NSW GOVERNMENT

LITERATURE REVIEW

Effective Reading Instruction in the Early Years of School

Centre for Education Statistics and Evaluation

Introduction

Reading is making meaning from print. It is a foundational, yet complex cognitive skill upon which other skills are built. Reading may feel easy for proficient readers, but it is far from simple[1]. Early success in reading is a powerful predictor of later literacy achievement which, in turn, is strongly linked with performance across a range of academic areas (Centre for Economic Performance 2016; Department of Education, Science and Training 2005). Individuals without literacy skills are at risk of being unable to participate in the workforce or engage fully in civic and social life (Centre for Education Statistics and Evaluation 2016).

The teaching and learning of reading has attracted the interest of scholars and researchers across many disciplines including education, psychology, linguistics and health. Since 2000, there have been major reviews of the teaching of reading in Australia, the United Kingdom and the United States. These reviews, along with other research, have consistently identified five key components of effective reading programs: phonemic awareness, phonics, fluency, vocabulary and comprehension. These components should be taught explicitly, systematically and sequentially.

This paper summarises the research regarding why these five elements are important, as well as how they should be taught in the classroom. The paper examines each of these five elements individually in the sequence they should be taught, bearing in mind that each element is interconnected and that accomplished reading requires mastery of all of them. The final section considers how reading instruction is currently incorporated into Initial Teacher Education (ITE) programs in NSW.

There is a significant amount of research on effective reading instruction, and this paper relies largely on meta-analyses and syntheses conducted by others. It also focuses on reading instruction in the early years of school, and does not examine research regarding specific instruction in early childhood education nor in the later years of schooling. Further, research regarding reading instruction for children who have learning difficulties or specific reading disabilities, such as dyslexia, is outside the scope of this paper (although research indicates that effective instruction for these students often only differs in intensity, pace and duration, rather than in the nature of instruction). This paper should be read keeping these caveats in mind.

Background

When children begin school, they typically have little knowledge of how to read and write. Unlike speech, reading is not an innate, developmental function and there is no single area of the brain devoted to reading – making sense of written texts requires establishing connections between areas of the brain that developed for different cognitive purposes (Department of Education, Science and Training 2005). As a result, most children require specific, quality instruction to learn to read (Center 2005, cited by United Kingdom Department for Education and Skills 2006a).

The early years of a child's life and their first few years of formal schooling are critical for the development of reading skills. Emergent literacy skills, such as language ability and letter identification, are usually developed before a child starts school (Murdoch Children's Research Institute 2013). A child's home environment and access to high-quality early childhood education can have a measurable impact on their literacy skills at school-entry (National Research Council 1998; Buckingham, Beaman & Wheldall 2014). These emergent literacy skills are precursors to the development of 'conventional' literacy skills[2], such as decoding, reading comprehension, spelling and writing. Research has demonstrated a strong relationship between the development of emergent literacy skills and later success in reading (for example, Duncan et al. 2007). Children who experience difficulties with reading in their first years of schooling are more likely to experience problems longer term (for example, Juel 1988).

What is decoding?

Decoding refers to the process of 'figuring out the words' in a piece of text. To decode words, children use their knowledge of the relationships between letters and sounds. Once developed, this knowledge allows children to recognise familiar words quickly and to pronounce words they have not seen before.

Many have suggested that learning to read in English can be more challenging than in other languages (Centre for Economic Performance 2016; Snow 2015; United Kingdom Department for Education and Skills 2006a). English is less phonetically regular than some other languages and many English words look alike but sound different (Wyse & Goswami 2008). The 26 letters and 45 phonemes in the English language can be said at least 350 ways (Pollack & Pickarz 1963, cited by Centre for Economic Performance 2016).

1 Louisa Moats' seminal article in this field from 1999 highlights the complexity of the teaching task – *Teaching Reading Is Rocket Science: What Expert Teachers of Reading Should Know and Be Able to Do.*

2 The term conventional literacy skills refers to skills that are necessary components of literacy. The term is generally used to distinguish between aspects of literacy that are typically learned in school and the precursor skills that students typically develop prior to beginning formal schooling.

The term phoneme refers to the distinct units of sound that make up spoken language (United Kingdom Department for Education and Skills 2006a). Few English words have only one phoneme, such as 'a' or 'oh'. Most words consist of a blend of phonemes, such as 'no' with two phonemes (n/o) or 'deck' with three (d/e/ck) (National Reading Panel 2000). Graphemes are units of written language, which represent phonemes in the spelling of words. Graphemes can consist of one letter, for example: N, O, D and E, or multiple letters, such as CK. These graphemes (letters and letter-combinations) symbolise one or more phonemes (sounds) (National Reading Panel 2000).

Gough and Tunmer, in 1986, put forward the idea of the Simple View of Reading to explain what abilities are required to learn to read (Gough & Tunmer 1986). This model proposes that both decoding and comprehension processes are necessary for reading – decoding is vital, but the ability to recognise or pronounce a word does not itself mean the reader will understand the text. This idea is supported by later cognitive science findings on how the brain learns to process written language (Wolf & Barzillai 2009). Other factors that may influence the ability to learn to read include student engagement and motivation (see, for example, Wigfield and Asher 1984) and oral language comprehension (Lepola et al 2005).

The 'reading wars'

The way reading should be taught in schools has been the topic of much debate. This debate has broadly been between proponents of the whole language approach and the explicit instruction approach (Snow 2015; Hempenstall 1997; Chall 1967).

The whole language approach is generally understood to refer to an approach or teaching method that introduces students to language through context (e.g. stories and picture books) (Centre for Economic Performance 2016)[3]. This approach is aligned with the constructivist philosophy, in which children are viewed as active, self-regulating learners who 'construct' knowledge for themselves (Department of Education, Science and Training 2005). It assumes that children will acquire each of the elements of reading, including the alphabetic code, through exposure and incidental guidance and explanation. In this approach, phonics instruction is integrated into other activities and taught incidentally (Kim 2008)[4].

The explicit instruction model, in contrast, is based on methodical and systematic instruction with the aim that children will become skilled readers within the first few years of school. The explicit instruction model with the most evidence behind it is phonics[5]. Phonics focuses on the relationship between letters and sounds so that students can learn to decode or spell words (National Reading Panel 2000). Phonics methods typically employ more teacher-centred instruction, scheduled practice and feedback than whole language approaches (Department of Education, Science and Training 2005). The most effective phonics method is called 'synthetic phonics', and is described in more detail later in the paper.

The explicit instruction model (incorporating explicit teaching of phonics) was the norm until the mid-20th century, but the whole language approach subsequently became common in schools across the US, Canada, New Zealand and the UK (Hempenstall 1997). In Australia, the whole language approach was used for several decades (de Lemos 2002, 2005; Buckingham, Wheldall & Beaman-Wheldall 2013). In the last 10-15 years however, there has been a move back towards explicit instruction as the preferred method for teaching reading (Centre for Economic Performance 2016)[6].

The shift back towards explicit instruction in phonics has been informed by a growing body of evidence pointing to the effectiveness of phonics instruction (for example, Johnston & Watson 2005). John Hattie's meta-analysis finds whole language approaches have an effect size of 0.06, and phonics an effect size of 0.52 (Hattie 2009). Similarly, the National Inquiry into the Teaching of Literacy found 'strong evidence that a whole-language approach to the teaching of reading on its own is not in the best interests of children, particularly those experiencing reading difficulties' (Department of Education, Science and Training 2005, p. 12).

