and Tropical Medicine, also has some compelling videos available on YouTube for those who would like to explore his work further.

Anna Desjardins (Notley)

Over the last few months of lockdown, being reduced to what I could find on my bookshelves at home meant I finally picked up the last two unread books I received as Christmas gifts. The first of these was *Out of Africa* by Karen Blixen, a classic that had passed me by until now. Although it took me some time to settle into the rhythm of her account of her life in Kenya from 1914–31, once I had, I ate up her words. Blixen has a particularly rich descriptive tone, taking the reader into landscapes and moments in time in an exceptionally immediate way – all the more impressive given that she wrote the book some time after her return to Denmark. One feels that her years in Africa marked her so deeply that she could plunge herself back into a day there as if she had never left. Now to watch the film!

Accompanying this book, I was given a historical fiction, *Circling the Sun* by Paula McLain, based on the life of one of Karen Blixen's contemporaries, Beryl Markham. Beryl's life overlapped with Karen's in Kenya, so it was interesting to read about some of the same places and people from a different perspective. Beryl was a fascinating person in her own right, being the first woman to make a successful solo flight across the Atlantic in 1936. Although I wouldn't rave about this particular fictional account of her life, it did make me curious to read her autobiography, *West With the Night*.

I then turned to a book passed on to me by my mother in a lockdown book-swap-drop: *China Room* by Sunjeev Sahota. This was a sparely written, powerful look at the life of a Sikh woman, Mehar, in the early 1900s, in an arranged marriage at the age of 15. The title refers to the narrow windowless room of her new home, where the china is kept and where the three young girls married to the family's three sons spend most of their time, unless called for service. Beneath the veil that reduces her view of the world to her own feet, Mehar is irrepressibly full of life. As she deals with the trials born of locking a teenage girl on the cusp of womanhood into a world of repression, we also meet her great-great-grandson at a time when he has lost himself and journeys from England to the now-abandoned house of the china room. Their two stories are beautifully interwoven, and I will look for more by this author whose work has been shortlisted for the Booker Prize. I enjoyed his style, in which the reader must pay just as much attention to what is not said, as to what is.

I've most recently (and to my pleasant surprise) really enjoyed *The Map that Changed the World* by Simon Winchester, which I picked up from the MultiLit book exchange shelf some time ago. A non-fiction account of the life of the 'father of modern geology' doesn't sound like it has much going for it, but in the

hands of Winchester, it most certainly does! William Smith was the first man to really pay attention to the layers of rocks and fossils being laid bare in coal mines in Britain during the Industrial Revolution (and who then undertook to map these layers across the country in a single-handed feat unmatched by anyone since). In bringing Smith to life, Winchester manages to make geology cut-throat and exciting, with a delightfully British turn of phrase, and imparts a due sense of majesty to this discipline, which has contributed so much to our understanding of the world in which we live.

In parting, I shall just say that I did dutifully scour the street libraries on my neighbourhood lockdown walks, often coming home with something, with all the best intentions. However, I invariably found that a general sense of fatigue would overtake me after the first few pages, and I would inevitably deliver these books back to another street library somewhere. My son dubbed this helpful activity 'book pollination', and I quite like to think that I have, short of reading much myself, served the general hive of book lovers in some way during this period of strange stagnation!

Nicola Bell

In my ongoing pursuit of all things narrated by Stephen Fry, I recently came across a series of short detective stories called *The Tales of Max Carrados* by Ernest Bramah. These stories were written at roughly the same time as Sir Arthur Conan Doyle was writing Sherlock Holmes stories, and the two series are similar to one another in tone, length and cultural references. That said, Max is a much friendlier hero than Sherlock, and that seemed to make it a comparatively more inviting read.

Another audiobook I read recently was *I, Partridge* by Steve Coogan, writing as his alter ego, Alan Partridge. I'm a latecomer to the world of Alan Partridge, so a lot of references flew over my head, but I still really enjoyed it. (And if you're a fan of that kind of thing, I highly rate the Alan Partridge podcast series, *From the Oasthouse*.)

On a completely different note, another book I read recently – and yes, I'm years late to this one – was *The Dry* by Jane Harper. It will surprise no one to learn that it was excellent. The film adaptation is also worth watching – full of grit and suspense and a morose Eric Bana.

Lastly, I read *Temporary* by Hilary Leichter, wherein the fictional protagonist details her experiences living as a permanent temp. She moves from job to job, working briefly as a CEO, a mother, a pirate, a bank robber, and, at one point, a barnacle. One of the front-cover quotes describes the book as '*Alice in Wonderland* set in the gig economy', and I think this sums it up pretty well. Completely surreal, but fun.

Jennifer Buckingham

Thomas Sowell became an intellectual beacon for me when read his book *The Vision of the Anointed* twenty or so years ago, and I have since read many of his writings on social policy race and economics. Only recently have I dared to read his memoir, *A Personal Odyssey*, because I didn't want to test the adage that you should never meet your heroes. The adage was partially right – Sowell seems to have been a prickly character even in his pre-grumpy old

man years, but one can argue that intolerance of the intolerable is a virtue and Sowell definitely takes that approach to life.

Speaking of the intolerable, I also re-read *Stasiland* by Anna Funder. It's a terrifying exposition of what can happen when the policies and ideologies against which Sowell has been railing for decades are enforced in their extreme. Funder tells the true stories of people in post-war East Berlin – how they were surveilled, controlled and subdued, not just by the government and its police, but by their own neighbours and friends.

Still in the non-fiction pile, I am part way through *Farmers or Hunter-gatherers? The* Dark Emu *Debate* by Peter Sutton and Keryn Walshe and have so far found it to have more common ground with *Dark Emu* (by Bruce Pascoe) than I expected from the commentary around it.

Two novels I read recently were by authors I have spent much time with over the years – one old-ish book and one new book. The former was a novel by Sebastian Faulks called *Human Traces*, a fictional account of an English and a German doctor who are trying to understand the human mind and mental illness from two different perspectives, in the time when psychology was trying desperately to become a science.

For something lighter, I gave myself some gentle escapism in the form of the new book in the 44 Scotland Street series, *A Promise of Ankles* by Alexander McCall Smith.

Alison Madelaine

Listurbia by Carly Cappielli has been described as experimental fiction and is a novella written in lists (I love lists so this really appealed to me). It won the Australian-based Viva la Novella prize in 2019. This was certainly a bit different to what I usually read, but I think I'll be checking out some more winners of this prize. Other novels I've read and enjoyed are *Force of Nature* by Jane Harper, *The Paper Palace* by Miranda Cowley Heller, *Falling* by TJ Newman, *Alias Grace* by Margaret Atwood and *Before the Coffee Gets Cold* by Toshikazu Kawaguchi. Two that I did not enjoy as much as other readers were *All Our Shimmering Skies* by Trent Dalton and *The Elegance of the Hedgehog* by Muriel Barbery.

Non-fiction reads have included *Kidnapped: The Crime that Shocked the Nation* by Mark Tedeschi and *Nothing to Envy: Ordinary Lives in North Korea* by Barbara Demick. Both were excellent but disturbing in different ways. *Kidnapped* is about the 1960 kidnapping of eight-year-old Graeme Thorne after his parents won the lottery. This one fed my obsession with true crime. Prior to reading *Nothing to Envy*, I did not really have a good understanding of what went on in South Korea in the 1990s. The famine that struck the country was so widespread, that it didn't matter how much money a person had, there was very little food to buy. This one did not exactly have the most uplifting content, but it is well written and definitely worth a read.

Kevin Wheldall

Rather than reading more books during COVID lockdowns, I seem to have been reading fewer. Asking around, I find that I am not alone in this among bibliophiles. However I have certainly bought a lot of books (mainly The Folio Society editions) and I have certainly read a great deal online. But actually reading books…? Not so much.

However, I have read several books on my hero, William Morris, polymath extraordinaire, and the Arts and Crafts Movement in general. These have included: *William Morris and Red House* by Jan Marsh, *William Morris and the Arts and Crafts Home* by Pamela Todd and *Morris and Co* by Christopher Menz. A recent article by Serena Trowbridge in *The Conversation* sums up his legacy aptly thus: 'William Morris – how a great thinker and poet was overlooked for his wallpaper'.

Some books are revered for their provenance rather than their quality per se. I regret to say that I found this to be the case for the much admired and highly praised *The Passenger* by Ulrich Alexander Boschwitz. Written originally in four weeks by a young German Jew (23 years old) in the aftermath of Kristallnacht, it was recently rediscovered, edited and republished, and hailed as a literary masterpiece.

It is a remarkable achievement for one so young for sure and it conjures up the horrors of the pogroms remarkably well. But so have many other books that were perhaps (dare I say it) a little less tedious. Nevertheless, this story needs to be told and retold. *The Passenger's* title refers to the seemingly endless series of train journeys his protagonist is forced to take to escape Nazi persecution. So what's the PR hook? Having escaped persecution by travelling across Europe, the author was interned as an 'enemy alien' on the Isle of Man (UK), subsequently deported to New South Wales, interned again, and finally allowed to travel back to England as a 'friendly alien' in 1942. Sadly, the troop ship on which he was a passenger was torpedoed, killing well over 300 people including the still-young Boschwitz. As I said, the provenance is as compelling as the story of the book.

I have also re-read *The IPCRESS File*, the breakthrough novel written by the underrated literary spy novelist, Len Deighton, and *Misery* by Stephen King. If the movie of this latter book, starring the incomparable Kathy Bates, freaked you out, then for goodness sake don't read the book! You have been warned.

Robyn Wheldall

What have I been reading? Well to tell you the truth, not much in the fiction area at all. You would think with the recent extended lockdown in Sydney due to COVID-19 that I would have been able to attack both my reading pile and my overcrowded cupboards. Neither has happened! (I think Kevin has reported a similar thing in his WWBR.) I have, however, read a couple of books that I recall (that's also been a problem), on reflection, actually have some commonality. *Dinner with Edward: A Story of an Unexpected Friendship* by Isabel Vincent, first published in 2016, was a delightful memoir passed to me by a friend. With themes of personal struggles following loss of loved ones, by death and by divorce, notwithstanding the sombre setting, this book is uplifting in its exploration of finding meaning and connection in apparently unlikely places. The addition of the gastronomic details of the meals that Edward, a widowed nonagenarian, thoughtfully prepared for the ragged investigative journalist from the *New York Post*, provided that extra detail that stimulated the senses. The restorative power of the shared table was an element I really enjoyed. A lovely tale.

The Truth About Her, a first novel by Sydney journalist Jacqueline Maley published in 2021, also had the death, divorce, single motherhood and unlikely friendship elements as central setting and plot events. Maley's writing is beautiful, as we might expect from this experienced wordsmith and the plot doesn't disappoint. It's a page-turner and I even turned the very last page wanting and expecting there to be a bit more. Being a parochial Sydney-sider, I also liked the fact that this story is set in my home town. I know it's not a good reason to particularly like a book, but it always gets me in.

What if there is no reading research on an issue?

Tim Shanahan

Teacher question:

I agree with you about the need for basing what we do on research. But what do you do for the things for which there is no or limited research? For example, what about Orton-Gillingham instruction, what is the best way to sequence phonemes for teaching, or how specifically should background knowledge be taught? What about research that is evolving so that we do things a certain way and then refine these (say with Ehri and Gonzalez-Frey's recent work in SSR) – what about all the time that we did the practice the other way? There are some topics with so much research that we can't digest all of it, and other topics with no research or with ambiguous results. How do we follow the research?

Shanahan responds:

Yes, I'm a proponent of using research to make instructional decisions. Let's start with that.

First, I want to make good decisions for kids. I seek practices that have unambiguously helped them to learn to read better. I can put more trust in an instructional practice found to be effective again and again under close analysis. If those other educators could make that work, I could too. That's better than buying what the district next door bought!

Second, I want to be able to act without everything being a big *megillah*. Reading is a contentious field, and our crazy arguments rightfully cause parents to worry about whether we are making the best choices for their kids. Physicians and engineers don't always get it right, but they have methods for determining acceptable practice. In reading, the serve often goes to the loudest, kids' literacy learning be damned. Consistent standards of evidence make educational decision-making more professional – fostering confidence rather than disgust and despair.

An argument against a research-based approach is that it supposedly undermines teacher authority. Yep, there are some who believe teachers should make all classroom decisions (e.g., Diane Ravitch). That includes the idea that the best education comes from teachers who shrug off the curriculum and author all their own lessons. Think of Robin Williams (*Dead Poet's Society*) encouraging kids to tear up the school's poetry anthology; now that's inspired pedagogy.

Your question lets the air out of that teacher-as-inspired-genius complaint.

The fact is, as with physicians, no matter how explicit or thorough any research-based standards of practice might be, there'll always be plenty of consequential decisions for the teacher that must be based upon their judgment and experience. As standards of practice in medicine have become more certain through empirical study, physician decision-making has actually increased in significance.

I have no problem with those who improvise when there is no sound research to go on; what else can we do? But I rage at states, districts and schools that mandate an improvisation as if guessing on scale ensures success.

Variations in practices can help us to determine which choices are best – as long as we're aware that we're improvising and pay attention. What kills me is that so often authorities in their fervour to advance an approach (or to defend a wobbly decision) claim it to be research-based, when it was really more a child of logic, a hunch, or susceptibility to a really great sales pitch.

I lose patience with those 'thought leaders' who proffer their darling approach under the guise of research. These days that happens a lot. There is a ton of research showing the benefits of explicit phonics instruction. When someone is arguing that phonics is beneficial, and they cite research studies and government reports, I'm on board. But once they've made that argument and have convinced an audience that systematic daily instruction in decoding in grades K–2 is the way to go, they don't know when to stop. They keep going without any acknowledgement that the claims that follow lack the same evidential pedigree … with assertions in which they may sincerely believe, but about which they should be confessing a lack of certainty: the value of tracing in the teaching of decoding skills, advanced phonemic awareness instruction, decodable text, the most effective sequencing of skills, sound walls and so on.

The same nonsense accompanies nostrums for reading comprehension or fluency – substantial research evidence supporting a basic premise allied with specific practical recommendations with a decided lack of convincing or relevant research support (e.g., extensive comprehension strategy teaching, front-loading of background information about a text prior to reading, thematic units, weekly fluency tests, individual

conferencing and so on). Discerning readers may look at that parenthetical list and protest, "Isn't there research on reading strategies or background knowledge?" There is, of course, but not research that shows how much strategy teaching is beneficial or whether providing background knowledge has anything but transitory effects. It certainly improves comprehension of a specific text, but we have no idea what that means to students' reading ability in the long run.

There is nothing wrong with making any of these claims – as long as they are proposed along with an open admission that there is no proof that they work. Lack of evidence doesn't mean something doesn't work, only that we don't know. That admission is important because we can only respond professionally if we know when something has worked consistently in the past and when it is just somebody's hunch.

Too often I hear from teachers and principals distraught over the local ineffectiveness of an approach that they'd been led to believe was research-based. They are often told that the failure is due to their shoddy implementation. That happens, of course, but I'm more likely to buy that charge if the practice has consistently worked elsewhere in the past. If there is no rigorous evidence that the practice has ever worked then maybe the fault is neither in us nor in the stars.

Basically, if there is no research on a particular practice – feel free to adopt it but keep a close eye on it and be ready to adjust accordingly.

