

## Faculty of Education

Te Kura Toi Tangata

# Waikato Journal of Education

Te Hautaka Mātauranga o Waikato



## WAIKATO JOURNAL OF EDUCATION TE HAUTAKA MĀTAURANGA O WAIKATO

**Editors:** Editorial Board:

Clive McGee Beverley Bell Toni Bruce
Rosemary DeLuca Margaret Carr Bronwen Cowie
Rosemary DeLuca Deborah Fraser

Richard Hill Margie Hohepa
Judy Moreland Sally Peters
Clive Pope Noeline Wright

Waikato Journal of Education is a refereed journal, published annually, based in the Faculty of Education, The University of Waikato, Hamilton, New Zealand. It publishes articles in the broad field of education. For further information visit the WJE website http://edlinked.soe.waikato.ac.nz/research/journal/index.php?id=8

Correspondence and articles for review should be addressed to: Research Manager, Wilf Malcolm Institute of Educational Research, Faculty of Education, The University of Waikato, Private Bag 3105, Hamilton, 3240, New Zealand. Email: wmier@waikato.ac.nz

Business correspondence: Orders, subscription payments and other enquiries should be sent to the Administrator, *Waikato Journal of Education*, Wilf Malcolm Institute of Educational Research, School of Education, The University of Waikato, Private Bag 3105, Hamilton, 3240, New Zealand, Email: wmier@waikato.ac.nz

Subscriptions: Within NZ \$40; Overseas NZ \$50

Copyright: © Faculty of Education, The University of Waikato Publisher: Faculty of Education, The University of Waikato

Cover design: Donn Ratana Printed by: Waikato Print

#### Call for papers

The Waikato Journal of Education provides an avenue of publication for quality articles on education. This peer-reviewed journal welcomes a range of topics including interdisciplinary, philosophical and applied research approaches.

Submissions are now invited for consideration for publication in the November 2011 issue. Please submit an electronic copy and a separate page with author/s contact details by **30 April 2011** to WMIER Research Manager, Carolyn Jones (cjjones@waikato.ac.nz), Faculty of Education, University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand.

## WAIKATO JOURNAL OF EDUCATION

### TE HAUTAKA MĀTAURANGA O WAIKATO

**VOLUME 15, Issue 3: 2010** 

TERRY LOCKE
Lecturer-student Views on Successful Online Learning Environments ELAINE KHOO, MICHAEL FORRET AND BRONWEN COWIE
Teaching Te Reo Māori as a Second Language in Primary Schools: Two Case Studies RICHARD HILL
Reading at Risk: Why Effective Literacy Practice is not Effective SHEILPA PATEL 5
Developing Decision-Making in Rugby DARRYL PARRANT AND ANDREW J MARTIN
Professional Discipline: Analysis of New Zealand Teachers Disciplinary Tribunal Decisions KATE DIESFELD
Restorative Practice and Behaviour Management in Schools: Discipline Meets Care WENDY DREWERY AND MARIA KECSKEMETI
Towards Understanding Models for Statistical Literacy: A Literature Review SASHI SHARMA, PHIL DOYLE, VINEY SHANDIL AND SEMISI TALAKIA'ATU
Conceptions, Language, Culture and Mathematics and the New Zealand Curriculum JUDY BAILEY AND MERILYN TAYLOR
Reasons for Joining the Teaching Profession: Primary Student Teachers GOVINDA ISHWAR LINGAM
The Others and/in Me JOAN VALENZUELA 15

# READING AT RISK: WHY EFFECTIVE LITERACY PRACTICE IS NOT EFFECTIVE

#### SHEILPA PATEL

Faculty of Education
The University of Waikato

ABSTRACT The gap between high and low achievers in reading is wide in New Zealand compared to other countries as shown in PIRLS (Progress in International Reading Literacy Study) 2001 and 2006 studies. Students of minority backgrounds and low socio-economic status are over-represented in the low achieving category. As the primary response to reduce the achievement gap, the Government developed and distributed the literacy teaching reference Effective Literacy Practice in Years 1 to 4. This article examines Effective Literacy Practice against current scientific-based international research in the teaching of reading, with particular emphasis on the teaching of reading to students at risk. Research evidence shows that an explicit and systematic approach to teaching reading is critical to the success of reading achievement with at-risk students. With a heavy leaning towards incidental learning, Effective Literacy Practice fails to provide teachers with the necessary knowledge to effectively teach the critical components of reading.

#### **KEYWORDS**

Reading achievement, risk factors, reading instruction, reading research

#### INTRODUCTION

International studies have repeatedly shown that while New Zealand children read successfully compared to children of other countries, the gap between the highest and lowest achievers is wide relative to other countries (Ministry of Education, 1999a; Tunmer, Chapman, & Prochnow, 2004; Tunmer et al., 2008). Of the 30 countries involved in the Programme for International Student Assessment (PISA) survey in 2003, only three countries had an achievement gap larger than New Zealand (Ministry of Education, 2009). In 1998, the Government adopted the goal that "by 2005, every child turning nine will be able to read, write and do maths for success" (Ministry of Education, 1999b, p. 4). With relation to reading in particular, the Government's objective was to close the gap between the highest and lowest achievers. The Government established the Literacy Taskforce (Ministry of Education, 1999b), which acknowledged that although schools purchase teacher resources from many providers to guide the instruction of reading, the Ministry of Education must provide teaching materials that reflect research on best practice to guarantee schools and teachers access to this information.

Effective Literacy Practice in Years 1 to 4 (Ministry of Education, 2003) is the primary response to recommendations made by the Literacy Taskforce "to ensure that children receive the best possible teaching ... [and] ... has been designed as the key reference for professional development programmes" (Ministry of Education,

2003, p. 6). Effective Literacy Practice is used as a guiding document in training student teachers in literacy education and is the principle handbook provided free of charge to all teachers in schools by the Ministry of Education. At its annual National Literacy Symposium (Learning Media Symposium, 2005) for teachers, Learning Media consistently referred to the handbook as the "bible" for teachers of reading and writing. Learning Media emphasises the "value of the handbooks in the classroom, in professional development sessions, and in teacher training" (Learning Media, 2010). The Ministry of Education also agrees that the handbook is a core professional text that is expected to be known and used by teachers and should be used in teacher training institutions (personal communication, July 21, 2010). The Ministry of Education (2003) states that the handbook is based on national and international research and aims to help teachers serve the needs of all learners in New Zealand by showing teachers the evidence that links literacy teaching practice, learning processes and student outcomes.

