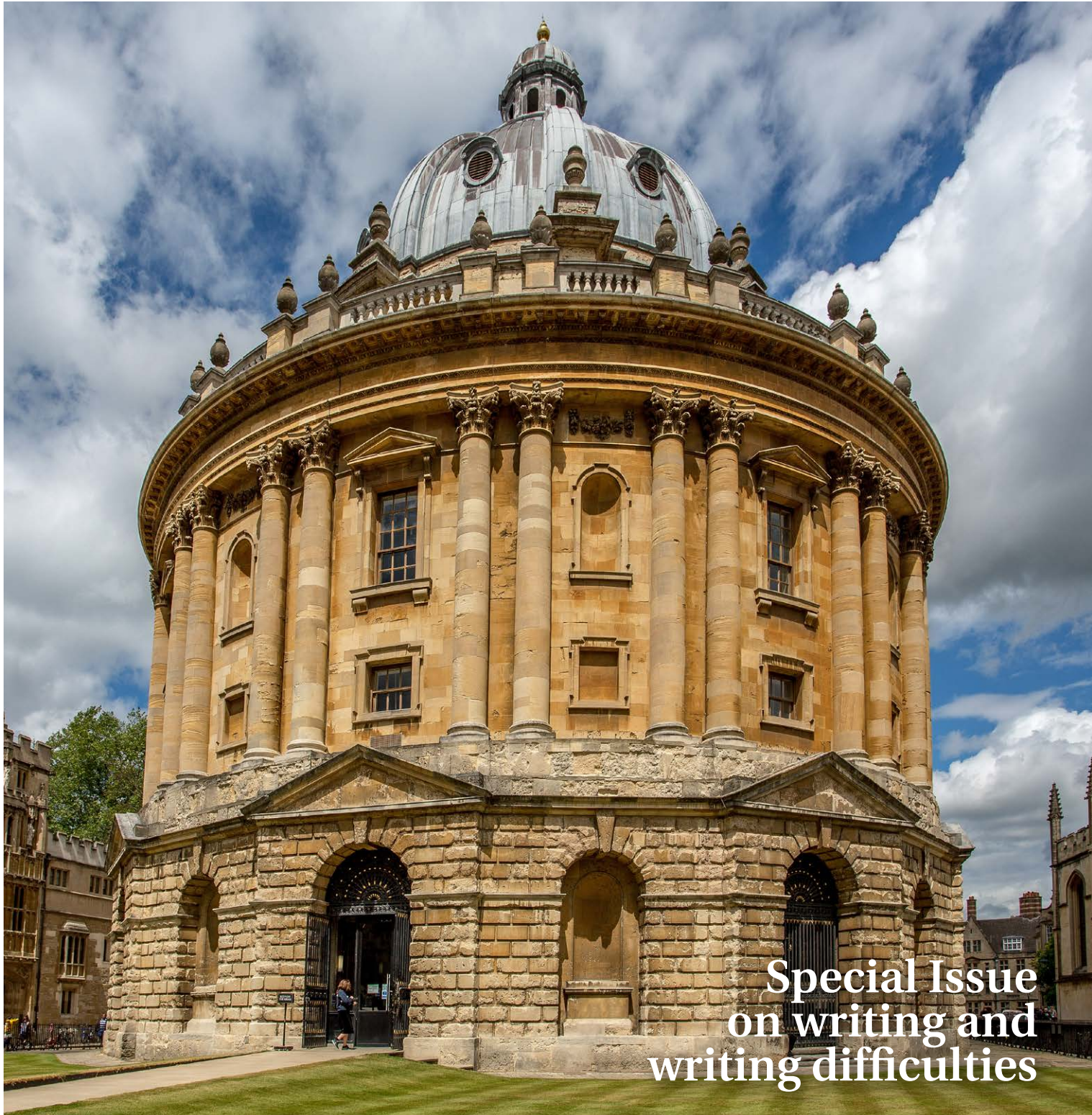


Bulletin



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Learning Difficulties Australia is an association of teachers and other professionals dedicated to assisting students with learning difficulties through effective teaching practices based on scientific research, both in the classroom and through individualised instruction.

THE BULLETIN

The Bulletin is published three times a year with support from the LDA Publications Committee and the Bulletin editorial team.

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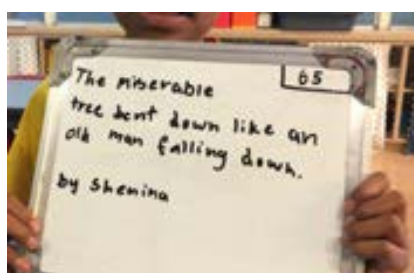
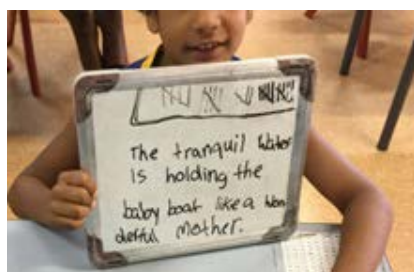
Ann Ryan

From the President

Lorraine Hammond

This edition of the Bulletin has a focus on writing and features contributions from some of the leaders in the field, including Dr Virginia Berninger from the University of Washington, Dr Vincent Connelly from Oxford Brookes University and Dr Steve Graham from Arizona State University. These researchers take the view that writing is hard to teach and learn.

There is often a large gap translating research into classroom practice, so as a university academic I feel fortunate to spend a significant amount of my time in schools working directly with teachers and supporting them to take up high impact instruction. In fact, I am writing this from Halls Creek, a town situated in the East Kimberley region of Western Australia, 30 hours drive north of Perth and 13 hours West of Darwin. I am here for the week with the Kimberley Schools Project, a state government initiative designed to improve literacy outcomes for students in an area the size of Belgium.



This week's professional learning included how to teach vocabulary and writing explicitly, using a teacher-directed approach that begins with oral language and includes sentence level work. The theoretical assumptions about writing and the instructional routines come from the work of the writing researchers featured in this edition.

Low attendance, second language issues and social disadvantage are significant barriers to learning, but Kimberley schools that have been part of the Project for two years are now showing positive signs.

These middle primary students, who attend Looma Remote Community School two and a half hours out of Broome, take part in daily vocabulary and sentence writing lessons. The examples pictured in the previous column combine Tier 2 (Beck, McKeown, & Kucan, 2008) vocabulary words (tranquil, wonderful, and miserable) with similes.

Learning a word requires not just exposure, but also repetition, contextualisation and authentic reasons to use vocabulary (Fisher, Frey, & Hattie, 2016). Writing frameworks for different genres, for example narrative and persuasive, are also taught explicitly and provide this authentic context for previously taught Tier 2 words.

American novelist Louis L'Amour (1908-1988) reflected on the craft of writing and observed: 'A writer's brain is like a magician's hat: if you're going to get anything out of it, you have to put something in first'. Writing is an immense neurological juggling act for learners, yet many teachers do not feel confident teaching writing, particularly at the sentence level.

LDA is committed to providing professional learning to support teachers. We will welcome Dr David Kilpatrick to Australia in August, and you will find information about his speaking engagements on the LDA website. Please share this Bulletin with your colleagues.

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LDA's President, Dr Lorraine Hammond, is an Associate Professor in the School of Education at Edith Cowan University. Lorraine divides her time between research projects on high impact instruction, teaching pre and inservice teachers, supervising higher degree students and writing and delivering professional learning for The Kimberley Schools Project. Lorraine is the Chair, Deputy Chair and Board Member of three high performing schools in Western Australia. Lorraine has been a member of LDA Council since 2010 and has previously served as President and Vice-President.

Cover Photo – The Bodleian Library, Oxford.

The Radcliffe Camera building, pictured on the front cover, is one of the libraries that form part of the Bodleian Library, one of the oldest libraries in Europe, first opened to scholars in 1602. Together the Bodleian Libraries hold over 13 million printed items. Known to many Oxford scholars simply as 'the Bod', these buildings are still used by students and scholars from all over the world. In the photo on page 6, Tom Nicholson is pictured in front of one of the main doors of the Radcliffe Camera library. This issue of the Bulletin acknowledges the contribution of libraries to the preservation of the written word.

Council news

The AJLD 2019 Eminent Researcher Award

The recipient of the AJLD Eminent Researcher Award for 2019 is Professor William Tunmer, Distinguished Professor Emeritus of Educational Psychology in the College of Humanities and Social Sciences at Massey University in New Zealand. Professor Tunmer is probably best known for the paper he co-authored in 1986 with Philip Gough that first proposed the 'simple view of reading'. This paper marked a significant step on the road to understanding how children learn to read by differentiating the two basic processes involved in learning to read. These two processes are the acquisition of skills relating to the ability to read the words on the page, or word level reading, and the processes required to understand the meaning of written text, or reading comprehension, which is based on knowledge of word meanings and grammatical structure, as well as a wide vocabulary of known words and background knowledge relating to the texts that are read. More than 30 years on the basic premise of this 'simple'

view of reading has been confirmed by many research studies, and has provided the basis for the development of effective teaching programs that focus on developing the essential skills that are required for both reading the words on the page and understanding the meaning of written text. And in cases where students have difficulty in learning to read the model helps to identify the source of the reading difficulty, and the sort of interventions that are most likely to be successful in assisting students with reading difficulties. In England, the simple view of reading provided the conceptual model that led to the introduction of mandatory teaching of phonics and the introduction of the phonics check to assess children's progress in acquiring the basic skills required for effective reading.

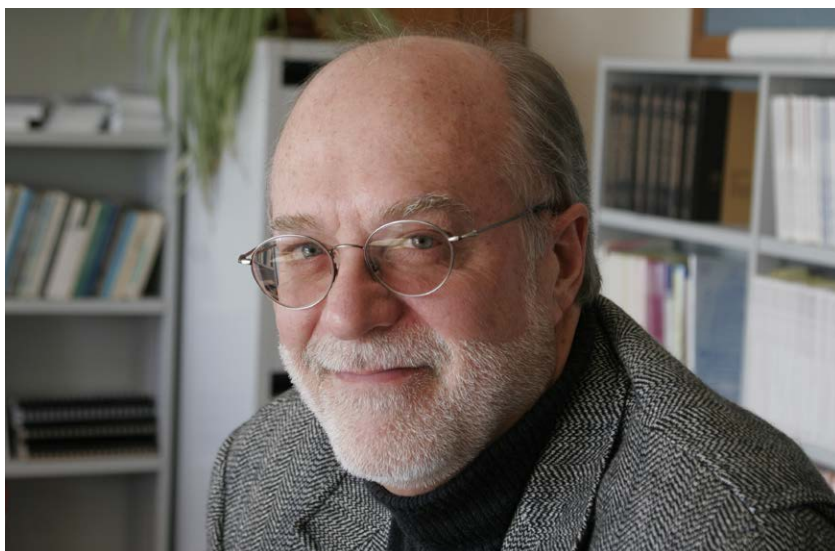
Over the last 30 years or more Professor Tunmer has contributed significantly to research in the area of reading, with his latest publication, due to be published in the next issue of the *Australian Journal of Learning Difficulties* and authored jointly with Wesley Hoover, focusing on providing an overview of a conceptual framework, the Cognitive Foundations Framework, designed to help reading professionals

better understand what their students are facing as they learn to read in alphabetic writing systems. The central claim of this article is that what is needed to help intervention specialists achieve better outcomes is a clearly specified conceptual framework of the cognitive capacities underlying learning to read, which will provide the basis for an assessment framework that is linked to evidence-based instructional strategies for addressing the literacy learning needs of struggling readers. Like the simple view of reading, the Cognitive Foundations Framework aims to build a broad understanding of what is cognitively required for learning to read, laying out the relationships between the cognitive requirements.

Professor Tunmer will receive his award and give a presentation on the Cognitive Foundations Framework at the LDA Annual General Meeting in Melbourne on Saturday 26 October. Further information on Professor Tunmer's presentation and other possible presentations in Australia will be provided in due course.

David Kilpatrick visit

As all of our LDA members are no doubt aware, Dr. David Kilpatrick, Professor of Psychology for the State University of New York, will be visiting Australia in August. David Kilpatrick is probably best known for his book *Essentials of Assessing, Preventing, and Overcoming Reading Difficulties*, published in 2015, which has become something of a bible to both researchers and practitioners working in the area of reading research and assessment and intervention for students with reading difficulties. Perhaps rather less well known, but no less important, is his book, directed at teachers, on *Equipped for Reading Success: A Comprehensive, Step-By-Step Program for Developing Phoneme Awareness and Fluent Word Recognition*, published in 2016. Both of



Professor William Tunmer



Dr. David Kilpatrick

these books are reviewed in this issue of the Bulletin (see pages 36 to 37 and 38 to 40). David is also co-editor of the book *The Science of Reading Development and Reading Difficulties: Bridging the Gap Between Research and Practice*, which is to be published late 2019.

David will be presenting in Perth, Adelaide, Melbourne, Cairns and Sydney over the period 12 August to the 24 August. Full details of the various sessions he will be presenting and booking details are provided on the LDA website at www.ldaustralia.org.

Notes on DSF Language, Literacy and Learning Conference

Ros Neilson

The comment '*This has been amazing!*' dominated the conversation surrounding the recent DSF Language, Literacy and Learning Conference in Perth – a comment that was heard as delegates chatted or posted on the App that was conveniently created for conference communication, and in wider social media spheres. The Conference was attended by over 800 delegates, including many members of LDA. What really was striking for me was not only the consistent quality and relevance of the busy three days of professional development, but also the overall coherence of the message. This was a conference about language, literacy and learning that really came together in terms of both presenting the evidence for explicit, systematic teaching, and exploring strategies by which such teaching could facilitate learning.

The six keynote speakers were all from overseas, giving local clinicians and teachers a valuable chance to

keep abreast with recent information from top researchers and practitioners. The keynote speakers were all polished, interesting and entertaining, and they all took care to present their research in professional detail.

Dr Stanislas Dehaene, from the College de France, summarised some of his vast neuro-imaging research on how learning to read involves structural changes to the brain. He presented several kinds of evidence for the formation of a 'visual word form area' that enables fluent identification of words, once appropriate connections between phonology, semantics, and written text have been established. His basic research data was associated with a very convincing argument about the explicit teaching of grapheme-phoneme relationships. Incidentally, the presence in Perth of Dr Dehaene's wife, Dr. Ghislaine Dehaene-Lambertz, was an extra bonus for the conference, with her fascinating breakout session on how the human infant brain is able to process language.

The genetic basis of language learning was explored by Professor Simon Fisher of the Max Planck Institute. He discussed the usefulness of genetic research in general, and then focused on one gene that has consistently been associated with human developmental language difficulties. His description of how this same gene is expressed in other species was quite fascinating.

Professor Daniel Ansari, from the University of Ontario, presented a stimulating address on the acquisition of numeracy. He described the search for a foundational enabling skill in numeracy that might play a similar role to phonological awareness in the acquisition of literacy. His evidence pointed to the importance of understanding the concept of numerals, and once again, explicit teaching was highlighted as critical. He was able to discuss some play-based activities that might be useful for both teachers and children.

Dr Yana Weinstein-Jones who was, until recently, from the University of Massachusetts, gave an entertaining and memorable presentation that brought cognitive psychology to life, making accessible to delegates the relevance of research into efficient learning and remembering. The audience all took away several explicit, systematic strategies to support their own learning as well as their teaching.

Professor Kathy Rastle from the University of London entitled her address 'The journey from form to meaning'. It was both learned and fascinating, and what she said has thoughtfully been summarised by Alison Clarke on the Spelfabet blog (www.spelfabet.com.au). Kathy Rastle's address also covered the importance of explicit teaching when it comes to mastery of the alphabetic code, and she presented a behavioural model of the acquisition process that was very satisfyingly parallel to Stanislas Dehaene's neurological model.

The final keynote address, by Tom Bennett, founder of ResearchED, had the audience in stitches of laughter – but the humour emerged out of convincing arguments about the evidence for explicit teaching of behaviour, and practical descriptions of what might be done to achieve this. It was very useful indeed.

The consensus at the conference was that all the sessions provided useful discussion of strategic issues and examples of practical strategies. The commercial displays, too, were all buzzing with information during the conference.

The venue was comfortable and efficient, the catering excellent, and even the weather was perfect. Congratulations and thanks are due to Mandy Nayton and her team at DSF, including conference organiser Gemma Boyle, and to all the presenters, for providing delegates with an experience that was indeed *amazing*.

Note: DSF has announced that high-quality films of all six keynote speakers, along with their PowerPoints, will soon be made available to both conference delegates and non-delegates – for a limited period of purchase. For further information please visit the DSF website on www.dsf.net.au

Former LDA Council member Dr Roslyn Neilson is a private speech language pathologist, specialising in children with reading difficulties. She has retired from her private clinical practice, but still works in local schools, provides university lectures and professional in-services, and devotes time to research.



Introduction to the special issue on writing

Tom Nicholson reflects on the challenges of writing, describes the simple view of writing, suggests the value of a checklist, and gives an overview of the articles in this special issue.

I have a love hate relationship with writing even though I write a lot. I am not sure why this is the case but I think it goes back to an English examination in my last year at Fairfield Boys High School in Sydney. The essay topic was “the supercilious cat”. I had no idea what supercilious meant. If only the prompt for the essay was “the snooty cat” or “the haughty cat” or “the snobby cat” or “the patronizing cat” or “the toffee-nosed, uppity, jumped up, hoity-toity, high and mighty, too big for your boots cat”. All these are synonyms in my thesaurus that I would have understood. What did I do? I just gave up, I could not figure out what to write so wrote nothing. If I knew then what the writers in this special issue are telling us now, I would not have panicked and might even have written a winner.

Another part of this love-hate relationship goes back to University days and the grade I got for my first English essay. In the essay, I did what I did in high school quite successfully, that is, I regurgitated other people's ideas. This time it did not work. I managed to get an E grade. When I asked my University lecturer what I should do to get a better mark he suggested I should switch to another subject.

The importance of ideas and spelling

These were great experiences, really, finding out what you need to do to become an effective writer; in my case, to learn that vocabulary is important, not to give up, and to write with your own voice. There is another face to writing, though, which is the ability to spell well. Competent spelling will enable you to write fluently without having to think about the mechanics of putting letters on the page. These two faces of writing, ideas and spelling, are both crucial for effective writing.

The good news ... is that we can teach students how to write good ideas and spell well.

Not being able to think of ideas to write about is very common. Many students spend all the available time given them to write an essay thinking about how to do this but then write very little even on a familiar topic like “How do you say good bye to a goldfish that has passed away?” They cannot think of

what to say. Yet it is not an impossible topic. With such a topic, you could write a story about organising a funeral for the fish, who would make the speeches, etc. It is perfectly possible to write a winning story even on a tricky topic but we need to teach students how to do this well.

Likewise, research shows that many students with writing difficulties fall behind because of their spelling, for example, not knowing how to spell words like “goldfish”. Most of their writing time is spent worrying about spelling and as a result having little or no time to put their thoughts on paper. The good news (which is the focus of this issue of the LDA Bulletin) is that we can teach students how to write good ideas and spell well.

The simple view of writing (and the not so simple view)

These two faces of writing are the basis of the simple view of writing, as shown in Figure 1 (Nicholson & Dymock, 2018).