As for keeping up with the research? No one can read the 1000+ relevant research studies published each year. Even if we could, it would not be a good idea to adopt those results into practice immediately. Most studies in education tend to be small, and single studies are rarely determinative. It is wisest to limit data-based decision-making to topics on which sufficient data have accumulated to justify pedagogical action – responding to each new study as published would lead to changing your policies every 27 minutes. We use research to increase the certainty we can invest in our actions, not for the sake of novelty.

Practical advice on how to monitor and use research evidence?

1 Monitor some of the better research journals just to see what topics they are addressing. Some of the best journals to watch for reading research include *Journal of Educational Psychology*; *Reading Research Quarterly*; *Reading & Writing Quarterly*; *Review of Educational Research*; *Scientific Studies of Reading*. These aren't the only journals that publish high-quality reading research, but they're among the most rigorously reviewed and widely cited by scholars in the field.

2 Pay particular attention to research reviews and meta-analyses that synthesise bodies of research. The benefit of that approach is that you get the combined power of an entire collection of research rather than one particular study; that should reveal to you both the average outcome but also the variations in results that have been obtained. Effective approaches may vary in how often they pay off.

3 When you read research make sure you understand what they were studying (and what they weren't). As noted earlier, a lot of comprehension research examines how we can facilitate comprehension of a particular text. That is not unimportant theoretically. However, it isn't the same thing as finding that an approach helps kids to read better independently.

4 There are many kinds of research, all of it potentially valuable. If your goal is to determine what to teach or how to teach something, then you need to depend upon evidence that shows whether a practice can benefit learners. Focus on instructional research; studies that consider the impact of teaching. Indeed, there are other kinds of research that may be provocative (that study with the cool multicolour fMRI pictures, for instance) – as interesting as such research may be, it usually has little value for prescribing effective teaching practice.

5 When there is no research? Get professionals together and think it through. Whatever courses of action you agree upon, make sure folks understand the reasoning (rather than the evidence) behind the choice. That makes it easier to change course up the road if things don't pan out. If you can't agree on a course of action, perhaps set up your own local study to see if it even matters. If it doesn't, let teachers and principals improvise.

6 Finally, that research says something is advantageous doesn't mean it will work for you. If you rely on meta-analyses to set a policy or practice direction, I'd suggest going back and reading some of the individual studies included in the meta-analysis. I do that to determine whether the approach worked in situations like mine and to get clues about proper implementation ("Gee, the successful programs provided 18 hours of training for each teacher, and I didn't budget for any of that, yikes"). Knowing those specific articles can have another pay-off as well. Sometimes the researchers may publish a practice-oriented version in a journal like *The Reading Teacher*; the research article proving that it works and the practice article giving details as to what it really was.

This article originally appeared on the author's blog, Shanahan on Literacy.

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More WARs: The development of the WARL and the WARN

Kevin Wheldall

Robyn Wheldall

The MultiLit Research Unit has developed a series of assessment tools – curriculum-based measures (CBM) – that can be used to monitor the ongoing progress of students learning to read. *In a previous issue of* Nomanis, we reported the development of the Wheldall Assessment of Reading Passages (or WARP), which can be used to assess the fluency with which students read passages of text. The WARP is suitable for use with students who are reading at the Year 2 to Year 5 level (*Wheldall & Madelaine, 2000*; *2006*).

In this current article, we describe the development by the MultiLit Research Unit of two other curriculum-based measures of reading fluency that are suitable for use with younger children who are performing at Year 1 and 2 levels: the Wheldall Assessment of Reading Lists, or WARL (*Wheldall et al., 2015*), and the Wheldall Assessment of Reading Nonwords (WARN; *Wheldall et al., 2021*). It is very important to have CBMs that can track progress across the first two years of schooling while students are (ideally) learning to read via explicit phonics instruction, and to have an efficient way of identifying students who are not making typical progress in the early stages of learning to read. By administering a test that identifies struggling students effectively, as early in the process as possible, teachers may be able to address the needs of struggling students in a timely manner and also to monitor their progress. This will result in fewer students being left to struggle for longer than necessary (*Bell et al., 2020*).

There are relatively few tests that measure general reading progress satisfactorily in the early years and far fewer still that allow monitoring on a regular basis. The two CBM assessment tools to be discussed here focus on the reading of single words (the WARL), and the reading of nonwords (the WARN).

To be of any practical use, any test or measure must be both reliable and valid. The authors of the test must be able to provide empirical evidence for the validity and reliability of their test. By validity, we mean the degree to which a test measures what it is supposed to measure. One of the most common ways of verifying if a new test is valid is by correlating the scores on the new test with scores on older tests that have already been established as valid indicators of reading performance (criterion validity). By reliability, we mean that the instrument must be capable of delivering the same result consistently. The test should give the same (or a very similar) result when it is given to the same child on separate occasions, close together in time. For example, if Mark scores 43 on the test on Monday (assuming that he has not been practising in between), then he should get a very similar score to 43 on, say, Wednesday, if the test is reliable. We call this test-retest reliability.

Psychometric property	Tests used	Correlational results
Participants: N = 122 Year 1 students (Reynolds et al., 2009)		
Parallel forms reliability	15 individual WARL lists	All list intercorrelations: .80–.97 (most coefficients over .90)
Participants: N = 335 (162 Year 1; 173 Year 2) students, assessed in February/March and again in August (Reynolds et al., 2011).		
Parallel forms reliability	WARN Initial Assessment Lists (Lists A, B and C) on both testing occasions	WARL Initial Assessment Lists inter-correlations: .93–.96
Test-retest reliability	WARN Initial Assessment Lists (Lists A, B and C), tested in February/March and retested in August	List A test-retest: .82 List B test-retest: .84 List C test-retest: .86 Average test-retest: .86
Criterion validity	Average from WARN Initial Assessment Lists; Martin & Pratt Nonword Reading Test; Burt Word Reading Test; South Australian Spelling Test (SAST); Sutherland Phonological Awareness Test – Revised (SPAT-R); Wheldall Assessment of Reading Passages (WARP)	WARL and Martin & Pratt: .75 WARL and Burt: .87 WARL and SAST: .83 WARL and SPAT-R: .83 WARL and WARP: .91

Table 1. Technical data (reliability and validity) for the WARL. All correlations significant at $p < .001$

Similarly, if the test has two different forms, say Form A and Form B, then they should provide very similar results. We call this parallel forms reliability. The most common measure of reliability is the correlation coefficient between the scores of the test on the two occasions it is given, or between the two forms of the test when they are given to a group of children.

This article will describe the construction of the WARL and the WARN and provide data on reliability and validity for both tests. This article also provides references to research we have carried out for the purposes of providing benchmark guidelines for the WARL and WARN. These benchmarks are guides based on a small but reasonably representative sample of students. Students who perform below the score designating the 25th percentile (bottom quartile) may be considered to be 'struggling' or low-progress readers and in need of reading intervention support. The 40th percentile scores provide minimum goals for students to achieve before exiting an intervention, in that scores within the 40th and 60th percentile range may be considered to be within the average range for literacy performance for that point in the school year. We hope that these benchmarks will provide rough approximations to guide instructional decision-making. It should be noted, however, that these are not 'norms' in the strict sense of being based on large representative samples of students.

Another brick in the WARL

We would like to acknowledge, at the outset, the major contribution of Dr Meree Reynolds in the development of this measure as part of her doctoral studies.

The Wheldall Assessment of Reading Lists (WARL) originally consisted of fifteen word lists. To construct the lists of words for the WARL, we started with a database of the 200 most common high-frequency single words found in children's storybooks and reading schemes read by five- to-seven-year-old children (*Stuart et al., 2003*). These 200 words were arranged into 20 groups of 10 words, with the words with the highest frequency being used in the first group and so on. Five words were randomly selected from each of these 20 groups and presented on a stimulus sheet as a 100-word reading task. This procedure was repeated 15 times to produce 15 alternative forms of the curriculum-based measure, each comprising 100 words.

The 15 100-word lists created were administered to a sample of 112 Year 1 students, who read each list for one minute each. Descriptive statistics for the 15 WARL lists (see *Reynolds et al., 2009*) showed that the means and standard deviations of the word list measures were relatively similar. Two of the word lists were subsequently excluded by a process in which consideration was given to both outliers and intercorrelations.

Following the procedure used when developing the WARP (see *Wheldall & Wheldall, 2020*), a decision was made to select three word lists from the remaining 13 lists, to be designated as the Initial Assessment Reading Lists. They were selected on the basis that they had the most similar means and standard deviations for words read correctly per minute. In addition, they correlated very highly with each other. The set of three Initial Assessment Word Lists of the WARL was deemed to be appropriate for screening procedures, for placement of students at appropriate levels of support, for pre- and post-testing in research studies, and for program evaluation. The mean of performance on the three lists is taken as the most reliable index, expressed in terms of words read correctly per minute.

The 10 word lists that remained were designated for monitoring progress during an intervention. The lists were very similar to one another in relation to their means and standard deviations. They also correlated highly with each other and with the mean score of the three Initial Assessment Lists. We suggest that if two WARL lists are administered fortnightly and averaged, the data is likely to be more reliable, smoother and more even in increments, enabling easier interpretation. We have produced a designated order in which the Progress Monitoring Lists should be used. When used in this order, the mean of each two successive progress tests is very similar.

Reliability and validity data for the WARL are summarised in Table 1 above.

Psychometric property	Tests used	Correlational coefficients
Participants: N = 163 (85 Foundation*; 78 Year 1) students from two schools with NAPLAN Year 3 results that were similar to national average.		
Parallel forms reliability	WARN Initial Assessment Lists (Lists A, B and C) and 5 sets of Progress Monitoring Lists (Lists 1-10)	All list intercorrelations: .97–.98
Criterion validity	WARN Initial Assessment Lists and Progress Monitoring Lists; Martin & Pratt Nonword Reading Test; Wheldall Assessment of Reading Lists (WARL)	WARN and Martin & Pratt: .85–.86 WARN and WARL: .91–.92
Discrimination	WARN Initial Assessment Lists, from Foundation and Year 1	Scores doubled from first to second year of schooling, showing good discrimination
Participants: N = 194 (101 Foundation*; 93 Year 1) students from four schools with NAPLAN Year 3 results that were similar to national average.		
Test-retest reliability	WARN Initial Assessment Lists (Lists A, B and C), tested in Term 2 and retested in Term 4	Average test-retest: .86
Criterion validity	WARN Initial Assessment Lists; Martin & Pratt; WARL	WARN and Martin & Pratt: .90 WARN and WARL: .89

*Foundation: first year of formal schooling
NAPLAN: National Assessment Program – Literacy and Numeracy

Table 2. Technical data (reliability and validity) for the WARN. All correlations significant at $p < .001$

Benchmark values for the WARL were *subsequently calculated*, for the average and bottom quartile scores of students at the beginning and middle of Years 1 and 2. These may be used as a guide for classroom teachers regarding typical progress.

Be WARNed

Measures of phonological recoding (nonword reading) and measures of reading fluency for students in the first two years of schooling are uncommon. (See *Colenbrander et al., 2011* for a review of nonword tests.) The Martin and Pratt Nonword Reading Test (*Martin & Pratt, 2001*) measures nonword reading but is not timed and offers only two forms. The Test of Word Reading Efficiency 2 (TOWRE-2; *Torgeson et al., 2012*) includes nonword reading and is timed but, again, has only two forms available. The Year 1 Phonics Screening Check, introduced by the UK Department of Education and now used in several states in Australia (*Department of Education, Skills and Employment, 2020*) is a one-off test given at the end of Year 1 that includes a measure of nonword reading but is, again, not timed.

There are relatively few tests that measure general reading progress satisfactorily in the early years and far fewer still that allow monitoring on a regular basis.

The Wheldall Assessment of Reading Nonwords (or WARN) is a new curriculum-based measure of nonword reading developed by the MultiLit Research Unit (*Wheldall et al., 2021*). The measure is intended as a quick and simple test to measure progress in learning phonic decoding skills (phonological recoding) during the early stages of reading skill development, and to identify young struggling readers. The advantage of the WARN over existing measures of phonological recoding is that it comprises multiple parallel forms, thereby allowing for continual monitoring of individuals over time.

The WARN consists of 13 lists of 50 nonwords. Three of the lists are used as the Initial Assessment Lists, and the remaining 10 lists form five sets of two Progress Monitoring Lists, to be used fortnightly for the purpose of tracking progress. The Initial Assessment Lists can be used for screening or as a post-test measure following an intervention, either after two school terms or at other intervals.

Students read from each list for 30 seconds to determine the number of nonwords read accurately within that timeframe, and their performance over three lists (Initial Assessment Lists) or two lists (Progress Monitoring Lists) is averaged.

The WARN offers content validity, as the test stimuli align closely with the content sequence of InitiaLit Foundation (InitiaLit–F), an instructional program which adheres to

best practice according to the available theory and research (*MultiLit, 2017*). Nonword stimuli on the WARN were constructed using phonemes taught in the InitiaLit–F program. The words in each list follow the sequence of the phonemes in the program, which in turn was based on the principles outlined by *Carnine et al. (2006)*.

The InitiaLit–F instructional program (*MultiLit, 2017*), which is targeted towards beginning readers, comprises 11 succeeding levels (known as 'sets') of instruction in letter-sound correspondences as part of a systematic synthetic phonics program. For the purpose of constructing the WARN, Sets 1 and 2 were combined to form 10 'sets' in total. Ten nonwords were generated from each of the reduced sequence of sets, using the letter-sound correspondences taught at each successive set. The nonwords were three or four phonemes in length (CVC, CCVC or CVCC; C = consonant, V = vowel), and included digraphs (for example, 'fim', 'juck', 'nump', 'swong').

Each WARN list was created by randomly selecting five nonwords from the 10 nonwords constructed at each set, yielding a list of 50 nonwords presented on a stimulus sheet. This process of randomly selecting five words from 10 options in each set was repeated 15 times to generate 15 lists, each comprising 50 nonwords.

All lists were administered to a sample of students in Foundation (i.e., first year of schooling) and Year 1. Means and standard deviations for each measure were calculated and all measures were inter-correlated. As expected, all 15 nonword lists produced very similar means and standard deviations and were highly intercorrelated ($r = .92–.96$, $p < .001$).

From these 15 lists, the most similar 13 lists were chosen and allocated to one set of three lists and five sets of two lists; the former to serve as the Initial Assessment Lists and the latter to serve as the Progress Monitoring Lists. The averages of these six sets were analysed to confirm that they were highly intercorrelated ($r = .97–.98$, $p < .001$).

Reliability and validity data for the WARN are summarised in Table 2.

Benchmark values for the WARN were calculated for the average and bottom quartile scores for students in the first and second years of schooling, as a guide for classroom teachers regarding typical progress (*Wheldall et al., 2021*).

Conclusion

Curriculum-based measurement is a quick, reliable, valid and cost-effective method of tracking progress in reading. It provides valuable information which enables educators to monitor progress regularly and to make appropriate instructional decisions in order to maximise the reading progress of their students. The series of CBM instruments we have developed (collectively known as the WARs) provide an effective Australian solution to monitoring students' reading progress.

But what of the future? A problem upon which we are still working is the development of yet another WAR, the Wheldall Assessment of Reading Comprehension or WARC. This is proving more difficult, but we continue to experiment with a maze procedure, whereby students need to select the seventh words from a 200-word passage out of a list of four plausible alternatives. Watch this space!

Recommended reading on curriculum-based measurement

Fuchs, L. S. (2004). The past, present, and future of curriculum-based measurement research. *School Psychology Review, 33*(2), 188–192.