3 Note that definitions of the whole language approach can vary across the literature and the term is sometimes used inconsistently (Bergeron 1990).

4 This method does not involve any direct teaching of letter-sound correspondences (Burns 2006).

5 'Sight word' teaching is considered another form of explicit instruction and evidence shows it to be effective. There is some call for sight words to be taught alongside phonics. The 'sight words' method focuses at the word level rather than the letter-sound level and targets specific tricky words that children are likely to encounter regularly. It focuses on ensuring children can quickly and accurately recognise these words. Sight word teaching is not related to whole language practices. Nonetheless, there is some debate over sight words – whether they should be taught, when they should be taught, what words constitute sight words, and if and how they should be taught with phonics.

6 It is difficult to find precise information on the extent to which systematic teaching of phonics is included as a part of the regular teaching program in Australian schools. Phonics is part of the current Australian curriculum, but many have suggested phonics instruction is inconsistent across schools. The 2005 Australian review into teaching reading reported that explicit, direct teaching of reading via systematic phonics was found in many of the 12 sample schools nominated for the review committee to visit. In 2009, the NSW Department of Education released a series of literacy teaching guides, including one focused specifically on phonics instruction. In May 2016, the Commonwealth government proposed the introduction of a phonics check similar to that currently used in the United Kingdom.

The five elements of effective reading instruction

The United States National Reading Panel (NRP) report is the most comprehensive review ever conducted on how children learn to read[7]. The report identified five essential, sequential, interdependent components of effective reading instruction in school: phonemic awareness, phonics, fluency, vocabulary and comprehension. These findings are consistent with earlier reviews (e.g. National Research Council 1998) and have since been supported by the Australian National Inquiry into the Teaching of Literacy (the NITL report) (Department of Education, Science and Training 2005), the British Independent Review of the Teaching of Early Reading (the Rose report) (United Kingdom Department for Education and Skills 2006a) and other research.

The incontrovertible finding from the extensive body of local and international evidence-based reading research is that children during the early years of schooling must first master the alphabetic code via systematic, explicit and intensive instruction in: phonemic awareness, phonics, reading fluency, vocabulary, and reading comprehension strategies (Department of Education, Science and Training 2005, p. 25).

Table 1 - The five elements of effective reading instruction

Phonemic awareness	In an alphabetic writing system, letters represent sounds. Phonemic awareness is the ability to hear the sounds in spoken words and understand that words are made up of sequences of sounds. Phonemic awareness teaches readers to map speech to print and understand that the letters in words are systematically represented by sounds.
Phonics	Phonics relies on phonemic awareness. The reader must understand that words are made up from phonemes or units of sound. Phonics instruction connects these phonemes with written letters so that the reader can transfer knowledge of sounds to the printed word. Phonics teaches students to be able to identify the phonemes that make up each word, which helps children to learn to read and spell. The goal of phonics instruction is to help readers quickly determine the sounds in unfamiliar written words. When readers encounter new words in texts they use the elements of phonics to decode and understand.
Fluency	Fluency is the ability to read quickly and naturally with accuracy and expression. Fluency contains the skill of automaticity which allows a reader to recognise words quickly. For students, achieving automaticity in reading is essential to becoming effective readers. When reading skills have developed to a point of automaticity students no longer need to use their working memory to decode, and they can use that memory for comprehension.
Vocabulary	Vocabulary plays an important role in word recognition. Beginning readers use knowledge of words from speech to recognise words that they encounter in print. When children 'sound out' a word, their brain connects the pronunciation of a sequence of sounds to a word in their vocabulary. If they find a match between the word on the page and a word in they have learned through listening and speaking, and it makes sense to them, they will keep reading. If a match is not created, because the word they are reading is not found in their vocabulary, then comprehension is interrupted. This will be the case even if they are able to produce the correct pronunciation through the decoding process. Vocabulary is therefore an important element for effective reading instruction.
Comprehension	Comprehension is the understanding and interpretation of what is read. To be able to accurately understand written material, children need to be able to first decode what they read and then make connections between what they read and what they already know. Comprehension requires having a sufficient vocabulary.

7 The National Reading Panel held public hearings where people could give their opinions of what topics the panel should study. The Panel considered roughly 100,000 reading studies published since 1996, and another 10,000 published before this time. From this pool, the Panel selected several hundred studies for its review and analysis.

There is general agreement across the literature about the need for these five elements to be taught explicitly, systematically and sequentially as they build on one another (e.g. National Research Council 1998; National Reading Panel 2000; Rupley, Blair & Nichols 2009). A report by the National Research Council in the United States found:

> *Beginning readers need explicit instruction and practice that leads to an appreciation that spoken words are made up of smaller units of sounds, familiarity with spelling-sound correspondences and common spelling conventions and their use in identifying printed words, "sight" recognition of frequent words, and independent reading, including reading aloud. Fluency should be promoted through practice with a wide variety of well-written and engaging texts at the child's own comfortable reading level (National Research Council 2000, p. 7).*

Similarly, the NITL report concluded that the five elements of reading 'must be taught early, explicitly, and taught well' (Department of Education Science and Training 2005, p. 25).

> *Research shows teaching these five elements of reading explicitly and systematically is effective for all children. It is, however, particularly effective for children most at risk of experiencing difficulties learning to read including students from a low socio-economic status (SES) background and Aboriginal students (Buckingham, Wheldall & Beaman-Wheldall 2013).*

As part of explicit instruction, students' reading abilities should be monitored and assessed regularly, particularly in the early years (United Kingdom Department for Education and Skills 2006a; Department of Education, Science and Training 2005; Rupley, Blair & Nichols 2009). In the Australian National Inquiry into the Teaching of Literacy, the committee recommended that[8]:

> *the teaching of literacy throughout schooling be informed by comprehensive, diagnostic and developmentally appropriate assessments of every child, mapped on common scales (Department of Education, Science and Training 2005, p.18).*

Assessment of children in the early years of schooling is of critical importance in teaching reading (Department of Education, Science and Training 2005). Monitoring and assessment should identify strengths and areas for improvement in children's knowledge, skills and understanding (RAND 2002). Reading instruction should then be adjusted based on results to ensure instruction meets different students' needs (Rupley, Blair & Nichols 2009).

Explicit Instruction

Explicit teaching practices involve teachers clearly showing students what to do and how to do it, rather than having students discover or construct information for themselves. Explicit or direct instruction is characterised by: planned and sequenced lessons; clear and detailed instructions and modelling; and frequent, systematic monitoring and feedback (Rupley, Blair & Nichols 2009). This approach acknowledges that learning is a cumulative and systematic process and that students need to master foundational skills before moving onto more complex tasks. Lessons focus on clearly defined objectives that are stated in terms of what students will do, and practice activities are purposefully designed to help students master and retain new skills (National Reading Panel 2000).

8 Note, this report was published prior to the introduction of the National Assessment Program – Literacy and Numeracy (NAPLAN) in 2008.

1. Phonemic Awareness

What is phonemic awareness?

Phonemic awareness refers to the understanding that spoken words are composed of individual or distinguishable sounds (de Lemos 2002). Before children learn to read, the evidence shows that they need to develop an awareness of how the sounds in words work (National Institute for Literacy 2006; National Research Council 1998; Hempenstall 1997).