The simple view says that effective writing requires two things: good ideas and good spelling. You need both. The student with good ideas but poor spelling will not be an effective writer mainly because they will not write much. Likewise, if you are a good speller but without good ideas, your writing will not work because you need some interesting ideas. The simple view of writing is a multiplicative model; it says that $W = I \times S$ (writing = ideas x spelling). Your ideas may be 100% wonderful but if your spelling is zero, your writing is zero. Likewise, your spelling may be 100% perfect but if you have zero ideas, then writing is zero. You need both good ideas and good spelling to succeed. In terms of teaching, the model predicts

that if you can improve students' spelling and their ability to generate ideas – this should lead to better writing.

Of course, the simple view of writing is probably too simple. Certainly, the articles in this special issue highlight this. The concept of “ideas” involves both the information we write about and how we convey the information. That is, it includes organisation, coherence, vocabulary, and grammar. Likewise, spelling skill is important but we also need to include handwriting and keyboarding skill. This makes for a more complex model, especially if you add metacognitive aspects to it like self-regulation and ability to focus on the task. Figure 2 is a sketch of what the not so simple view of writing might look like and it specifies all these other aspects of writing. It does show more of the complexity of writing and it fits quite well with the articles in this special issue.

Which brings us to the contributors to this special issue

Peter Westwood reviews the research on teaching writing. While many teachers say they can teach writing, the research also says that many teachers feel unprepared and untrained to teach writing well. What can we do to remedy this situation? In this article, Peter shows that some approaches have a higher effect size than others. Using these data, a teacher can make better decisions about what to teach. (Note: Just in case you are wondering, an “effect size” (ES) is a way to compare the findings of different studies in terms of their impact. Although each study might write up their findings in different ways, we can compare them using this

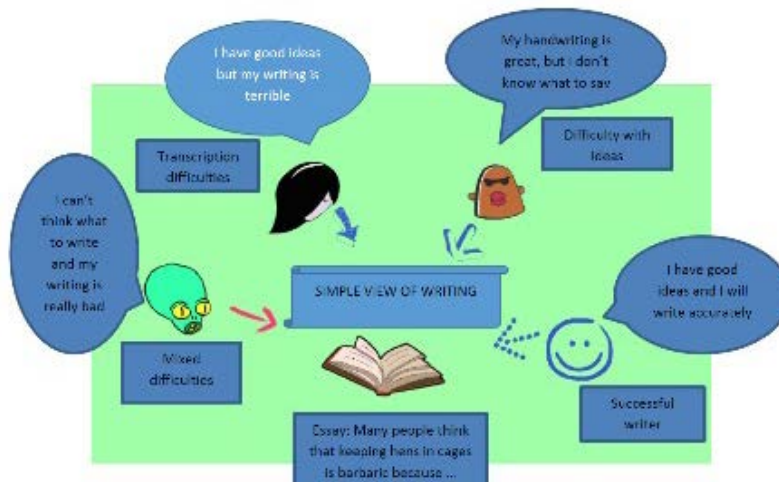


Figure 1. The simple view of writing

common metric. An ES of .2 is small, an ES of .5 is medium, and an ES of .8 or more is large. An ES of .4 is equivalent to about the progress in one school year in a particular subject. A more than average way of teaching writing will have an effect size of more than .4.)

How do you teach someone to write well? In their article **Amber Ray** and **Steve Graham** explain that effective writing does not develop naturally but that we can teach it. They explain a much-researched and successful approach to teaching writing called SRSD (Self-Regulated Strategy Development), which encourages students to write with a plan, use text structure, monitor their work, and write with confidence.

Many successful people tell us that they cannot spell very well so is spelling a problem when it comes to writing? Yes, it is. **Vince Connelly**, **Lynsey O'Rourke**, and **Emma Sumner** explain that difficulties with spelling hamper the writing of people with dyslexia. It interferes with fluency, essay length, choice of vocabulary, and editing of work. Students with spelling difficulties really need extra spelling tuition, writing practice, and learn how to take advantage of recent technology, such as writing with computers and using spellcheckers.

Ros Neilson argues that we have to teach students to reach a level of competence where their spelling enables rather than disables their ability to write what they want to say. She describes

the very real struggles of students she works with and suggests that the key to progress is with our teachers, but that today's teachers need knowledge about the English spelling system, knowledge that they lack because they themselves did not learn to spell well in school. She suggests that phonics taught by knowledgeable teachers will enable many more students to spell well and will enable them to write well rather than disable them.

Is handwriting a relic of the distant past? Some say that it is and in certain places the teaching of handwriting is not required in the curriculum. Is this good or not? **Karin James** and **Virginia Berninger** explain how evidence from brain research supports the teaching of handwriting. Learning to write by hand is not only helpful in itself, but has positive effects on letter learning, word reading, and writing.

Sue Dymock explains that while many students are very good spellers, many find spelling incredibly difficult. For some, spelling can be "caught" through extensive reading and writing but many students need spelling to be "taught". She shows how English spelling is method rather than madness, and that we can teach effective strategies to enable spelling success. She explains that with careful assessment and diagnosis teachers can identify what to teach and how to teach it effectively.

In the BOOK REVIEWS section, **Emma Nahna** reviews **David Kilpatrick's**

book on teaching reading to students with reading difficulties, while **Kate Munro** and **Ann Ryan** review **David Kilpatrick's** book on *Equipped for Reading Success*. **Jan Roberts** and **Nathaniel Swain** review the book by **Tom Nicholson** and **Sue Dymock** on teaching students how to write with a plan and spell well.

A take away message for teachers

An important outcome of this special issue will be if the reader comes away with some specific and practical ideas on teaching writing and some helpful hints for students. To help you get started, I have jotted down (see Figure 3) a possible checklist of everything a student needs to do to produce a winning essay. It combines my own ideas and the ideas that are in this special issue. You might want to use it with your class as a starting point to build up their own "Big 10" or "Big 5" rules – to construct a checklist that suits their needs and that they will find useful for them.

Final word

We know much more about how to teach writing well but it is not clear if these messages are reaching the classroom. Research shows that many students find writing difficult. By the time they enter secondary school nearly two in three students have difficulty reaching the standards required for that part of their school career. We need to try harder to reduce that number to a

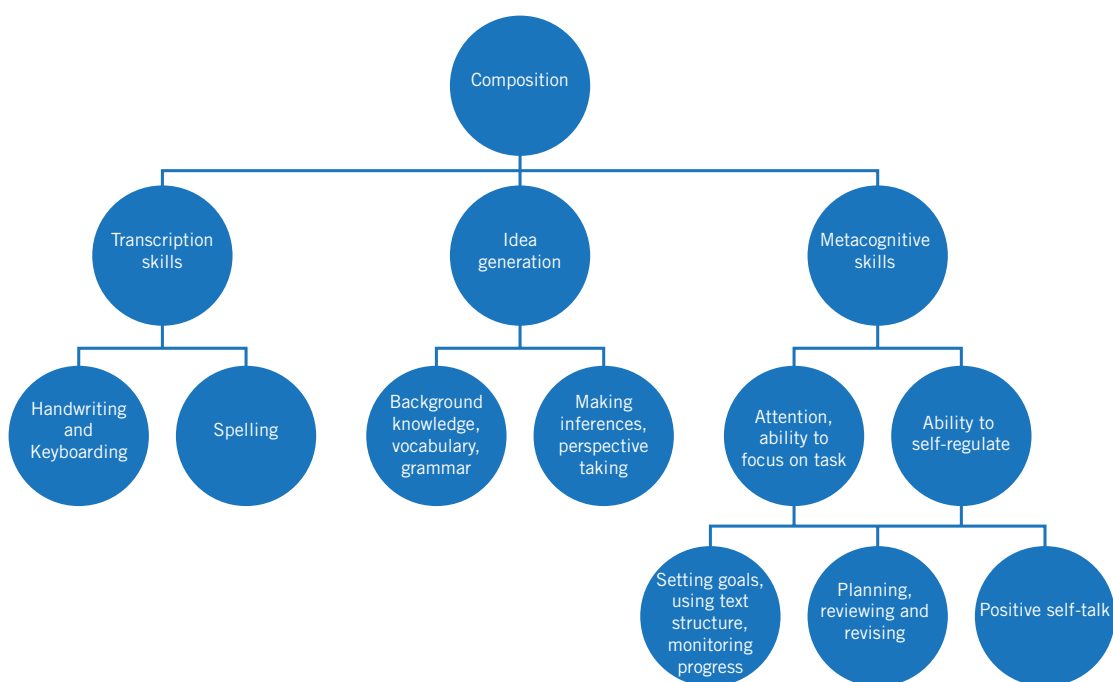


Figure 2. The not-so simple view of writing

much smaller fraction, and the good news is that we can do it.

Happy reading!

References

Nicholson, T. & Dymock, S. (2018). *Writing for impact: Teaching students how to write with a plan and spell well*. Wellington: NZCER Press.

Tom Nicholson is a freelance writer, formerly a professor of education at Massey University in New Zealand and a member of the Reading Hall of Fame. One day, in the future, he would

like to have his own website, write a children's book, and learn how to sketch with proper perspective. Email: t.nicholson@massey.ac.nz

The Big 10 Writing Rules

IDEAS

- 1 Use your prior knowledge to generate ideas for this topic - many writers draw on their own experiences for their writing
- 2 ...Write an abstract, a quick thumbnail sketch of what your writing will be about – 20 words
- 3 ...Transfer your ideas from the abstract to a text structure diagram and use this for your writing. Make sure the structure fits the topic, e.g., setting, characters, plot and theme for a story; subheadings for information writing e.g., habitat, features, and diet; for-against structure for persuasive essay, e.g., for school uniforms, against school uniforms.

PRESENTATION – INCLUDING SPELLING

- 4 ... Check accuracy– did you use correct spelling, punctuation?
- 5 ...Check neatness – is handwriting clear, easy to read?
- 6 ...Check vocabulary and grammar – did you use “sparkly” words, are sentences grammatically correct?

METACOGNITIVE

- 7 ...Did you write as much as you can – at least a page of writing?
- 8 ...is the information interesting and accurate, does it all tie together, is it convincing, do the arguments flow, do you have transition sentences from one paragraph to the next?
- 9 ... Is there a hook in the first sentence to engage the reader?
- 10 ...Is there a conclusion that wraps it all up?

Figure 3. The big 10 writing rules

Are we teaching our students to write?

Peter Westwood reviews research showing that many teachers feel unprepared and untrained to teach writing and that we need to remedy this situation. The results of meta-analyses and research reviews of effective practice show that there are many effective ways to teach writing, and that explicit instruction, strategy training, and use of technology can create writing success for all students who find writing difficult.

Recently, in the context of American schools, Brenner and McQuirk (2019, p.18) have written: 'Studies of classroom practice suggest that most teachers devote little time to the teaching of writing, and many teachers report they do not feel prepared to teach writing.' This was also a finding from a study by Brindle, Graham, Harris and Hebert (2016). Similarly, Pelkey (2018) concluded from her study that during their initial training teachers are not made sufficiently aware of evidence-based practices that are known to help struggling writers. Experts in teaching children to write have strongly recommended that there be a concerted effort to increase all teachers' knowledge about writing development and to ensure

that they employ evidence-based writing practices (Graham & Harris, 2013; Troia & Graham, 2003). We should be making the same recommendation in Australia, because as the Minister for Education (Tehan, 2019) has pointed out when reporting NAPLAN results for 2018, 'The decline in writing skills in years 5, 6 and 7 since 2011 are concerning.'

Experts in teaching children to write have strongly recommended that there be a concerted effort to ... (increase teachers' knowledge about writing development and to) ... ensure that [teachers] employ evidence-based writing practices.

While it is true that most teacher education courses certainly encourage trainee teachers to engage their children in writing activities every day, and to view writing as an 'across the curriculum' subject, few actually instruct teachers in how to teach writing. The belief seems to be that school students will become good writers if they simply

engage in authentic writing every day and receive encouraging feedback. Not too long ago, a similar belief gave us the dubious mantra 'children learn to read by reading', and we were discouraged from attempting to teach directly the sub skills involved in unlocking words in print. However, we eventually found that this mantra was lacking in validity, as evidenced by data on reading standards from large scale surveys.

We now understand that all children need guidance and explicit instruction in all aspects of reading and writing. They need to be taught explicitly how to go about the process of composing text for different purposes and different audiences (Behizadeh, 2019). They need guidance with the mechanical aspects (handwriting, keyboarding, spelling, punctuation and grammar) and they need to be taught self-regulatory strategies for generating ideas, planning and organizing their material, proofreading and editing (Troia & Graham, 2003). Teacher guidance of this type is important for all students, but it is absolutely essential for students with a learning difficulty that affects their ability to write (Harrison & McManus, 2017). Similarly, with the youngest children in school, providing direct guidance appears to be very helpful in advancing their emergent writing skills



(Byington & Kim, 2017). Troia (2014, p.10) has written: 'Younger writers and those who struggle with writing will require greater explicitness, more practice, and enhanced scaffolding (e.g., repetitive modeling, graphic aids, checklists, incremental goals, expectations) than older writers and those who do not struggle with writing.' This is sound advice.

A valuable publication titled *Evidence-based practices for writing instruction* (Troia, 2014) is available online, and is strongly recommended as a resource. It describes 36 evidence-based practices for teaching and assessing writing. Among the practices mentioned are: explicit instruction in strategies for planning written work, selecting the best words to communicate ideas to the audience, using technology as an aid, promoting independence in creating and editing what you write, and using rubrics or other frameworks. In particular, teachers' explicit demonstration of strategies for composing, reviewing and revising written work is found to be a powerful influence on students' performance (Regan & Berkeley, 2012). In recent years much attention has been given to teaching students self-regulatory strategies that can encompass all these aspects, and strategy training has become a recognized evidence-based approach (Liberty & Conderman, 2018). Fletcher et al. (2018) suggest that teaching students to use self-regulatory strategies when writing can produce an effect size as high as 1.17, but usually the ES is at least 0.60.

The challenge for teacher educators now is to ensure that all teachers graduate with a deeper understanding of how best to teach writing, beyond simply setting assignments.

Much useful current research in writing is being conducted with students and adults who are learning English as a second or additional language. Many of the practical implications that are emerging from this work strongly support the use of teacher-direction and guidance (scaffolding, feedback and modelling) in assisting students to develop the necessary skills and understandings (Allen, 2018; Jelodar & Farvardin, 2019). Studies with second

language learners have also reinforced the value of teaching writing within a collaborative learning environment, with opportunities for suggestions and feedback from peers supplementing the guiding input from teachers (Barrot, 2018).

A collaborative approach that has been well studied is the use of 'paired writing' as an option in a supportive classroom environment. This approach encourages students to work together for the sharing of ideas, giving each other feedback, composing stories and reports, and editing the final product (De Smedt & Van Keer, 2018; Yeh, 2017). Graham et al. (2012) report that peer assistance when writing can produce a very acceptable effect size of 0.89. It has also been found that the approach produces even better outcomes when teachers supplement paired writing activities with explicit teaching at appropriate times (De Smedt & Van Keer, 2018).

One of the first educators to recognize the role of sharing ideas and having peer critiquing of written work in regular classrooms was Graves (1983). His 'conference approach to writing' was very popular in Australian primary schools in the 1980s and is still in use in many classrooms. The approach known as Writers' Workshop operates on similar principles in the classroom. Analysis of the effectiveness of these conference approaches to writing has tended to cast some doubt on their overall effectiveness for increasing students' writing performance, with effect sizes reported of no more than 0.32 (Graham & Perrin, 2007; Smithson, 2008). Harris, Graham, Mason and Friedlander (2008) have indicated clearly that a structured, explicit, systematic approach to writing was superior to the Writers' Workshop approach. Reinhart (2014) has found that the impact of Writers' Workshop is increased significantly if the writing activities are deliberately guided by the teacher rather than remaining unstructured and informal. A guided approach to writing includes the teaching of grammar rules and principles as and when needed while students are engaging in authentic writing. This is often referred to as task-based teaching of writing skills (Saraç, 2018). For some struggling writers, it is almost always necessary then to provide additional exercises that allow for extra practice for mastering particular rules or conventions.

Another strategy that produces good results across a wide ability range is the

use of various forms of graphic organizer to provide a visual framework for story or report writing. Graphic organizers can target specific aspects of writing, such as planning, drafting, revising, editing, choice of vocabulary, and grammar use. Meta analyses of studies using graphic organizers have yielded very positive effect sizes (Kansizoglu, 2017; Robinson & Howell, 2008).

Digital technology in the form of a word processor has made the task of writing somewhat more attractive for struggling writers. When producing a report or essay they are able to add to, modify, delete from and check their writing, and correct their spelling. The use of a word processor has an effect size between 0.47 and 0.55 (Graham et al., 2012; Graham & Perrin, 2007). The appropriate uses of technology as an aid to writing and editing is now recommended by Troia (2014) as an approach that has been found to raise achievement level and increase students' motivation.

Competent writers have not only mastered the mechanical aspects of writing but also have a deep understanding of the structure and style of expression needed for different purposes. Weaker writers tend to get into a failure cycle wherein they have no confidence in their own ability and avoid writing whenever possible. Through lack of daily practice, they then miss out on useful corrective feedback and encouragement from their teacher. The challenge for teachers is to restore students' lost motivation for writing by always selecting interesting topics and providing the instruction and support necessary for the students to experience success. The challenge for teacher educators now is to ensure that all teachers graduate with a deeper understanding of how best to teach writing, beyond simply setting assignments.

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Useful online resources

www.teachwriting.org/blog/2017/6/15/supporting-writers-at-all-levels
www.teachwriting.org/blog/2017/6/14/12-strategies-to-support-struggling-writers-in-elementary

www.teachwriting.org/blog/2017/3/18/5-strategies-to-build-confidence-in-young-writers

www.readingandwritinghaven.com/14-ways-support-struggling-writers-build-confidence-increase-success/

Examples of graphic organizers for writing: www.dailyteachingtools.com/free-graphic-organizers-w.html

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Effective practices for teaching students who have difficulty with writing

Amber Ray and Steve Graham explain that effective writing does not develop naturally but that we can teach it. They explain their approach to teaching writing called SRSD, which teaches students to write with a plan, to use text structure, to monitor their work, and write with confidence.

Becoming a skilled writer brings many advantages including being more successful at school, at work, and in the community. Good writing involves many demanding tasks including planning ideas, converting plans into a piece of writing, and evaluating writing (Harris & Graham, 2013). Students who struggle with writing are at a disadvantage, including students with learning difficulties (LD). Effective practices can help them to meet the complex challenges of writing.

Students with LD can bring many strengths to academic settings. They are often smart and may have a great deal of knowledge about topics. However, when compared to their typically developing peers, students with LD usually score

lower on many writing outcomes. They produce writing that is lower in quality and is less complete (Graham, Collins, & Rigby-Wills, 2016). They have difficulty organizing their writing and they write less (Graham et al., 2016). Their writing is not as sophisticated in terms of sentence fluency and use of vocabulary (Graham et al., 2016). They struggle with the mechanics of spelling, grammar, syntax, and handwriting (Graham et al., 2016).