Hosp, M. K., Hosp, J. L., & Howell, K. W. (2016). *The ABCs of CBM: A practical guide to curriculum-based measurement* (2nd ed.). The Guilford Press.

Madelaine, A., & Wheldall, K. (1999). Curriculum-based measurement of reading: A critical review. *International Journal of Disability, Development and Education, 46*(1), 71–85.

Madelaine, A., & Wheldall, K. (2004). Curriculum-based measurement of reading: Recent advances. *International Journal of Disability, Development and Education, 51*(1), 57–82.

Tindal, G. (2013). Curriculum-based measurement: A brief history of nearly everything from the 1970s to the present. *International Scholarly Research Notices*, 2013. doi:10.1155/2013/958530

Disclosure

Kevin and Robyn Wheldall are directors of MultiLit Pty Ltd, in which they have a financial interest. They receive a benefit from the activities of the company and the sale of its programs and products, including the measures mentioned in this article.

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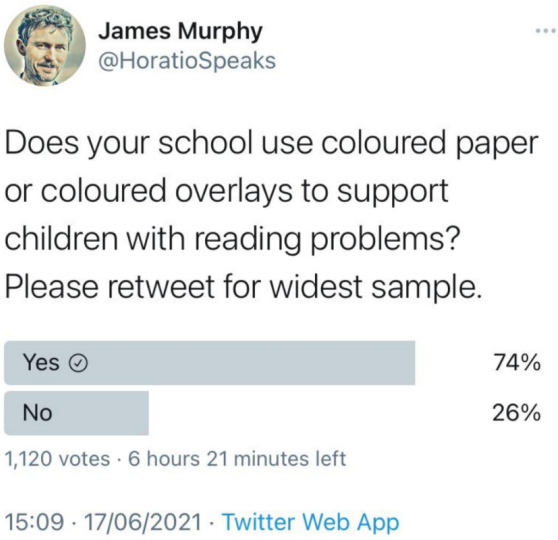
Emeritus Professor Kevin Wheldall [@KevinWheldall on Twitter], AM, BA, PhD, C.Psychol, MAPS, FASSA, FBPsS, FCollP, FIARLD, FCEDP, served as Professor and Director of Macquarie University Special Education Centre (MUSEC) for over twenty years prior to his retirement in 2011. He is Chairman of MultiLit Pty Ltd and Director of the MultiLit Research Unit and is the author of over three hundred academic books, chapters and journal articles. In 1995, he established the MultiLit (Making Up Lost Time In Literacy) Initiative, to research and develop intensive literacy interventions. He is a Fellow of the Academy of Social Sciences in Australia and in 2011 was made a Member (AM) in the Order of Australia.

Dr Robyn Wheldall (formerly Beaman) [@RWheldall on Twitter], BA, PhD, was a Research Fellow at Macquarie University until her retirement in 2011 and now continues as an Honorary Fellow. She is a founding director of the University spin-off company MultiLit Pty Ltd and is the Deputy Director of the MultiLit Research Unit. She jointly authored 'An Evaluation of MultiLit' (2000) (commissioned by the Commonwealth Government) and has published numerous articles in peer reviewed journals. Robyn has extensive experience in the establishment and implementation of intensive literacy programs in community settings. In 2005 she was awarded a Macquarie University Community Outreach Award for her MultiLit work.

Papering over the reading gap

James Murphy

I have been struck over the last year or so by the number of schools where I encounter coloured paper or coloured overlays as standard interventions for children with reading difficulties. To check how widespread the practice is, I conducted an informal Twitter poll. At the time of writing, 74% of the 1120 respondents said that their school uses this approach.



While a poll like this is by no means scientific, it does suggest that coloured overlays and coloured paper are used widely and present in many, if not most, schools. This is a cause for concern.

The first concern is that scientific evidence in support of this practice is next to zero. There is a neat summary of the current evidence by Dr Kerry Hempenstall in *The researchED Guide to Literacy*, which I quote in full:

Scotopic sensitivity and Irlen lens

> *Helen Irlen was a psychologist working with adults with reading difficulties during the 1980s. She believed that she had detected a visual stress problem in many of these adults that involved undue sensitivity to particular light frequencies. The frequencies varied among the individuals, and she developed assessment intended to determine which frequencies were problematic for each client. She named the visual condition scotopic sensitivity syndrome (also referred to as Irlen syndrome), and began to prescribe coloured lenses or overlays to reduce this visual stress.*

Irlen asserted that a precise colour (frequency) is needed to treat Irlen syndrome. One would anticipate that the choice of colour would be similar if a person was reassessed. However, a recent study observed that only one third of candidates chose the same colour overlay on reassessment at 25 days. More males preferred blue and green lenses, whereas females mainly preferred pink and purple. Griffiths et al. reported that 63% had ceased wearing their lenses after three weeks. The internal validity and reliability of the Irlen assessment scales have not been published in any refereed journal.

The approach remains controversial in the research community, both because it has been argued that no such scotopic sensitivity syndrome (SSS) exists and that the treatment has not been demonstrated to be effective in well-designed studies (Griffiths et al., 2016; Iovino et al., 1998; Ritchie et al., 2011; Suttle et al., 2018). Further compromising the educational relevance of SSS, is that scotopic sensitivity has also been reported among typically developing readers (Lopez et al., 1994).

As with behavioural optometry, the use of Irlen lenses and overlays is discouraged by seven relevant official bodies because of the absence of theoretical salience, contentious assessment tools, poor research designs, and an absence of clear empirically supported student reading outcomes. However, Irlen lenses remain accepted as a viable treatment for dyslexia by many teachers (Bain et al., 2009; Washburn et al., 2016).

In short, there is no evidence that this syndrome exists, the assessment tools that claim to measure it are questionable, and 'diagnoses' can occur in those with reading problems as well as those without.

That's not to say that there aren't real medical conditions requiring help from optometrists, such as eyestrain for example. As Dianne Murphy wrote in a blog post called '*Blurred Vision*' genuine visual disorders are discussed in the research literature, including 'visual stress'. However, in schools the term visual stress tends to be used much more broadly as a catch-all to justify the use of coloured paper and overlays, and in practice is conflated with scotopic sensitivity syndrome.

In short, there is no evidence that this syndrome exists, the assessment tools that claim to measure it are questionable, and 'diagnoses' can occur in those with reading problems as well as those without.

At this point, it is important to make clear that when we say 'evidence', we mean the findings of peer-reviewed studies in professional journals. There

may be some readers who will cite anecdotes of immediate and striking effects of overlays, for example, on students' confidence and accuracy. As the authors of *this interdisciplinary meta-study* suggest, it seems likely that these reports are due to a placebo effect. This may be especially noticeable where a student's previous reading performance has been impaired by high levels of anxiety. The authors of the study go on to note:

> *Consistent with previous reviews and advice from several professional bodies, we conclude that the use of coloured lenses or overlays to ameliorate reading difficulties cannot be endorsed and that any benefits reported by individuals in clinical settings are likely to be the result of placebo, practice or Hawthorne effects.* (Griffiths et al., 2016)

A second concern is that one would expect teachers, including leaders of SEN departments, to know about this research. But for some reason, they don't. Who promulgated these practices across so many schools? On what basis? Why didn't teachers bother to question the practice, or to ask for evidence to justify it?

A further concern is the use (or misuse) of limited resources. I have spoken to school staff whose primary job focus was testing students to see which coloured overlay they needed. Then there is the additional photocopying for teachers. I've worked in a school where seven extra paper colours were posted on the wall of the English office to remind staff to 'customise' exam papers for a list of students. I remember being struck by 'salmon' and 'cerise' as particularly interesting shades. It doesn't matter if you get an admin assistant to do it – it is still time wasted across hundreds, if not thousands, of schools pretty much every school day.

The truth is that sticking-plaster 'solutions' like coloured paper and overlays afford us the luxury of looking like we are doing something, when it's really an admission that we don't know how to solve the student's problems.

The fourth concern is that the claim 'even if it doesn't work, it doesn't do any harm', is false. Medicalising reading problems in this way makes them appear unsolvable, outside the teacher's influence, and instead creates and maintains labels. As we point out in *Thinking Reading: What every secondary teacher should know about reading*, these labels are internalised by students and teachers, suppressing expectations and consequently performance. They undermine motivation to find solutions and instead focus on compensation for an imaginary condition. And crucially, they maintain the circulation of myths and misconceptions about learning problems in the school and in the community that hinder effective practice.

There are serious, challenging disabilities which some children and their families have to contend with. They should not have to compete with trivial and superficial claims based on pop psychology. We are professionals. We can do better than this. But, for the sake of argument, let's assume that the practice doesn't 'do any harm'. The question then becomes, why did we choose 'it does no harm' over 'do something that helps'?

The truth is that sticking-plaster 'solutions' like coloured paper and overlays afford us the luxury of looking like we are doing something, when it's really an admission that we don't know how to solve the student's problems. They are substitutes for real action, where it seems that instead of the hard graft of actually learning how to solve learning problems, we will focus on *anything but the teaching*.

All of which raises questions about where the teaching profession stands on what constitutes evidence, where we get our professional advice from, and why we continue to employ practices that are clearly not in the best interests of our students, nor our communities.

James Murphy [@HoratioSpeaks on Twitter] is a co-founder of Thinking Reading, an organisation focused on ensuring that all children leave secondary school able to read well. He works with schools on effective implementation and evaluation of interventions. Previously, he has been an English teacher, Head of English and senior leader in New Zealand and the UK. He holds a Masters in Education with Distinction and a postgraduate diploma in special teaching needs. He is co-author of Thinking Reading: What every secondary teacher should know about reading, *and is the editor of* The researchED Guide to Literacy. *He is also a conference speaker and occasional media contributor.*

On porcupines and predictable text: What are predictable texts and why are they a problem?

Jennifer Buckingham

The draft revision of the Australian Curriculum was released for consultation in April and two aspects of the English F–6 curriculum attracted particularly strong criticism. One is the inclusion of a variation of the three-cueing strategy for reading. There are multiple references in the draft curriculum to students using 'contextual, semantic, grammatical, and phonic knowledge' (or some variation of this) to read words, and to use 'text processing strategies', which is another term for the same idea. As explained *here*, three-cueing with phonics as the strategy of last resort is not an effective, evidence-based reading strategy. It instils the habits of weak readers and therefore should not have been enshrined in the Australian Curriculum.

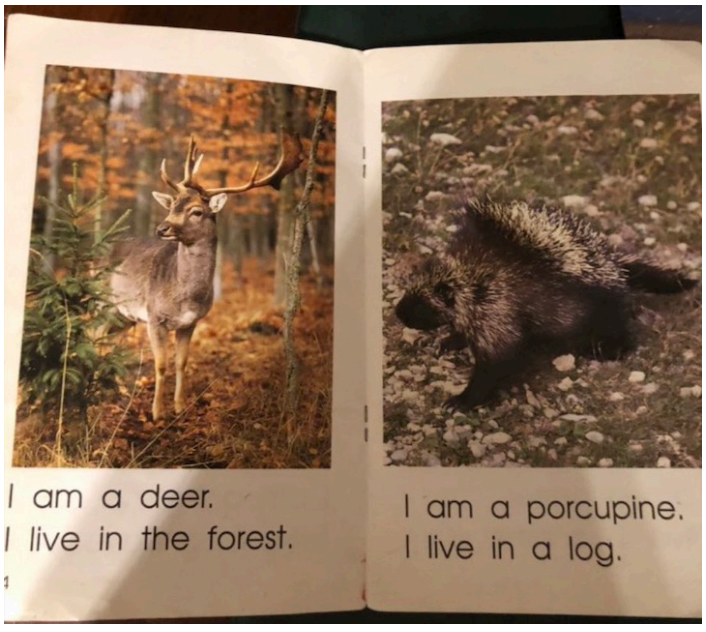
A second and related problem in the draft curriculum was the requirement that children read both decodable texts and predictable texts. These different types of texts are designed to encourage different reading strategies and therefore they contradict each other at a time when consistency is important.

Predictable texts are based on the same flawed premise as the three-cueing strategy – the idea that skilled reading involves prediction and guessing – whereas multiple scientific studies have shown that skilled readers process all of the letters in a word and that this becomes automatised through phonic decoding. *Decodable books* are designed to establish this skill.

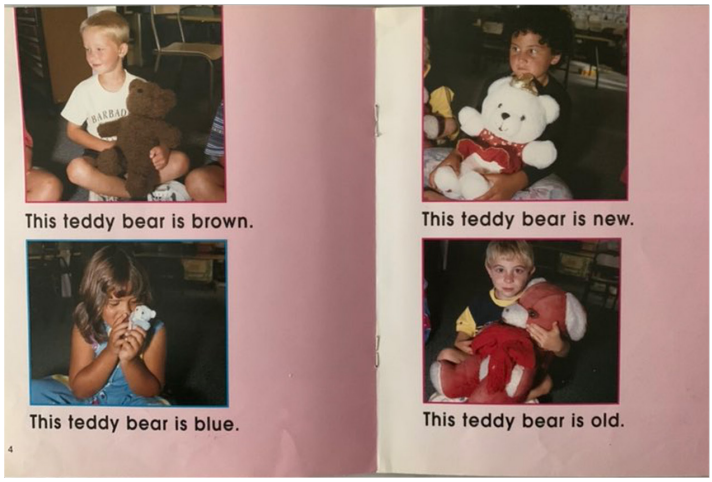
While picture books with repetitive text structures are enjoyable and valuable for very young children before they begin formal reading instruction, and later as a shared text, they are not appropriate as classroom or home 'readers' for students to practise their own reading once they begin school.

One of the reasons that predictable texts keep rearing their ugly heads in curricula and syllabi comes from an apparent misunderstanding of what predictable texts are, and why they are detrimental to early reading development when used incorrectly. This misunderstanding extends from official documents, like the curriculum, through to teachers in schools.

A recently published *study* conducted in Western Australia found that more than half of the teachers surveyed gave both decodable and predictable texts to beginning readers, even though almost all teachers reported teaching systematic synthetic phonics in their literacy lessons. Students will become confused and frustrated if they are taught to use phonics in their lessons and when reading decodable texts, but are then also asked to guess words (or attempt to sound out with letter-sound patterns they haven't yet learned), when reading predictable texts. It also



Predictable texts use repeated sentences and picture cues



Example of predictable text

demonstrates that many teachers are themselves unaware of the problems associated with using both types of texts together for instruction. By including both text types in the curriculum these problems will be exacerbated.

What are predictable texts?

Predictable texts are a specific type of book used in the earliest stages of reading instruction. Predictable texts are constructed to encourage beginning readers to memorise whole words and sentences and to use picture cues to 'read' unknown words. The texts have a repeated sentence or phrase on each page, typically with one variable word. A picture accompanies each sentence that allows the student to guess the variable word using the picture.