Phonemic awareness is related to phonics, but the two are not synonymous. Phonemic awareness is the understanding that the sounds of spoken language work together to make words (United Kingdom Department for Education and Skills 2006a). Phonics is the understanding that there is a predictable relationship between written language and sounds. That is, that the letter D represents the sound /d/ (National Research Council 1998).

If children are to benefit from phonics instruction, they need phonemic awareness (National Institute for Literacy 2006; National Research Council 1998). Phonemic awareness is a subskill of phonological awareness, which refers to the broader ability to focus on the sounds of words (including syllables and rhyme).

Why is phonemic awareness important?

There has been a growing consensus as to the critical importance of phonemic awareness over the past few decades (Hempenstall 1997; Torgesen 2002). Phonemic awareness provides the foundation for the development of more complex skills, particularly decoding using a structured knowledge of phonics (Torgesen 2002; National Reading Panel 2000; Griffith & Olson 1992). To understand the alphabet principle – that is, that there is a relationship between written letters and sounds – readers must first develop an awareness that words are made up of distinguishable sounds (Hempenstall 1997). Torgesen states: 'A simple way to say this is that for individual children, phonemic awareness is what makes phonics instruction meaningful' (2002, p.12).

Phonemic awareness has been found to be predictive of later reading achievement (Juel 1988), with phonemic awareness instruction found to have a positive effect on later reading ability (Bradley & Bryant 1983; Ball and Blachman 1991). The benefits of phonemic awareness instruction have been found to last well beyond the end of this instruction (National Reading Panel 2000).

How should phonemic awareness be taught and assessed?

Effective phonemic awareness instruction teaches children to notice, think about and work with or manipulate sounds in spoken language (National Institute for Literacy 2006; Torgesen 2002).

Children will begin school with different levels of phonemic awareness. Many children will develop an awareness of the phonological structure of speech during their preschool years but some students will arrive at school with low levels of phonemic awareness (National Research Council 1998; Torgesen 2002). For these children, phonemic instruction can help to 'bridge a critical gap between inadequate preparation for literacy learning and success in beginning reading' (Griffith & Olson 1992, p. 11).

Several tasks are commonly used to improve or assess the subskills of phonemic awareness (National Reading Panel 2000; National Institute for Literacy 2006; Griffith & Olson 1992). These include, but are not limited to:

- **Phoneme blending:** Blending phonemes refers to the process of combining individual phonemes to form words (National Institute for Literacy 2006). Blending requires children to listen to a sequence of spoken phonemes and then combine them into a word. For example, listening to the sounds /c/ /a/ /t/ to form the word cat. Instruction should begin with simple vowel-consonant (e.g. it) and consonant-vowel-consonant words (e.g. cat) before moving on to more complex words with consonant blends (e.g. fast) and digraphs[9] (e.g. chip) (South Australian Department of Education and Children's Services 2011a).

- **Phoneme segmentation:** Segmentation is the process of breaking words into their individual phonemes or syllables (National Institute for Literacy 2006). For example, the learner breaks down the word 'run' into its component sounds – /r/, /u/, and /n/. Again, instruction should begin with more simple words ('listen to the sounds in 'at' /a/ /t/') and then move onto more complex words 'listen to the sounds in 'chop' /ch/ /o/ /p/').

- **Phoneme manipulation:** Phoneme manipulation refers to the ability to manipulate the sounds in words. This requires a higher level of phonemic awareness (Griffith & Olson 1992). Types of phoneme manipulation include: adding/deleting phonemes to/from words, or substituting one phoneme for another to create a new word. For example, asking students 'what word do you have if you add the letter /b/ to the word 'rain'?' or 'what happens if you swap the letter 'n' in 'bun' for the letter 'g'?' (National Institute for Literacy 2006).

9 A 'digraph' is a single sound or phoneme, which is represented by two letters.

2. Phonics

What is phonics?

Phonics is the understanding that there is a relationship between the individual sounds (phonemes) of spoken language and the letters (graphemes) that represent those sounds in written language (National Reading Panel 2000; United Kingdom Department for Education and Skills 2006a). This understanding is sometimes referred to as the 'alphabetic principle'. There are a number of different approaches to teaching phonics, with varying levels of effectiveness. The most effective method is called 'synthetic phonics'.

Synthetic phonics is explicit and carefully sequenced. Also known as 'blended' or 'inductive' phonics, synthetic phonics involves teaching students to pronounce the sounds (phonemes) associated with letters in isolation. Students are then taught to combine or synthesise these sounds to form words, for example, pronouncing each phoneme in hop (/h/ /o/ /p/) separately and then blending these to produce the word 'hop' (United Kingdom Department for Education and Skills 2006b).

Why is phonics important?

An understanding of the relationships between letters and sounds is vital for decoding words which, in turn, is critical for reading. Learning the letter-sound correspondences, and how to blend them together, provides students with a strategy for approaching unknown words (National Reading Panel 2000; Department of Education, Science and Training 2005). While some children begin to read by memorising words by sight, this is not usually an effective long-term strategy, particularly as the volume of words required to read age-level material increases (Snow 2015).

The NRP (National Reading Panel 2000) report found that systematic phonics instruction enhances children's success in learning to read and is more effective than instruction that teaches little or no phonics. The NRP used a meta-analytic approach to estimate the effect of systematic phonics instruction compared to unsystematic or no phonics instruction. The results found a moderate overall mean effect size for phonics instruction (ES = 0.41), with the positive effects persisting after instruction ended. The report concludes 'findings provided solid support for the conclusion that systematic phonics instruction makes a more significant contribution to children's growth in reading than do alternative programs providing unsystematic or no phonics instruction' (p. 2-132).

Similarly, the Australian National Inquiry into the Teaching of Literacy (Department of Education, Science and Training 2005) found that, for beginning reading, systematic instruction in phonics makes significantly greater contributions to children's initial and subsequent growth in reading, writing, spelling and comprehension than approaches involving unsystematic or no phonics instruction. The inquiry found this approach allows children to master the essential alphabetic 'code-breaking' skills required for foundational reading proficiency.

> *'The evidence is clear … that direct systematic instruction in phonics during the early years of schooling is an essential foundation for teaching children to read' (Department of Education, Science and Training 2005, p. 11).*

The Rose review in the United Kingdom (United Kingdom Department for Education and Skills 2006a) reached similar conclusions, noting:

> *The evidence is clear that the teaching of systematic synthetic phonics is the most effective way of teaching young children to read, particularly for those at risk of having problems with reading.*

Following the Rose Report, there have been significant reforms to early reading instruction in the United Kingdom, including the mandating of systematic synthetic phonics instruction in all schools. As part of the reforms, the Year 1 Phonics Screen Check was introduced in 2012. Since then, there have been marked and measurable improvements in early reading performance. The proportion of students reaching the expected standard (32 out of 40) has increased each year, from 58 per cent in 2012 to 81 per cent in 2016. The proportion of Year 1 students achieving the maximum score (40 out of 40) has increased from 9 per cent in 2012 to 18 per cent in 2016. The attainment gap between low- and high-SES students has also narrowed (United Kingdom Department for Education 2016).