Even though writing is a cognitively demanding task, for many students with LD their main concern is generating specific content rather than focusing on the overall structure of the text. They write each sentence building directly off the previous one, which leads to a piece of writing that is lacking in cohesion (Gillespie & Graham, 2014). This is a single process approach rather than a multiple step approach where they would generate ideas, plan what they want to say, compose an essay, and revise their writing for content and clarity. Moreover, when students with LD do revise their work, they typically focus on surface level features such as fixing spelling, grammar, and mechanical errors (Graham, MacArthur, & Schwartz, 1995) rather than improving the text structure. Finally, students with LD are less motivated and feel less confident about writing than their peers (Graham et al., 2016). To help them become better writers, there needs to be effective writing instruction at all levels of their education.

Effective Writing Instruction for All Students

Writing does not develop naturally but we can teach it (Graham & Harris,



2015). Teachers can approach teaching writing with a positive attitude, believing that all students will learn to write, ensuring that students write frequently, and teaching them how to write. The more time spent writing and teaching writing, the more likely it is that students will become better writers (Graham, Harris, & Santangelo, 2015).

As students begin to engage in the writing process, they will need to develop fluency with basic writing skills, such as handwriting, typing, spelling, sentence construction, grammar, and mechanics, early in the developmental process (Graham et al., 2015). Teaching these skills is important because if not mastered they can interfere with other writing processes. As students develop mastery of them, they are able to spend more time focusing on other aspects of writing like planning, evaluating, and revising.

Students need to develop knowledge that they can use for writing, such as knowledge of text structures. They will benefit from spending time writing in these genres for different audiences. Expanding their knowledge of content and vocabulary related to the topic that they are writing about will also improve their writing. For example, when writing about the rainforest, learning about animals and plants found in rainforests can lead to better writing.

Teachers can support students in many ways during the writing process (Graham & Longa, in press). In the early stages of writing, students can engage in pre-writing activities such as generating ideas as a class or with peers and by having students gather ideas from readings or other sources. Teachers can set clear expectations by providing students with a rubric, exemplar texts, or explicit goals for their writing. Students also benefit from feedback about their writing including constructive comments on students' papers or writing conferences to discuss what the student does well and how to improve their writing. Constructive feedback can target a few specific aspects of their writing, giving students the opportunity to address the feedback without feeling overwhelmed.

Support for writing

Beyond effective writing instruction in the classroom, there are three ways to support writing development. The first is to use research-based interventions in writing shown to be effective with these students. A second strategy is to adapt writing and writing instruction to meet their needs, such as using 21st century writing technologies. Third, extra instruction can be given on how to self-regulate the writing process.

Writing interventions. Teachers can improve the writing of all students, including those with LD, by teaching writing strategies; that is, step-by-step approaches to complete a writing task that cover planning, writing, revising, and editing (Gillespie & Graham, 2014).

Teaching students a process writing approach can improve their writing (Gillespie & Graham, 2014). Students are encouraged to plan, draft, revise, edit, and publish their writing. They compose with peers, establish ownership of their writing, write both longer and shorter pieces, and learn that writing is recursive (e.g., revising can occur at any time during the writing process, and so can planning).

Accommodations and adaptations. This involves adapting writing lessons, writing assignments and expectations, and the way we teach writing. For example, students with LD will find it particularly useful if teachers help them to break a large writing assignment into manageable pieces. This helps students set achievable goals and create a plan to achieve their goals.

Technology provides students with access to various composing tools such as word processors, spelling checkers,

word prediction software, and speech recognition software, which can help them write longer and higher quality papers (MacArthur, 2009). Applications on tablets, such as iPads, that improve skills such as handwriting, spelling, and composing, can benefit them (Berninger, Nagy, Tanimoto, Thompson, & Abbott, 2015). Beyond transcription, technology tools such as computer based graphic organizers (Ciullo & Reutebuch, 2013) and video modeling (Miller & Little, 2018) provide support for planning, evaluating, and revising.

While technology can enhance students' writing, providing students with technological supports does not necessarily mean that they will be able to use them effectively (Daley, Hillaire, & Sutherland, 2014). Students with LD benefit from explicit instruction on how to apply new technology to improve their writing.

Self-regulation skills. Goal-setting can improve the writing of students with LD (Gillespie & Graham, 2014) by having them set writing goals, providing them with a set of writing goals to choose from, or by teachers assigning specific writing goals. The self-regulated strategy development model (SRSD; Graham, Harris, & McKeown, 2013) described below is an evidence-based effective way to teach writing (National Center on Intensive Intervention, 2015).

The self-regulated strategy development model (SRSD)

SRSD involves teaching students strategies for planning, drafting, revising, and/or editing. It also teaches self-regulation procedures (e.g., goal setting, self-monitoring, self-instructions, and self-reinforcement) for managing the writing process, including how to combine them with 21st century technologies (Wijekumar, Harris, Graham, & Meyer, 2017). SRSD consists of a) six stages of instruction, and b) self-regulation strategies (see Figure 1).

Writing strategies. Writing strategies can be general or genre specific. For example, the strategy POW stands for (a) Pull apart the prompt, (b) Organize my notes, and (c) Write and say more. It is a general strategy for almost any type of writing to organize how students approach the writing task.

Writing strategies can be genre specific, aimed at informative, persuasive, and narrative writing. Teachers can combine these with general strategies like POW. For informative writing, the strategies represented by POW and TIDE can be used together (see Figure 2). TIDE stands for Topic, Important Evidence, Details to Support Evidence, and Ending.

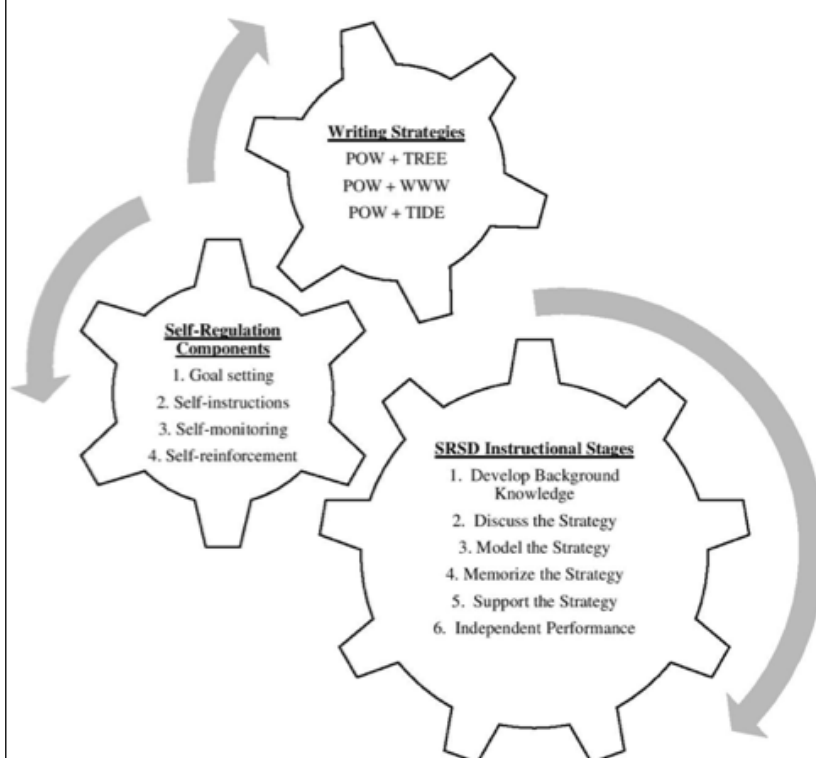


Figure 1. SRSD Model of Instruction

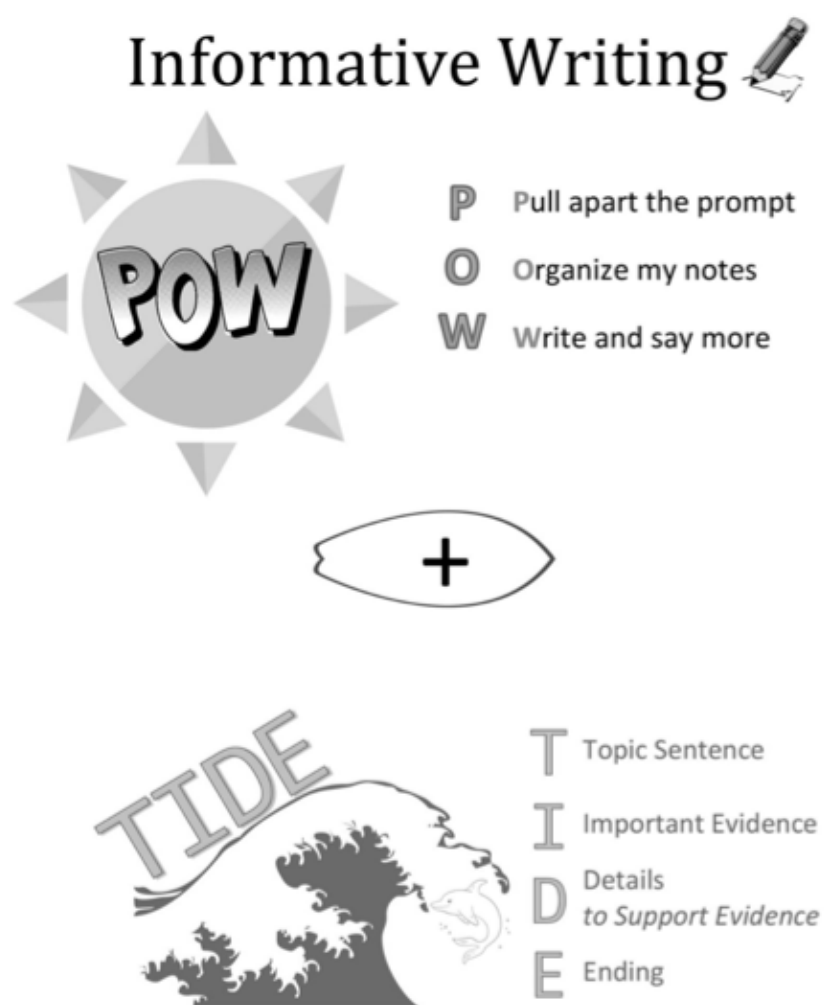


Figure 2. POW + TIDE Mnemonic

When teaching persuasive writing, the teacher can combine strategies POW and TREE. TREE reminds writers to organize writing notes for their Topic, Reasons, Explanations, and Ending. For narrative, teachers can combine POW and WWW What = 2 How = 2 that reminds students to plan their story by first considering Who the story is about, When and Where it takes place, What do the characters plan to do?, What happens next and the characters' responses?, How does the story end?, and How do the characters feel?

Six stages of SRSD instruction.

Stage 1 is *Developing and Activating Background Knowledge*. During this stage, the focus is on determining what students already know about the genre and then building upon this knowledge. Students also learn relevant vocabulary associated with the genre. For instance, when teaching informative writing, students learn the meaning of "inform" and the difference between a fact and an opinion. Reading and discussing examples of writing within the target genre helps to build knowledge.

Stage 2 is *Discuss It*. The teacher discusses with students their approaches to writing and then introduces students to writing strategies (e.g., POW + TIDE). The teacher emphasizes the importance of student effort in learning and using these strategies. The teacher and students then read and analyze essays written in the genre and identify the aspect of the writing relevant to the strategies. They begin by reading and discussing exemplar essays to develop an understanding of how to use the strategy when writing. Next, they read and talk about essays that are missing one or more key elements emphasized in the writing strategies. They discuss and make notes on how to improve the essay through using the strategy.

Stage 3 is *Model It*. The teacher models how to use the writing strategies and self-regulation procedures like goal setting while thinking aloud to help students understand how these procedures work. The teacher models the entire writing process by analyzing the prompt, organizing notes using the

strategy, and writing the essay. During this process, the teacher introduces a graphic organizer that corresponds with the genre specific strategy. The teacher models self-regulation procedures like staying on-task, overcoming difficulties, checking your work, and self-reinforcing. Finally, the teacher models self-assessment of the essay they wrote and graphing progress.

Stage 4 is *Memorize It*. When introducing the writing strategies, students discuss the meaning and importance of each step. They work to memorize the steps of the strategy with partner practice using flash cards, responding chorally to the teacher, or writing out the strategy and its meaning on scratch paper. They begin to create their own graphic organizers on scratch paper.

Stage 5 is *Support It*. The teacher and students collaboratively work through the writing strategies and self-regulation procedures. As students become more proficient with these procedures, responsibility shifts to them. This shift involves reducing their use of prompts, guidance, and collaboration.

Stage 6 is *Independent Performance*. Students independently use the taught writing strategies and self-regulation procedures. The teacher monitors and supports students as needed. The teacher and students discuss how to use the strategies in a variety of contexts and how to maintain continued use of these procedures.

Self-regulation strategies. SRSD

instruction incorporates self-instructions, goal setting, self-assessment, and self-reinforcement. The teacher models using self-instruction by thinking aloud during the writing process. For example, when focusing attention on planning and using a strategy the teacher might say, "I need to make a plan. I can use TIDE to plan my essay." To model self-control when writing a teacher could say, "I need to take my time when writing." Students then develop their own individualized self-instruction to help them through the writing process.

Students are taught to set writing goals. A goal for increasing the number of genre elements in an essay might be, "I can write an informative essay using the different parts of TIDE." Once students have completed writing, they self-assess their work to identify the number of parts of the genre specific strategy that they incorporated in their writing. Students then graph their progress on a bar chart. Students learn to use self-reinforcement to celebrate their success through coloring in their

bar chart and using self-instructions such as, "I'm getting better at this!"

Overall, the SRSD approach consists of several writing strategies, six stages of instruction, and several self-regulation strategies. It is rich in discourse and includes explicit, interactive learning of strategies to improve students' writing abilities. The self-regulation strategies help build students' self-efficacy and motivation for writing.

Conclusion

To summarize, all students can benefit from the writing practices described in this article. These are particularly important for students with LD because they do not acquire writing competence as easily or quickly as their peers. Students with LD will gain from extra instruction that a) enhances their foundational writing skills and b) gives effective strategies to present relevant content in writing. Teachers can adapt writing instruction using technology to help students circumvent problems with writing not easily solved such as difficulties with handwriting or spelling. This is no small task, but it is doable if classroom and specialist teachers work together.

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Steve Graham is the Warner Professor of Special Education at Arizona State University. He is also a Professorial Research Fellow for the Institute for Learning Sciences & Teacher Education, Brisbane Campus, Australian Catholic University. He is the current editor of the Journal of Educational Psychology and his research focuses on best practices in writing instruction for all students.

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How being a poor speller can seriously limit your talent as a writer

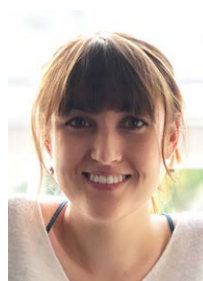
Vince Connelly, Lynsey O'Rourke, and Emma Sumner explain that difficulties with spelling hamper the writing of people with dyslexia. It interferes with fluency, essay length, choice of vocabulary, and editing of work. There are however solutions, and this article discusses the importance of tuition, writing practice, and technology.

When we tend to think about dyslexia, most people first consider the negative impact of such a diagnosis on reading. However, when you ask people diagnosed with dyslexia what they think is their main educational difficulty arising from dyslexia then they more commonly report problems with spelling and writing. Even those adults with dyslexia who have overcome much to be able to successfully enter university continue to report anxiety over their writing and, in particular, their spelling (e.g., Hatcher, Snowling, & Griffiths, 2002; Mortimore & Crozier, 2006).

Writing is a complex activity that requires coordinating cognitive,

linguistic, and motor processes. Children begin learning to write from a young age and are expected to be able to integrate a number of related skills, such as spelling, handwriting, and vocabulary choice, within a short period of time. However, writing good prose takes a long time to develop to competence and is a good example of a skill that can take a lifetime to master due to the requirement to successfully co-ordinate the parallel operation of many cognitive demands (Olive, 2014). There has been a large amount of research produced in the last twenty years demonstrating the importance of children mastering the capability to produce fluent and efficient handwriting and spelling from an early age (See Graham & Santangelo, 2014; Limpo, Alves, & Connelly, 2017; Santangelo & Graham, 2016 and see this issue). Mastery and fluency of both handwriting and spelling allows the young writer to devote the thinking effort, or cognitive resources required, to produce meaningful text that is both linguistically appropriate and that delivers the intended written message to the reader.

It is not surprising that individuals with dyslexia often struggle with writing throughout their life. There are many research studies confirming that both children with dyslexia and adults with dyslexia produce poorer quality written compositions than their peers (See Connelly & Dockrell, 2015 for a full review). It is also the case that children



and adults with dyslexia continue to exhibit poor spelling in their poorer quality writing (Afonso, Suárez-Coalla, & Cuetos, 2015; Berninger, Nielsen, Abbott, Wijsman, & Raskind, 2008; Connelly, Campbell, MacLean, & Barnes, 2006). The requirement to co-ordinate the many cognitive demands of writing is likely to be at the heart of the difficulty with the wider aspects of writing that the child with dyslexia encounters. Put simply, if the demands of spelling (and re-reading) are high in cognitive cost to the individual, then there is less cognitive resource available to juggle all the other concurrent demands of writing. Thus the overall quality of writing, and not just spelling, suffers as a consequence. We will go on to discuss this in more detail below, in order to examine the evidence for this claim and to consider the implications for writing and the teaching of spelling for these children and their teachers.

Slow and hesitant writing is a consequence of being a poor speller

The poor speller is often a slow and hesitant writer. A number of recent studies examining the time course of writing in children with spelling and/or literacy difficulties have illustrated

that those with spelling difficulties take longer to compose text than their peers. For example, thirty-one children with dyslexia from the UK, aged 9, produced less words per minute when writing a narrative text than children of the same age - but no less than children of the same spelling capability (Sumner, Connelly, & Barnett, 2013). This difference was not due to slower handwriting (there were no reported differences in handwriting speed) but that they paused more than their same aged peers when writing and this was the crucial factor in producing less words per minute. The extra time spent pausing when composing text was predicted by spelling ability.

This pattern of slow writing, linked to longer pauses when writing, continues into adulthood for those with a diagnosis of dyslexia and even includes longer pauses in words that are actually correctly spelled (Afonso et al., 2015), which suggests hesitation at the word level. It has been found that even when simply copying sentences, children with dyslexia still wrote less overall and paused more frequently while writing, especially within words. Both spelling ability and within-word pausing accounted for over 76% of the variance in the copying success of children with dyslexia. This demonstrated that their speed of productivity was directly related to their spelling capabilities (Sumner, Connelly & Barnett, 2014).

A further detailed study of single word spelling in French confirmed that children with dyslexia, aged 11, had more dysfluent writing compared to same age peers and were seen to pause more when copying words. Some of these pauses within words were explained by the children with dyslexia glancing up much more frequently at the words to be copied (Kandel, Lassus-Sangosse, Grosjacques, & Perret, 2017). Another study found that Spanish children with dyslexia were actually slower at copying words to spell than they were at writing down the same words to dictation and this was related to having to continually check their spelling when copying (Afonso, Suarez-Coalla & Cuetos, in press).

The slow hesitant pattern of pause production is not limited to handwritten text as written production rates remain slow into adolescence when keyboarding (Torrance, Ronneberg, Johansson, & Uppstad, 2016). It also remains slow for those adults with dyslexia at university producing text on a word processor (Wengelin, 2007).