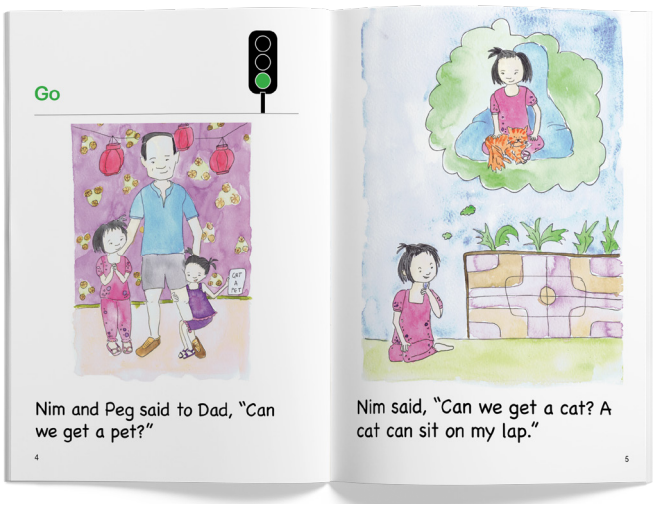
Predictable books do not follow a scope and sequence of any kind – phonic or otherwise. While the syntax and sentence structures in predictable books are simple, there is no systematic approach to the vocabulary included. Since predictable books are deliberately designed to preclude decoding using phonics, they contain words that students are unlikely to be able to decode in the first few terms of school, even if they were receiving high-quality phonics instruction – words like 'porcupine' and 'forest'. They include words that are only able to be read by beginning readers, as either memorised whole words or guesses based on picture cues.

The predictable text pictured at the top of the page is written for children early in their Foundation year of school, but it contains two-syllable words with digraphs that would not be taught until Year 1 in most phonics sequences. In some cases, the pictures do not even provide a useful clue to the variable word, since the bears depicted could be described in any number of ways.

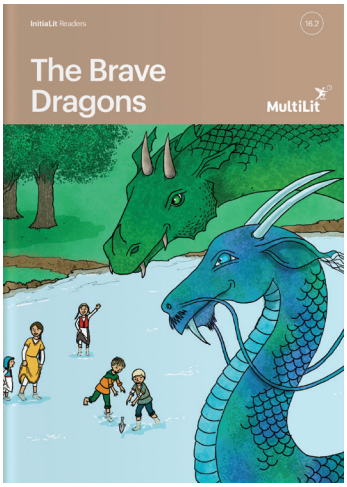
Predictable books do not follow a scope and sequence of any kind – phonic or otherwise. While the syntax and sentence structures in predictable books are simple, there is no systematic approach to the vocabulary included.

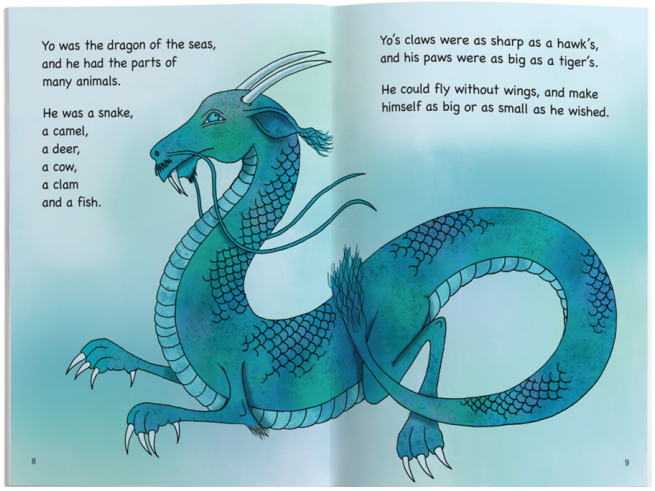
Not all books in sets of levelled readers that are common in schools are predictable texts. Some levelled readers are natural language texts with controlled vocabulary; that is, they are not written to be phonically decodable in alignment with a scope and sequence of grapheme-phoneme (letter-sound) correspondences, but a deliberately large proportion of the words in the text would be familiar vocabulary. This is intended to aid comprehension.

Students in the early years of school who make rapid progress in reading and who do not need the support of decodable texts, should be given natural language books with appropriate complexity of language and content, rather than predictable texts. However, the process of assigning students to levels and limiting their access to books on that basis is not evidence-based practice. Non-predictable types of levelled readers should be treated like any other book in a class library.



Example of an early Foundation-level decodable text





Example of a Year 1 decodable text

Why are decodable texts better than predictable texts for beginning readers?

Decodable texts are written to align with a phonics scope and sequence. They begin with a limited number of grapheme-phoneme correspondences to establish facility with decoding and blending, and decodable book series progressively add more grapheme-phoneme correspondences as students learn them. A small number of high-frequency words that students would not yet be able to decode are included, and are taught as 'tricky' words, as these function words are necessary for meaningful sentences. Decodable texts have pictures to make reading enjoyable and to generate further discussion about the text, but students do not rely on the pictures for word identification.

The first levels of decodable books have simple syntax and a small number of words. Decodable texts at this level are sometimes criticised for being 'boring', but they are no more boring than predictable texts, as can be seen in the examples above. The difference is that decodable texts serve an essential instructional purpose – they establish student's ability to decode and read words with accuracy and automaticity, which is the only way to achieve fluency and comprehension.

As students become more adept at decoding and can accurately read more words, the text becomes gradually more sophisticated. In the higher levels of decodable texts, both fiction and non-fiction decodable texts are virtually indistinguishable from simple natural language texts. However, they are still providing the necessary exposure to, and practice with, decoding words with a range of grapheme-phoneme correspondences from the basic through to the extended code. Eventually, when the students have mastered the full phonic code, all books are more or less decodable, but this is not true for novice readers who are just beginning their reading instruction.

Decodable texts have pictures to make reading enjoyable and to generate further discussion about the text, but students do not rely on the pictures for word identification.

Decodable texts support the development of strong decoding skills in beginning readers and provide them with the practice they need to become fluent readers. This is consistent with evidence-based methods of reading instruction. Predictable books are counterproductive to this objective.

Learn more about predictable vs decodable books

Read

'Explainer: What's the difference between decodable and predictable books, and when should they be used?' Simmone Pogorzelski & Robyn Wheldall. *The Conversation* or *Nomanis*.

'Decodable or predictable: Why reading curriculum developers must seize one.' Simmone Pogorzelski, Susan Main & Janet Hunter. *EduResearch Matters*.

'A survey of Western Australian teachers' use of texts in supporting beginning readers.' Simmone Pogorzelski, Susan Main & Susan Hill. *Issues in Educational Research*.

'What do I do with all these predictable books?' The Right to Read Project

Watch on YouTube

Tanya Serry comparing predictable and decodable texts.

Alison Clarke (Spelfabet) explaining the problem with predictable texts.

Dr Jennifer Buckingham [@buckingham_j on Twitter] is Director of Strategy and Senior Research Fellow at MultiLit.

Following the evidence

Rosalie Martin

There are very few exceptions to the statement 'everyone can learn to read and write'. Learning to read is one of the most studied human skills. We certainly now know enough about it to build a nation, which in practical terms is fully literate. This research has yielded high-quality evidence about how to bring literacy to any child or adult.

I never speak to anyone on this topic who doesn't want to see Tasmania move from its shameful *48% functional illiteracy* to something more like 0.48%. Practitioners and policymakers alike want this. (And by the way, a bunch of enthusiastic Tasmanians coming together as the Tasmanian #100PercentLiteracy Alliance, have authored a '*roadmap*' to this end. It's worth a look.)

But following evidence makes asks of us. And asks present challenges which touch the personal.

A friend recently enquired of me, "Have you ever had to change your whole practice and way of recommending in order to follow evidence?"

An excellent reflection-evoking question.

I have. And have been in the throes of it recently.

Much speech pathology work is spent helping children with developmental language disorder learn to use language at the top of their potential. This group don't develop language typically. They cannot understand and use spoken language at the level of their peers. But with the right interventions, language gains are possible for these children at all stages of schooling – and the gains are often enormous.

British research from 2016 (*Norbury et al., 2016*) concluded that up to 10% of children have developmental language disorder – and that in 7% of the population the condition is not associated with intellectual disability or other medical diagnoses. That's a couple of children per classroom heading into school each year with a 'hidden disability' that will hinder their academic progress and outcomes.

When this information is put together with data that 50% of children in contact with youth justice have severe language impairment (*Caire, 2013*), we see that language disorder is a disability that also has implications for community safety and wellbeing. If people can't speak out, they'll act out.

Helping people to speak out matters; for human rights, personal freedoms and democracy.

Thus interventions that build language occupy my mind, and the minds of my colleagues, a lot.

At a 2018 conference, keynote speakers Ron and Sandi Gillam presented exciting research that will more powerfully equip those of us who teach spoken language to language-impaired children, to get better results and faster. Bring it on.

One part of the Gillams' research showed that a method I've been using

since its efficacy was demonstrated in the '90s, is not as successful for lasting change as the strategies *their work* has uncovered.

Now, I could rail against this and be defensive. After all, I've seen children's language really progress using my preferred method. It's been very satisfying.

But I am ethically obliged to examine the quality of the new evidence, interrogate its underpinning theory, update my knowledge and change my practice and that of the team I work with, when required.

Again I say, bring it on. If we are rigorous with this, we can expect children to make even more excellent gains.

There's no shame in old methods giving way to new, high-quality information. That's science. That's progress. It's to be welcomed. It's how things improve.

The old language intervention method worked for many children, but for some . . . it didn't cut it.

It will be costly to buy additional resources and to train and support our teams. But how could we entertain doing otherwise? It's better for the children, and much more satisfying for us as therapists, if we master the skills we need to most successfully help language-impaired children tear down the obstacles to their independent learning.

The greatest barriers to meeting the asks of following high-quality evidence are frequently about personal courage within us, the practitioners, rather than the work itself. This is worth reflecting on.

So it is with the nation's literacy problem.

The old methods have worked for some children and haven't cut it for many others. This has pulled heavily on the public purse and devastated many lives: as a group, people with lower literacy have greater challenges with educational engagement, health, employment and pro-social choices.

The greatest barriers to meeting the asks of following high-quality evidence are frequently about personal courage within us, the practitioners, rather than the work itself.

But high-quality evidence from studies across the world point at reading and writing as tasks overwhelmingly mediated by the phonemic (speech sound) processing areas of our brains. It has been shown that this continues to be so, even in accomplished readers and writers. The brain integrates print-based information with spoken language through neurological processing that is phonemically based.

Best-practice teaching from this knowledge will allow all children, including those with developmental language disorder, dyslexia and other complex learning profiles, to progress in the fastest, surest way. It is the right thing to do; and when done, is inherently satisfying. It will require new learning for practitioners, and will raise the cost of training and supporting them. But it's costlier not to. Not doing so has the logic of a compound-interest loan.

Let's answer 'yes' to the asks of literacy evidence.

This article was originally published in the Mercury *newspaper and then on the Speech Pathology Tasmania blog.*

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I think I was wrong about phonemic awareness

Mark Anderson

What we know from research is that *phonological awareness in English mostly develops* in a manner that moves from large grain size (syllable, onset-rime) to small grain size (phonemes). Furthermore, we also know that phonemes are at a greater level of abstraction – they are harder to hear and speak – than something at a larger grain size like an onset or syllable, which is relatively easy to hear.

So it certainly makes sense that instruction should follow the same trajectory in order to support that developmental progression towards greater abstraction. It's a compelling idea that unfortunately does not appear to be backed up by anything other than anecdotal evidence. I know it's compelling, because that's what I believed.

There's a lot of romanticism in our field, and we all have a tendency to fall for ideas that look, sound and feel right. One of the ideas I've fallen for is that learning must always progress from concrete to abstract, from easier to harder. Furthermore, like so many others, I am easily taken up by the idea that learning progresses in stages; each stage must be mastered in order to progress to the next.

These ideas may be accurate for learning in some domains, concepts or tasks, but are not universal. We can see this point more clearly when we consider phonemic awareness instruction in English.

Instead of teaching first the syllable level, then next the onset-rime level, and finally the phonemic awareness level, the reading instruction that appears to be most effective for accelerating phonological awareness starts with the smallest grain size – at the phoneme level.

Why would this be? It could be that our neat and tidy theories (learning moves from concrete to abstract, and progresses in stages) mislead us. Sometimes, it may be that aiming first for what is seemingly more difficult and complex can be what enables us to develop underlying skills. And as we will see in a moment, we may inadvertently be making phonological awareness tasks more difficult and complex than they need to be.

Because there's yet another facet of phonological awareness instruction where I seem to have been mistaken: I believed that practising saying and manipulating the sounds without letters can be a valuable activity. *I've argued* in the past that a phonological awareness program without immediate application to graphemes, such as Heggerty, could be beneficial, and I argued this because I thought that 1) it certainly wouldn't do any harm, and 2) it could be of great benefit to students who struggle to hear and speak the sounds, thus facilitating phonological sensitivity. So in a school with a large number of students struggling to learn to read, it seemed like a win-win: a short amount of instructional time (10–15 minutes daily), an easily deliverable set of routines and lessons that require little planning nor training,

and a potentially large pay-off for students who need it the most.

But it seems my priors – or simply my own biases – again misled me. I assumed that phonology = important to reading and language, and extra practice = good, so therefore: additional phonological sensitivity practice is a net positive.

Why wouldn't this be good? Because thanks to the tireless advocacy of others (Twitter isn't all bad, I swear!), I've had my assumptions challenged, and have since been exposed to research that suggests, on the contrary, that our energy in the earliest grades should be laser focused on connecting sounds to spelling. And that in fact, written letters are a scaffold for hearing and speaking phonemes! In other words, we may be increasing the cognitive burden on students when we ask them to conduct phonological tasks without connecting them to letters.

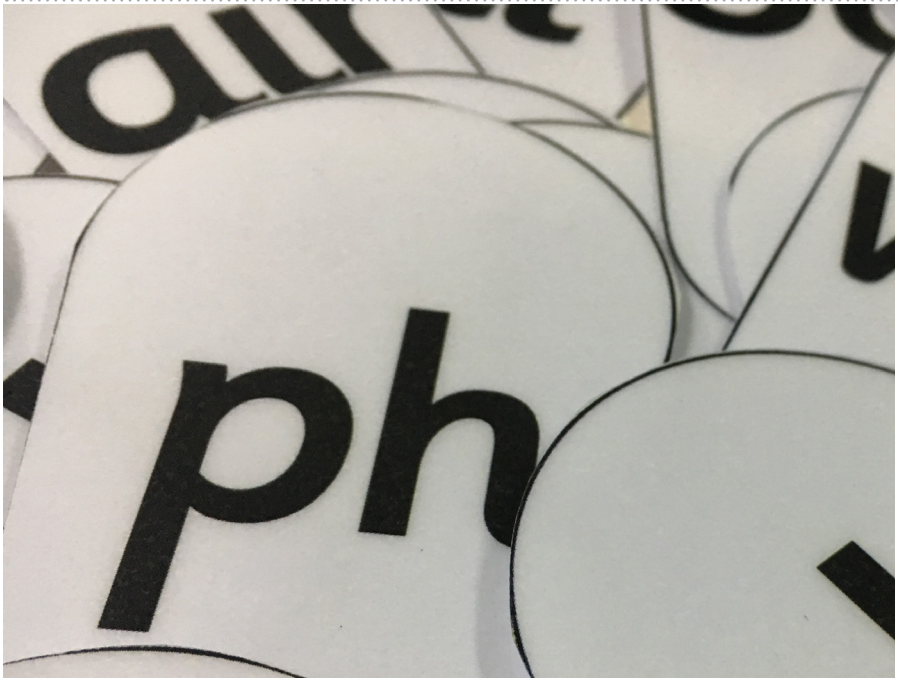
It took me a while to truly hear this and turn the corner in my own thinking. I found myself digging in my heels and even arguing for the benefit of adding in this additional phonological sensitivity practice. At the same time, I was *arguing out the other side of my mouth* that schools needed to resist adding more and instead pare down and focus on what is most critical, as we recover from the pandemic!