Explicit phonics instruction has been found to be particularly beneficial for students who are at risk of experiencing difficulties learning to read (for example, Foorman et al. 1998). Evidence shows explicit instruction in phonics and phonemic awareness can reduce literacy gaps between high- and low-SES students. A longitudinal study in Canada tracked a group of students who undertook a literacy program that included explicit instruction in phonemic awareness and phonics. In Kindergarten, there were significant associations between SES and reading, spelling, and phonological abilities but these associations declined to non-significant levels by grade three (D'Angiulli, Siegel & Hertzman 2010). The Clackmannshire study (Johnston & Watson 2005) also found that synthetic phonics instruction reduced attainment gaps between low- and high-SES students. At the end of Year 2, children from disadvantaged backgrounds performed as well as their peers if taught by the synthetic phonics program. Although the low-SES students started to fall behind their peers in Year 7, they were still performing at or above chronological age in word reading, spelling and reading comprehension.

How should phonics be taught and assessed?

The most effective method of teaching phonics is synthetic phonics. In synthetic phonics, children are taught to sound and blend from the beginning of reading instruction, after a few letter sounds have been taught (United Kingdom Department for Education and Skills 2006b).

Synthetic phonics works because it is systematic and sequential; it recognises that certain skills or concepts need to be taught before others, and therefore skills are taught in a specific sequence[10].

The complexity of the English language makes it important for letter-sound knowledge to be introduced systematically, particularly for beginning readers (South Australian Department of Education and Children's Services 2011a). It is the efficiency and effectiveness of synthetic approaches relative to other forms of teaching reading that make it so suitable for teaching children the essential skills of decoding.

Phonics instruction should commence early (Centre for Independent Studies 2016; National Reading Panel 2000). The NRP's analysis found phonics instruction that began early in schooling proved much more effective than phonics instruction introduced after first grade. Mean effect sizes were highest for Kindergarten (ES = 0.56) and first grade (ES = 0.54) and lower for instruction in second through sixth grades (ES = 0.27). The report commented:

> *systematic phonics instruction in kindergarten and 1st grade is highly beneficial … To be effective, systematic phonics instruction introduced in kindergarten must be appropriately designed for learners and must begin with foundational knowledge involving letters and phonemic awareness (National Reading Panel 2000, p. 2-133).*

Results from a seven-year longitudinal study undertaken by Johnston and Watson (2005), support the efficacy of synthetic phonics instruction. The study was carried out in Clackmannanshire primary schools in Scotland, where three training programs were conducted with 300 children over 16 weeks. For 20 minutes each day, children were taught either: a synthetic phonics program; an analytic phonics program; or an analytic phonics plus phonological-awareness training program. At the end of these programs, children in the synthetic phonics group were reading around seven months ahead of children in the other two groups and were spelling eight to nine months ahead of the other groups. The group taught synthetic phonics were also better at reading irregular words than children in the other two groups. At the end of the students' seventh year of primary school, these students had not only maintained their advantage but it had increased over time.

10 Synthetic phonics is one of two main explicit phonics methods (Johnston & Watson 2005). The other explicit phonics method is analytic phonics, in which, children are taught to recognise the sounds within words, rather than being taught sounds in isolation from words (Centre for Economic Performance 2016). For example, a teacher may teach students a series of words, such as bug, bin and ball, and then ask students to identify the common phoneme (/b/). Synthetic phonics is shown by evidence to be the more effective approach.

3. Fluency

What is fluency?

Reading fluency refers to the reader's ability to recognise words accurately and quickly and to read aloud with appropriate expression. Fluency requires well-developed word recognition skills, but such skills do not necessarily lead to fluency (National Reading Panel 2000).

It is thought reading fluency has three dimensions (Kuhn et al. 2006; Rasinski 2004; Kuhn & Stahl 2003). The first, accuracy in word decoding, refers to the ability of the reader to sound out words with minimal errors. The second, automatic processing (automaticity), requires readers to expend as little mental effort as possible in the decoding aspect of reading so they can instead focus on making meaning. The third, prosodic reading (prosody), refers to the way in which readers use appropriate expression, emphasis and pauses while reading.

Why is fluency important?

Although fluency alone is not sufficient for high-levels of reading achievement, it is important because it provides a link between decoding and comprehension (National Centre for Education Statistics 1995). Fluency builds on phonemic awareness and decoding skills – fluent readers are able to decode words quickly and accurately, allowing them to focus their attention on the meaning of the text (National Research Council 1998; Hudson, Lane & Pullen 2005). Poor automaticity or prosody can lead to confusion or misinterpretations of the text, making fluency an important skill for text comprehension (Rasinski & Zimmerman 2011).

How should fluency be taught and assessed?

Research in this area has examined several instructional approaches: modelling oral reading, repeated reading and independent silent reading. The first method involves teachers reading texts aloud to demonstrate appropriate phrasing, speed and expression. In the second approach, students read passages aloud several times and receive guidance and feedback from their teacher. In the final approach, students are encouraged to read extensively on their own.

Modelling oral reading is a simple way for teachers to demonstrate what fluent and non-fluent reading sounds like. It allows teachers to draw attention to different aspects of fluency to demonstrate that meaning in reading is conveyed not only through words, but also in the way that words are expressed (Rasinski 2003; National Institute for Literacy 2006). To show this, teachers can contrast a fluent reading of a passage with a disfluent reading, and ask students which reading they preferred and why (Rasinski 2003).

There is general agreement that repeated reading methods improve fluency (Samuels 1997; Rasinski 2004; National Institute for Literacy 2006). The NRP report found classroom practices that encourage repeated oral reading with feedback and guidance lead to meaningful improvements in reading – for both good readers and students who are having difficulties (National Reading Panel 2000)[11].

There is disagreement as to whether independent silent reading with minimal guidance or feedback improves fluency. The NRP report notes 'Despite widespread acceptance of the idea that schools can successfully encourage students to read more and that these increases in reading practice will be translated into better fluency and higher reading achievement, there is not adequate evidence to sustain this claim' (National Reading Panel 2000, p. 3-28; Shanahan 2015a). This does not mean that encouraging students to read more is not effective at improving fluency, but rather that current research is not sufficient to demonstrate that this strategy has a beneficial effect on reading achievement. Others, however, have suggested that increasing students' independent reading will result in improvements to their reading fluency as well as other measures of reading proficiency (Rasinski 2014).

Teachers can assess each of the three dimensions of reading fluency. Accuracy and automaticity can be assessed by measuring a student's reading rate and words correct per minute (WCPM) (Rasinski 2014; Hudson, Lane & Pullen 2005). Tracking children's WCPM throughout the year provides a clear record of their progress in terms of both accuracy and speed. Teachers can also compare students' scores with norms or published standards for students in the relevant grade level (Pacific Resources for Education and Learning 2004; Rasinski 2014).

To assess prosody, teachers can listen to students read grade-level passages and assess elements such as their expression, inflection, volume and pace (Hudson, Lane & Pullen 2005). Teachers may use a checklist (e.g. Hudson, Lane & Pullen 2005) or a more quantifiable scale (e.g. Zutell & Rasinski 1991) to measure these elements.

While reading speed is important, fluency instruction and assessment should not focus solely on speed. Rasinski (2004) comments: 'If we emphasize speed at the expense of prosodic and meaningful reading, we will end up with fast readers who understand little of what they have read'. He asserts that effective fluency instruction does not require a specific focus on reading for speed, and that students' reading rates will improve as they become more efficient and confident in their ability to decode words.