All writers need to take the time and effort to edit their writing before they complete the final product. Children with dyslexia who are poor spellers are also likely to be poor readers. This means that they will take more time to revise, if they choose to revise at all, and are less likely to be accurate at revising, especially with misspellings. It has been reported that children aged 5 to 11 years with dyslexia made a similar mean number of overall revisions as a same aged control group, but that they left more spelling errors in the final written product (Morken & Helland, 2013). Other research confirms that university students with dyslexia spend a larger proportion of revision time, during both writing and post-transcription, in dealing with their spelling errors than in dealing with other aspects of writing revision (Sumner & Connelly, accepted for publication). Thus individuals with dyslexia are poorer at spotting their own misspellings, but are also more likely to spend more time looking for those misspellings, than their peers, and so miss the opportunity to make other edits to improve the overall quality of their writing.

The poor speller may select words that are easy to spell when writing.

There is evidence that the poor speller will select words that are perhaps easier to spell than more complex and less frequent words that may actually be more appropriate for their writing intentions. A sample of 9-year-old children with dyslexia from the UK produced a written essay with less diverse vocabulary than their same aged peers. However, when asked to respond to the same prompt as the written essay, but solely in spoken form, children with dyslexia showed no differences in word choice from their same aged peers. Furthermore, spelling ability and pausing predicted 53% of the variance in the written diversity of vocabulary in children with dyslexia, demonstrating the close link between spelling and vocabulary when writing (Sumner, Connelly, & Barnett, 2016).

A less clear cut finding was reported in young adults from the United States, aged between 11 and 21 years, who produced less diverse words than their same aged peers when writing essays, but here the difference found was not statistically reliable (Puranik, Lombardino, & Altmann, 2007).

However a study on Swedish university students with dyslexia reported less appropriate vocabulary choices in writing that were related to their spelling difficulties, as compared to their same aged peers. In particular, they noted that spelling-related editing influenced the final word choice with incorrectly spelled words being replaced by more easily spelled words if they could not be corrected quickly (Wengelin, 2007).

The poor speller's writing is judged more harshly

It has been a consistent finding reported over many years that writing that contains poor spelling is judged more harshly than writing that does not contain spelling errors. Assessors rate essays with spelling errors worse on a whole range of factors than the exact same word for word essays presented for assessment with no spelling errors (Marshall & Powers, 1969, Chase, 1986, Rezaei & Lovorn, 2010). For example, essays with spelling errors present were rated as having poorer quality of ideas than the same essays presented without spelling errors (Graham, Harris, & Hebert, 2011). Assessors also rate authors of essays with spelling errors as less intellectually capable than the authors of identical essays (Kreiner, Schnakenberg, Green, Costello, & McClint, 2002). Being a more skilled reader has been shown to lead the assessor to rate spelling errors more, not less, harshly in writing, and assessors are more alert to "low level" errors (spelling, grammar) than other "higher level" errors (Johnson, Wilson, & Roscoe, 2017). Furthermore, assessors seem to assume that word processed text has been through a spell-checker and question the ability of authors whose word processed text contains spelling errors (Figueredo & Varnhagen, 2005).

Do tools such as spellcheck mean the demise of the negative impact of spelling difficulties on writing?

It might be thought that the advent of spellcheckers in word processing can deal with spelling errors in writing. However, even this is not as simple as might be expected. There has been very little work to examine the efficacy of online tools such as spellcheck on

the writing of children with dyslexia. Spellcheck assists with the revision of spelling errors (Macarthur, Graham, Haynes, & DeLaPaz, 1996; Pedler, 2001) and texts that have been edited with spellcheck active contain fewer spelling errors than when edited without spell check (Figueredo & Varnhagen, 2006). One of the few studies on the effectiveness of spellcheck reported that children aged 11 to 14 with moderate to severe spelling problems successfully corrected only 37% of spelling errors when using spellcheck to correct their own texts (Macarthur et al, 1996), but some very recent work on adults with dyslexia demonstrated that spellcheck does reduce spelling errors to almost zero in an essay writing task (O'Rourke, Connelly, Barnett, & Afonso, 2019a). Thus it is likely that children can begin to use spellcheck to correct spelling errors down to a very small percentage of the text over time.

However spellcheck is not active in the initial production of words because it is activated by errors after they are made, thus it is only available for revision of spelling errors. Therefore spellcheck, while correcting the symptoms of spelling difficulties, may not have much of an impact on the slow hesitant writing of children with dyslexia. Some other types of spelling errors may also be more difficult to detect when revising text, even with spellcheck. Just over a third of spelling errors in the Macarthur et al. (1996) sample were real word errors. Real word errors can be homophones, malapropisms or other words with similar spellings which spellcheck will not recognise as spelling errors. Fortunately homophone errors are dealt with more leniently by assessors than spelling accuracy errors (Figueredo & Varnhagen, 2006). Spellcheck also provides a list of alternate words to select when an error is detected. This requires children with dyslexia to identify the correct word from a list and so can be problematic for children with spelling difficulties (MacArthur et al, 1996). It has also been reported that university students with dyslexia looked less at autocomplete suggestions than other users due to looking at the keyboard trying to find letters (Berget & Sandnes, 2016).

Another feature of spellcheck is the red underline of any detected spelling errors as the writer types their text. It has been reported by students with dyslexia that they find this red underline more distracting than their peers do when writing. Using a keystroke-logging

programme it was also found that these students with dyslexia are 13 times more likely to immediately edit an error when a red underline is present compared to when it is not during a sentence writing task (O'Rourke, Connelly, Barnett, & Afonso, 2019b). These findings would suggest that those individuals with dyslexia are more distractible when faced by a potential spelling error.

What else can be done to help?

At the heart of the difficulties that children with dyslexia have with writing are their difficulties with reading and spelling. Thus individualised tuition that makes a positive impact on their reading skills and the amount of reading they undertake will have an impact on writing (Graham, 2000). Secondly, effective spelling tuition will also have a positive impact on writing generally. This has been shown in a comprehensive meta-analysis of the links between spelling and writing (Graham & Santanegelo, 2014). Finally, more writing practice will have a beneficial impact on reading and spelling as well (Graham & Hebert, 2011).

... larger-than-expected proportions of teachers sampled admitted that ... they did not change their teaching style to accommodate struggling spellers

There are many practitioner-led writing interventions teachers can choose from to improve the spelling and writing of students with dyslexia. A large number of these claim to be designed to assist children who struggle to keep up with their peers, including those with dyslexia. However many of these interventions, while potentially very useful, have not yet been adequately assessed (Brookes, 2013). This leads to potentially uninformed choices for teachers. In order to make further progress more detailed intervention studies need to be carried out on the writing skills of students with dyslexia. Intervention studies are expensive to implement and so ultimately the direction of teaching interventions is most often left to professional judgment.

Thus the comprehensive and confident teaching of spelling to children

by teachers in the classroom is a key component of initiatives to assist in the development of spelling and writing skills. However a number of surveys of teachers in the US, UK, Australia and New Zealand have demonstrated that larger-than-expected proportions of teachers sampled admitted that they were not that confident at teaching spelling to children who struggle (McNeil & Kirk, 2014), that they did not change their teaching style to accommodate struggling spellers, or that large proportions of their classes did struggle, thus calling into doubt their instructional choices (Graham, Morphy et al, 2008), or that they were short of resources to teach spelling and writing (Dockrell, Marshall, & Wyse, 2015). These concerns are heightened in newly qualified teachers (Oakley, 2018). This is a clear worry as teachers need to be at the heart of interventions to improve spelling and writing.

Classroom teachers also need to be aware of spelling biases when assessing writing. The evidence cited above makes it very obvious that poor spelling detracts from the assessor's view of not just spelling but other unrelated aspects of writing and the character of the child. Knowing that the child has dyslexia may help overcome spelling bias. There is no published research we could find to determine if assessors can actually turn off their bias against poorly spelled writing through knowing that an individual with dyslexia has written the text. Some limited research we have carried out on undergraduate students, where we asked students to assess an essay but to ignore spelling errors, demonstrated that they still found it very difficult to ignore the spelling errors when making quality judgements about writing (Connelly et al, in prep).

Extra time for writing does appear to make sense. Students with dyslexia are usually slow readers and often slow writers and so processing complex information takes longer. This means that extra time to complete writing assignments and additional time during exams are reasonable adjustments. There are two points to make about extra time allocations. First, children with dyslexia will need to be tutored in how best to use their set time and their extra time most effectively. It was notable in our recent studies that children with dyslexia consistently wrote for a shorter period of time despite being given the same amount of time to write as peers. So children with dyslexia are often slower and also write for less time.

Thus they need to be encouraged to keep writing in the time they are initially given. They then need explicit guidance on what to do with their extra time. For example, they may be encouraged to leave the correction of spelling errors until the end of writing, and also receive tuition in how to use strategies for revising for meaning in their extra time. Secondly, there is no clear research as to how much extra time is required to overcome the disadvantage of their spelling and reading difficulties. On the contrary there has been some research in the US to suggest that extra time works well for typically progressing students, but less so for those with difficulties (Lewandowski, Lovett, & Rogers, 2008; Goegan & Harrison, 2017). Extra time provision may be something that requires an individual approach and a careful examination of the child's writing habits and thoughtful comparisons with their peers.

Technological tools to improve spelling and writing are an obvious aid for children with dyslexia. Simple word processing, for instance, seems to confer a boost for these children (Morphy & Graham, 2012). As we discussed above, spellcheck is another obvious tool to use. However, effective use of this tool and all technological tools requires tuition for best use. This seems obvious but many teachers are not experts in these tools and this can lead to unforeseen consequences, such as the distracting red spellcheck underline for children who are easily distracted by spelling. In the medium term the development of advanced speech-to-text applications and the potential to individualise writing instruction through personalised online instruction programmes based on response to intervention principles could transform the writing of students with difficulties in the near future. But in the meantime we all need to work hard to assist children with spelling difficulties. An awareness of how spelling will impact more widely on writing is a first step in the understanding of how to begin to help these children achieve their true potential as writers.

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Spelling: Enabler or Disabler?

Ros Neilson reviews the research showing that spelling difficulties disrupt the flow of writing and make it impossible for students to be the writers that they could be. She suggests that students can overcome these difficulties once teachers acquire the specialist knowledge and skill to teach their pupils to spell well.

Most of us find writing difficult, one way or another – depending, of course, on what we are writing, and why. Composing written texts is generally more difficult than reading, because writing places even greater demands on our cognitive resources than reading does. When we are writing we must garner what we generally think of as higher-order skills, such as executive function, working memory and language knowledge, in order to construct what we want to say, organise the text as a whole, choose the words, and craft the sentences. At the same time, we must execute what we generally think of as ‘mechanics’, or lower-order skills – forming (or typing) letters, spelling words, and inserting punctuation. Writing is particularly difficult when those lower-order skills have not reached automaticity, and our conscious attention has to be divided amongst several different processes at the same time (Berninger & Amtmann, 2003).

This discussion will focus on the role of spelling in the writing process.

I will be arguing that, at least in English, spelling is not a sub-skill component of writing that can be separated from the whole, and it cannot be seen as being functionally independent of the higher-order processes. Rather, the ability to spell words accurately and easily is a particularly potent force in either enabling our best efforts in writing, or acting as a hindrance to the quality of what we can express in the written modality. There is an interaction between the higher-order abilities and lower-order subskills – and this interaction has important implications for language development and for the education of young students.

A disclaimer: I’m not referring in this argument to the writing of individuals who write fluently and prolifically but notoriously make a few persistent spelling mistakes. It goes without saying that those writers are usually well aware that if they want to do justice to the quality of their written compositions – their resume, or blog, or Christmas card, or whatever – they should use a spellchecker and/or ask someone to proofread their spelling. Rather, I’m referring to those groups of people, including young learners and dyslexics, with very immature or weak spelling ability, who know that they simply can’t spell most of what they are being expected to, or would like to, write down.

Spelling competence and writing: Documenting the difficulties

There is good documentation of what tends to happen to written texts when spelling doesn’t come easily to the writer. I will focus on one particularly thought-provoking study here: Sumner, Connelly and Barnett’s (2013; 2016) report on research involving a sample of 31 upper-primary school students who were diagnosed with dyslexia; I will be focussing mainly on their 2016 report here. This was a British study, so the diagnosis of dyslexia involved recognition of significant reading

difficulties by school coordinators, as well as a significant discrepancy for each student between nonverbal cognitive abilities on the one hand, and reading and spelling performance on the other hand. The group with dyslexia were on average 9 years of age, and they were matched with two groups of typically-developing readers: a chronological age-matched group (CA) recruited from the same classes, and a spelling-ability-matched group (SA) recruited from the same schools. The SA group were on average three years younger than both the dyslexics and the CA group. Students all had spoken language and non-verbal cognitive skills within the average range, and, importantly, all scored within the average range on a standardised oral vocabulary measure.

As reported in the Sumner et al. (2016) study, the students all carried out a 15-minute written task, starting with a prompt that asked them to describe their perfect place to live. They wrote with a stylus on lined paper placed on a digital writing tablet that recorded the XY coordinates of the pen over time. This technology allowed the researchers to document pauses as the students wrote. Pauses – defined as gaps of two seconds or more – were located as occurring either within-word or between words in the writing process, and the position of the pauses relative to spelling errors was noted. Two weeks later, the students were given the same prompt and asked to give their answers orally (many expressed different content in the oral task).

The data analysis in the Sumner et al (2013) article had shown that the dyslexic group did not differ from the CA group in the number of letters written per minute in a simple alphabet letter writing task.



The oral texts were transcribed, and the written texts were also re-typed so that the quality of the texts could be analysed independently of knowledge of spelling errors and pauses. Written and oral texts were analysed for features such as productivity (number of words, and number of different words) and lexical diversity, as well as compositional quality.

Pauses played a different role in the writing process of the CA group, as compared to the SA group and the dyslexics. Firstly, the younger students and the dyslexics produced a relatively greater proportion of within-word hesitations. This suggests that for the younger students and the dyslexics, pauses tended to occur even when the target word had been chosen and the student knew what he or she wanted to write. The pauses were also strongly associated with the actual spelling errors for the dyslexic and SA group, with pauses tending to occur both within and after mis-spelled words. The amount of pausing was correlated with percentage of mis-spelled words for the dyslexic group: the more spelling errors that occurred, the more pauses were observed.

... [a writing task] tended to bring out the best, as it were, in the older typically-developing children's language – they were learning how to sound 'literate'.

The relative quality of the oral versus written texts also varied amongst the groups. Despite the fact that oral vocabulary did not correlate with the quality of the written texts, the younger SA children and the students with dyslexia both showed lower lexical diversity in their written compositions than in their oral texts - they didn't produce written texts that did justice to their oral language abilities. The opposite, however, was found in the CA group - they showed greater lexical diversity when they were writing than when they were speaking. It seemed as if writing tended to bring out the best, as it were, in the older typically-developing children's language – they were learning how to sound 'literate'.

The researchers concluded that the pattern of hesitant versus

more fluent spelling performance was reflected in the quality of the compositions for the three groups, demonstrating the link between spelling and vocabulary when writing.

I would like to take a moment to consider the implications of these findings for the three groups of students and offer some ideas for discussion. I will focus on each group separately: the older normally-developing students, the dyslexics, and the younger normally-developing students who were matched for spelling age with the dyslexics.

Older normally-developing students

First, consider the normally-developing students in Upper Primary school. Their pattern of using relatively more sophisticated language in the written modality is very heartening – a neat demonstration, perhaps, of 'the rich get richer' principle in practice. Learning to write well has the benefits of allowing opportunities for careful word choice, editing and re-wording. This suggests that the more these students are invited to extend their writing skills, the stronger their language use may become. The greater sophistication could indeed, over time, feed back into their oral language and allow them to become more effective speakers as well as competent writers.

Dyslexic Students

Second, consider the dyslexic students. The pattern of results for the students with dyslexia reported by Sumner et al. (2016) will be quite unsurprising to all professionals and parents who have worked to support students with learning difficulties. We're familiar with students who are reluctant writers. They spend a lot of time sharpening pencils or decorating borders when there is writing to be done. When they finally do get going on the writing task, they are painfully slow. Spelling seems to act as the last straw, with students inevitably choosing easier words to write, and having to stop and reinvent the spelling of the words that simply can't be avoided each time they crop up in the text. A teacher or tutor is very likely to want to say, "Just get your ideas down now – don't worry about the spelling." But that encouragement is unlikely to help very much.

I vividly remember assessing a cooperative 18-year old (I'll call him Jim) who was completing a standardised test as part of an application for

special consideration for his final school examinations. The prompt for the 15-minute writing task on the *WIAT-II* involved asking the student to present an argument for or against compulsory physical education in high school. When Jim read this prompt, he muttered an emphatic "Yes!" – he really loved getting out of the classroom to do exercises or sport. But by the end of 15 minutes Jim's composition consisted of three paltry, short, repetitive paragraphs. He was pale with exhaustion, and he handed me his effort with a look of embarrassment and apology. Amongst numerous other spelling errors, he had included the word 'environment' three times, misspelled in three different ways; he had stopped to try to sound it out each time, and said that he 'sort of' remembered that he had to add the letter N somewhere – but that didn't help.

When it comes to working with students with dyslexia, there is a good body of research that suggests that spelling support will be of help (Herbert et al. 2018). Working at the level of spelling allows student and tutor to focus on a range of useful language resources, including phonemic awareness; awareness and understanding of morphemes and root words; and awareness and understanding of spelling patterns and conventions. It would be important for a tutor to remember that fragments of rote-learned knowledge such as mnemonics and 'rules' are unlikely to help a writer like Jim in the stress of the composition process.

It is also essential to look beyond spelling, and to consider the whole writing process for individuals like Jim. All students must be given strategic plans and knowledge about the structure of various text-types, but teachers must keep in mind that dyslexic students may need extra practice to put this knowledge into practice. Teachers must also, if necessary, facilitate dyslexic students' access to compensatory options for accessing information and producing texts. It is also often an important role of the teacher to ensure that support is available for the emotional stress of coping with dyslexia in a society that takes literacy for granted.

Spelling Ability Matched Group

The third group I would like to consider in some detail is the younger, spelling-age matched group in the Sumner et al.

(2016) article – children who showed the same patterns of hesitations and spelling errors as the dyslexic students but who were still learning about the English alphabetic code. What strategies do educators have to ensure that students like these will follow the path of the good spellers in the Sumner et al. (2016) study, extending their own language as they write, rather than remaining ‘disabled’ in their writing by lack of spelling automaticity?