At some point, we need to look at the evidence and acknowledge when it is substantive enough to challenge the neat theories we hold about learning. And here's the thing about something as complex as reading: even the 'experts' have their own neat theories and biases and will cling to them even as disconfirmatory evidence begins to accumulate.

In other words, we may be increasing the cognitive burden on students when we ask them to conduct phonological tasks without connecting them to letters.

Here's some of the evidence that tipped the scales for me:

- The *National Reading Panel's Report* synthesis on phonemic awareness instruction (an oldie but a goodie, and not as well-known as it should be)
- Susan Brady's *'A 2020 Perspective on Research Findings on Alphabetics (Phoneme Awareness and Phonics): Implications for Instruction'* (Expanded Version)
- Articles by *Ukraintez et al. (2011)*, *Cary & Verhaeghe (1994)* and *Hohn & Ehri (1983)* that support the idea that larger phonological units do not improve phoneme level skills
- *Gersten et al.'s (2020) meta-analysis* that found significantly smaller effect sizes if a reading intervention included phonological awareness, yet significantly larger effect sizes if they included encoding or writing
- *Møller et al.'s (2021) RCT* that found adding spelling instruction to reinforce phonics instruction for students at risk for reading difficulties improved phonological awareness, spelling and reading skills over and above teaching phonics and letter-sound correspondences, in the same amount of time
- Results from numerous studies that have compared instruction



Phonology is important. It's important to both language and to literacy. And it's that reciprocal relationship between print and speech that develops skilled reading.

based on invented spelling against phonological awareness instruction without letters and found substantially greater effects for teaching sound-spelling connections to students based on their current levels of understanding (*Pulido & Morin, 2017*; *Sénéchal et al., 2012*; *Ouellette et al., 2013*).

Rationalist Julia Galef recently *came out with a book* in which she introduces the concept of a "scout mindset", in contrast to a "soldier mindset". I've found this distinction useful, because we have quite a number of soldier mindsets when it comes to theories of reading, and I find myself falling into that mindset when I am challenged in my own thinking. But by consciously adopting a scout mindset – an attitude of curiosity and an openness to revising my thinking based on the evidence – I can ward off my tendency to dig my heels in.

I realised recently as I defended some of my original positions on phonological awareness that I was taking on a soldier mindset.

The more I have learned, the more I have realised that almost every source of expertise on matters of literacy holds ideas that must be questioned in light of the evidence. That's all part of the journey of knowledge, man. No one person holds all the pieces of the puzzle.

So here's where I'm revising my thinking: phonological awareness practice without pairing sounds to spelling is inefficient and unsubstantiated by current research. Instead, the body of evidence points to the greater robustness of pairing sounds to print from the beginning of reading instruction. This, in turn, then leads to greater phonological awareness.

Phonology is important. It's important to both language and to literacy. And it's that reciprocal relationship between print and speech that develops skilled reading.

So let me state my revised thinking as clearly as I can: we should focus our classroom instruction in the earliest grades – and in spaces of intervention in later grades – on supporting students in connecting sounds to letters in print, and core instructional time should not be spent practising sounds without print.

Time and money will be best spent on enhancing a core school-wide explicit and systematic phonics program through training and ongoing coaching supports and peer feedback, oriented around ensuring that speech sounds are connected to spelling in every lesson, with sufficient opportunities to practise these connections in reading and writing.

I still think there is a place for phonological practice outside of letters, but only when wielded by a knowledgeable practitioner or interventionist, who uses it for specific students as a bridge back to application with letters. Otherwise, pending any research that shows it is effective as a core instructional move, it appears to be a waste of time.

I admit I was wrong – or at least, I seem to be as of now, pending any further studies.

In terms of the fundamental language connection of phonology before and beyond print – I still think it's critically important. But what I realised is that the place to do that kind of work is in interactive read-alouds, rather than isolated phonological practice. In other words, as we read text aloud to students, we can pause and amplify the sounds of words and sentences, ask students to repeat them after us like an echo, choral read them together, and savour their sounds, prosody and meaning. Embedding phonological sensitivity practice in the course of authentic reading experiences will be more powerful – and most importantly – will not take time away from core instruction.

A similar version of this article originally appeared on the author's blog, Language & Literacy.

Originally from California, Mark Anderson [@mandercorn on Twitter] taught in the Bronx for seven years and served children receiving special education services in an elementary and middle school. He then supported other teachers and schools in the Bronx with English language arts instruction for four years. Mark Anderson currently supports schools across New York City with instruction for multilingual learners.

Threading together the sciences of reading

Research that informs our collective understanding of literacy development is not conducted within one field of science. This is tricky, because it means that researchers working in different areas aren't necessarily speaking the same language. As such, it's not always obvious how various strands of evidence are woven together to form a coherent picture of the 'science of reading'.

Nicola Bell

So, let's get detangling. What exactly do people investigate to answer questions related to literacy development?

First of all, there's the type of science that describes . . .

The nature of the thing children learn

That is: language itself. Linguistics.

It is through studying language that researchers have tracked the etymological roots of our various writing systems. More broadly, linguists have taught us that the very origins of those writing systems are relatively recent, emerging somewhere around 5000 years ago. This fact alone is important, because it means we humans are not biologically equipped to acquire literacy, and we can't expect children to pick it up through exposure to text.

Beyond just looking at the history of languages, this kind of research is also conducted to detail the various characteristics of our English writing system, which – in the context of instruction – gives us an end goal for literacy acquisition.

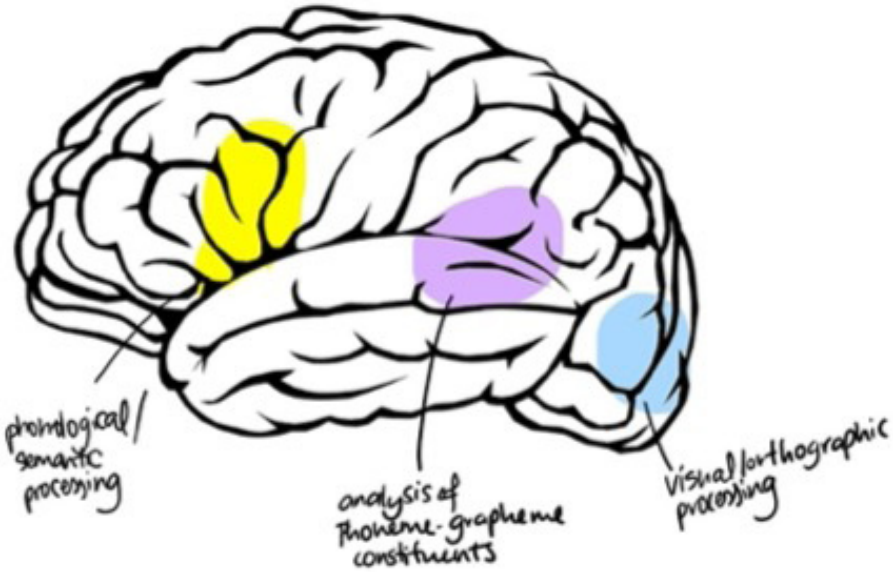
By looking at a corpus of words that appear a lot in children's literature, researchers can determine what percentage of words conform to a teachable phonics pattern (*Gates & Yale, 2011*; *Johnston, 2001*; *Kearns, 2020*). For example, Johnston (2001) showed that the letters 'ay' reliably represent the pronunciation of the first letter's name in that pair ('a', or /e/). The same convention (sometimes referred to in an instructional context as 'when two vowels go walking, the first one does the talking') applies to 'ai', 'oa', 'ee' and 'ey', though it isn't generalisable on a broader scale – think of non-conformists like 'oo' and 'au'.

As the above example demonstrates, our English orthography is complex, and some have argued that it's too complex for phonics instruction to work. This is a question worth pondering: Why teach the conventions associated with phoneme-grapheme correspondences when there are so many inconsistencies and exceptions? Helpfully, a study by *Vousden et al. (2011)* puts these learning demands in context. Based on a large database of words contained in children's books, there are far fewer phoneme-grapheme mappings to be learned than whole words, or onset and rime chunks. This means it's more efficient to learn the phonemes associated with letters 'c', 'a' and 't' than to memorise the pronunciation of all whole words like 'cat' or all rimes like 'at'.

This research is practically useful because knowing the statistical properties of a written language can help to guide what content should be presented to beginning readers. Note the word 'guide'. The learning process itself is a factor to account for, and that process is the focus of research that looks at …

The nature of the thing children use to learn literacy

And that thing is, of course, the brain. Methods like electroencephalography (EEG) can be used to isolate the timing of neural activation at a very fine-grained level. Based on that kind of research, we know the approximate sequence of processing steps required for reading, from the reader's first exposure to a printed word, to the identification of that word as a real word, to the word's pronunciation and, eventually, the word's associated meanings (*Kutas & Federmeier, 2011*; *Marinkovic et al., 2003*; *Wolf, 2008*).



(based on Shaywitz, 2006)

Not only that; we can isolate the approximate regions where those steps take place, using techniques like functional magnetic resonance imaging (fMRI). As mentioned earlier, the human brain wasn't wired for reading, which means neural pathways have to be created to connect the visual processing regions with language processing regions. The central hub for these pathways is referred to as the 'visual word form area', and it is here that recognition of printed words takes place (*Cohen et al., 2000*; *Dehaene, 2009*).

One step removed from brain-based research is research into cognition and psychology. Here, neural processes are abstracted from their physical form (i.e., all the synapses and stuff) and studied as skills or behaviours. Such research is based on the premise that the mind and brain are inherently linked, and that 'every time you observe a behavioural difference [e.g., improved reading from Time A to Time B], you must conclude that there is a neural difference underlying it' (*Protopapas, 2021*).

Many studies have been conducted to examine the nature of learning in general (see *Kirschner & Hendrick, 2020*). Cognitive load theory, for example, has been based on decades of research into how children solve problems under various conditions. Specifically, problem-solving activities are seen to impose a heavy cognitive load if the student has no knowledge of the subject area and no familiarity with the steps needed to find a solution. In turn, this excess of mental effort interferes with learning. By way of contrast, direct guidance from an instructor reduces the working memory demands associated with a task, which therefore leads to better learning (*Kirschner et al., 2016*; *Sweller, 1988*).

There have also been a huge number of studies conducted in the field of cognitive psychology that look specifically at how children learn to read. As a recent example, *Sargiani et al. (2021)* compared word reading development in two groups of Portuguese-speaking six year olds. Group 1 was trained on how to pronounce basic CV syllables (e.g., 'ma', 'me', 'mo') and Group 2 was trained on how to decode the phoneme-grapheme correspondences of those same syllables. The question was whether learning was influenced by the size of unit taught – syllable vs. grapheme. Results favoured the latter condition, wherein children were taught phoneme-grapheme correspondences. This provides support for the type of phonics instruction that emphasises decoding at the grapheme level – that is, synthetic phonics.

Nevertheless, these results aren't directly transferrable to an Australian classroom context. Firstly, the training was not intended to comprehensively cover the entire phonic code, since it comprised instruction in only 15 different syllable spellings. Moreover, it was delivered by experimenters – not teachers, in a lab setting – not a classroom. As such, while the results can certainly be given as evidence in favour of a certain model of instruction, we also need to keep in mind the messy research that is more representative of real life. This is the kind of research that investigates …

Things that affect how children learn literacy

Many factors that impact literacy development are out of a teacher's control, such as the student's socioeconomic status, location, English language exposure, family background, and general aptitude for learning. These are also the kinds of influences that cannot be investigated through experimental manipulation. Hence, we rely on studies wherein the strength of a relationship (e.g., between Factor A and Factor B) can be statistically evaluated.

Finding a strong correlation between A and B does not mean that A causes B. After all, it could be the case that B causes A, or that A and B are linked via some third unaccounted

for variable – C. These kinds of studies therefore benefit from longitudinal analyses (to better clarify the direction of causality over time) and large sample sizes (to reduce the risk of error).

One example is a study by *Puranik et al. (2020)*, which examined the relationship between literacy skills and dialect density (i.e., the proportion of dialect use) in speakers of African American English. Spoken dialect is a complicated variable, because it is often hard to separate from other variables like socioeconomic status. It is also difficult to establish what influence dialect has on literacy, because any correlation between the two could very plausibly represent the opposite direction of causality (i.e., that learning mainstream literacy skills causes a decrease in students' use of non-mainstream spoken dialects). In other words, a simple correlation between A (dialect) and B (literacy) may reflect one or some combination of:

- A causes B
- B causes A
- C (e.g., socioeconomic status) causes A and B

By investigating the relationship longitudinally, *Puranik et al. (2020)* showed that dialect was not only negatively correlated with literacy skills; it was negatively correlated with the growth of those skills over a one-year period. Students who were better at adapting their dialect to suit the mainstream classroom language showed greater improvements in their reading and writing skills. This certainly does not mean that the B→A and C→A/B causal relationships don't exist, but it does provide good support for the A→B relationship also existing.

Of course, a significant factor impacting on how children learn literacy is the type of instruction they receive from teachers. Given that this is a variable we can actually control, research around instructional efficacy is incredibly important. To understand what practices work, we can look to evidence from trials of specific programs or interventions. These studies can usually be classified according to a 'hierarchy' of evidence (*University of Canberra, 2021*):

… a significant factor impacting on how children learn literacy is the type of instruction they receive from teachers. Given that this is a variable we can actually control, research around instructional efficacy is incredibly important.

- Level I: Systematic review/meta-analysis
- Level II: Randomised control trial
- Level III: Quasi-experimental trial
- Level IV: Case-control or cohort study
- Level V: Meta-synthesis of descriptive/qualitative studies
- Level VI: Descriptive/qualitative study
- Level VII: Opinion of authorities and/or expert committees

All of these types of studies are useful, but they aren't of equal value. The most reliable scientific studies are those that are least affected by confounding variables, small sample size, or bias.

As per the above list, meta-analyses are considered very reliable sources of evidence. One of the most well-known meta-analyses in the reading research world was conducted by *Ehri et al. (2001)*. The results from this study, which were the same as those reported by the US *National Reading Panel (2000)*, indicated that systematic phonics instruction had a significant and moderate (d = 0.41) effect on reading outcomes, based on data collated from 38 individual studies. This is strong evidence in support of delivering systematic phonics instruction to all beginning readers.

That said, and even if they are a source of Level I evidence, meta-analyses are not without their flaws, one of the main ones being that various studies of differing quality are treated equally. A randomised control trial examining a 20-week high-fidelity, one-to-one intervention might fall into the same category as something much less tightly controlled and intense, as long as the program content is judged to be equivalent. As such, no one meta-analysis will give the final say on anything.

Nor will any other study, for that matter. But that's the point of the scientific process: it's based on an accumulation of data, often from adjacent fields of research. The outcomes are never absolute, but nuanced and dependent. Science is a web – not a single strand. All that's needed is a little patience to tease out the knots.

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Scaling up success in majority Indigenous schools

Noel Pearson

This is an edited transcript of Noel Pearson's speech at The Centre for Independent Studies event 'Scaling up success in majority Indigenous schools' in Sydney on 18 May 2021. The video of the event can be viewed *here*.

I want to say one very brief thing about evidence: we need no more evidence about what works. The evidence has been well known about what works for children's reading, numeracy and learning generally. It is just that there has been a concerted effort to impede the known and very effective means by which children could learn in Australian schools, and it is the disadvantaged that have suffered the most. There's been an evidence revolution over the last 10 years ever since John Hattie's Visible Learning, but it is more than 10 years later, and we're not acting on the evidence, and the evidence in relation to teacher-led instruction is 50 years old.