11 The report notes, however, that there is a need for more research in this area, including longitudinal studies that examine the impact of these methods on students with different reading abilities.

4. Vocabulary

What is vocabulary?

In this context, vocabulary refers to the words children know and use when communicating with others. There are four types of vocabulary: listening, speaking, reading and writing. Listening and speaking vocabularies are sometimes referred to collectively as oral vocabulary.

Why is vocabulary important?

The importance of vocabulary is well-established (Hairrell, Rupley & Simmons 2011; Graves 2006). The National Reading Panel (NRP) found vocabulary plays an important role both in learning to read and in comprehending text. If students know the meaning of a word, they are far more likely to be able to read it and make meaning of it within the context of the text. Biemiller states:

> *Teaching vocabulary will not guarantee success in reading, just as learning to read words will not guarantee success in reading. However, lacking either adequate word identification skills or adequate vocabulary will ensure failure (Biemiller 2005, cited by National Reading Technical Assistance Center 2010).*

How should vocabulary be taught and assessed?

Vocabulary is learned both indirectly and directly (National Reading Panel 2000). Children learn the meanings of many words indirectly, through everyday experiences with both oral and written language including conversations, being read to and reading on their own (National Institute for Literacy 2006). Nonetheless, students should still be taught vocabulary directly. Direct instruction helps students learn difficult words, such as words that represent complex concepts, or that are not part of their everyday experiences (National Institute for Literacy 2006).

Effective vocabulary instruction includes teaching students new words directly as well as teaching students word-learning strategies they can use to learn words on their own (Graves 2006).

Strategies for effective vocabulary instruction include: how to use word parts (e.g. suffixes, prefixes and base words) to figure out the meanings of words in text; and how to use context clues to determine word meanings (National Institute for Literacy 2006; Learning Point Associates 2004).

An important component of vocabulary instruction is choosing appropriate words to teach. Beck, McKeown and Kucan (2008; 2013) segregate words into three tiers. Words in the first tier are familiar, everyday words that are not conceptually difficult (e.g. cat, happy, baby).

While most children will have learned many of these words prior to formal schooling, some tier one words will need to be taught explicitly, particularly for those students who begin school with limited vocabulary. Words in tier two are more complex but are used regularly and across a variety of contexts (e.g. coincidence, admire, portable).

These words should be taught directly, with priority given to words that students are likely to encounter in a range of texts and have many opportunities to use. Words in the third tier are used less frequently and are often limited to specific contexts, such as science, mathematics or music (e.g. peninsula, isosceles). Tier three words are not typically used in everyday conversation but are essential to engage fully with specific topics. These words should be taught when a specific lesson requires knowledge of the word and underlying concept (Beck, McKeown and Kucan 2008; 2013).

Regular and repeated exposure to new vocabulary words is important. Several studies have found an association between repeated readings of stories and improvements in vocabulary in preschool and primary school students (for example, Senechal 1997; Penno, Wilkinson & Moore 2002). In reading aloud, teachers should encourage their students to actively engage with the text by explaining new words and asking them questions about the book or what is going to happen next (Trivette et al. 2012). Evidence also suggests students need regular exposure to words across multiple contexts (McKeown et al. 1985).

Morphology is another important component of vocabulary instruction. Morphology refers to the way words are composed of meaningful parts (Ontario Ministry of Education 2012; Centre for Independent Studies 2016b). A morpheme is the smallest meaningful unit of language. Some words consist of only one morpheme (e.g. help), while many others are composed of two or more morphemes (e.g. help-ful, un-help-ful) (Ontario Ministry of Education 2012). A useful way to represent the morphological structure of a word is to use word sums, for example: help (base) + less (suffix) = helpless. Recent meta-analyses (for example, Goodwin & Ahn 2013; Bowers, Kirby & Deacon 2010) have shown the importance of morphology for improving literacy from the early stages. This includes improved performance in vocabulary, phonological awareness and spelling (Goodwin & Ahn 2013).

There are some methodological limitations to the evidence regarding vocabulary instruction. This is partly because there are different types of vocabulary, and an individual's written vocabulary is often different from their oral vocabulary. It is also difficult to assess vocabulary in a standardised way (National Reading Panel 2000). In their systematic review, Hairrell, Rupley and Simmons (2011) examined 24 studies published between 1999 and 2007. They found few studies used standardised measures and that longer-term word retention was often ignored. They also found that no studies had been published in the relevant period regarding the role of technology in vocabulary acquisition.

5. Comprehension

What is comprehension?

Reading comprehension refers to the ability to assemble words into phrases and sentences (RAND 2002). For comprehension to occur, students need to be able to: recognise the words on a page, assign meaning to each word, assemble words into sentences and then retain this information while reading subsequent sentences. They also need to be able to use their more general knowledge to supply further context to the text (Pardo 2004). This requires general cognitive abilities, such as attention and memory, as well as specific skills, such as decoding and vocabulary (RAND 2002; Pressley 2001).

Why is comprehension important?

Comprehension is important for students to be able to understand what they read, remember what they read and communicate with others about what they read (National Institute for Literacy 2006). Reading comprehension is viewed as an integral skill, 'not only to academic learning but to life-long learning' (National Reading Panel 2000, p. 41).

How should comprehension skills be taught and assessed?

It is important to recognise that comprehension is highly dependent on a student's other reading skills, such as decoding and vocabulary. Students cannot understand a text if they cannot read the words and assign meaning to them (Garcia & Cain 2014; Wagner & Meros 2010; Pressley 2001). For example, a large study of over 400,000 students across years one, two and three found that among students whose decoding and vocabulary were developing normally, less than one per cent displayed problems with reading comprehension (Spencer, Quinn & Wagner 2014).

Comprehension is highly dependent on a student's other reading skills, such as decoding and vocabulary.

In most cases, difficulties with reading comprehension will recede as other reading skills improve (Centre for Independent Studies 2016b). However, directly teaching reading comprehension skills is still necessary for most students. This includes instruction about the syntax and rhetorical structures of written language and direct instruction about comprehension strategies (National Research Council 1998). It is less clear exactly how much reading strategy instruction should be given. While the initial value of practising comprehension strategies is identified by Hirsch (2003), he also points to a likely plateau in skill development. According to Willingham and Lovette (2014), there is no evidence that more instruction yields better effect. Shanahan also agrees that the current length of strategy instruction given in many schools should be questioned (Shanahan 2015b).

The National Reading Panel's analysis (National Reading Panel 2000) found explicit or formal instruction using a multiple-strategy method is most effective in enhancing comprehension. The panel identified seven effective strategies:

- **Comprehension monitoring:** Students learn how to monitor their own understanding of the text to become aware of when they do not understand something (Willingham 2006). This includes: identifying where in the text the difficulty occurs ('I don't understand the last paragraph on page 2'); identifying what the problem is ('I don't understand what the author means when they say "Charlie is totally horse-mad"'); and then using appropriate strategies to resolve this. These strategies may include restating the difficult section in their own words ('The author means that Charlie loves horses') or looking to sections earlier or later in the text that may help (National Reading Panel 2000; National Institute for Literacy 2006).

- **Cooperative or reciprocal learning:** Students learn reading strategies reciprocally, with their teacher and other students. Careful oversight should be used with this approach, to ensure that errors are not transmitted from one student to another (Mason 2013).