Whole Language and Reading Recovery trained educators, and their re-incarnation in L3 Classrooms (Neilson & Howell, 2015), are clear on their approach to this group of students: children learn to be literate by being immersed in authentic literature. Students are therefore encouraged to write meaningful texts from their first entry into formal schooling, and are shown how to do so in modelled writing sessions in L3 classrooms. To support spelling in the modelled writing sessions the teacher does odd bits of sounding out or syllable clapping as a gesture towards phonemic awareness; this is only programmed as suggested by the words that happen to crop up in the meaningful texts. The teacher will also point out the odd whole grammatical inflection such as ‘-ed’, but once again only as the inflections crop up in meaningful texts. Apart from that, students are told to consult whole words that are available on the wall or on desk charts. There are no formal phonics lessons or spelling lessons out of the context of meaningful texts. As a concession to ‘Balanced Literacy’, some Whole Language teachers might choose to hand out pages copied from phonics lesson books for students to complete at their desks, and might give spelling lists as homework, to be learned by rote at home using an ill-defined ‘Look-Cover-Say-Write-Check’ mantra as a learning strategy. In independent writing composition – which students are expected to attempt almost from the first day of school – invented spelling or copying from the wall is the norm. Mistakes are not corrected in case the student’s creativity gets stifled – although spelling errors might make their way onto homework spelling lists or get entered into a nicely-decorated booklet called ‘My Spelling Book’ that sits in the bottom of the student’s classroom tub.

There is no research at all that suggests that this is an effective way to teach English spelling to those students who don’t pick it up on their own.

Programs that start with a systematic

phonics approach will typically start off only asking students to write words that the teacher knows the students should be able to spell successfully – words that are phonically regular and use patterns that have been taught, or ‘tricky’ words that have been taught as whole sequences. Requiring students to compose their own written texts independently will tend to be postponed until students have achieved good phonemic awareness and have been taught strategies for using a dictionary on their own.

Is it fair if Whole Language or Balanced Literacy advocates argue that an approach that uses systematic phonics programs undervalues the language-learning opportunities afforded to young students in the ‘authentic’ writing process? I think that the answer is clearly ‘no’. Systematic phonics teachers are likely to keep in mind that literate language styles, with diverse vocabulary and challenging lexical density, can be absorbed via listening to books read aloud and in serious oral conversation. It is also perhaps more likely, especially for the less confident students, that the eventual mastery of those literate styles in independent writing will be more secure if students have not been thrown prematurely into the more challenging context of writing down their own ideas. It can be unsettling when ‘immersion’ involves being thrown into the deep end before you can swim.

Accurate spelling is more likely to be explicitly valued in systematic phonics classrooms than in Whole Language classrooms, and this positive attitude towards spelling can potentially become part of more general language study. That is, most good phonics programs include the study of morphemes and complex spelling patterns, and this material can be used systematically by teachers as they invite students to value spelling – or even to celebrate the idiosyncratic English spelling system – by making connections with morphemes and spelling patterns in other words in their vocabulary.

Conclusion

In conclusion: spelling is not merely a cosmetic feature of writing, and it is much more than mechanical subskill that may never need to be taught if electronic spell-checkers take over. It is a very important challenge for teachers to ensure that they help all students to reach the stage where their spelling ability enables, rather than disables,

their ability to write what they want to say. For teachers to achieve this, however, they themselves have to be comfortable with and knowledgeable about the English spelling system – and this is unlikely to be the case for many teachers who themselves were taught in Whole Language classrooms. Some serious changes in our educational systems may be needed if our students’ writing skills are to improve.

Former LDA Council member Dr Roslyn Neilson is a private speech language pathologist, specialising in children with reading difficulties. She completed a Ph.D. in 1998 on the topic of phonological awareness and word recognition skills in children with reading difficulties, and has produced several early phonological awareness assessments. She has retired from her private clinical practice, but still works in local schools, provides university lectures and professional in-services, and devotes time to research.

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Brain research shows why handwriting should be taught in the computer age

Karin James and Virginia Berninger explain how brain research has shown that teaching handwriting is not only helpful in itself but has positive effects on letter learning, word reading, and writing. The practical implications are clear: keyboarding complements but should not be a replacement for the teaching of handwriting in the digital age.

This article features findings of two research teams each headed by one of the two authors whose research on the brain bases of writing has shown the importance of handwriting. Both authors are committed to sharing with teachers brain research relevant to instruction and learning. First, research studies and findings are described for children before entry to school and formal literacy instruction. Second, studies and findings for children in the elementary and middle school grades are described. Finally, applications of the research findings for teaching students with learning difficulties are discussed. The theme throughout is why should educators still teach handwriting in the computer era and why should they be

concerned about students who struggle with handwriting.

A surprising and unexpected finding in the programmatic research of the second author was that when first graders, who had been identified as low achieving in handwriting, were given specialized handwriting instruction which had been shown to be effective in another study of first graders who were low achieving in handwriting (Berninger et al., 1997), these students improved in word reading even though reading had not been taught (see Study 2 in Berninger et al., 2006). Programmatic brain research by the first author provides insights into why the students given this specialized handwriting instruction improved in word reading.

Self-Generated Actions in Preliterate Children

During early development, self-generated actions serve to enhance hand-eye co-ordination (Needham



et al., 2002), depth perception, (Bertenthal & Campos, 1984), sound recognition (Pelfrey et al., 2012), spatial understanding (Siegal & White, 1995) and language development (eg. Smith & Gasser, 2005). What if learning to perceive letters and read words is also facilitated by *producing* them? Indeed, research has shown that adults (James & Atwood, 2009; Longcamp et al., 2008) and children (Li & James, 2016; Longcamp et al., 2005) learn symbols better if they write them by hand during learning than through other forms of practice including visual,

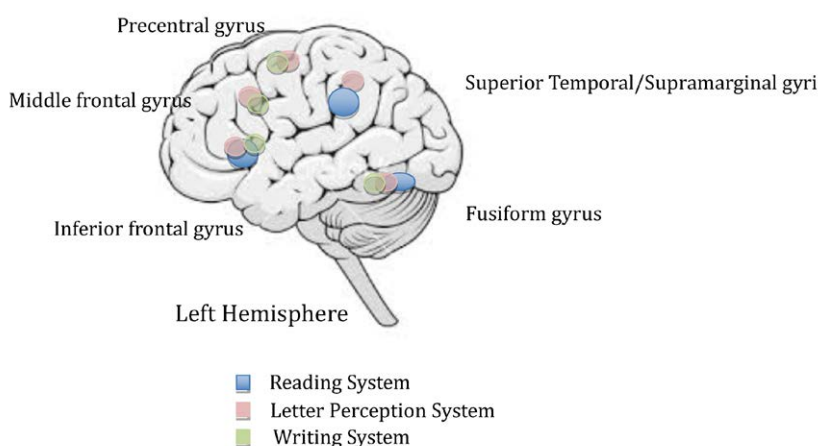


Figure 1. A schematic depiction of three brain systems underlying literacy in the adult. Of note is the overlap among systems suggesting common underlying mechanisms. See text for more detail. (From James, 2017)

auditory or typing.

Brain research provides insights into *how* handwriting facilitates perceiving letters and reading written words. This research is grounded in the hypothesis that handwriting affects symbol learning by creating a network that includes both sensory and motor brain systems. The brain system that underlies efficient letter and word processing is well known. This so-called 'reading network' in literate adults involves the recruitment

of the left fusiform gyrus in the ventral temporal lobe, the left superior temporal gyrus/inferior parietal lobule, and the inferior frontal gyrus (e.g. Dehaene, 2009) (see Figure 1). Perceiving individual letters requires these regions plus the left middle frontal gyrus and the left dorsal precentral gyrus (eg. James & Gauthier, 2006). Importantly, *writing letters* by hand recruits almost the identical system in the literate adult, even when the participants do not see

the target letters (James & Gauthier, 2006) (see Figure 1). However, research is also needed on whether in children the self-generated actions involved with handwriting serve to *create* the connection among perceptual systems (fusiform gyrus and parietal cortex) and motor systems (the regions in the frontal cortex).

Prior to age 4, most children are not able to name all the letters of the alphabet, much less print them through handwriting. Studies were therefore conducted with four year-old children to determine a) whether experience printing letters by hand *creates* the perceptual-motor brain network that underlies letter identification and word reading, and b) what kind of manual production is important for creating these brain networks.

To answer the first question, 4-year-old children were trained to learn their letters in two ways: either through hearing and saying letter names (see and say method) or through printing those same letters (James, 2010). The first condition, the 'see and say' method, is the one that is most commonly used when teaching pre-school children letters, the assumption being that producing the letters by hand is too difficult at this age. The participants underwent fMRI brain scanning before and after four weeks of training with letters either through the 'see and say' method or through printing those same letters (without saying them). Before training, there was no letter-specific activation in the brain. That is, the brains of these children responded the same way to both letters and simple shapes (such as triangles and squares). Only after the *printing training* did the visual regions that later become specialized in the literate individual for letter recognition become active. This finding was the initial evidence supporting the idea that printing letters by hand actually formed neural specialization for letters and perhaps paved the way to creating the brain systems that were used for subsequent reading. See Figure 2.

A second study was then conducted with four- and five- year-old children that compared learning letters through the seeing and saying method, printing, typing on a keyboard or tracing (James & Engelhardt, 2012). Only after printing training did the brains of the children recruit the letter recognition/reading network that is observed in adults. This finding is important in establishing that it is not just any self-generated action that leads to the formation of the systems

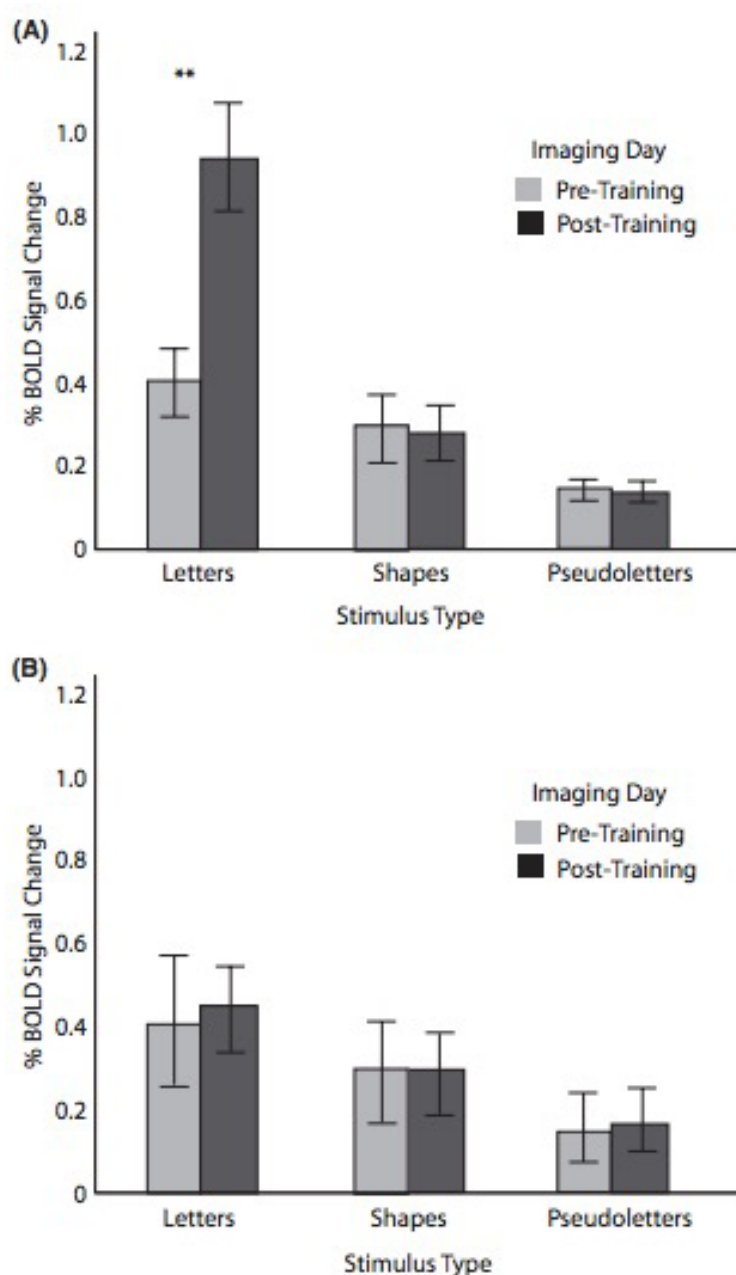


Figure 2. Left posterior fusiform region of interest from James, 2010. (a) Percentage blood oxygen-level-dependent (BOLD) signal change as a function of stimulus type during pre-training and post-training imaging sessions for the handwriting training group. (b) Percentage BOLD signal change as a function of stimulus type during pre-training and post-training imaging sessions for the visual-only training group. Error bars represent standard error of the mean; ** depict significant differences at $p < .01$; and * depict significant differences at $p < .05$.

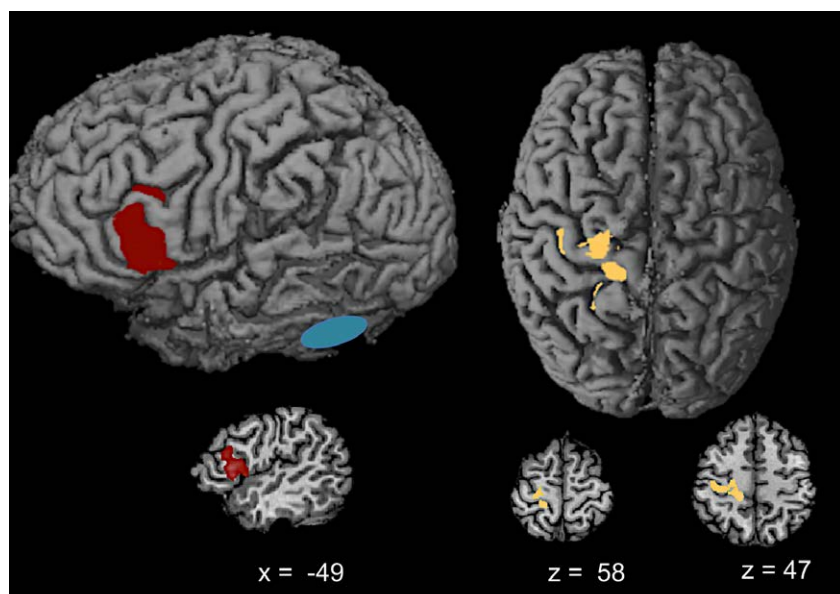


Figure 3. Effects of functional connectivity analyses from Vinci-Booher & James, 2016. (left) Functional connections between the L FuG and L IFG for the perception of letters trained through handwriting compared to shapes trained through drawing. The 'seed' region, left Fusiform gyrus is depicted in aqua. (right) Functional connections between the L FuG and dorsal sensorimotor area, including the left primary motor and somatosensory cortices, letters trained through handwriting compared to letters trained through typing. Talairach coordinates are provided. Left hemisphere is left.

that underlie reading, but that the action required is specific – in this case, simply pressing a key or even tracing a letter was not effective. Thus, two studies demonstrate that learning letters through printing creates the network of activation that is known to underlie reading in adults – even before children can read.

A third study with four-, five-, and six- year-old children was then conducted to investigate how the perceptual and motor systems become functionally connected in the brain (Vinci-Booher & James, 2016). It is possible that the network of activation that is seen during word reading and letter perception may be simply a co-activation due to producing and perceiving letters at the same time, but may not reflect a functional connection that reflects communication among many regions. Functional connectivity analyses revealed that indeed the visual regions that are active during letter perception become functionally connected to motor regions only as a result of handwriting experience (See Figure 3).

These studies showed that neither typing nor tracing a letter recruits the letter perception or reading network. If self-generated action is key, then why wouldn't typing and tracing result in the same activation as handwriting? Because of the well-known phenomena

that we learn things better if we see many, variable examples than if we see a single example repeated (e.g., Gibson & Gibson, 1955), we hypothesized that copying letters results in variable examples of a given letter, whereas tracing does not. For instance, learning variable instances of a named category (such as the object 'duck') results in a more sophisticated understanding of

the category. The more instances of the letter "A" that a child encounters, the better the understanding of the category of items that belong to the name "A" may be; and handwriting may be a viable route for this type of learning. When young children print letters through copying, the results are messy, and highly variable. In contrast, when they trace letters, the results are the same: a non-variable production of the letter. Variable productions that occur with handwriting may be important for learning letters.

In a fourth study this idea was tested by having 5- year-old children learn symbols of the Greek alphabet either through *seeing typed examples*, *copying typed examples*, *tracing typed examples*, *seeing handwritten examples* (free-hand copying of symbols), or crucially, through *tracing handwritten examples* (Li & James, 2016). This latter condition allowed them to learn variable instances (similar to printing) but through tracing instead of through free-hand copying – which equates other factors that may differ between tracing and copying. Results demonstrated that in all the conditions where children learned variable instances of the symbols (the symbols in handwritten form) their categorization ability was enhanced (See Figure 4). That is, *tracing and visually studying handwritten symbols* resulted in the same categorization accuracy as *copying handwritten symbols*. These results suggested that the reason why handwriting creates a perceptual-

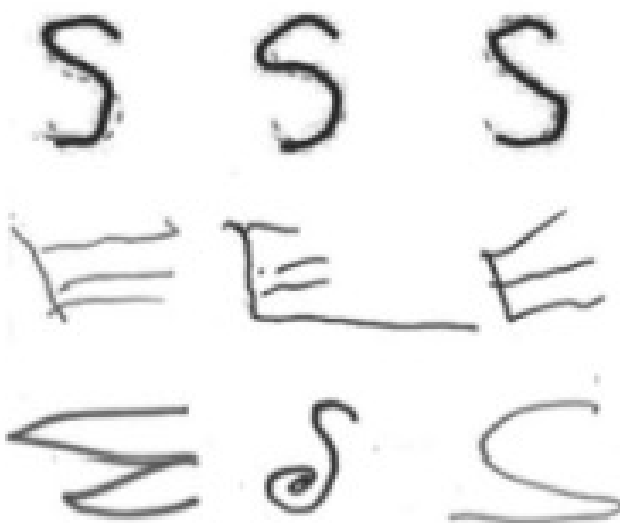


Figure 4. Examples of 4-year-olds tracing (top row) and copying (middle and bottom row) letters. Middle row is same child producing the letter three times, bottom row is three different 4-year-olds producing the same letter. (from Li & James, 2016)

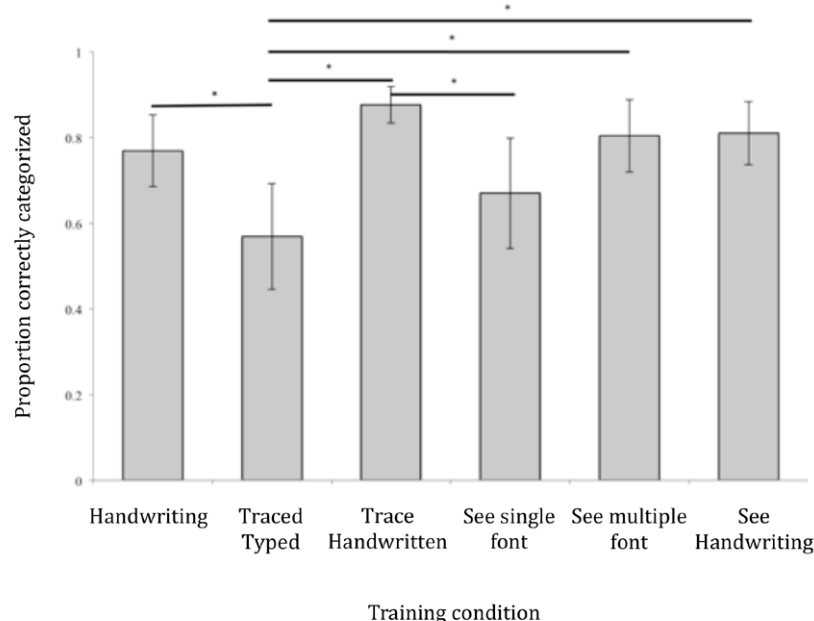


Figure 5. Differences in correct categorization of Greek symbols across training condition from Li & James, 2016. All conditions that allow learning of handwritten (variable) examples result in higher accuracy than conditions that learned repeated single examples (no variability). Note that test symbols to sort are presented in both typed and written formats, and there was no difference in sorting accuracy for the two types of test symbols. * = $p < .05$.

motor network and facilitates letter learning is because it allows the learner to produce and perceive variation in their learning.