Aboriginal children are no different from other human children. They have the same capacity and they have the same learning mechanism of other human students; there's nothing *sui generis* about Indigenous children. They're humans. If they're taught with effective pedagogy, they will learn. So those who say we need more evidence to prove what's effective with Indigenous education, I think are almost making a racial distinction. The distinctions that are valid concern context – social community context; we have to take them into account. Kids coming from poverty, kids with bad hearing, kids coming from homes without books and with illiterate parents. These are all important contextual questions that bear on the capacity of kids to learn, but the fundamental mechanism for learning is human.

That's why I believe that Indigenous education will not be fixed up until we get education fixed up for all students, particularly disadvantaged ones. The important point that is lost about direct and explicit instruction is that they are non-categorical approaches to learning and teaching. We don't distinguish between human learners. What we will make efforts to do is address the social context from which these kids come and the cultural context in which they live. These are all very legitimate things to take into account, but don't tell me that the evidence for effective instruction does not apply to Indigenous learners.

Let me tell you about our program in Cape York. We're in partnership with the Queensland Department of Education in relation to two small primary schools. We have a six 'C' curriculum program, the first being Class, and we teach literacy, numeracy and science through Direct Instruction and explicit instruction – that is, teacher-led instruction.

The teaching of the DISTAR method of literacy was in many Australian schools 45 years ago, and I've come across many Australian teachers of that generation who taught DISTAR, the early generation Direct Instruction program, to Australian kids in many, many schools across the country. We could have got it right had we continued teacher-led instruction in literacy and numeracy

starting in the 1970s, but the progressive educationalists pursuing the dream of John Dewey and Lev Vygotsky and all of the social constructivists in education who opposed Direct Instruction, won the day across Australian schools.

My grandfather and father were literate in both their traditional language and English, far above the powers of their grandchildren and great-grandchildren. I wondered why, and I started to understand this debate about the 'reading wars' between those who favoured explicit teaching of phonics and phonemic awareness. And those who said that children should be taught by teachers who see themselves as 'guides by the side', who are going to immerse these children in literature and books and somehow they're going to learn the mechanics of reading. I sided with Professor Kevin Wheldall from the MultiLit program at Macquarie University. I said, he's on the right side of this debate, let's get Kevin up to Cape York and have a trial of his method with our children.

Prior to that, I had been with the social constructivists. I assumed that official educators knew what they were doing. But it was the reading wars in the 2000s that opened my eyes to this debate, and of course Kevin opened our eyes to what the kids can achieve in Cape York if they're led by good teachers. All of a sudden the light started switching on with our children. Two years into our trial with MultiLit in Cape York, Kevin told us there's an ancestor program: it's called Direct Instruction. So we went to the United States and said to the inventor of Direct Instruction, Siegfried Engelmann at his National Institute for Direct Instruction, that we wanted to do DI in our schools, and we've been doing it ever since.

DI is just good teaching, where teachers teach first and ask questions later. The operating principle of DI articulated by Engelmann is this: If the student has not learned, the teacher has not taught. The responsibility for the child's learning rests with the teacher, and the obligation of teachers is to adopt effective methods that are established in the evidence.

Let me tell you about DI. You do five lessons with the children – explicit teacher-led instruction with appropriate revisiting of the material for spaced practice. The program is based on mastery. We aim for the kids to master the materials and we administer a mastery test every five lessons. They don't proceed to the next bit of learning until they have a 90%-plus success in the mastery test. Direct Instruction is not old-style rote learning; there's a lot of practice. If you want to move learning from short-term memory to long, you've got to revisit the material.

But the ingenious design of Direct Instruction is that it introduces examples to the kids so that the inductive logic that's built into the lesson is learned by the child, and, once they've mastered the logic, the kid is then in a position to work out what the rule is and then to generalise the rule to new examples. So it's a process of learning from examples, learning the rule, and then being in a position to generalise the rule to novel examples.

DI does not take up the whole day. We have a Club program, art, music. We have a strong belief in instrumental music for the kids. We teach kids in a stage band to learn to read music and to play instruments for a school stage band. We want our children when they enter high school to have the option to pursue music, and we have uncompromising ambitions for the children, because we know some of them are going to be passionate about pursuing musical careers and if we don't do it in primary school, they will never have the chance in high school.

We have a Culture program to teach ancestral languages to the kids. The kids learn to speak their own language and to be literate in their own language. We have a comprehensive Community program where we engage parents, and the first act – the first and easiest act you can get the parents engaged in – is putting money aside for their children. We have $3 million sitting in accounts for 300 kids – their parents' own money, their families' own money. Because you set up the facilities for them, the parents want to put money aside for their children. They can pay for the rugby trip away or the football boots or the excursion to Cairns. We want parents to take responsibility for their children.

We have a case management system for the children to attend and we work very hard to have the highest attenders in the state of Queensland at our schools. We have a Family Responsibilities Commission that mandates parents who receive welfare from the government to send their kids to school, and our commission says to anyone that is not sending their children to school, "why should we not put a clamp on your money?" That's what our Family Responsibilities Commission does.

We have a Civics program because we want our children to understand their identity and their responsibilities as Australians and as Indigenous people and to grapple with these questions about identity and who they are. And how they are Queenslanders in one respect and Australians in another and Cape Yorkers in another – that they have these layers of identity, and they share identities with other people. The Lutheran kids at Hopevale share identity with Bavarians in Germany.

We have a strong focus on Childhood. We understand the importance of early childhood development. The key issue with early childhood programs is that they need some academic time – 20 minutes a day.

You've got to furnish the kids with pre-literacy academic support, because that's not what they're getting in the household. Their household might speak an ancestral language. They're not going to have the natural facility with phonics and phonemes of English. It is crucial to have an academic dimension, and not just play in the early childhood program.

On the issue of school and school system reform, I'm going to tell you about the work of the McKinsey consultancy firm and how they've got so much right. McKinsey have produced three crucially important reports over the last dozen or so years. In 2007, they identified what successful systems around the world have done in order to improve the outcomes for their countries. Three very straightforward things: one, you need great teachers; two, you have to have effective instruction; three, every child in the system has to benefit from it. Kind of 'nose on your face', but so very important to keep those three things in focus.

In 2010, they looked at systems across the world over a period of time to work out what did these systems do to advance from poor to fair, to good, to great, to excellent. Singapore was once poor, and then it became fair and then it started to become good, and then it became great, and now they're an excellent system. What they did at different stages of the spectrum was different. What you do with a poor school is different to what you do with a great school. The policy interventions are different at each stage.

The poor to fair journey says: You've got to get the kids in their seats; they've got to attend. Secondly, they need a feed; their basic needs need to be met. Thirdly, your teachers need to be supported in those schools with prescriptive training. Fourthly, they need a scripted program. Poor schools don't have great teachers. The teachers need a script in front of them to teach. That's what Singapore originally did. And all of the systems that have gone through the poor to fair performance spectrum have had these common interventions.

Of course, if you want a school to go from great to excellent, you best step back and let them work out their own journey. There's a set of prescriptions at the high-performing end that actually mean that schools should be unleashed. So I would urge policymakers, members of the public, ministers, anybody interested in school reform to look at McKinsey (2010). The playbook is entirely there, including adjustment for context.

Finally, there's a third McKinsey report on the PISA results, where they did a massive analysis of the performance data in Oceania and Asia, looking at these great systems that have done so well. The crucial piece in that report is the balance between teacher-led instruction and inquiry learning. You've got to get the balance right. The best systems are those systems that are favouring teacher-led instruction. That's what the evidence says, and that's what high-performing systems in Southeast Asia are doing. In our programs that we design in-house at 'Good to Great Schools', we teach first and then we allow kids to conduct experiments and undertake inquiry activities.

It's proven around the world that a tectonic shift in performance can be executed in five years; five to six years is the average. How are we going to do it? We need to hit the curve and shift it rightwards so that we no longer have any poor schools. That's got to be our goal: no schools that are poor in Australia.

Hit the poor end of the spectrum and shift it rightwards so that every Australian child can put their hand up and say, "I went to a school that honoured my attendance by serving me with the teaching that I deserved as an Australian citizen".

The second thing we have to do is we've got to focus on the verb, not the noun. The 'teaching', not the 'teacher'. The thing we can change tomorrow is the teaching and if we're going to make this leap in performance over the next five years, we've got to put the spotlight squarely on the verb of teaching and we've got to act on the evidence.

Yes, evidence about context and what's effective in particular social and economic and learning disadvantaged contexts – that can be useful, but don't tell me what constitutes effective instruction is still an open question. So let's act on the evidence rather than see the future lying in building more evidence.

What do we need to do? We need to make a performance shift in five years. We need to hit the bell curve in the right places. We need to not accept that anywhere in Australia an Australian child is still attending a poor school. And that means the 250 Indigenous schools that sit down at that bottom end of the system. We can't accept that they should continue as they are. They cannot be put in that too-hard basket and left there.

The second thing we have to do is we've got to shift the coasters in the middle: the fair schools that are always fair, the good schools that are always good. The good ones are not getting great, and the fair ones are not getting good. And so we need to hit a sufficient number of those schools and show what is possible if we hit the curve in those places and force a shift to the right. And of course we leave the great to become excellent.

Noel Pearson has spent decades advancing reform on native title, economic development, and social policy. He is Director of Strategy of Cape York Partnership and Co-Chair of Good to Great Schools Australia. Noel has been a forceful proponent of education reform and works in partnership with government and business to advance education opportunities for Australian children.

Evidence and the real world

Jordana Hunter

There is a growing appetite in Australia for more evidence-based policymaking in education. In particular, policymakers are often called on to use evidence of 'what works' when designing policies to improve teaching in the classroom.

This is a welcome development. Policies based on robust evidence of what works – as opposed to particular interests, ideological beliefs, popular fads or historical precedent (the 'this is how we have always done it' way of thinking) – have a greater chance of lifting outcomes for students.

In an ideal world, all education policies would be based on evidence of what works. But, here in the real world, there are many reasons why this can be hard to do. Indeed, evidence-based policymaking can be a difficult, at times frustrating, endeavour.

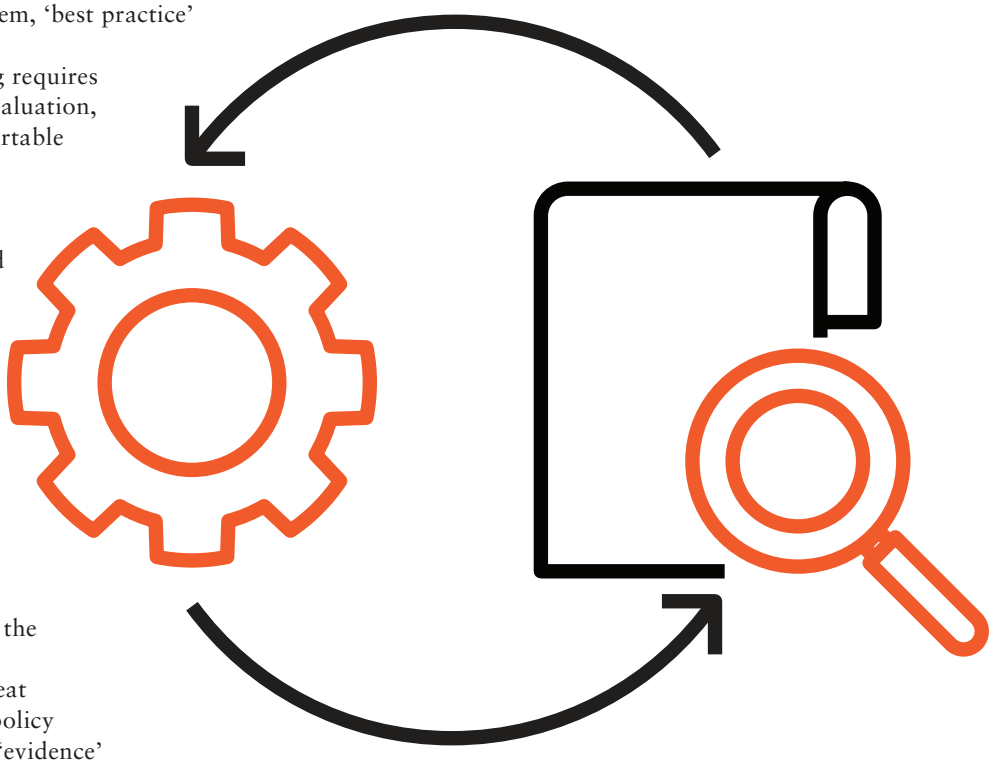
Government policies are often complex and multilayered. They can be hard to change and even harder to implement. Often the evidence is murky or contradictory. Sometimes researchers genuinely don't know much at all about what works for a particular issue or context. Still, political imperatives often require action – pronto! Even if researchers do have all the answers for a particular problem, 'best practice' can change over time.

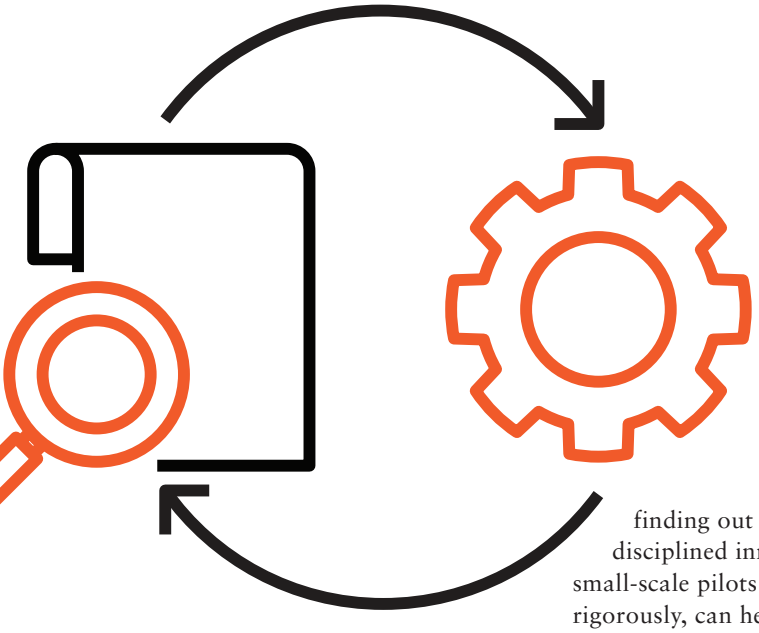
In reality, evidence-based policymaking requires an ongoing process of experimentation, evaluation, refinement, improvement and, as uncomfortable as it often is, failure.

What's more, evidence-based policymaking often involves recognising the limits of the existing evidence base and having the courage to engage in reasoned analysis about the best way forward, even where 'hard evidence' is lacking. This means carefully thinking through tough policy problems and the risks and benefits of different responses.

In fact, the ability to pin down and interrogate a proposed policy's 'theory of change' – including the particular steps or mechanisms that can be expected to connect policy 'inputs' to a desired set of 'outputs' and 'outcomes' – is a key tool in the evidence-based policymaker's toolkit.

While evidence of 'what works' is a great place to start, policymakers can improve policy design by cultivating a broad appetite for 'evidence'





beyond the existing 'what works' research. Four other types of evidence are particularly important.

Evidence of what doesn't work. Some of the most effective forms of evidence-based policymaking involve refining or scrapping existing policies that encourage practices that are no longer supported by research evidence. This can involve tough decisions, but the pay-offs can be significant.