The 2006 Progress in International Reading Literacy Study (PIRLS) confirms that the Government has failed to achieve its goal. The gap between high and low achievers has not been reduced, even after the Government's intervention of developing and promoting *Effective Literacy Practice* (Tunmer et al., 2008). The wide gap between the high and low achievers indicates that the current approach to reading instruction is failing many students, especially those of lower socioeconomic backgrounds and of cultural diversity.

Māori children enter school with lower reading skills than non-Māori children and are more likely to come from low-income homes with large families and shared households (Lai, McNaughton, Amituanai-Toloa, Turner, Hsiao, & 2009; Ministry of Women's Affairs, 2005). Māori children are also more likely to attend lower decile schools where low levels of achievement are more prevalent. Māori and Pasifika students and those from low-decile schools are over-represented in the low achieving category in the IEA international survey taken in 1990 (Ministry of Education, 1999b) and in the PIRLS studies released in 2001 (Tunmer, Chapman, & Prochnow, 2002) and in 2006 (Education Counts, 2009; Tunmer et al., 2008).

While it has been suggested by many experts that between one and five percent of the population may have a biological disposition that results in reading difficulties, between 95 and 99 percent of all learners should be able to read with good instruction (Pressley, 2006). This paper argues that *Effective Literacy Practice* has not had the intended impact on student reading achievement because it does not reflect scientific, research-based evidence of best practice. The gap in reading achievement is likely to continue to grow, as the population of students with diverse backgrounds continues to grow in New Zealand, unless teachers implement evidence-based instructional reading strategies that target the needs of these students who are achieving at low levels.

#### READING INSTRUCTION IN NEW ZEALAND

In New Zealand, teachers have predominantly adopted a uniform approach to teaching reading with a firm orientation in whole language (Blaiklock & Haddow, 2008; Cordemans, 2008; Smith & Elley, 1997; Tunmer et al., 2002, Tunmer,

Chapman, & Prochnow, 2006; Tunmer et al., 2008). In accordance with a whole language theoretical orientation, *Effective Literacy Practice* suggests that the definition of reading is constructing meaning from text using sources of information or reading cues, regardless of an individual's reading stage. This explanation of reading aligns itself with Kenneth Goodman's (1976) explanation of the reading process where readers make the best guesses possible by using the fewest possible cues available to them including sampling, predicting, guessing and confirming unknown words in the process of reading.

As explained in *Effective Literacy Practice*, approaches used to teach reading in New Zealand include reading to children, language experience, shared reading, guided reading and independent reading. Teachers tend to stay away from teaching phonological and word level skills systematically, and instead lean towards teaching reading through meaningful contexts (Blaiklock & Haddow, 2008; Smith & Elley, 1997; Tunmer et al., 2002, 2006; Tunmer et al., 2008). Reading approaches used in New Zealand that "highlight a child's purpose and meaning from the outset, with high interest books, are used as the vehicle for helping children gain these elements incidentally" (Smith & Elley, 1997, p. 37). In fact, when describing beginning readers, Effective Literacy Practice states "children whose control of the strategies is limited may process text in inappropriate ways for example, by relying on their memory, by trying to sound out every single word ..." (p. 39). Taking a meaning-driven approach to reading, the Ministry of Education (2003) rejects sounding out as a processing strategy. The assumption made in Effective Literacy Practice is that making predictions or guessing is better than using skill-based strategies to determine the meanings of unknown words, a view supported by whole language advocates (Clay, 1991; Goodman, 1976; Weaver, 1994).

One theory presented by Tunmer, Chapman and Prochnow (2004) is that the emphasis towards a whole language orientation in New Zealand is in large part responsible for the wide gap in reading achievement as illustrated in the international studies. Tunmer et al. (2004) believe whole language instruction does not meet the needs of children of diverse cultural and economic backgrounds with a wide range of literacy ability because they enter school with fewer concepts about print, phonological awareness, and knowledge of letter-name correspondences. Because skills in these areas are not explicitly taught in a whole language reading programme, these children face hurdles that are not addressed adequately (Tunmer et al., 2004). Nicholson (1997) concluded that there is evidence that whole language approaches are associated with high levels of low achievement, particularly for students from low-income backgrounds. Children from more advantaged backgrounds are more likely to enter school with better understandings of concepts about print and knowledge of letter-sound relationships (Snow, Burns, & Griffin; 1998; Tunmer et al., 2004).

Tunmer et al. (2002) hypothesised that the achievement gap between Māori and Pakeha could be reduced if standard whole language reading instruction in new entrant classrooms was supplemented with instruction in phonological processing skills. To test this hypothesis, they conducted a retrospective study of seven schools across varying socio-economic areas with 152 children whose literacy development

#### 54 Sheilpa Patel

was closely monitored from school entry to the middle of year 3. All of these students had been instructed in a standard whole language literacy approach. The researchers selected 63 of these children to be the control group. The group who received modified instruction had 80 students from the same schools and met the same criteria for selection as the control group. They were assessed at the same time as the control group, using the same tests, and upon school entry performed at similar levels on letter identification, onset-rime segmentation and word identification. Tunmar et al (2002). found that supplementing instruction with materials and skills in phonological awareness and alphabet coding resulted in the modified group of children achieving an average of 14 months higher than the children in the control group by the end of year 2. Perhaps more relevant to the achievement gap in New Zealand between Pakeha and Māori is that the researchers found the gap that initially existed between Māori and Pakeha students upon school entry had also closed by the end of year 2.

This study supports findings Chall, Jacobs and Baldwin (1990) reported on low-income children in the United States. Chall et al. (1990) "found that systematic and direct teaching of phonics in the early grades was effective in general, and especially for those at risk – low-income children and those with reading or learning difficulties" (p. 6). Other studies have also suggested that a whole language approach to teaching is less advantageous for children who are at risk of low achievement (Juel & Minden-Cupp, 2000; Stahl & Miller, 1989).