A fifth study addressed whether handwriting, as a self-generated action, is really necessary for letter learning and for creating the perceptual-motor network that underlies letter perception and reading. In this study 6-year-old children learned a new script – letters written in cursive – either through self-production or through seeing an experimenter produce those same letters (Kersey & James, 2013). fMRI scans of the children's brains were then scanned using fMRI to determine whether letters written in the unfamiliar script recruited the same perceptual motor system regardless of whether they were learned through self-production or through passive viewing. The results showed that only when the letters were self-produced did seeing them at a later time recruit the perceptual- motor network. Learning the letters, even if they were variable in form, did not result in recruiting the reading network *unless the letters were self-produced*. That is, our actions in the world produce many instances of a stimulus that we then perceive.

Legible and Automatic Letter Writing during

the School Years

Correlational and regression analyses showed that orthographic coding (storing and processing single letters, letter groups, and letter patterns in a whole word in working memory) and sequential finger movements were the best predictors of handwriting; and the orthographic loop for integrating letter codes and sequential production, assessed by writing the alphabet automatically from memory (legible letters in correct alphabetic order during first 15 seconds), predicts spelling and composing in the first six grades (Berninger, 2009). An instructional study showed that the most effective instruction for handwriting for first graders struggling with handwriting was combining study of numbered arrows (sequential cues) and closing eyes to see studied letter in “mind’s eye” and then writing letter from memory. This method, which requires active self-generation of letters (see James, 2010; James & Engelhardt, 2012), resulted in greater improvement in handwriting and composition than (a) copying letter forms, (b) imitating a teacher modeling motor movements for forming a letter, (c) only studying numbered arrows in letters, (d) only writing viewed letter from memory, or (e) phonological awareness activities (Berninger et al., 1997). Berninger et al. (2006)

compared adding orthographic coding training (treatment A) or motor training (treatment B) to combined study of numbered arrow cues for a letter, closing eyes to view letter in “mind’s eye”, and writing letter from memory (constant across treatments A and B); both treatments improved in word reading.

Instructional studies in the elementary and middle school grades also showed the benefits of teaching writing to all levels of language (subword letter, word spelling, and sentence/text composing) close in time to create a functional writing system (Berninger, 2009). Handwriting warm ups (writing the alphabet from memory) provided a time efficient way throughout the elementary and middle school grades to review letter formation and facilitate automatization at the beginning of writing lessons that then taught to all the other levels of language (Berninger, 2009).

Brain imaging studies also found evidence that good and poor writers in the upper elementary grades differed in orthographic coding (Richards, Berninger, & Fayol, 2009), sequential finger movements (Richards, Berninger, Stock, Altemeier, Trivedi, & Maravilla, 2009), and handwriting (Richards, Berninger, Stock, Altemeier, Trivedi, & Maravilla, 2011). Brain imaging studies of students with persisting specific learning disabilities in grades 4 to 9 validated the levels of language in the writing brain (Richards, Berninger, Yagel, Abbott, & Peterson, 2017) and the orthographic loop contributing to the self-government of the multi-leveled brain's response to writing instruction (Richards, Abbott, Yagel, Peterson, Raskind, & Berninger, 2017)

Assessment and instructional studies showed the benefits of teaching manuscript in the first two grades for transfer to reading printed texts in books and screen (Wolf, Berninger, & Abbott, 2017), cursive in the third and fourth grades for spelling and composing rate (Alstad et al., 2015), and touch typing (using both hands and not looking at the keyboard rather than hunting and pecking with one hand and looking at the keyboard) in the upper elementary and middle school grades (Thompson et al., 2016). That is, developing writers benefit from becoming hybrid writers who can produce letters using multiple modes. Computers can teach manuscript and cursive handwriting as well as using computer tools (e.g., stylus) for letter production beside

keyboards (Tanimoto, Thompson, Berninger, Nagy, & Abbott, 2015).

... handwriting experience plays a crucial role in the formation of the brain network that underlies reading.

Applications to Practice

What do these studies tell us about the importance of handwriting, not only for writing but also for letter learning and reading? Handwriting and letter perception recruit the same network of activation in the literate brain, but before people are literate handwriting serves to recruit this same network, implying that handwriting experience plays a crucial role in the formation of the brain network that underlies reading. Thus handwriting (printing in the case of young children) is important for letter understanding and therefore for literacy development in general (writing as well as reading). Also, for children who have difficulty printing letters, learning activities for viewing and tracing variable instances of a given letter may be very helpful for acquiring letter knowledge and its applications to many aspects of literacy learning. Finally, given the research evidence for effective handwriting instruction and its importance for literacy learning (both reading and writing), the question of whether handwriting is necessary in the computer era should be replaced with the following: How can educators justify not teaching handwriting as well as computer tools during the elementary and middle school grades?

Karin Harman James is a professor of Psychological and Brain Sciences at Indiana University, and a faculty member in both the Cognitive Science and Neuroscience programs at Indiana University. Her research program centers around the interplay among sensory and motor systems in the brain and how this interplay affects learning and brain development. Dr. James' recent research has had an emphasis on how handwriting practice can have significant effects on early brain development during the pre-school years. Her research program is one of the few to use functional Magnetic Resonance Imaging (fMRI) to measure brain function in 4-6 year-old children and has been funded nationally by

both the National Science Foundation and the National Institutes of Health. Dr. James is a dedicated supporter of research dissemination to broad audiences including educators, policy makers and the general public.

Virginia Wise Berninger (Ph.D. Psychology, Johns Hopkins University) retired from the University of Washington in 2016 where she had been on faculty for 30 years, taught and advised graduate students in educational psychology and served as Principal Investigator on NIH grants. From 1989 to 2008, she headed cross-sectional and longitudinal studies of typical writing and reading and related processes and reading and writing instruction for low achieving students. From 1995 to 2006 and 2011 to 2016, she headed a multidisciplinary research center that conducted research on the genetic and brain bases of specific learning disabilities and differential diagnosis and treatment of dyslexia, dysgraphia, and oral and written language disability (OWL LD). As a professor emerita, she is involved in dissemination of research findings and translation of findings to practice through professional development and consultation.

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Yes, spelling should be taught

Sue Dymock explains that while many students are very good spellers, many find spelling incredibly difficult. For some, spelling can be “caught” through extensive reading and writing, but many students need spelling to be “taught”. She explains that with careful assessment and diagnosis teachers can identify what to teach and how to teach it effectively to enable spelling success.

There is little doubt that some students are very good spellers. I recall, in my first year of teaching, teaching a 9-year-old student whose spelling was nearly perfect. In a recent study of 7-year-old spellers we encountered a speller who was able to spell equally well. She could correctly spell Latin based words such as ‘extraordinary’ and ‘imagination’ (Nicholson & Dymock, 2018). We also know that many children struggle with spelling. In the same class of 7 year olds there were students who were experiencing difficulty spelling common everyday words such as school [scool], what [wat], have [hav] and said [sed]. Why some children in the same class are good spellers and others are not, despite being exposed to the same learning experiences, is not easy to answer. What we do know is that teaching spelling helps students to write. Rightly or wrongly spelling makes a first impression - either good or not-so-good.

In addition, it is not only important for the writer to know what they have written – the reader must also be able to read the text. Would the envelope below make a positive first impression or a less-than-positive one (see Figure 1)?

It is not only students who make spelling errors. Adults do as well. What is your reaction (or impression) when you read the display below (see Figure 2)? It is part of a display at an aquarium that is frequented by school groups, families and overseas tourists. According to the journalist: “The kids are in for a real education if you take them to Kelly Tarlton’s these school holidays.” [Sunday, 30 September 2018, NZ Herald]

The purpose of this article is to discuss what research has to say about teaching spelling; provide an overview of the structure of the English language and why having an understanding about the layers of English is important not only for teaching spelling but also for learning to spell; discuss strategies for teaching spelling; and discuss the importance of assessing and analysing spelling errors.

Teaching spelling: What the research has to say

Should spelling be taught or is it caught? This is a question that many primary teachers ask when planning a spelling programme. While some writers appear to ‘catch’ spelling many struggle to spell

well. Dictionaries and spell-checkers can be helpful, but “writers cannot completely offload the task of spelling to outside tools.

Use of these tools takes time, and it diverts attention from the goal of producing a well-reasoned and polished piece” (Treiman, 2017a, p. 83).

Treiman (2017b) explains that English spelling is a challenge because sound-letter relationships are not one-to-one. For example, there are many ways of representing the long ‘a’ vowel sound, rather than just one way (e.g., paid, pay, made, weigh).

Henry (2010) and others (Calfee & Patrick, 1995; Crystal, 2012; Treiman, 2017a) argue that while there is not one-to-one matching for every sound and letter there are many regularities to English spelling. Research indicates that 50% of English words can be spelt accurately based on taught sound-letter relationships (Joshi, Treiman, Carreker, & Moats, 2008-2009). In addition 34% can be spelt apart from one sound such as spelling the word cat as *kat* or school as *skool*. Spellers who have an understanding of word origin (French, Latin and Greek, for example) as well as the meaning of word parts (e.g., that the Latin root *-rupt* means ‘to break’ or ‘to burst’) then only 4% of words are

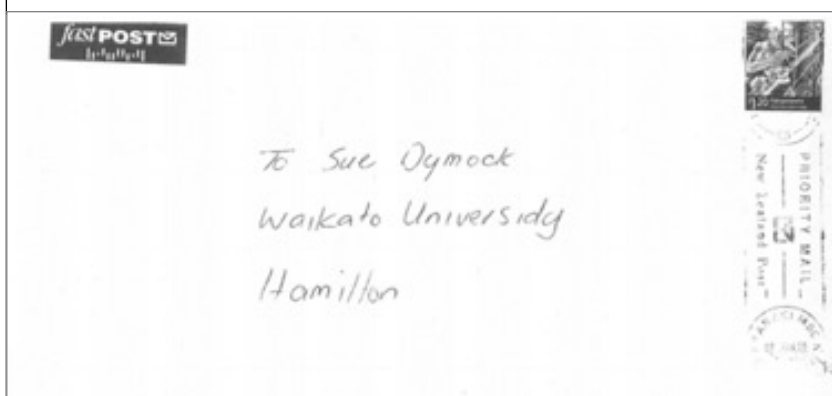


Figure 1. Envelope addressed to author

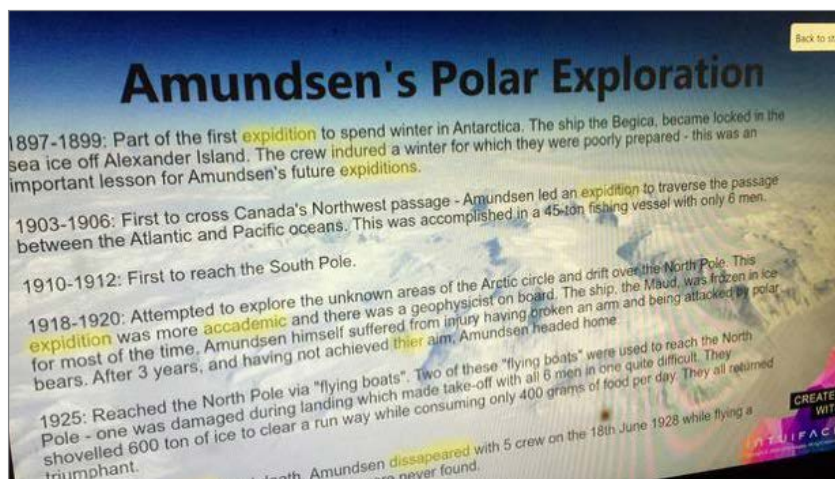


Figure 2. Display sign at Kelly Tarlton's aquarium

irregular (e.g., words such as *the*, *was*, *were*, *of*). Many irregular words are common everyday words that young spellers simply need to learn. The word 'the' is an irregular word and is the most common word in English writing. It is often the first word spellers are taught to spell.

Treiman and Kessler (2006) argue that a good speller is dependent upon a "statistical learning view" (p. 642). What this means is that knowledge about sounds and spellings requires an understanding of general rules *as well* as the way sounds are spelt in various contexts. Spellers build up knowledge about words through exposure – noticing the patterns in words.

Exposure to print is important for spelling but students also need to be explicitly taught how to spell. Graham and Santangelo's (2014) meta-analysis of over 50 studies on the teaching of spelling concluded that students benefit from spelling instruction. They found that more spelling instruction was better than less spelling instruction and better than no instruction at all. Equally important was that the gains made as the result of spelling instruction were maintained over time. Their analysis also found that teaching spelling was better than relying on spelling being 'caught'.

The structure of the English language and why knowledge about the layers is important for teaching spelling and learning to spell

Nicholson and Dymock (2018) and others (Calfee & Patrick, 1995; Henry, 2010) suggest that in order to have an understanding of the English spelling

system spellers need to have an understanding of the history of English, including the layers of English.

The English language is characterised by three layers: Anglo-Saxon, Norman French which is embedded with the Romance-Latin layer, and Greek (see Figure 3).

Anglo-Saxon layer. The Anglo-Saxon layer is the largest layer of English.

This layers consists of everyday words like *house*, *dog*, *bed*, *father*, *ship*, *chair*, and *room*. There are over 80 strategies spellers need to learn in order to spell Anglo-Saxon words. These include the 21 single consonants, consonant blends, consonant digraphs, short vowels, long vowels, *r-* and *l-* controlled vowels and vowel digraphs.

Romance-Latin layer. This layer of English is associated with academic

learning. Students begin encountering this layer from about the age of 9 when the content area becomes a key focus of learning. Latin-based words follow a different structure to words in the Anglo-Saxon layer. Latin-based words have a Latin root (e.g., *-rupt*) that carries the major meaning of the word; a prefix (e.g., *dis-*) and/or a suffix (*-tion*): disruption.

Greek layer. This layer of English is the smallest layer and is associated with science, mathematics and philosophy. Greek based words are characterised by having two word parts (i.e., two Greek combining forms or two Greek roots) where each part carries equal meaning. Words such as *television*, *biology*, *cosmonaut*, and *agoraphobia* are from the Greek layer of English.

The spelling errors in Figure 2 are primarily Latin based words. The misspelt words are *expidition* (*expedition*), *indured* (*endured*), *expiditions* (*expeditions*), *accademic* (*academic*), *thier* (*their*), and *dissappeared* (*disappeared*). Their is from the Anglo-Saxon layer (non-phonetic or irregular word) but the remainder are Latin based words indicating that spelling strategies should continue to be taught in upper primary school and beyond.

Strategies for teaching spelling

There are many spelling strategies that are associated with each layer of English. Students who do not have an

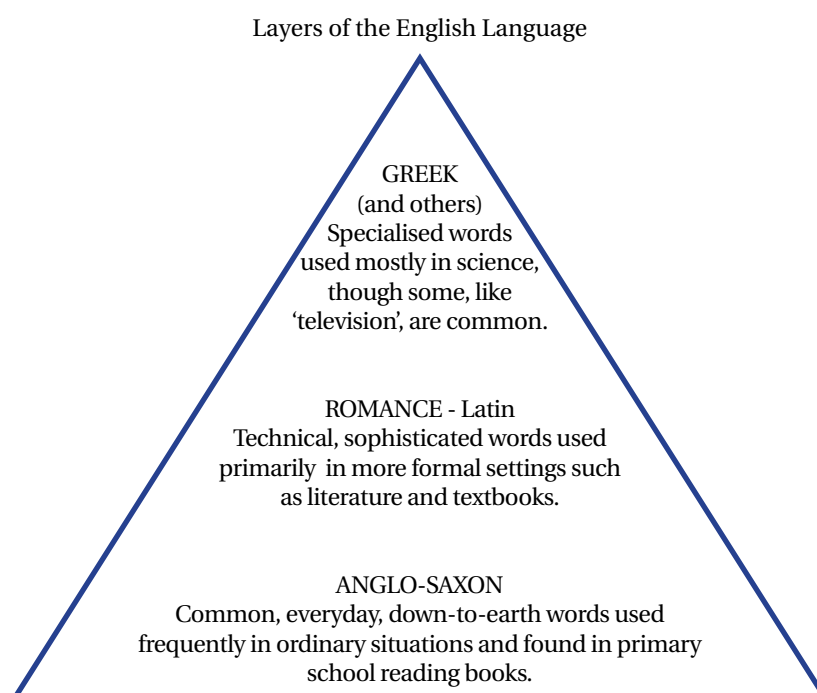


Figure 3. The layers of the English language (adapted from Calfee & Patrick, 1995)

understanding of the strategies need to be taught.

Anglo-Saxon layer. Beginning spellers need to learn the Big 10 Spelling Rules, or strategies (see Appendix 1, from Nicholson & Dymock, 2018).

Latin layer. Latin words consist of a Latin root and will also include a prefix, suffix or both. Teach students to identify the word parts (word analysis) – by identifying the prefix, Latin root, and suffix (syllable breaking or word-part breaking).

1. fat
2. fil
3. lum
4. pop
5. Bak
6. Sid
7. hay
8. met
9. Kik
10. hat
11. Pak
12. yal
13. ken
14. duk
15. Val
16. Bit
17. Kac
18. tit

Figure 4. Invented Spelling Test (Year 3; 8 years 1 month)

1. Latin syllables or word parts are primarily closed or open syllables. A closed syllable follows a CVC, CCVC, CVCC, or CCCVC type pattern and the vowel is short. An open syllable is when the syllable ends in a vowel (e.g., *pre-* is an open syllable) and the vowel is long. Many Anglo-Saxon spelling strategies are also common in the Latin layer of English.
2. Many Latin roots are either closed syllables (as in *rupt*) or r- controlled vowel syllables (as in *port*).
3. Latin suffixes often contain vowel digraphs as in *-tion*, *-cian*, and *-sion*.
4. When adding suffixes the two main rules are doubling the consonant or not.
5. Some Latin prefixes are known as chameleons in that their spelling changes according to the first letter of the Latin root that follows. For example the prefix *in-* (meaning not) when added to the word legal becomes *il-* + legal (illegal).

Greek layer. Greek words have two equal parts (e.g., tele + scope = telescope). Both *tele-* and *-scope* carry the major meaning of the word *telescope*.

... learning spelling patterns [is] a powerful strategy, better than simply memorizing lists of words.

Although there are some new spelling patterns associated with the Greek layer of English they do include many spelling patterns from the Anglo-Saxon layer. The more common Greek spelling patterns are *ph* for the /f/ sound as in the word *photograph*; *ch* for the /k/ sound as in the word *psychologist*; and the letter *y* for the short /i/ sound as in the word *gym*. The less common new spelling patterns found in Greek-based words are *mn* for the /n/ sound; *rh* for the /r/ sound; *pn* for the /n/ sound; and *ps* for the /s/ sound.