Evidence of current practices in schools and classrooms. Knowing what is currently happening inside schools (opening up the 'black box') is essential for policymakers to understand the types of challenges teachers and students face, prioritise among these, and design sensible, well-targeted policies in response.

Evidence about policy implementation. It is one thing to be familiar with the 'what works' evidence base. It is quite another to know how to design and implement policies that ensure evidence is put into practice in schools. Incorporating what is already known about effective implementation approaches is essential for good policy design. Policymakers can also build this evidence base by evaluating implementation processes, not just policy outcomes. Policies that have no chance of being implemented help no one.

'Missing' evidence. Given the limitations of the 'what works' evidence base, policymakers should think hard about the questions they most want answered and commit to finding out more. A process of disciplined innovation, including small-scale pilots that are evaluated rigorously, can help fill in the gaps in our knowledge.

Committing to evidence-based policymaking doesn't guarantee we can or will solve all of the hard problems in school education. But it increases the odds that we will get a little closer to achieving the things we really value. That makes it worth the effort.

This article originally appeared on the Australian Education Research Organisation (AERO) website.

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It is one thing to be familiar with the 'what works' evidence base. It is quite another to know how to design and implement policies that ensure evidence is put into practice in schools.

Decodable or predictable: Why reading curriculum developers must seize one

Simmone Pogorzelski

Susan Main

Janet Hunter

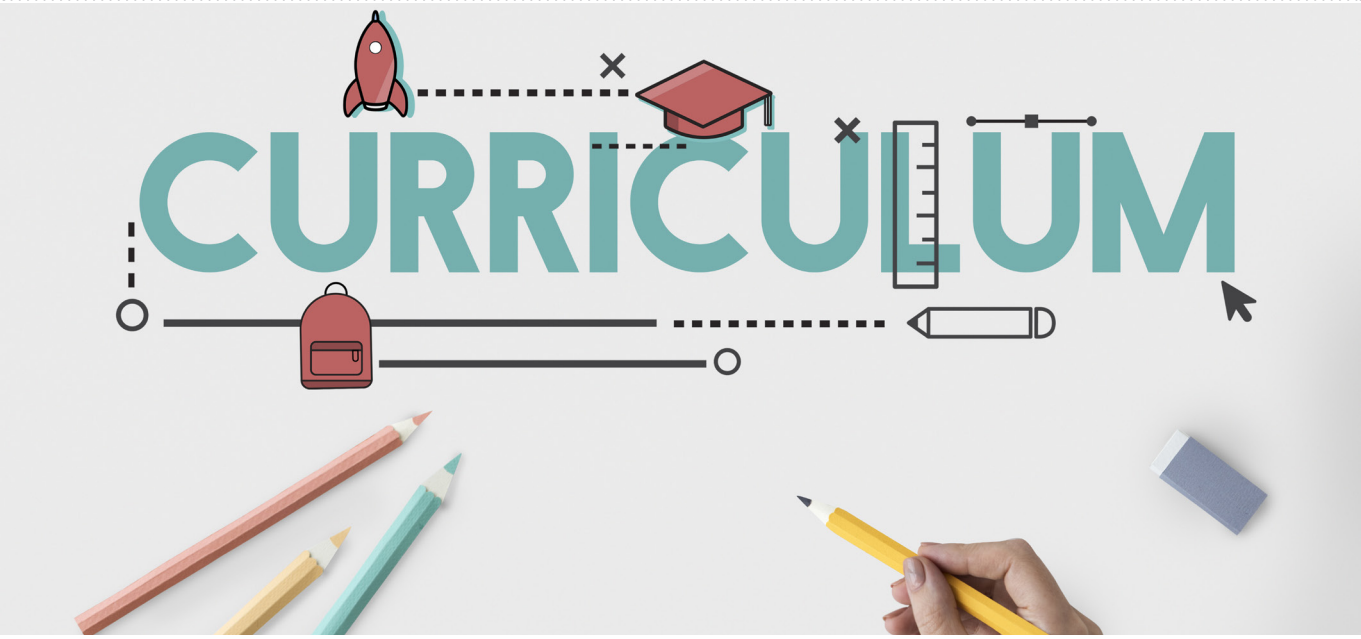
Despite the promise to 'improve clarity', 'declutter' and remove 'ambiguous' content, the *new draft curriculum* has left teachers guessing when it comes to when, and how, to use texts in the first two years of school. The requirement for teachers to choose between two types of texts remains in the proposed new curriculum, revealing a lack of understanding by the curriculum developers about the purpose and structure of each text.

In the first two years of school, children require many opportunities to practise their phonics skills, which is achieved by reading decodable texts. Predictable texts, in comparison, are incompatible with phonics instruction and do not support beginning readers to master the written code for reading. Once the code has been established, children can move onto a broader range of reading material. If ACARA's objective for the proposed curriculum is to provide "a clear and precise developmental pathway" for reading, then references to predictable texts, and any reading strategies that require children to guess words from pictures and context, need to be removed from the current content descriptions focused on learning to read.

Research we recently conducted revealed that there is confusion among teachers on how to use different types of texts in beginning reading instruction, which the current review of the national curriculum does little to address. While the draft curriculum signals a win for those advocating for more emphasis on systematic phonics instruction, the continued reference to predictable texts, and the associated whole language strategies known as the three-cueing system, is seen as a missed opportunity to align all reading-related content to an established body of scientific knowledge.

The Australian Curriculum Assessment and Reporting Authority's (ACARA) chief, *David de Carvalho* claims that the draft curriculum for English "allows teachers to choose a range of texts" (para. 17) to support the development of critical reading skills while also promoting the broader motivational and literary aspects of reading. However, rather than providing choice, the continued lack of guidance and clarification about when and how to use each text serves only to keep teachers guessing. Ironically, 'guessing' is one of the strategies that beginning readers must default to when trying to read words from texts that are not instructionally matched to the classroom phonics program. The features and structure of predictable texts, the earliest readers in many levelled reading systems currently used in Australian classrooms, promote memorisation rather than decoding and encourage beginning readers to guess words from pictures and context. Research has *repeatedly shown* that these strategies are not sustainable in the long term and that it is poor readers who are most disadvantaged when pictures are removed from the text, and the capacity to memorise words reaches its limit.

Decodable or predictable: Why reading curriculum developers must seize one



Text types

It is not so much choice that teachers require to meet the instructional needs of children, but the knowledge about how to use different texts for different purposes. *Research has identified* two sets of processes involved in reading proficiency: language comprehension and decoding. While literature facilitates the development of language-related skills such as vocabulary and comprehension, and decodable texts scaffold children's mastery of the alphabetic code, *predictable texts contribute very little* once children commence formal reading instruction. A clearly articulated curriculum would facilitate teachers' ability to determine when to use a particular text for a particular purpose.

Survey on teachers use of texts

The *results of our research* draw attention to this issue of how teachers use different types of texts to support beginning reading development. We surveyed 138 Western Australian Pre-primary and Year 1 teachers because we were concerned that the guidance on approaches to reading instruction and text types in the current curriculum was ambiguous and confusing.

Teachers were asked about the approach they used to teach phonics, the type of texts and the strategies they used when teaching reading, and their beliefs about decodable and predictable texts. In Western Australia, teachers are directed by the Department of Education (DoE) to use systematic synthetic phonics (SSP) and, in our study, 93% of the teachers reported that they taught phonics using a SSP approach.

On the basis of this approach to reading, we expected an equivalent number of teachers to use decodable texts. Surprisingly, a majority of teachers (56%) reported using both predictable and decodable texts to support children's reading development. Of the teachers who only used decodable texts (25%), all but two used a range of strategies more suited to predictable texts.

As expected, teachers who only used predictable texts (18%) used prompts associated with these texts, but they also used strategies more suitable for decodable text such as asking children to 'sound out each letter'. This could be confusing for children when reading a text that doesn't include words that can be read using current alphabetic knowledge. Predictable texts feature high-frequency (e.g., girl, where, as) and multisyllabic words (e.g., doctor, balloon, helicopter) that reflect common and relatable themes for young children, rather than words that align with a phonics teaching sequence.

Fluency and texts

Two-thirds of the teachers in our research agreed with the statement that predictable texts promote fluency. This belief possibly accounts for the fact that so many teachers used predictable texts despite using a systematic synthetic phonics approach. While there is some evidence to suggest that predictable texts facilitate the *development of fluency*, the relationship is not well understood.

When children first apply their knowledge of phonics to decodable texts, fluency does initially appear to be compromised. Learning to read is hard work, and it takes at least two years of reading instruction before children reach a level of proficiency where they are able to apply their skills to the broader curriculum, or to what is commonly known as 'reading to learn'.

In contrast, the repetition of high-frequency words and the predictive nature of words and sentences in predictable texts gives the impression that children are reading fluently as they memorise sentences that can be recited both while reading, and in the absence of the text. While alluring to teachers, the promotion of these strategies compromises the development of the alphabetic knowledge required for reading a complex orthography such as English, and as such should not be prioritised over careful and accurate decoding, despite the temptation to do so!

A lack of fluency when learning a new skill is evident in many areas of learning, and yet it seems to be less well tolerated in beginning reading instruction. One possible explanation for this is the dominance of whole language reading theories, upon which the idea that learning to read is as natural as learning to speak has been promoted. This has resulted in the proliferation of a range of instructional reading strategies that are no longer supported by research, but as our research showed, continued to be used by classroom teachers. It

Once children have mastered the alphabetic code, the reading of natural language texts, with more diverse vocabulary and complex language structures, should be encouraged. It is crucial from this point that motivation for reading is maintained.

is our contention that the continued use of these strategies is a direct result of the ambiguity evident in the curriculum documents. It has simply not kept up with the research and will continue to act as a barrier to effective implementation unless clarity around the use of texts is provided.

Which books and when?

Children learn about the correspondence between speech and print by being exposed to books from an early age. At the *pre-reading stage*, prior to knowing that letters can also represent print, and that there is a predictable relationship between them, children benefit from being read to from a wide range of books, including children's literature that features predictable text. There are many great examples to choose from, including well-known classics such as *Brown Bear, Brown Bear*, *What Do You See?* and *I Went Walking*.

When teachers read books with rhythmic patterned language, children begin to understand that each printed word on the page represents a spoken word. This helps children to understand the segmental nature of speech, a valuable first step in their reading journey. The predictable texts currently used by teachers to meet Foundation and Year 1 curriculum objectives, while far less engaging than children's literature, are more appropriate for children who are at this stage of their reading development because they do not require children to actually use their knowledge of the alphabet to read. While teachers can (and should) continue to read children's literature, including books with predictable text and rhyming patterns, to children beyond the preschool years, there is no instructional value in using 'levelled' predictable readers to support children's development once formal reading instruction has commenced.

When children enter the alphabetic stage of reading, they must transition from being read to, and joining in, to becoming the reader of the text. During this stage, children benefit from text that supports decoding as a primary strategy for reading. Decodable texts have a specific purpose: to scaffold children's mastery and application of the alphabetic code in reading. Once children have mastered the alphabetic code, the reading of natural language texts, with more diverse vocabulary and complex language structures, should be encouraged. It is crucial from this point that motivation for reading is maintained.

The disconnect between the use of text and the teaching approach being employed, as well as the inconsistent use of strategies to support children when reading evident in our research, can be seen as a direct result of the requirement in the curriculum to use both decodable and predictable texts. It is likely that without a change to the current curriculum, this will continue to be the case.

This article originally appeared on the Australian Association for Research in Education (AARE) blog, EduResearch Matters.

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Susan Main, PhD, is a Senior Lecturer in Education at Edith Cowan University in Western Australia. Her teaching and research interests include preparing pre-service and in-service teachers to teach children with diverse abilities, including evidence-based approaches to literacy instruction, managing challenging behaviour, and using technology to facilitate learning.

Janet Hunter, PhD, teaches and researches in the area of literacy education at Edith Cowan University in Perth, Western Australia. Currently, she teaches both in-service and pre-service teachers. Her research interests focus on the development of teachers' professional knowledge and how teachers can support students who are failing to make adequate progress in literacy development.

‘Clarity’ leaves school leaders in the dark on the science of reading

Jennifer Buckingham

The book *Clarity: What matters most in learning, teaching, and leading* (Sharratt, 2019) is on the desks of many principals around Australia and elsewhere in the world. It is a recommended text for leaders in a number of school systems. Published and sold by the Australian College of Educational Leaders, and with a foreword by John Hattie, one might reasonably assume that its contents and advice are based on rigorous research evidence. Author Lyn Sharratt is herself an advocate for the use of data to inform teaching practice.

Unfortunately, however, on the subject of literacy teaching, *Clarity* does not lead principals and teachers in the direction of evidence-based instruction. It endorses the use of practices such as levelled readers, running records, and Reading Recovery, which are not consistent with what research has shown to be the most effective methods of teaching and assessing reading.

Levelled readers: For a long time it was thought that matching students to a text level determined by their reading accuracy was the best way to encourage and develop reading skill. Schools invested thousands and thousands of dollars in sets of levelled readers, including *predictable texts*. In recent years, this wisdom has been questioned by reading researchers and practitioners. Evidence is accumulating that the method of assigning text levels, calculating text difficulty, and making a text-to-student match has a low level of precision. This is, at least in part, because the *role of background knowledge* is becoming more well understood, and students may in fact make more progress and learn more if they are reading challenging texts. See *here*, *here*, *here*, and *here*.

Running records: Running records assess students’ reading ability using a process called ‘miscue analysis’, which is based on the disproven three-cueing theory. Running records do not assess students’ development of the reading sub-skills that have been identified in scientific reading research, and therefore do not give teachers essential information about instruction or intervention. See *here*, *here*, *here*, and *here*.

Reading Recovery: Like running records, Reading Recovery is based on what is now accepted to be a flawed theory of how children learn to read. Its methods do not reflect the current scientific evidence base. Large-scale studies of its efficacy have found it to be weak and, in some cases, to be associated with negative outcomes. Reading Recovery is described by Sharratt as her “intervention of choice” (p. 262) despite her later advice that all education interventions must be evidence-proven. Reading Recovery does not meet that criterion. See *here*, *here*, *here*, and *here*.

The literacy section of *Clarity* contains the statement "Literacy learning is the foundation of all instruction" (p. 152). On this we can agree. Yet the literacy principles and practices expounded by Sharratt do not provide a good guide for educators to provide this foundation for all students. Most notably, there is no acknowledgement of the *scientific literature regarding reading development from novice to expert.* The necessary fundamental step of accurate and efficient word reading is entirely overlooked.

School leaders who are finding the rest of *Clarity* valuable can use the table below to identify evidence-based alternatives to the literacy teaching advice in the book to achieve better outcomes for their students.

Dr Jennifer Buckingham [@buckingham_j on Twitter] is Director of Strategy and Senior Research Fellow at MultiLit.