While the studies by Tunmer et al. (1998, 2002, 2004) and Chall et al. (1990) support the need for a greater emphasis on explicit and systematic teaching of phonological processing skills, particularly for children from low-income families, they also caution against the idea that these skills alone will mend the reading achievement gap over the long term. Chall et al. (1990) found that while the achievement gains made in the early years of primary school were maintained, in grade four the achievement levels began to decline. Although decoding, being able to recognise words, and being able to read fluently proved to be important to bridge the gap in the first few years of schooling, by grade four the focus on learning changes from learning to read to reading to learn. Research conducted by Hart and Risley (2003) shows that this requires a strong knowledge base in academic words that may be used less commonly in homes where low income is associated with low parent education levels and fewer books, magazines, and newspapers. Tunmer et al. (2004) reiterate this when they say that while supplementing standard beginning reading instruction with a more skills-oriented approach can greatly improve the success of reading achievement for Māori children, they

are not suggesting that changing the beginning method of teaching literacy alone will act as a "silver bullet" for bringing about equity in New Zealand literacy education. It is well established that reading failures are associated with various socio-economic factors, such as residing in low-income families, living in poor neighbourhoods, having parents with limited education and low levels of literacy, and attending schools in which literacy achievement is chronically low. (p. 132)

Gaps in knowledge and achievement upon school entry must be addressed for at-risk children through systematic skills instruction or they will continue to grow throughout the schooling years (Chall et al., 1990; Nicholson, 2000; Tunmer, Chapman, Ryan, & Prochnow, 1998; Tunmer et al., 2002, 2004).

#### RESEARCH AND EFFECTIVE PRACTICE

In order to evaluate the effectiveness of *Effective Literacy Practice*, it is important to first determine what constitutes best practice based on scientific-based research evidence. "Research – when it is based on sound scientific observations and analyses – provides reliable information about what works and why and how it works" (Reyna, 2004, p. 47). The common definition of scientific-based research includes the following criteria:

- ... the use of rigorous, systematic, and objective methodologies to obtain reliable and valid knowledge. Specifically, such research requires
- (A) development of a logical, evidence-based chain of reasoning;
- (B) methods appropriate to the questions posed;
- (C) observational or experimental designs and instruments that provide reliable and generalizable findings;
- (D) data and analysis adequate to support findings;
- (E) explication of procedures and results clearly and in detail, including specification of the population to which the findings can be generalized;
- (F) adherence to professional norms of peer review;
- (G) dissemination of findings to contribute to scientific knowledge; and
- (H) access to data for reanalysis, replication, and the opportunity to build on findings." (American Educational Research Association, 2009)

This section provides research-based evidence for the instruction of reading including individual studies targeted at low-income populations as well as conclusions drawn from the National Reading Panel's (2000) meta-analysis of effective reading strategies. "Based on the scientific evidence, the essential components of any reading programme must include *systematic* and *direct* instruction in phonemic awareness, phonics, reading fluency, vocabulary development, and comprehension strategies" (Lyon, Shaywitz, Chhabra, & Sweet, 2007, p. 171).

#### **Phonemic Awareness**

Phonemic awareness is the awareness that words are comprised of separate sounds (phonemes). Research suggests that phonemic awareness is a necessary competency for successful reading and children who lack this awareness struggle with decoding (Adams, Foorman, Lundberg, & Beeler, 1998; Andrews, 1992; Blachman, 2000;

Brady & Moats, 1997; Cunningham, 1999; Ehri & Nunes, 2002; Juel, 1988; Juel, Griffith, & Gough, 1986; National Reading Panel, 2000; Nicholson, 1997; Nicholson, 2005; Pressley, 2002b; Share, Jorm, Maclean, & Matthews, 1984; Snow et al., 1998; Stanovich, 1986).

Juel (1988) conducted a landmark study of phonemic awareness that has led to many further studies on the effects of phonemic awareness instruction. In this study, Juel followed the reading achievement of 54 children from grade one through four in one school with a large population of minority children and children from low socio-economic backgrounds. The study showed that children identified as poor readers through standardised reading achievement tests entered grade one with little phonemic awareness. Phonemic awareness was found to be highly predictive of later reading achievement (Adams, 1990; Adams et al., 1998; Graves, Juel, & Graves, 2004; Juel, 1988; Stanovich, 1986). Children with poor phonemic awareness struggled with letter-sound correspondences even with a year of phonics instruction, leading to a vicious cycle of low achievement. Without being able to decode, children faced problems identifying words, leading to more problems with reading and writing. In Juel's (1988) study, the poor readers were less likely to read for enjoyment or be exposed to a range of reading materials in and out of school. This limited their growth in vocabulary development while average and good readers continued to improve their reading achievement and vocabulary development through more reading (Juel, 1988). This study suggests that low phonemic awareness is the first stumbling block for children, which leads to trouble with decoding, spelling and, in time, reading comprehension.

Research has shown that intervention and explicit instruction in phonemic awareness is successful at reducing the likeliness of low reading achievement in following years (Castle, Riach, & Nicholson, 1994). As part of its comprehensive study, the National Reading Panel's (2000) findings confirm that phonemic awareness is a necessary competency as a foundation for spelling and reading skills and should be explicitly taught as part of a beginning reading programme. The National Reading Panel (2000) found that all types of readers, regardless of socioeconomic status, including beginning readers and children who are at risk of reading failure are likely to benefit from explicit instruction in phonemic awareness. The National Reading Panel also found phonemic awareness improved reading comprehension and concluded that this was likely to be a result of phonemic awareness aiding in word identification.

Some children develop phonemic awareness incidentally either at home through playing word and letter games with their parents, being immersed in a print-rich environment, or by having stories and rhymes read to them. However, many children, especially those of minority or low socio-economic backgrounds, who do not come from homes with environments rich in print, fail to develop this awareness without formal or explicit instruction (Badenhop, 1992; Nicholson, 2005; Pressley, 2002, 2006; Stanovich, 1986). As a result, many suffer low reading achievement. If the gap between low achievers and high achievers is to close, phonemic awareness instruction should be an integral part of a beginning reading instruction programme.

#### The alphabetic principle

While phonemic awareness is a necessary prerequisite to successful reading, it is not sufficient (Badenhop, 1992; Cunningham & Cunningham, 2002; Nicholson, 2000, 2005). Byrne and Fielding-Barnsley (1991) found that an understanding of the alphabetic principle and phonemic awareness function in a complementary way when children first begin to decode words. Understanding the alphabetic principle is the ability to map sounds to corresponding letter symbols in order to recognise words (Moats, 2001). "The critical ingredient in learning to read and spell is phonological recoding skill—the linking of letters to phonemes" (Nicholson, 2005, p. 21). Moats (1998) explains that systematic teaching of the alphabetic principle is more likely to result in automatic association between letters and sounds, leading to reading fluency and reading comprehension.