Why assessing/ analysing spelling is important for teaching

Having an understanding of the spelling strategies and how to teach them is critical to being an effective spelling teacher (see Dymock & Nicholson, 2017). We found that teaching the spelling patterns of words enabled students to transfer their knowledge to

new words that had the same patterns. This makes learning spelling patterns a powerful strategy, better than simply memorising lists of words. The next step in determining what spelling strategies to teach is to assess and analyse spelling errors. From the analysis an instructional spelling programme can be developed. Figure 4 shows a completed Year 3 student's *Invented Spelling Test* (Tunmer & Chapman 1995). The student was aged 8 years 1 month. It is expected that most words on this test would be spelt correctly by the age of 8. An analysis of each spelling error helps the teacher to identify the next teaching steps.

The above student was able to spell 6 of the 18 words correctly. A score of 6/18 does not help the teacher determine what the speller knows nor the next teaching steps. However, an analysis of the spelling errors will identify what spelling strategies the speller knows and the ones that need to be taught. Table 1 provides an analysis of what the speller knows and what strategies the speller might like to learn. Note that there is a pattern to the writer's spelling errors. The student nearly always spells the /k/ sound with the letter *k* where the letter *c* or *ck* is needed (5 errors). Using the letter *k* as a default works as a temporary spelling but the student might like to learn how the /k/ sound is spelled with a *k* only if followed by *e*, *i*, or *y*. Also, the /k/ sound at the end of a word is usually spelled *ck* after a short vowel sound; *k* after a long vowel sound.

The student might like to learn about the consonant blend *nk* (one error); the silent *e* rule (also called split vowel digraph) (2 errors); vowel digraphs *ea* and *igh*; and doubling the final *l* in a single syllable word (three errors).

Conclusion

Spelling is an important skill for written communication. Being able to spell well frees up mental energy so the writer can focus on the message they are wanting to convey. Teachers need to be able to analyse students' spelling - identifying what the speller knows and does not know, then teach the appropriate spelling strategies.

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Word	Spelling	Phonemes correct order	What the student knows	What the student needs to learn	Big Spelling Rule (Anglo-Saxon layer of English)
fil	fill	✓	Beginning sound /f/ Short i vowel	Doubling rule for one syllable word*	10
lum[p]	lump	✓	Beginning sound /l/ Short u vowel	Letter orientation (letter p was reversed)	n/a
bak	bank	✗	Beginning sound /b/ Short a vowel sound	Final consonant blend nk pattern	3
sid	side	✓	Beginning sound /s/ End sound /d/	Silent e pattern for long vowel sound	6
met	meat	✓	Beginning sound /m/ End sound /t/	Vowel digraph pattern for long vowel sound	7
kik	kick	✓	Beginning sound /k/ Short i vowel sound	Rule about when to spell /k/ sound as either c, k, or ck	4
pak	pack	✓	Beginning sound /p/ Short a vowel sound	Consonant digraph pattern for final /k/ sound	4
yal	yell	✓	Beginning sound /y/ Short a vowel sound	Doubling rule for one syllable word *	10
duk	duck	✓	Beginning sound /d/ Short u vowel sound	Consonant digraph pattern for final /k/ sound	4
jaill	jail	✓	Beginning sound /j/ Long ai vowel sound	Doubling rule for one syllable word*	10
kac	cake	✓	Knows how to spell each sound with a plausible letter	Rule about when to spell /k/ sound as either c, k, or ck Silent e pattern for long vowel sound	2 6
tit	tight	✓	Beginning sound /t/ End sound /t/	Vowel digraph pattern – igh only for small set of words like fight, light etc.	7

Note: * The doubling rule also applies to single syllable words that end in the letters f, s, z, and l (e.g., staff, press, buzz and yell).

Table 1. Analysis of Invented Spelling Test (see Figure 4)

two most recent co-authored books, published by NZCER Press, are *The New Zealand Dyslexia Handbook (2015)* and *Writing for Impact: Teaching Students How to Write With a Plan and Spell Well (2018)*.

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Appendix 1

The Big 10 Spelling Rules

1	Turtle talk	Rule 1, say the word slowly like a turtle, count the sounds (e.g., 4 sounds in “train”), then write one letter pattern for each sound /n-o/, /s-ea-t/, /t-r-ai-n/	
2	Single consonant sounds	Rule 2, does the word start with a single consonant sound like ...? p, g, b, d, c, w, l, r, t, f, j, m, n, s, h, k, q, v, x, y, z NB: /k/ can be spelled “k” or “c” or “ck”, /j/ can be “g” as in “giant”, /s/ can be “c” as in “city”, /z/ can be “s” as in “was”, /f/ can be “ph” ... /ee/ can be spelled “y” - “baby”; /ie/ can be spelled “y” - “my”)	
3	Consonant blends Hint: spell /chr/ as “tr”; spell /jr/ as “dr”	Rule 3, if the word starts with 2 or 3 consonant sounds, try these blends: Starting: bl, br, cl, cr, dr, fl, fr, gl, gr, sl, pr, tr, sc, sk, scr, spl, sm, squ, sn, str, sp, st, sw, tw, thr. Ending: -ft, -mp, -nt, -lk	
4	Consonant digraphs	Rule 4, is the sound a consonant digraph? ch – chicken, sh – ship, wh –when, th – that, ph – phone	If the digraph is a final sound it could be spelled: -ng – ring -ck – duck -tch – catch
5	Short vowel sounds	Rule 5, is the vowel sound short like in “at”? There are five short vowels: at, pet, pin, hop, cut	
6	Long vowel sounds (silent e rule or split digraph rule)	Rule 6, is the vowel sound long like in “ate”? If yes, use one of the five vowels and add the silent e to tell the reader it is long: ate, Pete, pine, hope, cute	
7	Vowel digraphs	Rule 7, Maybe the sound is spelled with a vowel digraph which is 2 vowels that make 1 sound /ay/ – say, sail /ee/ – bee, eat /ie/ – pie, sigh /oe/ – oat, bow, toe /ue/ – few /oo/ – boo, true, you, blew /ow/ – out, cow /or/ – saw /oy/ – oil, toy	
8	r- and l- controlled vowel sounds	Rule 8, Vowels can change their sound before an r or l ar – car, er – her, ir –sir, or – for, ur – fur	al – tall, talk
9	Syllable splitting	Rule 9, if it is a long word, break the word into syllables cat-nip, ketch-up, mag-net, o-pen, con-crete Then break each syllable into sounds – spell the sounds c-a-t, n-i-p, m-a-g, n-e-t	
10	Doubling rule (“Rabbit Rule”)	Rule 10, if there are two syllables, use the doubling rule (sometimes called the “Rabbit Rule”) – use it if the first vowel has a short vowel sound hopped , running , rabbit , dinner	

Book Review: Essentials of assessing, preventing, and overcoming reading difficulties

Reviewed by **Emma Nahna.**

David A. Kilpatrick, Essentials of assessing, preventing, and overcoming reading difficulties, Wiley, 2015

David Kilpatrick, PhD, is a crusader in the field of reading acquisition. He is one of the founding members of The Reading League, whose mission is 'to advance the awareness, understanding, and use of evidence-based reading instruction'. He is a practising school psychologist in New York, having completed over 1,000 psychological evaluations of students, in addition to being an Associate Professor at State University of New York College, Cortland.

In the opening pages, David Kilpatrick states "The goal of this book is to open up the vast and extensive world of empirical research into reading acquisition and reading disabilities in order to capitalize on the most useful findings for assessing reading difficulties and for designing highly effective interventions." (p. 2). He certainly meets this objective.

A child learning to read is a marvel to behold. Although the process can seem almost magical (when it goes well), it is imperative that those providing reading instruction know exactly what goes on 'behind the curtain' to make that magic happen. The truth is, what it takes to grow skilled readers is no longer a mystery. There is an avalanche of reading science from the past four decades – reading is one of the most

researched human skills on the planet. David Kilpatrick takes us on a journey through the towering mountains of journal articles and meta-analyses with his collegial commentary – a friendly and extremely well-versed tour guide. He synthesises multitudes of research findings, translating them into understandable language and giving clear direction for how to apply them to the practical business of teaching children to read.

Although brimming with references and highly technical - delving deeply into scientific theories and the established knowledge base on reading development - it is not a difficult read. It has a distinctly conversational tone, and like a good novel, I couldn't put it down. There are valuable nuggets of information and practical tips on every page. The chapters are well organised, following a clear, logical sequence. Information is easily located thanks to precise subheadings, call-out boxes with tips and key points, and extensive indexing. There are additional materials provided online: an audio guide to pronouncing English phonemes in isolation, a chapter on promoting orthographic mapping from *Equipped for Reading Success* (David Kilpatrick's other book), and the *Phonological Awareness Screening Test (PAST)*.

The book is arranged around four main themes:

- How we got to where we are currently in reading instruction – historical approaches; the 'reading wars'; the research-to-practice gap; ineffective practices.
- The developmental process of transforming from non-reader to skilled reader. Orthographic mapping – its critical role in proficient word recognition, and conversely in difficulties with growing sight word vocabulary.
- Intervention-oriented assessment:

frameworks to understand and assess reading sub-skills: reading comprehension, phonological processing,



phonics, word identification and fluency, vocabulary, rapid automatised naming, and working memory. There is highly practical guidance on the selection and use of specific assessments. Case illustrations highlighting different patterns of reading difficulties (e.g. dyslexic, compensator pattern, mixed-type) are provided at the end of the book, presenting real assessment results and summaries.

- Effective approaches to *prevent* reading difficulties, and to *intervene* if reading difficulties persist. This section examines approaches with minimal / modest results, contrasts these with highly successful interventions yielding strong effects in the research. Specific programs and curriculums are discussed. Implementing these highly effective Tier 1, 2, and 3 teaching practices should reduce the incidence of struggling readers from 30-34% down to 1-3% (p. 12). Crucial features of highly effective teaching include: "(a) direct and explicit phonological awareness training, (b) ample letter-sound instruction, and (c) ...teach the connections between the two." (p. 12) as well as extensive practice in reading connected text with feedback, applying the skills which have been directly taught.

Key concepts in understanding reading are carefully presented – Gough

and Tunmer's simple view of reading; Share's self-teaching hypothesis; and Ehri's orthographic mapping. David Kilpatrick states that orthographic mapping is the most important concept explored in this book. To this end, he takes complex reading science and renders it as clear as he possibly can, helping us thoroughly understand this critical ingredient of skilled reading. Unfamiliar words transform from being decoded grapheme-by-grapheme to become instantly and accurately recognised 'sight words'. This occurs through a mental process which bonds specific letter strings to phonemes and meaning in memory, to allow effortless reading and spelling.

I particularly valued a framework David Kilpatrick presents; its simplicity belies the powerful implications it contains. The framework outlines the reciprocal relationship between developing phoneme awareness and reading skills (p.92), see below.

Importantly in this text, a concerted effort is made to address ineffective approaches to reading instruction (visual memory/whole word, three-cueing/whole language, and phonics in isolation), explaining why and how reading researchers have come to their conclusions.

I feel that there are two minor drawbacks. The first is that the book has a heavy emphasis on one pillar of "The Big Five" (phonemic awareness), and a light sprinkling of the other four components (phonics, fluency, vocabulary, and comprehension). Each is comprehensively addressed in terms of assessment practices, and evidence supporting its status as one of the main skills underpinning reading acquisition. However, there is a clear emphasis on intervention for 'phonemic proficiency' to support orthographic mapping, and thus, automaticity of word-level reading. Those looking for in-depth learning about the provision of effective instruction in fluency,

vocabulary, oral language, and comprehension will need to look to other sources.

Secondly, although it comprehensively defines highly effective literacy instruction, I still felt compelled to purchase David Kilpatrick's other book *Equipped for Reading Success* (2018, Casey & Kirsch Publishers, USD\$50 + shipping) to really grasp the nuts and bolts of exactly how to apply the principles with students. I am pleased that I did – in addition to a summary of the key concepts explored in "*Essentials...*" this provides the scope and sequence, assessment, and program resources to carry out effective teaching in basic and advanced phonemic awareness.

Louisa Moats (2016) said this book "represents one of the most potent linkages between science and educational practice available to us now" and I must agree. I strongly recommend this book to all those interested in deepening their knowledge and understanding of precisely how skilled reading happens, and how to effectively support *all* learners to become strong readers. It will be a valuable read for anyone involved in assessing reading skills, teaching children to read, or working with struggling readers: teachers, educational psychologists (who will particularly appreciate the assessment sections), tutors, reading specialists, and speech language pathologists. Students and new graduates, right through to highly experienced professionals will learn a great deal to immediately apply to their practice. To get a feel for the book, 48 pages are available as a preview online through Google Books. I would also encourage readers to watch some of David Kilpatrick's professional development lectures freely available online (through the Reading League's YouTube channel) which really consolidate the learning offered in the text. Better still, go and hear him in

person when he tours Australia for LDA in August 2019!

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Reference

Moats (2016) – quotation is from the book review in International Dyslexia Association's *Perspectives on Language and Literacy*, Summer issue, pp. 51-52.

Developmental Levels of Phonological Awareness and Reading	
Phonological skill development	Word-Reading Development
1. Early phonological awareness Rhyming, alliteration, first sounds	1. Letters and sounds Requires simple phonology to learn sounds.
2. Basic phonemic awareness Blending and segmentation	2. Phonic decoding Requires letter sounds, and blending
3. Advanced phonemic awareness Phonemic proficiency	3. Orthographic mapping Requires letter-sound skills, and advanced phonological awareness.

Book Review: Equipped for Reading Success: A Comprehensive, Step-By-Step Program for Developing Phoneme Awareness and Fluent Word Recognition

Reviewed by **Kate Munro**
and **Ann Ryan**.

David A. Kilpatrick, *Equipped for Reading Success: A Comprehensive, Step-By-Step Program for Developing Phoneme Awareness and Fluent Word Recognition*, Casey & Kirsch, 2016.

You can judge a book by its cover: if it has lost its back cover, is tatty at the edges, slipping its spiral binding and showing signs of much wear, you know it is well used and that means it must be good! This is how we find our copies of Kilpatrick's book *Equipped for Reading Success*, relatively new but battered from daily use. From early years readers to middle secondary students, it is now unthinkable to conduct a literacy session without having 'Kilpatrick' on hand. And if we fall out of routine, there is an oft heard cry from students, 'When are we going to do that word thing?' Yes, this comes from students of all ages which, oddly, one may not expect from a comprehensive phonological program for developing phonemic awareness and fluent word recognition. So, what is the secret to its popularity with students

and its appeal to teachers who treat the book with the reverence of a much-loved recipe book?

David Kilpatrick is well known for his book, *Essentials of Assessing, Preventing and Overcoming Reading Difficulties* (2015) which, according to Dr Louisa Moats, 'represents one of the most potent linkages between science and educational practice available to us now.' (2016). While offering essential information on assessment tools and techniques, the text explores ways to incorporate recent research findings on word recognition into practice.

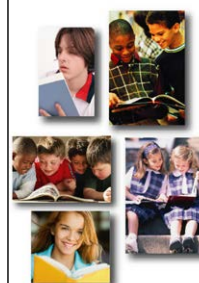
The Simple View of Reading (Tunmer & Gough, 1986) identifies word recognition and language comprehension as the two components necessary for reading comprehension. Kilpatrick's concern that students with poor word-level reading skills almost universally present with poor phonemic awareness skills has provided the impetus for writing *Equipped For Reading Success*.

This text has evolved from an earlier collaboration with Dr Phillip McInnis and his program, Assured Readiness for Learning (ARL), which in turn had followed on from work in the 1970s with Dr Jerome Rosner and the Rosner Auditory-Motor Program. But much has changed since then, especially in the field of reading science.

Kilpatrick sets out with a clear goal '... to close the gap between what scientists know about the reading process and what educators actually **do** to teach children to read.'

Equipped for Reading Success

A Comprehensive, Step-by-Step
Program for Developing
Phonemic Awareness and
Fluent Word Recognition



David A. Kilpatrick, Ph.D.

His bibliography includes over 300 research studies and reports, although these are not cited within the body of the text so as to keep the content easily readable. While the text is presented as a 'program' it is far more. Few 'programs' provide the extensive detailed analysis and theory of reading as this text does in the introductory chapters. Concepts are carefully and thoroughly developed on the assumption that readers may not have broad background knowledge in the field of reading. Yet new and challenging ideas are explored in an engaging way, while information is dense and thought-provoking with numerous references to research. Before one gets to the training program the reader's thinking is well primed so that, for practitioners,

fidelity to the program delivery follows with ease.

Part 1 explores 'What Needs to be Done?' The relationships between phonemic awareness, orthographic mapping, and word fluency are discussed. Kilpatrick quotes Dr Linnea Ehri's concept of orthographic mapping, '*a mental process to permanently store words for immediate, effortless retrieval.*' He emphasizes the importance of orthographic mapping for word storage and describes the critical role of phonemic proficiency (read proficiency as automaticity in this context) believing that '*We will not see improved word recognition until we adopt a proper understanding of how we store words.*' Orthographic mapping is the process of connecting sounds in spoken words to letters in print. Kilpatrick makes a clear distinction between the process of phonics and orthographic mapping by tying the first to decoding and the second to sight word recognition. Some may view this distinction as that often referred to as dysphonetic and dyseidetic dyslexia. However, this distinction gives a framework to the elements of learning to read and allows the teacher to know what to teach, and how to teach it.

Part 2 sets out 'How To Do It'. Kilpatrick outlines three components of orthographic mapping (automatic letter-sound associations, highly proficient phoneme awareness and word study), while the training program within *Equipped for Reading Success* provides a focus on the development of phonemic awareness. This is consistent with his belief that: '*If a student is not attuned to the sounds within oral words, there is no efficient way to anchor sounds to letters for printed words to become familiar letter strings.*' He defines phoneme awareness as '*a critical cognitive/linguistic skill needed to store words for immediate, effortless retrieval*' and establishes it as an essential determinant for the development of word fluency. He is very pointed in explaining that sight word knowledge is not a visual process, although he reminds us that visual skills are needed for learning the critically important letter-sound associations, the basis of phonics. Beyond that, word recognition is reliant on the recognition of letter strings which correlate with the oral strings of phonemes in words. It is this matching of letter strings and pronunciation which gives meaning to allow anchoring points in memory for word retrieval at lightning speed. This is dependent upon students

having well developed phonemic skills so that phonemes can be unconsciously matched 'behind the scenes' with automaticity.

Kilpatrick uses acronyms to describe how letter sequences become meaningful when they match the stored sequence within the known word string. In Australia we could use AFL as a meaningful sequence of letters corresponding to words, yet LFA or FAL have no meaning. In words, the attachment of letters to phonemes provides the anchoring point for meaning which plays a critical role in allowing words to be stored in memory. Kilpatrick also uses the example of the letter sequence s-e-n-t as having meaning as it is a familiar sequential order of phonemes and finds a match in lexical memory, yet s-n-e-t does not.

We know that for good readers, familiar words are not processed in the slow, sounding-out and blending way, which is essential for phonic decoding of unfamiliar words, but rather processed as unitized meaningful word recognition which involves processing all letters simultaneously with the glance of an eye. Perhaps this is a little like broadband input rather than parallel port. Familiar strings become internalized as sight words and allow for fluent reading.