On the subject of literacy teaching, Clarity *does not lead principals and teachers in the direction of evidence-based instruction.*

***Clarity* advice**	**Evidence-based alternative**
Parameter #9: Book rooms of levelled books and multi-modal resources (p. 20).	Decodable books and classroom libraries of age-appropriate fiction and non-fiction books (which can include books from levelled reading series). See *Jocelyn Seamer*; *Reading Rockets*
Use the three-cueing systems/miscue analysis (pp. 155–156).	Synthetic phonics instruction, high-frequency words, and morphology to achieve orthographic mapping. See *Five from Five: Phonics*
Provide texts that are levelled and start where the student is already proficient (p. 158).	Once students can decode, allow them to read a wide range of age-appropriate texts with support as needed. See *Tim Shanahan (2020)*
If you can read you can write, and if you can write you can read (p. 163).	Explicit and systematic instruction in the related, but distinct, skills of reading and writing. See *Graham and Harris (2016)*
Running records (p. 258).	Validated decoding and language assessments. See *Primary Reading Pledge Appendix 1*
Reading Recovery (pp. 262–266).	Evidence-based reading intervention based on Response to Intervention model. See *Primary Reading Pledge Appendix 2*

Table 1. Evidence-based alternatives to the literacy advice in *Clarity*

Abandon our literacy myth

James Chapman

Of all professions, teaching epitomises the tensions between scientific approaches to learning and myths about how children learn. As American educational researcher Jim Kauffman noted, myths (and "stupid" thinking) keep education "in a chronic state of denial of reality".

An entrenched myth in New Zealand education is that the whole language emphasis in literacy teaching is best. This approach is based on the false view that learning to read is like learning to speak, with both abilities developing 'naturally'. As *Smith and Elley wrote in 1994*, "children learn to read themselves; direct teaching plays only a minor role" (p. 87). Children are said to learn written language like they learn spoken language, as long as the emphasis is on meaning. Literacy instruction, therefore, should focus on meaning construction, not on word analysis activities.

This whole language approach came mainly from Ken and Yetta Goodman in the US and Frank Smith in Canada. It's based on a philosophy, not on empirical research. Forerunners to Goodman who were influential in the development of whole language in the early to mid-20th century include John Dewey in the US, and Sylvia Ashton-Warner and Myrtle Simpson in New Zealand. They championed constructivist approaches to knowledge creation and making meaning through reading 'natural' language texts.

New Zealand teachers have been taught the whole language approach for decades. It is deeply embedded in literacy instruction and in the Ready to Read series of texts. The development of word analysis skills is downplayed or totally rejected. Instead, word identification is based on the 'multiple cues' theory of reading. When beginning readers come across an unknown word in text, they are encouraged to use the context of the sentence, cues such as pictures, or as Marie Clay wrote, some of the letters in the word "as a last resort". If all that fails, children are told to guess a word that fits the story. Ministry (and former Department) of Education publications have promoted this approach to literacy teaching since the 1960s when the Ready to Read texts were originally introduced. *Reading in Junior Classes* in 1985 was the first of a number of whole language orientated teacher texts, which include the woefully out of date *Effective Literacy Practice in Years 1 to 4* (2003).

The whole language approach has been discredited by scientific studies of literacy for nearly four decades. Extensive research shows that achievement in reading depends on two processes: the ability to recognise the words in text accurately and quickly, and the use of language skills such as vocabulary and syntax (see *Tunmer & Hoover, 2019*). Progress in learning to read words requires the ability to translate letters and letter patterns into phonological forms (i.e., letter-sound relationships). This enables beginning readers to develop sight word knowledge, which in turn frees up cognitive resources to focus on sentence meaning.

Comprehensive research shows that explicit, systematic instruction in relating spellings to pronunciations positively influences reading achievement, especially during the early stages of learning to read. Lack of these skills impedes reading development. Explicit attention to alphabetic coding skills, alongside explicit attention to vocabulary, is helpful for all children and crucial for some.

The Ministry of Education funded research at Massey University that involved a year-long PLD program for teachers of New Entrant/Year 1 children that focused on the use of explicit, structured and systematic instruction in the development of effective word identification skills. By mid-Year 2, children whose teachers participated in the PLD (intervention group) generally had higher scores on reading and spelling assessments than children in a comparison group whose NE/Y1 teachers carried on 'business as usual'. Especially significant was the finding that low-decile intervention children had mean scores on some key assessments that were close to or equal to those of children in higher decile schools (*Chapman et al., 2018*).

Another example of New Zealand research is the University of Canterbury's Better Start Literacy Approach, which has been effective in accelerating the phonological awareness, phonic knowledge, listening comprehension, vocabulary, word reading and spelling ability of a diverse range of 5- and 6-year-old learners across school communities in New Zealand (e.g., *Gillon et al., 2019*).

So, what does this all mean? We have to stop the steady decline in our children's literacy performances that has occurred over the last 40 years. If we continue to teach the same way based on a myth, we will get the same unsatisfactory results. The status quo especially disadvantages Māori and Pacific children, children in low-decile schools, and children with or at risk for dyslexia. That is simply unacceptable. Adopting the principles of structured literacy and teaching children to develop effective word-level decoding skills and strategies, explicitly and systematically, is a necessary foundation for literacy development. It's time to abandon our literacy myth and to lift literacy in Aotearoa New Zealand!

This article originally appeared on the Lifting Literacy Aotearoa blog.

James Chapman is a Professor Emeritus in the College of Humanities & Social Sciences at Massey University in Palmerston North, New Zealand. He has published over 150 journal articles, book chapters and books on learning disabilities, special education, literacy learning difficulties, early literacy development, reading intervention and self-system factors in academic achievement.

We have to stop the steady decline in our children's literacy performances that has occurred over the last 40 years. If we continue to teach the same way based on a myth, we will get the same unsatisfactory results.

Understanding research papers: A guide for teachers

Carolina Kuepper-Tetzel

One of our main goals at The Learning Scientists is to communicate the science of learning. This means, for example, to write blog posts that summarise research papers in a way that is more accessible and that highlight the practical implications of research.

Many papers are inaccessible in two ways: First, they may be behind a paywall and schools usually don't have subscriptions to academic journals, which means that teachers would have to pay to access individual papers. Second, if teachers do happen to get access to research papers, they may find them difficult to understand. The reason for that is that research papers are written for an audience of other academics who are experts in the field and have the background knowledge. However, teachers may benefit from reading research papers in order to get a first-hand account of why and how research is conducted, and what can be concluded from research findings. In this article, I will give an overview of the overall structure of research papers and go into detail as to what teachers may want to focus on within each section of a research paper.

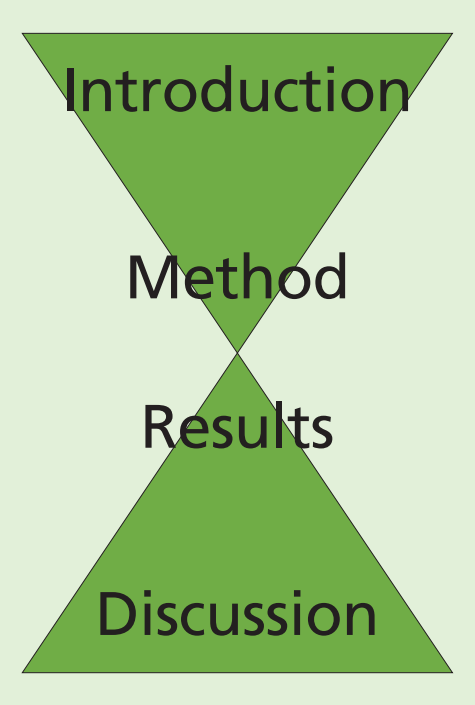
Note: The structure outlined here will apply to most papers published in psychology. However, you may occasionally encounter exceptions here and there to this structure.

Structure of research papers

The overall structure of a research paper will usually follow an hourglass shape. That means that a research paper will start broad by embedding the study into the overall context and state the general issue it addresses. As the Introduction progresses, the scope will become more and more specific. The Introduction ends on a very concrete and narrow note that clearly states the predictions and hypotheses that are being tested by the study. The Introduction is followed by the Method section. Here, the researcher will stay on a concrete and narrow level as they describe how the study was conducted, what materials were used, and who the participants were. Following on from the Method section, the findings of the study are presented in the Results section. Thus, the Results section is still concrete and specific. Last, but not least, the findings are discussed in the Discussion section. Here, the researcher will start narrow by providing a summary of the findings of their study, but then will broaden the discussion by bringing in other literature, limitations, and, finally, drawing more general conclusions. Consequently, the research paper becomes broader as the Discussion progresses. This hourglass structure, i.e., broad-to-narrow/narrow-to-broad, is reflected in most research papers that you will come across.

Introduction section

The aim of the Introduction is to provide the rationale for conducting the study. It answers the 'Why?' question: *Why* is it worth investigating that



specific topic? *Why* should we care about it? The Introduction provides an evidence-based justification for the study. Here the researcher will use different research papers and theories to build a strong argument for the research question and the hypothesis. As you read it, you should be able to guess what the researcher is going to predict at the end of the Introduction. The reason for this is that the researcher will systematically highlight previous findings and point to potential gaps in the literature, anomalies in previous research, or the need to test assumptions of a theory.

Teacher focus: When reading the Introduction, decide how relevant the topic is for your teaching practice. Does the research paper address issues that are directly relevant for you? Have you raised the research question before as part of your teaching? Can the research paper help you solve a problem in your teaching?

Method section

The Method section in a research paper will give a concrete description of how the study was carried out. It answers the 'How?' question by providing a description of the participants that took part in the study, the materials that were used, and the procedure of the study. The procedure specifically provides a step-by-step description of what participants had to do in the study. To put it in academic terms, the Method section outlines how the hypothesis was operationalised. This is just a fancy way to say how the hypothesis was tested.

Teacher focus: As a teacher you may want to pay attention to the material used and how the study was set up. Ask yourself if the study methods are a good representation of materials and set-ups you use in your classroom. This will help you to put the study into context. Note: No study will ever perfectly match your classroom, but there may be important elements that can be mapped onto your teaching practice.

Results section

In the Results section the findings of the study are reported. Here, the researcher will present the data in the form of figures and/or tables and provide a report of the statistics. Essentially, the Results section answers the 'What?' question by presenting what the outcome of the study was. After presenting statistical tests, researchers will usually provide short statements detailing what the outcome of the tests mean. Long-winded interpretations of the results are usually not provided here, but rather discussed in the next section – the Discussion section.

Teacher focus: Admittedly, this section is the most challenging to go through as teachers may not necessarily have the background knowledge to wrap their heads around the statistical tests. When I started to read research papers, I remember this being challenging for me, too. As a starting point, I would begin by looking at the figures and tables and try to map what you see in them with points reported in the text. Also, you may want to look out for the size of effects. Thus, if you, for example, have a study that tested two different conditions against each other – say re-reading versus retrieval practice – you want to check how big the differences are between the two groups and how spread out the data are in each of them. The reason for this is that you are probably most interested in meaningful results that are likely to make a difference in your classroom, compared to tiny effects.

Discussion and conclusion section

Finally, the Discussion section is the place where the study findings are embedded within the wider literature. This section usually starts with a summary of the results and then relates these findings to the hypotheses, previous research and theory. As such, the Discussion section answers the 'So What?' question. Here, the researcher will provide a critical evaluation and interpretation of the findings. They will also point out any limitations and how they can be addressed in future studies. Depending on the topic and scope of the paper, you will find a few practical implications stated here. The Discussion section will end with a general conclusion of the research conducted.

Teacher focus: Teachers may want to focus specifically on the practical

implications stated here (or come up with their own practical implications if none are provided). In addition, reading through the limitations raised is a good way to decide if the research findings are applicable to your specific classroom context. Finally, teachers should pay attention to the theories proposed to explain the findings. These usually give important insight into the (cognitive) processes that may be responsible for the effects and provide an explanation why the findings occurred. When thinking about using the findings to inform teaching practice, teachers may want to think about how they could maximise the proposed (cognitive) processes in their pupils – using teaching materials in their classrooms.

Tips for starting your reading journey

- When deciding which papers to read, think about your current teaching practice and any issues you want to tackle in your classroom. Also, look for existing overlap between your teaching practice and research papers. For example, if you are already using retrieval practice in your teaching, you may be interested in different quiz formats and could look specifically for papers on this.
- Try to read several papers on the same topic to get a fuller picture of the research field.
- If you don't know where to start, review papers are a good way in. They offer an overview of a topic by reviewing different papers. The structure of review papers is not like the one discussed here (i.e., they do not come with the different sections highlighted here), but from review papers you may learn about specific research papers that you can then look up.
- Get together with colleagues to explore the reading journey together. Raise and answer each other's questions about the research paper. Reflect on your teaching practice and map your experience to the points raised in the research paper.

Accessing research papers

As stated in the beginning, it can be tricky to get one's hands on research papers because many journals require either a subscription or payment to read the papers. However, there is an increasing trend in psychological science of offering open access to journals and papers. Just to name a few examples of journals that feature some open access papers: *Psychology Learning and Teaching*, *Psychological Science in the Public Interest*, *PLOS One*, *International Journal of Inclusive Education*, and *Frontiers in Psychology*. In addition, there are platforms where researchers upload paper manuscripts that they are about to submit to journals, so that others can read the papers before they are printed. Examples of such preprint platforms are: *EdArXiv* or *PsyArXiv*.

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When deciding which papers to read, think about your current teaching practice and any issues you want to tackle in your classroom.

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Is systematic synthetic phonics effective?

Kevin Wheldall and Jennifer Buckingham

Statement of the problem

International studies have led to concerns regarding the academic performance of children in our schools, especially of those from less privileged backgrounds. This in turn has led to questioning of the teaching practices in schools. Critics have argued that some common methods of teaching foundational reading skills are not as effective as they should be and that, as a result, children are not progressing as quickly as they might. Particular concern has been expressed about the academic performance of Indigenous students, especially those from remote communities.

Proposed solution/intervention

Scientific reading research carried out over the past 40 years has consistently confirmed that the most effective way of teaching children to read (in the sense of being able to decode written text) is to provide instruction in the alphabetic principle and phonics. Phonics is an essential component of a comprehensive reading program that also includes explicit instruction in fluency, vocabulary and comprehension. Phonics requires that children be taught the relationships between the phonemes (sounds) of speech and their representations in written text (letters, or graphemes). Of the various approaches to achieving this goal, it is argued that the evidence to date indicates that systematic synthetic phonics (SSP) instruction is the best option.

The theoretical rationale – how does it work?

Some advocates of phonics instruction argue for an embedded approach whereby letter-sound correspondences are taught as they occur naturally in the beginning texts children encounter. Others favour a more structured systematic approach whereby letter-sound correspondences and other sub-word units are introduced and taught in a pre-determined scope and sequence. This can be done via an 'analytic' method that breaks words down to onset and rime units, also known as word families (e.g., b-ug), or by a 'synthetic' method that breaks words into the smaller grapheme-phoneme units (e.g., b-u-g). The latter group typically favour a more explicit, rather than an implicit, teaching method. The term 'synthetic' does not mean artificial or fake in this usage but rather that words should be decoded by synthesising the letter sounds sequentially through each word, blending the result into a whole.

What does the research say? What is the evidence for its efficacy?

There is now little doubt that systematic and explicit phonics instruction is the most effective method for teaching word reading. It has been described as one of the most secure findings in social science. There are relatively few specific research studies directly comparing synthetic and analytic phonics teaching methodologies but those that exist provide strong evidence in favour of the synthetic method. In addition, there are hundreds of studies from cognitive science and psychology demonstrating that fluent word reading is dependent on accurate and efficient decoding of letter-sound correspondences, which aligns with the instructional practices of SSP. Statistical text analyses have determined that children learn to read more words more quickly by using knowledge of letter-sound correspondences than by using knowledge of onsets and rimes. Multiple studies have found that high-performing schools include high-quality SSP in their early reading instruction.

Conclusion

In view of the above, the current state of multi-disciplinary research evidence suggests that systematic synthetic phonics (SSP) is preferable and is to be recommended as best practice.

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