Foorman, Francis, Novy and Liberman (1991) conducted a study to examine the effect of explicit letter-sound instruction on word-level reading. Their study included 80 first-grade children who were observed and assessed over one year. Half of the children received instruction in letter-sound correspondence including segmenting and blending sounds in isolation. The other half was instructed in reading whole words through meaningful contexts and language experience activities with some letter-sound instruction as required for spelling activities. The researchers found that students who received letter-sound instruction increased their reading accuracy of "exception" or irregular words, words that do not follow English spelling patterns, from 20 percent in October to 51 percent in May. Students who received reading instruction through meaningful contexts improved their reading accuracy of exception words from 17 percent in October to 35 percent in May. In reading "regular" words, words that do follow English spelling patterns, students who received letter-sound instruction increased their reading accuracy from 31 percent in October to 80 percent in May and students who received reading instruction through meaningful contexts increased their reading accuracy from 30 percent in October to 60 percent in May. While reading accuracy improved for all children over the course of the year, students who received explicit letter-sound instruction increased accuracy more quickly. This study confirmed findings by Tunmer and Nesdale (1985).

In a further study, Foorman, Francis, Fletcher and Mehta (1998) examined the effects of instruction in the alphabetic principle for students at risk of reading failure due to low socio-economic status and enrolment in schools with low achievement on emergent literacy surveys. The researchers found children from low socio-economic backgrounds as well as culturally and linguistically diverse backgrounds who received direct instruction in letter-sound correspondence improved in decoding words at a significantly faster rate than students of a similar background who received instruction through exposure to literature. Foorman et al. (1998) suggest that "it may well be possible to prevent reading failure for large numbers of children if beginning instruction explicitly teaches the alphabetic principle" (p. 52).

The National Reading Panel (2000) conducted a meta-analysis to evaluate the effectiveness of teaching children to decode through systematic phonics instruction

#### 58 Sheilpa Patel

based on scientific evidence. Of 75 relevant studies, the Panel focused on 38 studies that met the strongest research criteria. The National Reading Panel (2000) reported that systematic phonics instruction was "more effective in improving low socioeconomic status (SES) children's alphabetic knowledge and word reading skills than instructional approaches that were less focused on these initial reading skills" (p. 9). The National Reading Panel (2000) also found that explicit instruction in the alphabetic principle is effective for all students, regardless of socio-economic status, but that it is significantly more effective in the prevention and remediation of reading difficulties.

#### Word recognition, automacity and fluency

There has been an increased focus on the importance of developing fluency in readers since the release of the National Reading Panel's (2000) report (Hudson, Lane & Pullen, 2005; Pikulski & Chard, 2005). While an understanding of the alphabetic principle allows children to apply decoding strategies to words, readers must also develop automatic word recognition to achieve fluency. Reading fluency is an integration of speed or reading rate, accuracy and appropriate expression, and is dependent on automatic word recognition (National Reading Panel, 2000; Rasinski, 2000; Stahl, 2004). "The more effort required to decode a word, the less capacity that is left over to comprehend it and the larger messages in the text" (Pressley, 2006, p. 321). Therefore, decoding practice is necessary to achieve automacity, the ability to automatically decode words accurately and quickly (Anderson, Hiebert, Scott, & Wilkinson, 1985). Accuracy is a key element of automatic word recognition as it directly affects overall comprehension. Research indicates that reading comprehension improves in early reading with increased automacity (Hook & Jones, 2002; Nicholson & Tan, 1999).

"A slow reading rate may be symptomatic of inefficient word recognition ..." (Rasinski, 2000, p. 150). Critical to learning to identify words is practice in associating letters to sounds, allowing children to learn and recognise spelling patterns quickly and efficiently (Hook & Jones, 2002; Thompson, 1999). To speed the decoding process, children can be taught to recognise word families i.e. chunks of letter-sound correspondences and apply this information to unknown words (Moats, 1998). Automatic word recognition also improves with an understanding of word structure including affixes and base words. Rasinski, Padak and Fawcett (2010) explain "that word recognition instruction needs to be regular, consistent, direct, and systematic. And for students who struggle in learning to recognize words, the intensity of the instruction needs to be higher" (p. 89). Less fluent readers have to invest more time to read the same amount as their more fluent counterparts, read less overall, and focus on decoding sounds or words slowly and laboriously, often at the cost of comprehension (Block & Pressley, 2007; Rasinski, 2000). As a result of reading and decoding practice, fluent readers build up a word bank that allows them to automatically recognise approximately 85 percent of the words they encounter regularly, allowing them to concentrate on reading texts for comprehension (Graves et al., 2004; Samuels, 2002). Automacity is an important prerequisite skill for achieving fluency.

#### Vocabulary development

Perfetti (2010) explains the interconnected relationship between decoding, vocabulary and comprehension by stating, "limitations in any one will affect at least one other constituent and will accordingly set a limit on overall skill" (p. 293). Vocabulary development, phonological recoding and automatic word recognition are clearly important skills from this perspective for beginning readers.

Chall et al. (1990) found that children from low socio-economic backgrounds with these basic reading skills were able to read and comprehend at the same level as their middle-class peers in the early years of schooling. However, by the end of grade three, a gap in reading achievement and comprehension began to form between children of low socio-economic backgrounds and their middle-class peers that widened as the children continued through school. Grough and Tunmer's (1986) "simple view of reading" pose that reading is the product of decoding and listening comprehension. In the first years of schooling, children are learning to read; however, as children progress through school, they must read to learn in content areas. At this stage, having automatic decoding skills is not enough to bridge the gap between being able to decode words and read for comprehension.

Biemiller (2001) suggests that the missing link between decoding and reading comprehension is vocabulary. Koltun and Biemiller (1999) conducted a study to assess the role of vocabulary in reading comprehension and concluded that teaching vocabulary improves listening and reading comprehension. "It has been known for a long time that the size of a person's vocabulary is one of the strongest predictors of how well that person can understand what he or she reads" (Stahl & Nagy, 2006, p. 9).

Hart and Risley (2003) studied vocabulary growth between young children in families on welfare, children from working-class families, and children from professional families. They found that word experience at age three was highly correlated to language skill at age nine and 10, indicating schools have very little effect on bridging vocabulary development between children of diverse backgrounds. However, more disturbingly, they found that by age four, the average child in a family on welfare would have accumulated far fewer words than a professional family's child. Their study draws attention to the urgent need to address vocabulary development in schools.