Part 3 of *Equipped for Reading Success* provides a very practical, step-by-step program for phonemic awareness development. As often repeated throughout the text, "there is no place for students to get 'stuck'". It is this carefully scaffolded sequence of skill development which contributes to much of the success of the program – students readily engage with what they can succeed in. The program of 800 one-minute exercises of carefully graded skill progression is a gift for busy teachers who can pick-up-and-go with no need for prior planning as the instructional content is all there, appropriate for all tiers of RTI and across both specialist and mainstream sectors. Having read the introduction to the training exercises, teachers are prepared to dive into the program.

Formal assessment is not necessary as entry points can be established by gauging student performance at different levels. More formal assessment and entry points can be determined by use of the Phonological Awareness Screening Test (PAST) found in the Appendix. For a more comprehensive assessment, Kilpatrick recommends that the PAST

is used alongside the Comprehensive Test of Phonological Processing (CTOPPS) so that working memory and rapid naming as well as phonological awareness and oral blending are assessed. Interestingly, Kilpatrick has found that where results differ, the PAST is usually more consistent than the Elision sub-test of the CTOPPS with a student's reading skill.

A significant point of difference in this program is the importance it places on proficiency, as determined by timing. This is emphasized at a phonological level, a letter-sound level and finally at a word level. Timed assessment and training exercises are used to determine skill level. While many programs and assessment tools assess similar skills and knowledge, they do not often do this under timed conditions. It is this element that Kilpatrick asserts is the key to proficiency. A student may be able to match letters and sounds, and to isolate phonemes within words, but unless this is done with automaticity, the skill will not be considered proficient enough to support orthographic mapping and fluent word level reading.

Overall, Equipped for Reading Success is an insightful and relevant guide for teachers on how to incorporate new understandings from reading research into classroom practice.

Adding further value to the text, there are full chapters on both letter-sound learning and word study which guide the teaching of these additional elements of orthographic mapping. Concrete strategies and activities are numerous outlined to provide a comprehensive program to promote rapid, effortless word retrieval and fluency. This text provides an easy to follow 'recipe' for the teaching of reading, with practical 'ingredient' lists for lesson activities based on current research. Teachers want strategies and resources, especially where new directions and modifications to current teaching practices are promoted. *Equipped for Reading Success* will not disappoint. Further activity and word lists are plentiful in the appendix, along with a comprehensive glossary.

Kilpatrick challenges some popular beliefs. In line with his exposition on

how students learn to read, he has questioned the need for commonly used labels such as 'dyslexia' and 'learning disability'. In a chapter devoted to 'Remediation, Learning Disabilities, Dyslexia and Response to Intervention (RTI)' he suggests a better way of viewing word-reading disabilities than using labels. Using graphic outlines, he presents the core skills of word recognition along a continuum. This forms the template on which to map the profile of a student with reading difficulties. Immediately, strengths and skill deficits are highlighted. Kilpatrick asserts that the most efficient way to address reading difficulties is to target remediation toward skill deficits. Hence, he claims there is no need for labelling. This view may be unpopular with families who find that terms such as dyslexia can raise the profile of struggling readers' needs within schools and workplaces.

Perhaps a greater challenge to conventional practice is his contention that a phonic approach to reading should be delayed until students reach a full alphabetic stage, at which point students will have the skills to map every sound-letter combination in words at their level. Kilpatrick recommends a linguistic approach to reading, which he likens to 'training wheels', being a developmentally more appropriate starting point than phonics. He explains that the linguistic approach uses onset and rime units rather than the more cognitively and phonologically demanding all-through-the-word sounding out, and that the approach will '*...allow children to begin reading connected text and short stories while their basic phoneme-level skills are developing*', yet he does not elaborate further. This contrasts with his very generous elaborations in other areas relevant to reading and is likely to leave the reader feeling a little short-served in this respect. Decodable program materials usually available to teachers and commonly used are mostly based on a phonic approach.

Overall, *Equipped for Reading Success* is an insightful and relevant guide for teachers on how to incorporate new understandings from reading research into classroom practice. The practical nature of the text is easy to adopt for classroom use and is sure to lead to positive reading outcomes for almost all young learners. It is a text for the prevention of reading difficulties as well as for correcting serious reading problems. This is a bold text that

presents controversial views alongside clear direction for effective teaching. Throughout, Kilpatrick expresses concern that the continuation of teaching practices that are not based on the science of reading will continue to cause unnecessary failure for students and that this situation can be prevented. We strongly support this view and recommend this text.

Kate Munro is an LDA Consultant member located in Mudgee, NSW, and Ann Ryan is a long-standing member of LDA and Convenor of the LDA Consultants Committee.

Book Review: Writing for impact: Teaching students how to write with a plan and spell well

Reviewed by **Jan Roberts.**

Tom Nicholson and Sue Dymock,
*Writing for impact: Teaching students
to write with a plan and spell well*,
NZCER Press, 2018

Writing for Impact:
teaching students
to write with a plan
and spell well is

presented as a set of two A4 books, Volumes 1 and 2. Applying results of meta-analysis, Volume 1 compares approaches to the teaching of writing. Volume 2 summarises 10 different writing strategies and provides teaching lessons implementing the most effective approaches, emphasising the importance of teaching structure, planning and reviewing, as well as a large section on spelling.

VOLUME 1 is organised in three parts, with sub chapters:

- Part 1: *Introduction*
- Part 2: *Getting the content write* [sic]
In seven chapters, Part 1 discusses research evidence which demonstrates the best way to teach writing; the two approaches that make a difference; narrative writing, persuasive writing; and assessing writing.
- Part 3: *Conventions*
In fifteen chapters, Part 3 expands on teaching vocabulary; grammar and punctuation; spelling (in some detail); handwriting and keyboarding skills; and summarising the discussion in Parts 1, 2 and 3

VOLUME 2 is organised in *Appendices* A-E. These appendices apply the strategies discussed in Volume 1 as follows:

- fiction library resources and lesson plans for narrative writing (for Years 2-4 and 5-7);
- non-fiction library resources and lesson plans (for Years 3-7);
- spelling lesson plans.

The authors expand on evidence from the effect size data of different methodologies to show:

- the need to teach students to organise and manage their writing;
- how to structure and use organisational strategies to ensure their writing is cohesive and complete;
- how to use self-regulating strategies to monitor their work and check that they are achieving their writing goals.

The two approach options demonstrated are:

- the *READ-WRITE Inquiring School* model, with the teacher using an exemplar text as a writing springboard; and
- the *Self-regulated Strategy Development* model (SRSD), with a focus on setting and monitoring writing goals.

Chapter 3 expands on these approaches.

Some of the outstanding features of this resource is the wealth of accompanying graphic models, such as planning methods, the useful lists and assessment rubrics, and other useful references and especially the video resources. A table on page 15 compares the effect sizes for different ways of teaching writing in six different meta-analyses and, like a picture, is 'worth a thousand words' in showing, for example, that goal-setting, strategies and peer assistance are very effective and that process writing and especially teaching grammar out of context are

not. The section on teaching spelling is very comprehensive.

VOLUME 2 also provides explicit lesson plans and colourful model springboard texts. Teachers would need to enlarge these, as the two double pages of the fiction and non-fiction texts that are presented per page of this book are too small to be read easily from the book by children. The spelling section takes up half the book so is very thorough in showing *The big 10 Spelling Rules* in detail. The accompanying lesson plans are explicit, as are all the lessons in the book, and would be easy to follow.



Summary

Writing for Impact, written in user-friendly language, is very well organised, clearly set out and colourful, and conveys a wealth of research and practical knowledge on the teaching of writing. For experienced teachers, *Writing for Impact* clarifies the relative value of different approaches and outlines methods that could fine-tune and expand these teachers' current teaching strategies. For new teachers, *Writing for Impact* could be their bible in two readable volumes for explicit teaching of writing. After implementing the suggested teaching plans, these teachers could use them as models to develop their own, in ways that should lead to very satisfying results for all.

Highly recommended

Jan Roberts is a long standing Consultant member of LDA, and a former President of LDA and Convenor of the LDA Consultants Committee.

Book Review:

Writing for impact: Teaching students how to write with a plan and spell well

Reviewed by **Nathaniel Swain.**

Tom Nicholson and Sue Dymock, Writing for impact: Teaching students to write with a plan and spell well, NZCER Press, 2018

I am always on the look-out for textbooks that cover the core of good writing instruction, and are written directly for educators in the classroom. Why should the science of reading and writing be hidden from mainstream teachers? There are few texts out there that I would recommend to teachers to tackle the entire question of “how do I teach writing?”, but *Writing for Impact* makes the grade.

The two-volume text contains a treasure trove of research, tools, strategies, lesson plans, and links to further resources. Readers can dive into the world of teaching writing with little presumed knowledge, making it accessible to a wide professional audience.

Unfortunately, with reading being such a worthy topic of research and practice, writing can often feel like its poor cousin. Writing can be but a neglected after-thought in many classrooms or clinics. This is in spite of the fact that writing is the most visible form of literacy, and that students’ writing becomes a tool that reflects, but also *shapes* their learning. It is encouraging to have this contribution to the professional literature to assist writing to “stake its claim” in literacy teaching.

Too often instructional texts are either way up in the clouds—

proclaiming that teachers need only foster a “love of writing” and the like; or down low in the trenches—discussing effect sizes without the realities of how to motivate students to engage in and enjoy learning how to write.

What is refreshing when reading *Writing for Impact* is how Nicholson and Dymock have woven together aspects of writing development and teaching that are usually disconnected: The evidence for what works for children’s writing, and the murkiness of everything that contributes to children’s (feelings of) success as “writers”. By this I mean the motivation, creativity, and content knowledge that sits behind good writing.

The authors set the scene by reviewing the research on what works in writing instruction, synthesising the effective practices from six meta-analyses. It comes as no surprise that it’s helpful for students to use strategies like graphic organisers and writing planners when they write. Similarly receiving targeted and specific feedback on their writing is incredibly effective. One surprising insight explored in the book is that grammar instruction when taught outside the context of writing has no impact, or can have a negative effect on children’s writing! (The authors do provide alternative ways of targeting grammar during the writing process, such as sentence combining, but in my opinion there isn’t nearly enough on this topic.)

Via a few subtle asides, the authors also make the case for new approaches to teaching writing to be drawn from teachers documenting and researching their own practice. This is a worthy message to teachers in classrooms around the world who are developing and refining innovative, but as yet *untested*, approaches that warrant formal investigation. Data is a powerful tool for teachers not just as evidence of their students’ learning, but of the effectiveness of their teaching.

When collected rigorously—using single case design, for example—this “practice-based evidence” could justify more elaborate research, and pave the way for more impactful and engaging teaching practices for children from a range of backgrounds.

In Chapter 3, Nicholson and Dymock explore two evidence-based writing approaches in detail: The Read-Write Enquiring School model, and the Self-Regulated Strategy Development approach. Consistent with the rest of the book, the tone is quite informal in this chapter, and welcoming for professionals who are not familiar with the research literature. Readers are given a chance to delve deeply into the many components of each approach, and the evidence-base underpinning them. A small minority of practices included in this section are notoriously vague and used passionately in balanced literacy circles (e.g. Writer’s Workshop). But if you can look past this, you will see that the authors are dedicated to an evidence-based, but practical view of writing instruction that helps teachers answer the question: “but *how* do I teach that?”.

The authors frequently acknowledge that there is always a range of approaches that teachers can use, but that choosing the high impact teaching practices supports students to learn to write most effectively. The small section of teaching students with writing difficulties was particularly helpful in chapter 2, providing an overview of the scope of different skills that students need to develop in their writing.

When working with students on their writing, there is always a tension



between focussing on the mechanics of their work (Vocabulary, Grammar, Punctuation, Spelling, Formatting), and encouraging the free-flowing creative business that hopefully produces the sparkle that good writing gives off to its readers. *Writing for Impact* manages to give emphasis to all of these elements, and provides practical ways for teachers to manage this tension themselves.

By first exploring the three major kinds of text (Narrative, Informative, and Persuasive), the authors give a useful overview of the products that students are aiming to write. The emphasis on teaching story structure, and the use of story planners was comfortingly familiar to a narrative devotee like myself. But other tips, like the “story graph” for example, were a welcome addition to my battery of strategies for deconstructing and constructing texts with students. Similarly, the taxonomy of informative texts, and demonstration of visual organisers for these, were very useful scaffolding tools which I have already started using with my students.

The conventions chapters then delve into the mechanics of writing, starting first with vocabulary. Despite it being a solid introduction to vocabulary teaching, I would recommend teachers continue to enhance their teaching of vocabulary with the longstanding vocabulary textbooks, as *Writing for Impact* only squeezes in a taste of this meaty subject. The spelling chapters are well thought out, and contain good introductions to the use of phonics and morphology for teaching spelling in a way that is systematic, but that also explores the richness of the English language with students. As with the vocabulary chapter, texts that explore the structure of the English language and spelling system in greater detail should be read in addition to Nicholson and Dymock’s test to bolster teacher knowledge in this space.

While the chapters on grammar, punctuation and handwriting/ keyboarding are not as comprehensive, it is nice to see a writing textbook that does not ignore these aspects of writing. The handwriting chapter intrigued me to learn more about the paper and pen positions for left-handed writers!

Writing for Impact is a good introduction for teachers starting their literacy teaching journey as few other texts will tackle, all in one place, the many levels of writing instruction and the range of different skills that students need to develop in tandem to become proficient writers.

The lesson plans provide a good starting point and model of how teachers might tackle these approaches in the classroom. There are also freely available videos for anyone to check out at the *Writing for Impact* website: <https://www.nzcer.org.nz/writing-for-impact>. These would be helpful for teachers who haven’t seen these strategies or approaches before, and need a demonstration of a few ways of tackling them. The samples of children’s writing throughout the two volumes is also very illustrative.

I would have liked to see more lesson plan or video examples for the older struggling writer, so that middle to upper secondary school or alternative education teachers had some examples of how to pitch it to an older audience, but perhaps there’s room here for further work to capture and illustrate practice for these groups of students?

It’s a text that continues an important discussion around questioning practices that don’t work and fostering approaches that best develop all students, as well as those who require additional support. *Writing for Impact* successfully guides teachers of writing to know not just what to do, but *how* to do it well. I sincerely hope that this text finds its audience with not just reading and writing specialists, but with teachers working in classrooms every day, so its impact can be as wide as possible.

Nathaniel Swain, PhD, is an educator and speech-language pathologist working with children in contact with the Victorian youth justice system, many of whom have language and literacy difficulties.

We welcome the submission of articles from LDA members and others with an interest in learning difficulties for possible inclusion in upcoming editions of this Bulletin.

Please submit articles, correspondence about the Bulletin, or letters for publication to the editor. For questions about content, deadlines, length or style, please contact the editor. (Email: pubs.media@ldaustralia.org)

Articles in the Bulletin do not necessarily reflect the opinions or carry the endorsement of Learning Difficulties Australia.

Requests to reprint articles from the Bulletin should be addressed to the editor.

Consultant Notes

From the Consultants Committee Convenor, Ann Ryan

Autumn leaves are turning to beautiful shades of crimson and gold. It is my favourite time of the year but it brings a challenge to keep the secateurs out of sight for a little while longer before letting my husband loose on the leaf mass. Some of us don't mind a bit of mess, while others have a need for tidiness and order. You may have guessed that I am one of the former types.

As specialist teacher consultants we recognise these variations in the students we work with. Some like certainty, rules and order. They ask to be shown how, to know the rule, to have examples modelled. Others jump in with little regard for accuracy or readability, not wanting any interruption to the story be it written or read. The personalities and behaviours students bring to learning situations add to the appeal of our work and remind me that we do not teach programs, we teach students with varied needs.

Despite this, we recognise that the science of learning has shown that students learn the core skills of literacy and numeracy best with explicit, systematic and cumulative teaching. While this sounds straightforward and easy, those who meet requirements for LDA consultancy know that it requires a high level of skill, backed by much experience, to support the needs of our most struggling learners. We see this as phonic based programs are increasingly introduced into schools with the provision of one day, or perhaps one week, of teacher training. Teachers are getting wonderful results and the direction schools are taking is encouraging. However, for many students, especially those diagnosed

with one of the 'Dyses' (dysgraphia, dyslexia, dyscalculia), specific learning needs are often greater than that provided for in the classroom. Tier 3 students require specialist support. Only some schools have extensively trained and experienced specialist staff. LDA Specialist Teacher Consultants can help by offering one on one targeted teaching or program planning assistance.

We welcome new consultants to our team. Rebecca Ball lives and works in Melbourne, currently sharing her teaching time between MLC and her business, HopscotchEd Consulting. Rebecca brings a wealth of experience to LDA having worked in mainstream and specialist settings, across early years and young adult learners, in a variety of positions including special education teacher, Executive Teacher and Co-ordinator of Learning Development.

Joan Slattery joins our team from Doubleview in WA. Joan has many years of experience as a Learning Support Teacher and as Head of the Learning Enrichment Centre in a large P-12 school. She is a passionate advocate for students with learning difficulties and has much experience supporting teaching staff to best meet the needs of all learners.

We also welcome Consultant member Kate Gurjian, a new member of LDA Council, to the Consultant Committee team. Kate has been a Consultant member of LDA since 2016 and we value her contribution to the work of the Consultant Committee.

The Consultant Committee work with the LDA Professional Development team to provide professional development opportunities to sharpen the skills and broaden the knowledge base of consultant members and others working in the field of learning difficulties. In February, Ann Williams presented on learning strategies for those working with students with Dyscalculia. Coming up on May 18th, Dr Andrew Martin will speak in Melbourne on *Motivating and Engaging Students with Learning Difficulties*. In June, we are planning an information day for Consultants and those interested in joining our team. The topics will be *Assessment and A Consultant Practice*. In August, the

much anticipated national tour of Dr David Kilpatrick will take place, with presentations in Perth, Adelaide, Melbourne, Cairns and Sydney. Booking details for



these events can be found on the LDA website. Bookings for Dr Andrew Martin's presentation on *Motivating and Engaging Students with Learning Difficulties* can also be found through the TryBooking website, at <https://www.trybooking.com/book/event?eid=484296>.

Much work behind the scenes has been done to facilitate greater functionality on the Consultant page of the website. Many consultants are excited to now be able to use the online Professional Development Record (PDR) which enables consultant members to maintain an ongoing record in readiness for submission when placing a consultant renewal application. Web developers are currently updating the Online Tutor Search (OTS) so that users will be able to read brief bios on prospective consultant tutors. This should greatly enhance the user experience so that families and organisations looking to engage a consultant can make a more informed choice as to who to contact.

Finally, a reminder that we are always keen to hear from qualified people who may be thinking about joining our team. You can ring Elaine on 0406 388 091, email consultant.convenor@ldaustralia.org or contact Kerrie on ldaquery@bigpond.net.au

Enjoy those Autumn leaves!

Ann Ryan is the Convenor of the LDA Consultants Committee and Vice President of LDA, email convenor.consultant@ldaustralia.org

For details about the process and requirements for becoming an LDA Specialist Teacher Consultant, please refer to the website www.ldaustralia.org