- **Use of graphic and semantic organisers:** Students generate representations of the material, such as graphs or story maps, to assist with comprehension (Willingham 2006). Graphic and semantic organisers provide students with a way to visually construct and represent ideas from the text or show the relationship between characters, settings or events (Olszak 2014; Praveen & Rajan 2013).

- **Question answering:** Students use the text to answer questions posed by the teacher and receive immediate feedback (National Reading Panel 2000).

- **Question generation:** Students ask themselves questions about the text that can be answered within it. By generating questions, students become aware of whether they can answer the questions and if they understand what they are reading (National Institute for Literacy 2006).

- **Story structure:** Students are taught to use the structure of the story as a way to help them recall and understand content (Willingham 2006). Through this, students identify key parts of the text, such as the characters and setting or the problem and resolution within the narrative. Students often learn to recognise story structure through the use of story maps (National Institute for Literacy 2006).

- **Summarisation:** Students identify the important points in a text, condense this information and then put it into their own words (National Reading Panel 2000). Instruction in summarising can help students identify and connect with the main themes, eliminate unnecessary information and retain what they read (National Institute for Literacy 2006). This strategy requires both reading and writing skills, and therefore may not be as appropriate for students in the early years of primary school.

There is some disagreement as to when comprehension instruction should commence. Willingham (2006) suggests comprehension strategies should be introduced towards the end of primary school. Others, however, recommend that comprehension is incorporated into reading instruction from the early years (National Institute for Literacy 2006; National Research Council 1998).

As with the other elements of reading, comprehension instruction is most effective when it is explicit. This includes integrating modelling, feedback and opportunities for practice (Solis et al. 2012). Teachers should clearly explain to their students why and when they should use a comprehension strategy, model the strategies and provide students with opportunities to practice and apply them (Pardo 2004). Instruction should also be accompanied by ongoing assessment. Teachers should monitor students' use of comprehension strategies and this monitoring should, in turn, inform the teacher's instruction going forward (Duke & Pearson 2002).

Teaching teachers to teach reading

The teaching of reading is challenging and requires specialised knowledge and skills, not least because teachers today face a diverse range of abilities and experiences in their classes. (Honan 2015). Adequate preparation needs to be given to teachers through both their pre-service teacher education and ongoing professional development (Board of Studies, Teaching and Educational Standards 2014; Department of Education, Science and Training 2005; National Research Council 1998). This includes building teachers' understandings of evidence-based instruction as well as their capacity to assess reading ability and growth and use assessment data to inform appropriate intervention strategies (Department of Education, Science and Training 2005).

In NSW, teacher education programs are accredited by the NSW Education Standards Authority (NESA) following assessment against the National Program Standards, which incorporate the Australian Professional Standards for Teachers at the Graduate Teacher level. Initial Teacher Education (ITE) providers submit evidence showing how their graduates meet all of the Standards including those relevant to literacy. This includes evidence against the elaboration for Graduate Standard 2.1.1 in the Subject Content Knowledge policy, which states that programs must have:

> *a strong literacy focus and include the pedagogy of reading, with a range of models including instruction on how to teach phonemic awareness, phonics, fluency, vocabulary knowledge, grammar and text comprehension, writing, spelling, speaking and listening and related issues of child development and inclusiveness.*

A report by NESA's forerunner, the Board of Studies, Teaching and Educational Standards (BOSTES), examined the adequacy of primary initial teacher education programs in addressing literacy learning (2014). As part of this, BOSTES examined documentation submitted by 14 ITE providers for accreditation purposes. Examination of this documentation revealed a lack of clarity about approaches to the teaching of reading and found considerable variation across providers in the amount of course time spent on literacy components and in the emphasis on reading assessment and remediation strategies.

BOSTES recommended primary ITE programs include:

> *a substantial focus within and/or across units on the explicit and systematic teaching of reading …. Units should include content specific to phonemic awareness, systematic phonics instruction, how to assess reading, the analysis of reading assessment/data, the identification and selection of appropriate literacy strategies, particularly for students who are at risk of falling behind and monitoring student progress in reading (p. 15).*

It also recommended all primary education teachers are given 'the opportunity to engage with approaches to the explicit and systematic teaching of reading during professional experience' (p. 15). These recommendations are consistent with those contained in the NITL report (Department of Education, Science and Training 2005).

Concerns have also been expressed in the literature over teachers' knowledge of, and confidence in using, evidence-based reading instruction methods, particularly those related to phonics instruction (e.g. Department of Education, Science and Training 2005; Centre for Independent Studies 2014; Snow 2015). For example, in one study (Fielding-Barnsley 2010), 162 pre-service teachers completed a questionnaire relating to their attitudes towards using phonics instruction, their knowledge of phonemic awareness and how well prepared they felt to teach beginning reading. Although most respondents could correctly identify what a phoneme is, many could not actually identify how many phonemes were in given words. Results also revealed that most respondents did not feel prepared to teach beginning readers. These results were consistent with an earlier, similar study by Fielding-Barnsey & Purdie (2005), and another by Stark et al (2016) examining knowledge of phonics among Victorian teachers.

Conclusion

There is a significant amount of research that has been conducted into effective reading instruction. The evidence identifies five essential and interconnected components of effective, evidence-based reading instruction: phonemic awareness, phonics, fluency, vocabulary, and comprehension. All these elements are essential for the early stages of literacy learning. To be most successful, these skills must be taught explicitly, sequentially and systematically.

All teachers need to be equipped with an understanding of evidence-based reading instruction and the ability to implement this in the classroom. Currently, there appear to be some discrepancies between the research as to 'what works', and the teaching practices that underpin many ITE programs. Teaching programs should cover the five components of effective reading instruction, as well as the use of assessments to identify and implement appropriate reading strategies.

References

Ball, E & Blachman, B 1991, 'Does phoneme awareness training in kindergarten make a difference in early word recognition and developmental spelling', *Reading Research Quarterly*, vol. 26, no. 1, pp. 49-66.

Beck, I, McKeown, M & Kucan, L 2008, *Creating robust vocabulary: Frequently asked questions and extended examples*, Guilford Press, New York.

Beck, I, McKeown, M & Kucan, L 2013, *Bringing words to life: Robust vocabulary instruction*, Guilford Press, New York.

Bergeron, B 1990, 'What does the term whole language mean? Constructing a definition from the literature', *Journal of Reading Behaviour*, vol. 12, no. 4, pp. 301-329.

Board of Studies, Teaching and Educational Standards 2014, *Literacy learning in the early years*.

Bowers, P, Kirby, J & Deacon, S 2010, 'The effects of morphological instruction on literacy skills: A systematic review of the literature', *Review of Educational Research*, vol. 80, no. 2, pp. 144-179.

Bradley, L & Bryant, P 1983, 'Categorising sounds and learning to read: A causal connection', *Nature*, vol. 301, pp. 419-421.

Buckingham, J, Beaman, R & Wheldall, K 2014, 'Why poor children are more likely to become poor readers: The early years', *Educational Review*, vol. 66, no. 4, pp. 428-446.

Buckingham, J, Wheldall, K & Beaman-Wheldall, R 2013, 'Why Jaydon can't read: The triumph of ideology over evidence in teaching reading', *Policy: A Journal of Public Policy and Ideas*, vol. 29, no. 3, pp. 21-32.