Chall et al.'s (1990) study concluded that the gap between high and low reading achievement might be prevented by addressing vocabulary development. Children from low socio-economic backgrounds "do not seem to acquire many of the more sophisticated, abstract, specialized, and literary words needed for academic success in the intermediate and later elementary grades" (p. 165). As the vocabulary in reading grows increasingly specialised, children from low socio-economic are disadvantaged by the lack of necessary exposure to academic words and concepts at home. Graves (2006) reiterates that children from low-income backgrounds can be at risk of inadequate vocabulary and that this "lack of vocabulary can be a crucial factor underlying the school failure of disadvantaged students" (p. 3).

#### 60 Sheilpa Patel

Stanovich (1986) explained that children who struggle with reading due to their inability to recognise words because of either weak decoding skills or their lack of relevant vocabulary read less than their peers who have the vocabulary and word recognition knowledge necessary to comprehend reading material. Therefore, children who read well with sufficient vocabulary and word recognition skills tend to read more, practise more and gain more vocabulary knowledge through the context of reading than their less able peers. This difference between children who are advantaged through better early educational experiences than their less advantaged peers is one main contributor to what Stanovich (1986) called the Matthew Effect, where the rich get richer and the poor get poorer (Stahl & Nagy, 2006). While it is unclear whether it is possible to completely overcome the gap in vocabulary development between children from high socio-economic and low socio-economic backgrounds, attention to explicit vocabulary instruction is critical to responding to the achievement gap. The clearest way to prevent or minimise the gap before it becomes intractable is to have an effective beginning reading programme in place that addresses the skills children need to be able to read, enabling children to learn vocabulary in the context of reading alongside an explicit vocabulary instructional programme (McKeown & Beck, 2004; Pressley, Disney, & Anderson, 2007).

#### Reading comprehension and strategies

Regardless of one's view on the reading process, there is little disagreement that the ultimate purpose for reading is to comprehend the text. The achievement gap begins when students have poor decoding skills and limited vocabulary as they find comprehension challenging, if not impossible (Block & Pressley, 2007). Many students do not recover from weak decoding skills and poor word recognition skills, and fail to achieve reading success (Archer, Gleason, & Vachon, 2003; Cunningham & Stanovich, 1998; Ryder, Tunmer, & Greaney, 2008). Decoding is a necessary skill in order to comprehend text; however, being able to decode does not automatically result in comprehension. Research shows that students need to be explicitly taught comprehension strategies and techniques to improve their reading comprehension. Historically, teachers were encouraged to teach up to 45 different comprehension strategies in the course of a year (Block & Duffy, 2008). However, recent research suggests that students benefit from being explicitly taught how to use and integrate a smaller number of key strategies flexibly and simultaneously (Block & Duffy, 2008; Block & Pressley, 2007; Dymock & Nicholson, 2007; National Reading Panel, 2000; Pressley, 2002, 2006). When teaching comprehension strategies, teachers should explain the key strategies and model how to use the strategies with different texts. Students should then be given opportunities to practise the strategies (National Reading Panel, 2000; Pressley, 2006; Snow et al., 1998). One key comprehension strategy is teaching students to actively relate the ideas they read in texts to their own personal experiences and world knowledge, making the text more relevant to their lives (Dymock & Nicholson, 2007; Graves, Watts-Taffe, & Graves, 1999; Pressley, 2006; Snow et al., 1998). Making links between reading and prior knowledge and experience allows the reader to weave new information into existing frameworks, resulting in greater understanding. When students learn how to actively use their prior knowledge and experience to extend their comprehension, they begin to monitor their own reading comprehension.

Additional key reading comprehension strategies that should be explicitly taught, modelled and practised include creating mental images, summarising, analysing text structures, and questioning before and during the reading of a text (Block & Duffy, 2008; Block & Pressley, 2007; Dymock & Nicholson, 2007; Graves et al., 1999; Pressley, 2002, 2006; Snow et al., 1998). Research suggests that students are better able to answer questions effectively if they are taught questioning-answering strategies and develop an understanding of the types of questions that are typically asked (Nicholson, 2000). Students also need to be taught how to ask questions effectively during the reading process that may be answered in the course of the reading (Graves et al., 1999; Pressley, 2006). In order to become successful readers, children eventually have to become self-monitors of their own comprehension and consciously apply strategies misunderstandings (Block & Duffy, 2008; Graves et al., 1999; Snow et al., 1998).

# EFFECTIVE LITERACY PRACTICE AND THE USE OF RESEARCH EVIDENCE

Effective Literacy Practice does not explicitly refer to the vast amount of scientific research (e.g., National Reading Panel, 2000) available on effective literacy practice to inform its position on reading instruction, nor does it provide research evidence in support of the reading instructional practices it promotes. While it recognises the importance of reading components such as phonemic awareness, fluency and vocabulary, it does not explain how to best teach these components. Effective Literacy Practice describes how to use the guided reading approach over four pages (pp. 96–100), but does not devote even one page to the main component in language: words (vocabulary). There is no explanation of how to teach vocabulary or the teacher's role in developing vocabulary. Explicit and systematic strategies for teachers to assess and teach phonemic awareness, letter-sound relationships and fluency are available and supported by scientific research. However, Effective Literacy Practice provides no instructional strategies or information for teachers with regards to developing these specific reading skills.

Effective Literacy Practice acknowledges that reading is a complex process and that reading instruction should be a balance between skills instruction and meaningful reading, yet it continues to encourage teaching through immersion and holistic means over explicit and systematic instruction. Effective Literacy Practice encourages teachers to teach skills on an ad hoc basis through meaningful reading activities. There are many children from low socio-economic backgrounds and of diverse cultures who do not arrive at school with the prior knowledge to be successful in a programme that expects reading skills to develop incidentally (Chall et al., 1990; Stanovich, 1986; Tunmer et al., 2004). As suggested by vast amounts of research, for students who are at risk of not achieving in literacy, explicit teaching is a critical element in reading achievement (National Reading Panel,

62

2000). *Effective Literacy Practice* fails these children by not providing the research evidence and teaching methods that have proven effective for children at risk of not achieving.

Despite the research available on specific, measurable skills children should have at certain stages of development (Snow et al., 1998), *Effective Literacy Practice* does not provide teachers with the knowledge or research to help them effectively assess their students' abilities, which should then inform instruction. This is particularly problematic for those students who are at risk of underachieving. *Effective Literacy Practice* ignores the research evidence that reflects the instructional approaches that best target the needs of children in different reading stages, and instead operates under the incorrect assumption that general meaning-focused reading approaches should be used to teach reading, regardless of the reader's stage of reading development. The one-size-fits-all approach is failing students, especially those of lower socio-economic backgrounds and of cultural diversity.

The Literacy Learning Progressions: Meeting the Reading and Writing demands of the Curriculum (Ministry of Education, 2010) provides teachers with a reference point for the skills that students should achieve by the end of each year. While the document is not a teaching manual, some of the gaps in *Effective Literacy* Practice are addressed in this document with a greater focus on a need for decoding in the early years as well as a recognition of the importance of the alphabetic principle, automacity, and vocabulary. However, the document maintains the position that literacy skills should be acquired within a meaningful context and that teachers should refer to Effective Literacy Practice as a key professional resource (Ministry of Education, 2010). Unfortunately, Effective Literacy Practice does not provide enough information to actually support teachers to develop these key literacy skills and knowledge. If teachers are expected to use *The Literacy Learning* Progressions as a reference point for the skills and knowledge students are expected to achieve in each year of school, there needs to be a greater alignment between *The* Literacy Learning Progressions and Effective Literacy Practice, the core text for literacy development, as well as an acknowledgement that there are times when literacy skills need to be taught explicitly and systematically, depending on the needs of the students.

According to Chapman (as cited in Massey University, 2009), the Literacy Taskforce unanimously recommended the Ministry of Education place a greater emphasis on letter-sound relationships for reading instruction, advice that was ignored. "Two years later, a parliamentary select committee on education and science unanimously recommended a re-emphasis be made on the importance of the development of phonetic, word-level decoding skills in a balanced teaching of reading programme. This recommendation was also ignored" (Chapman cited in Massey University, 2009). *The Literacy Learning Progressions* appears to acknowledge the advice given to the Ministry of Education and places a heavier emphasis on decoding skills. If teachers are provided with the knowledge, support and skills to effectively meet the criteria identified in *The Literacy Learning Progressions*, they may be able to adopt a more balanced reading programme.

#### CONCLUSION

Instead of using current research evidence to support a balanced instructional approach to reading. Effective Literacy Practice offers the same reading programme characterised by context-driven approaches that its predecessor, Reading in Junior Classes (Department of Education, 1985), provided 25 years ago. Until teachers know how to implement current best practice research effectively into their reading programmes and the specific strategies that research shows to be most effective for children at risk of underachievement, New Zealand will continue to experience a wide gap in achievement. The Literacy Experts Group (Ministry of Education, 1999a) recommended changes to literacy instruction that were "designed to help all children, but especially those at risk" (p. 4). These changes included a greater emphasis on skills and strategies instruction. This recommendation is not reflected in Effective Literacy Practice. Teachers are being encouraged to continue teaching reading with a predominantly whole language-based reading programme, using the same approaches that were being used 25 years ago and have not been proven to work for children of diverse backgrounds (Blaiklock & Haddow, 2008; Cordemans, 2008; Nicholson, 2000; Tunmer et al., 2004; Tunmer et al., 2008). It is unlikely that the degree to which effective reading instruction is discussed in Effective Literacy Practice is enough to equip pre- and in-service teachers with the information and strategies they need to change and improve their practice, particularly with regards to students who have not been succeeding within this framework of teaching reading. This is not a debate between phonics and whole language, but rather a critical look at whether teachers are provided with the essential tools they need to be successful at teaching reading. If Effective Literacy Practice is to be the guiding manual on effective reading instruction for teachers in New Zealand, it is not enough to provide descriptions of reading approaches like guided reading and shared reading. It must, at the very least, provide a thorough explanation of the core elements of reading: phonemic awareness, alphabetic principle, automacity, vocabulary and reading comprehension.

The scientific evidence has taught us that reading must be taught – directly and systematically – and that the children most at risk require the most systematic instruction with the best prepared teachers. ... [T]here remains an unforgivable gap between what we know about reading development and effective reading instruction and the instruction provided in many of our schools. This must stop. There are no more excuses. (Lyon et al., 2007)

*Effective Literacy Practice* fails as the primary response to reduce the gap in achievement.

#### REFERENCES

Adams. M. J. (1990). Beginning to read: Thinking and learning about print. Cambridge, MA: MIT Press.

Adams, M. J., Foorman, B. R., Lundberg, I., & Beeler, T. (1998). The elusive phoneme. *American Educator*, 22, 18–29.

- American Educational Research Association. (2009). *Education research and research policy*. Retrieved January 6, 2010, from http://www.aera.net/Default.aspx?id=6790
- Anderson, R. C., Hiebert, E. H., Scott, J. A., & Wilkinson, I. A. G. (1985). *Becoming a nation of readers: The report of the Commission on Reading.* Washington, DC: The National Institute of Education.
- Andrews, S. (1992). A skills approach: Optimising initial reading instruction. In A. Watson & A. Badenhop (Eds.), *Prevention of reading failure* (pp. 84–97). Sydney, NSW, Australia: Ashton Scholastic.
- Archer, A. L., Gleason, M. M., & Vachon, V. L. (2003). Decoding and fluency: Foundation skills for struggling older readers. *Learning Disability Quarterly*, 26(2), 89–101.
- Badenhop, A. M. (1992). Phonological awareness skills: The first two years of school. In A. Watson & A. Badenhop (Eds.), *Prevention of reading failure* (pp. 107–124). Sydney, NSW, Australia: Ashton Scholastic.
- Biemiller, A. (2001). Teaching vocabulary: Early, direct, and sequential. *American Educator*, 25, 25–28.
- Blachman, B. A. (2000). Phonological awareness. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (vol. III, pp. 483–502). Mahwah, NJ: Lawrence Erlbaum.
- Blaiklock, K., & Haddow, S. (2008). Incorporating phonics within a New Zealand whole language programme. *New Zealand Journal of Educational Studies*, 43(1 & 2), 143–159.
- Block, C. C. & Duffy, G. (2008). Research on teaching comprehension: Where we've been and where we're going. In C. C. Block & S. Parris (Eds.), *Comprehension instruction: Research-based best practices* (2nd ed., pp. 19–37). New York, NY: Guilford Press.
- Block, C. C., & Pressley, M. (2007). Best practices in teaching comprehension. In L. B. Gambrell, L. M. Morrow, & M. Pressley (Eds.), *Best practices in literacy instruction* (3rd ed., pp. 220–242). New York, NY: Guilford Press.
- Brady, S., & Moats, L. (1997). *Informed instruction for reading success:* Foundations for teacher preparation. Baltimore, MD: The Orton Dyslexia Association.
- Byrne, B., & Fielding-Barnsley, R. (1991). Evaluation of a program to teach phonemic awareness to young children. *Journal of Educational Psychology*, 83, 451–455.
- Castle, J. M., Riach, J., & Nicholson, T. (1994). Getting off to a better start in reading and spelling: The effects of phonemic awareness instruction within a whole language program. *Journal of Educational Psychology*, 86, 350–359.
- Clay, M. M. (1991). *Becoming literate: The construction of inner control.* Portsmouth, NH: Heinemann.
- Chall, J. S., Jacobs, V. A., & Baldwin, L. E. (1990). *The reading crisis: Why poor children fall behind*. Cambridge, MA: Harvard University Press.
- Cordemans, D. (2008, October 14). School literacy levels continue to dive: Educators push for a return to basics. *The Epoch Times*. Retrieved from http://www.theepochtimes.com