Burns, B 2006, *How to teach balanced reading and writing*, Corwin Press, Thousand Oaks C.A.

Castles, A 2016, G*uest blog: Are sight words unjustly slighted?*, Read Oxford, University of Oxford, viewed 21 February 2017, <http://readoxford.org/guest-blog-are-sight-words-unjustly-slighted>.

Centre for Economic Performance 2016, "*Teaching to teach*" *literacy*, discussion paper, report prepared by S Machin, S McNally & M Viarengo.

Centre for Education Statistics and Evaluation 2014, *What works best: Evidence-based practices to help improve NSW student performance*, research report.

Centre for Education Statistics and Evaluation 2016, *How schools can improve literacy and numeracy performance and why it (still) matters*, research report.

Centre for Independent Studies 2014, *Why Jaydon can't read: A forum on fixing literacy*, issue analysis, report prepared by J Buckingham, J Ferrari & T Alegounarias.

Centre for Independent Studies 2016a, *Focus on phonics: Why Australia should adopt the Year 1 Phonics Screening Check*, research report, report prepared by J Buckingham.

Centre for Independent Studies 2016b, *Read about it: Scientific evidence for effective teaching of reading*, research report, report prepared by K Hempenstall.

Chall, J 1967, Learning to read: *The great debate*, McGraw-Hill, New York.

D'Angiulli, A, Siegel, L & Hertzman, C 2010, 'Schooling, socioeconomic context and literacy development', *Educational Psychology*, vol. 24, no. 6, pp. 867-883.

de Lemos, M 2002, *Closing the gap between research and practice: Foundations for the acquisition of literacy*, Australian Council for Educational Research, Camberwell.

de Lemos, M 2005, 'Effective strategies for the teaching of reading: What works, and why', *Australian Journal of Learning Disabilities*, vol. 10, no. 3-4, pp. 11-17.

Department of Education, Science and Training 2005, *Teaching reading*, report and recommendations, report prepared by K Rowe and National Inquiry into the Teaching of Literacy.

Duke, N & Pearson, D 2002, 'Effective practices for developing reading comprehension', in S Farstrupp & J Samuels (eds), *What research has to say about reading instruction*, 3rd edn, International Reading Association, Newark D.E.

Duncan, G, Dowsett, C, Claessens, A, Magnuson, K, Huston, A, Klebanov, P, Pagani, L, Feinstein, L, Engel, M, Brooks-Gunn, J, Sexton, H & Duckworth, K 2007, 'School readiness and later achievement', *Development Psychology*, vol. 43, no. 6, pp. 1428-1446.

Fielding-Barnsley, R 2010, 'Australian pre-service teachers' knowledge of phonemic awareness and phonics in the process of learning to read', *Australian Journal of Learning Difficulties*, vol. 15, no. 1, pp. 99-110.

Fielding-Barnsley, R & Purdie, N 2005, 'Teachers' attitude to and knowledge of metalinguistics in the process of learning to read', *Asia-Pacific Journal of Teacher Education*, vol. 33, no. 1, pp. 65-76.

Foorman, B, Francis, D & Fletcher, J 1998, 'The role of instruction in learning to read: Preventing reading failure in at-risk children', *Journal of Educational Psychology*, vol. 90, no. 1, pp. 37-55.

Garcia, J & Cain, K 2014, 'Decoding and reading comprehension: A meta-analysis to identify which reader and assessment characteristics influence the strength of the relationship in English', *Review of Educational Research*, vol. 84, no. 1, pp. 74-111.

Goodwin, A & Ahn, S 2013, 'A meta-analysis of morphological instruction in English: Effects on literacy outcomes for school-age children', *Scientific Studies of Reading*, vol. 17, no. 4, pp. 257-285.

Gough, P & Tunmer, W 1986, 'Decoding, reading, and reading disability', *Remedial and Special Education*, vol. 7, no. 1, pp. 6-10.

Graves, M 2006, *The vocabulary book: Learning and instruction*, College Press, New York.

Griffith, P & Olson, M 1992, 'Phonemic awareness helps beginning readers break the code', *The Reading Teacher*, vol. 45, no. 7, pp. 516-523.

Hairrell, A, Rupley, W & Simmons, D 2011, 'The state of vocabulary research', *Literacy Research and Instruction*, vol. 50, no. 4, pp. 253-271.

Hattie, J 2009, *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*, Routledge, Oxon.

Hempenstall, K 1997, *The effects on the phonological processing skills of disabled readers of participating in direct instruction reading programs*, doctoral thesis, Royal Melbourne Institute of Technology, Melbourne.

Hirsch, E 2003, 'Reading comprehension requires knowledge – of words and the world', *American Educator*, vol. 27, no. 1, pp. 10-13.

Honan, E 2015, *This is how Australian teachers are taught how to teach children to read: Not just phonics*, EduResearch Matters, Australian Association for Research in Education, viewed 22 March 2017, < http://www.aare.edu.au/blog/?p=922 >.

Hudson, R, Lane, H & Pullen P 2005, *Reading fluency assessment and instruction: What, why, and how?*, The Reading Teacher, vol. 58, no. 8, pp. 702-714.

Johnston, R & Watson, J 2005, *The effects of synthetic phonics teaching on reading and spelling attainment*, research report.

Juel, C 1988, 'Learning to read and write: A longitudinal study of 54 children from first through fourth grades', *Journal of Educational Psychology*, vol. 80, no. 4, pp. 437-447.

Kim, J 2008, 'Research and the reading wars' in F Hess (ed), *When research matters: How scholarship influences education policy*, Harvard Education Press, Cambridge M.A., pp. 89-111.

Kuhn, M, Schwanenflugel, P, Morris, R, Morrow, L, Woo, D, Meisinger, E, Sevcik, R, Bradley, B & Stahl, S 2006, 'Teaching children to become fluent and automatic readers', *Journal of Literacy Research*, vol. 38, no. 4, pp. 357-387.

Kuhn, M & Stahl, S 2003, 'Fluency: A review of developmental and remedial practices', *Journal of Educational Psychology*, vol. 95, no. 1, pp. 3-21.

Learning Point Associates 2004, A closer look at the five essential components of effective reading instruction: A review of scientifically based reading research for teachers.

Lepola, J, Neimi, P, Kuikka, M & Hannula, M, 2005, 'Cognitive-linguistic skills and motivation as longitudinal predictors of reading and arithmetic achievement: A follow-up study from kindergarten to grade 2', *International Journal of Educational Researc*h, vol. 43, no. 4, pp. 250-271.

Mason, L 2013, 'Teaching students who struggle with learning to think before, while, and after reading: Effects of self-regulated strategy development instruction', *Reading & Writing Quarterly: Overcoming Learning Difficulties*, vol. 29, no. 2, pp. 124-144.

McKeown, M, Beck, I, Omanson, R, & Pople, M 1985, 'Some effects of the nature and frequency of vocabulary instruction on the knowledge and use of words', *Reading Research Quarterly*, vol. 20, no. 5, pp. 522–535.

Moates, L 1999, *Teaching reading is rocket science: What expert teachers of reading should know and be able to do*, American Federation of Teachers, Washington, DC.

Murdoch Children's Research Institute 2013, 2013 *Let's read literature review*, research paper, report prepared by A Shoghi, E Willersdorf, L Braganza & M McDonald.