- Cunningham, A. E., & Stanovich, K. E. (1998). What reading does for the mind. *American Educator*, 22(1-2), 8–15.
- Cunningham, P. (1999). What should we do about phonics? In L. B. Gambrell, L.
  M. Morrow, S. B. Neuman, & M. Pressley (Eds.), *Best practices in literacy instruction* (pp. 68–89). New York, NY: The Guilford Press.
- Cunningham, P. M., & Cunningham, J. W. (2002). What we know about how to teach phonics. In S. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (pp. 87–109). Newark, DE: International Reading Association.
- Department of Education. (1985). *Reading in junior classes*. Wellington, New Zealand: Author.
- Dymock, S., & Nicholson, T. (2007). *Teaching text structure: A key to nonfiction reading success.* New York, NY: Scholastic.
- Education Counts. (2009, September 16). *Reading literacy ahievement: Primary schooling*. Retrieved from http://www.educationcounts.govt.nz/indicators/education\_and\_learning\_outcomes/literacy/748
- Ehri, L. C., & Nunes, S. R. (2002). The role of phonemic awareness in learning to read. In A. E. Farstrup & S. Samuels (Eds.), *What research has to say about reading instruction* (pp. 110–139). Newark, DE: International Reading Association.
- Foorman, B. R., Francis, D. J., Fletcher, J. M., Schatschneider, C., & Mehta, P. (1998). The role of instruction in learning to read: Preventing reading failure in at-risk children. *Journal of Educational Psychology*, *90*, 37–55.
- Foorman, B. R., Francis, D. J., Novy, D. M., & Liberman, D. (1991). How letter-sound instruction mediates progress in first grade reading and spelling. *Journal of Educational Psychology*, 83, 456–469.
- Goodman, K. S. (1976). Behind the eye: What happens in reading. In H. Singer & R. B. Ruddell (Eds.), *Theoretical models and processes of reading* (2nd ed., pp. 470–496). Newark, DE: International Reading Association. [Reprinted from S. Goodman & O.S. Niles (Eds.). (1970). *Reading process and program* (pp. 3–28). Champagne, IL: National Council Teachers of English.]
- Gough, P. B. & Tunmer, W. E. (1986). Decoding, reading, and reading disability. *Remedial and Special Education*, 7, 6–10.
- Graves, M. F. (2006). *The vocabulary book: Learning and instruction*. New York, NY: Teachers College Press.
- Graves, M. F., Juel, C., & Graves, B. B. (2004). *Teaching reading in the 21st century* (3rd ed.). Boston, MA: Allyn & Bacon.
- Graves, M. F., Watts-Taffe, S. M., & Graves, B. B. (1999). *Essentials of elementary reading*. Boston, MA: Allyn and Bacon.
- Hart, B., & Risley, T. (2003). The early catastrophe: The 30 million word gap by age 3. *American Educator*, 27, 4–9.
- Hook, P. E., & Jones, S. D. (2002). The importance of automaticity and fluency for efficient reading comprehension. *Perspectives*, 28(1), 9–14.
- Hudson, R., Lane, H., & Pullen, P. (2005). Reading fluency assessment and instruction: What, why, and how? *The Reading Teacher*, 58(8), 702–714.

- Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology*, 80, 437–47.
- Juel, C., Griffith, P. L. & Grough, P. B. (1986). Acquisition on literacy: A longitudinal study of children in first and second grade. *Journal of Educational Psychology*, 7(4), 243–255.
- Juel, C., & Minden-Cupp, C. (2000). Learning to read words: Linguistic units and instructional strategies. *Reading Research Quarterly*, *35*, 458–492.
- Koltun, H., & Biemiller, A. (1999). *Metacognition of vocabulary knowledge: A preliminary study*. Toronto, Canada: American Educational Research Association.
- Lai, M. K., McNaughton, S., Amituanai-Toloa, M., Turner, R., & Hsiao, S. (2009). Sustained acceleration of achievement in reading comprehension: The New Zealand experience. *Reading Research Quarterly*, 44, 30–57.
- Learning Media. (2010, July 23) Effective literacy practice: Professional learning handbooks. Retrieved from http://www.learningmedia.co.nz
- Learning Media Symposium. (2005, June 16–17). Teaching talk: A learning media national literacy symposium. Wellington, New Zealand.
- Lyon, G. R., Shaywitz, S. E., Chhabra, V., & Sweet, R. (2007). Evidence-based reading policy in the US. In G. Reid & A. Fawcett (Eds.), *Dyslexia in context: Research, policy, and practice* (pp. 161–175). Chichester, England: John Wiley and Sons.
- Massey University. (2009, October 6). NZ adult literacy in decline. *Science Alert*. Retrieved from http://www.sciencealert.com.au/news-nz/20090610-19937-2.html
- McKeown, M. G., & Beck, I. L. (2004). Direct and rich vocabulary instruction. In J. F. Baumann & E. J. Kame'enui (Eds.), *Vocabulary instruction: Research to practice* (pp. 13–27). New York, NY: Guilford Press.
- Ministry of Education. (1999a). *Literacy experts group report to the secretary for education*. Wellington, New Zealand: Author.
- Ministry of Education. (1999b). *Report of the literacy taskforce*. Wellington, New Zealand: Author.
- Ministry of Education. (2003). *Effective literacy practice: Years 1-4*. Wellington, New Zealand: Learning Media.
- Ministry of Education. (2009). PISA 2003: Reading skills for tomorrow's world. Wellington, New Zealand: Education Counts.
- Ministry of Education. (2010). Literacy learning progressions: Meeting the reading and writing demands of the curriculum. Wellington, New Zealand: Learning Media.
- Ministry of Women's Affairs. (2005). *Māori women: Mapping inequalities and pointing ways forward*. Retrieved from http://www.mwa.govt.nz/news-and-pubs/publications/maori/mapping-inequalities
- Moats, L. C. (1998). Teaching decoding. American Educator, 22, 1-9.
- Moats, L. C. (2001). When older students can't read. *Educational Leadership*, 58, 36–40.

- National Reading Panel. (2000). Report of the National Reading Panel: Teaching children to read. Washington, DC: National Institute of Child Health and Development.
- Nicholson, T. (1997). Closing the gap on reading failure: Social background, phonemic awareness and learning to read. In B. A. Blachman (Ed.), Foundations of reading acquisition and dyslexia: Implications for early intervention (pp. 381–407). Mahwah, NJ: Lawrence Erlbaum.
- Nicholson, T., (2000). Reading the writing on the wall: Debates, challenges and opportunities in the teaching of reading. Palmerston North, New Zealand: Dunmore Press.
- Nicholson, T. (2005). At the cutting edge: The importance of phonemic awareness in learning how to read and spell. Wellington: New Zealand Council for Educational Research.
- Nicholson, T., & Tan, A. (1999). Proficient word identification for comprehension. In G. B. Thompson & T. Nicholson (Eds.), *Learning to read: Beyond phonics and whole language* (pp. 150–173). New York, NY: Teachers College Press.
- Perfetti, C. (2010). Decoding, vocabulary, and comprehension: The golden triangle of reading skill. In M. G. McKeown & L. Kucan (Eds.), *Bringing research to life* (pp. 291–303). New York, NY: Guilford Press.
- Pikulski, J. J. & Chard, D. J. (2005). Fluency: Bridge between decoding and reading comprehension. *The Reading Teacher*, 58(6), 510–519.
- Pressley, M. (2002). Reading instruction that works: The case for balanced teaching (2nd ed.). New York, NY: Guilford Press.
- Pressley, M. (2006). Reading instruction that works: The case for balanced teaching (3rd ed.). New York, NY: Guilford Press.
- Pressley, M., Disney, L., & Anderson, K. (2007). Landmark vocabulary instructional research and vocabulary instructional research that makes sense now. In R. K. Wagner, A. E. Muse, & K. R. Tannenbaum (Eds.), *Vocabulary acquisition: Implications for reading comprehension* (pp. 205–232). New York, NY: Guilford Press.
- Rasinski, T. (2000). Speed does matter in reading. *The Reading Teacher*, 54(2), 146–151.
- Rasinski, T. V., Padak, N. D., & Fawcett, G. (2010). *Teaching children who find reading difficult*. Boston, MA: Allyn & Bacon.
- Reyna, V. (2004). Why scientific research? The importance of evidence in changing educational practice. In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research* (p. 47). Baltimore, MD: Brookes.
- Ryder, J. F., Tunmer, W. E., & Greaney, K. T. (2008). Explicit instruction in phonemic awareness and phonemically based decoding skills as an intervention strategy for struggling readers in whole language classrooms. *Reading and Writing*, *21*, 349–369.
- Samuels, S. (2002). Reading fluency: Its development and assessment. In A. E. Farstrup & S. Samuels (Eds.), *What research has to say about reading instruction* (pp. 166–183). Newark, DE: International Reading Association.

- Share, D. L., Jorm, A. F., Maclean, R., & Matthews, R. (1984). Sources of individual differences in reading achievement. *Journal of Educational Psychology*, 76, 1309–1324.
- Smith, J. W. A., & Elley, W. B. (1997). *How children learn to read*. Auckland, New Zealand: Addison Wesley Longman.
- Snow, C. E., Burns, M. C., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Stahl, S. A. (2004). What do we know about fluency? In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research* (pp. 187–211). Baltimore, MD: Paul H. Brookes.
- Stahl, S. A., & Miller, P. D. (1989). Whole language and language experience approaches for beginning reading: A quantitative research synthesis. *Review of Educational Research*, 59, 87–116.
- Stahl, S. A., & Nagy, W.E. (2006). *Teaching word meanings*. Mahwah, NJ: Lawrence Erlbaum.
- Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 360–406.
- Thompson, G. B. (1999). The process of learning to identify words. In G. B. Thompson & T. Nicholson (Eds.), *Learning to read: Beyond phonics and whole language* (pp. 25–54). New York, NY: Teachers College Press.
- Tunmer, W. E., Chapman, J. W., & Prochnow, J. E. (2002). Preventing negative Matthew effects in at-risk readers: A retrospective study. In B. Foorman (Ed.), *Preventing and remediating reading difficulties: Bringing science to scale* (pp. 121–163). Timonium, MD: York Press.
- Tunmer, W. E., Chapman, J. W., & Prochnow, J. E. (2004). Why the reading achievement gap in New Zealand won't go away: Evidence from the PIRLS 2001 International Study of Reading Achievement. *New Zealand Journal of Educational Studies*, 39, 127–145.
- Tunmer, W. E., Chapman, J. W., & Prochnow, J. E. (2006). Literate cultural capital at school entry predicts later reading achievement: A seven year longitudinal study. *New Zealand Journal of Educational Studies*, *41*, 183–204.
- Tunmer, W. E., Chapman, J. W., Ryan, H. A., & Prochnow, J. E. (1998). The importance of providing beginning readers with explicit training in phonological processing skills. *Australian Journal of Learning Disabilities*, 3, 4–14.
- Tunmer, W. E., & Nesdale, A. R. (1985). Phonemic segmentation skill and beginning reading. *Journal of Educational Psychology*, 77, 417–427.
- Tunmer. W. E., Nicholson, T., Greaney, K. T., Prochnow, J. E., Chapman, J. W., & Arrow, A. W. (2008). PIRLS before swine: A critique of New Zealand's National Literacy Strategy. New Zealand Journal of Educational Studies, 43, 105–119.
- Weaver, C. (1994). Reading process and practice: From socio-psycholinguistics to whole language (2nd ed.). Portsmouth, NH: Heinemann.