National Centre for Education Statistics 1995, *Listening to children read aloud: Data from NAEP's Integrated Reading Performance Record (IRPR) at Grade 4*, research report, report prepared by G Pinnell, J Pikulski, K Wixson, J Campbell, P Gough & A Beatty.

National Institute for Literacy 2006, *Put reading first: Kindergarten through Grade 3*, research report, report prepared by B Armbruster, F Lehr & J Osborn.

National Reading Panel 2000, *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*, reports of the subgroups.

National Reading Technical Assistance Center 2010, *A review of the current research on comprehension instructio*n, research synthesis, report prepared by S Butler, K Urrutia, A Buenger & M Hunt.

National Research Council 1998, *Preventing reading difficulties in young children*, report prepared by C Snow, S Burns and P Griffin, National Academy Press, Washington.

Olszak, I 2014, 'Graphic and semantic organisers as cognitive strategies in reading instruction', *Crossroads: A Journal of English Studies*, vol. 6, pp. 28-41.

Ontario Ministry of Education 2012, *Morphology works*, research monograph, report prepared by J Kirby & P Bowers.

Pacific Resources for Education and Learning 2004, *Assessing reading fluency*, report prepared by T Rasinski.

Pardo, L 2004, 'What every teacher needs to know about comprehension', *The Reading Teacher*, vol. 58, no. 3, pp. 272-280.

Penno, J, Wilkinson, I & Moore, D 2002, 'Vocabulary acquisition from teacher explanation and repeated listening to stories: Do they overcome the Matthew effect?', *Journal of Educational Psychology*, vol. 94, no. 1, pp. 22-33.

Praveen, S & Rajan, P 2013, 'Using graphic organizers to improve reading comprehension skills for the middle school ESL students', *English Language Teaching*, vol. 6, no. 2, pp. 155-170.

Pressley, M 2001, 'Comprehension instruction: What makes sense now, what might make sense soon, *Reading Online*, vol. 5, no. 2, pp. 1-14.

RAND 2002, *Reading for understanding: Toward an R&D program in reading comprehension*, research brief, report prepared by C Snow.

Rasinski, T 2003, *The fluent reader: Oral reading strategies for building word recognition, fluency, and comprehension*, Scholastic, Jefferson City M.O.

Rasinski 2004, 'Creating fluent readers', *Educational Leadership*, vol. 61, no. 6, pp. 46-51.

Rasinski, T 2014, 'Fluency matters', *International Electronic Journal of Elementary Education*, vol. 7, no. 1, pp. 3-12.

Rasinski, T & Zimmerman, B 2011, Fluency: *The misunderstood goal of the school reading curriculum*, School Library Journal, viewed 10 January 2017 <http://www.slj.com/2011/05/standards/fluency-the-misunderstood-goal-of-the-school-reading-curriculum/>.

Rupley, W, Blair, R & Nicholls, W 2009, 'Effective reading instruction for struggling readers: The role of direct/explicit teaching', *Reading & Writing Quarterly*, vol. 25, no. 2-3, pp. 125-138.

Samuels, S 1997, 'The method of repeated readings', *The Reading Teacher*, vol. 50, no. 5, pp. 376-381.

Sénéchal, M 1997, 'The differential effect of storybook reading on preschoolers' acquisition of expressive and receptive vocabulary', *Journal of Child Language*, vol. 24, no. 1, pp. 123-218.

Shanahan, T 2015a, *Sorting out the arguments over 'independent' reading*, Shanahan on Literacy, viewed 20 February 2017, <http://www.shanahanonliteracy.com/2015/08/sorting-out-arguments-over-independent.html>.

Shanahan, T 2015b, *The spirit is Willingham, but the Flesch is weak*, Shanahan on Literacy, viewed 20 February 2017, <http://www.shanahanonliteracy.com/search/label/Daniel%20Willingham>.

Snow, P 2015, The way we teach most children to read sets them up to fail, The Conversation, viewed 20 December 2016 < https://theconversation.com/the-way-we-teach-most-children-to-read-sets-them-up-to-fail-36946>.

Solis, M, Ciullo, S, Vaughn, S, Pyle, N, Hassaram, B & Leroux, A 2012, 'Reading comprehension interventions for middle school students with learning disabilities: A synthesis of 30 years of research', *Journal of Learning Disabilities*, vol. 45, no. 4, pp. 327-430.

South Australian Department of Education and Children's Services 2011a, Phonological awareness, report prepared by D Konza.

South Australian Department of Education and Children's Services 2011b, *Phonics*, report prepared by D Konza.

Spencer, M, Quinn, J & Wagner, R 2014, 'Specific reading comprehension disability: Major problem, myth, or misnomer?', *Learning Disabilities Research & Practice*, vol. 29, no. 1, pp. 3-9.

Stark, H, Snow, P, Eadie, P & Goldfield, S 2016, 'Language and reading instruction in early years' classrooms: the knowledge and self-rated ability of Australian teachers', *Annals of Dyslexia*, vol. 66, no. 1, pp. 28-54.

Torgesen, J 2002, 'The Prevention of reading difficulties', *Journal of School Psychology*, vol. 40, no. 1, pp. 7-26.

Trivette, C, Simkus, A, Dunst, C, Hamby, D 2012, 'Repeated book reading and preschoolers' early literacy development', *Centre for Early Literacy Learning*, vol. 5, no. 5, pp. 1-13.

United Kingdom Department for Education and Skills 2006a, *Independent review of the teaching of reading*, report prepared by J Rose.

United Kingdom Department for Education and Skills 2006b, *A systematic review of the research literature on the use of phonics in the teaching of reading and spelling*, report prepared by C Torgerson, G Brooks & J Hall.

United Kingdom Department for Education 2016, *Phonics screening check and key stage 1 assessments: England 2016*, research report.

Wagner, R & Meros, D 2010, 'Vocabulary and reading comprehension: Direct, indirect, and reciprocal influences', *Focus on Exceptional Children*, vol. 43, no. 1, pp. 1-10.

Wigfield, A & Asher S 1984, 'Social and motivational influences on reading', in P Pearson, R Barr, M Kamil & P Mosenthal (eds), *Handbook of reading research*, Longman, New York.

Willingham, D 2006, 'The usefulness of brief instruction in reading comprehension strategies', *American Educator*, vol 30, no. 4, pp. 39-45.

Willingham, D, & Lovette, G 2014, *Can reading comprehension be taught?*, Teachers College Record, viewed 23 March 2017, <http://www.danielwillingham.com/uploads/5/0/0/7/5007325/willingham&lovette_2014_can_reading_comprehension_be_taught_.pdf >.

Wolf, M & Barzillai, M 2009, 'The importance of deep reading', *Educational Leadership*, vol. 66, no. 6, pp. 32-37.

Wyse, D & Goswami, U 2008, 'Synthetic phonics and the teaching of reading', *British Educational Research Journal*, vol. 34, no. 6, pp. 691-710.

Zutell, J & Rasinski, T 1991, 'Training teachers to attend to their students' oral reading fluency', *Fluency in Oral Reading*, vol. 30, no. 3, pp. 211-217.

Centre for Education Statistics and Evaluation
GPO Box 33
Sydney NSW 2001
Australia

02 9561 1211

cese@det.nsw.edu.au

www.cese.nsw.gov.au

NSW Department of Education

NSW GOVERNMENT