Can Phonics Instruction and Big Book Shared Reading in Combination Work Better Than on Their Own?

A thesis presented in fulfilment of the requirements for the degree of Doctor of Philosophy in Education at Massey University, Albany Campus, New Zealand.

Laura Lo-Ming Tse

2011

Abstract

The present study is an experimental study, and the purpose was to make an empirical comparison between three ways of teaching: phonics instruction, big book shared reading, and combining phonics and big book. The study involved 96 Year 2 children from three primary schools in South Auckland. Children were taught in small groups of four according to different reading ability levels ("at", "below", and "well-below") after being randomly assigned into one of four conditions: phonics only (P), big book only (BB), a combination of phonics and big book (PBB), and a treatment control (C). The researcher met with the groups once a week for 30 minutes, from May to November. Children completed pre- and post-assessments of word reading, passage reading, reading comprehension, spelling, pseudoword decoding, phonemic awareness, receptive vocabulary, and math.

Results from a 3-way repeated measures analysis of variance (ANOVA) showed that the phonics and big book combined group outperformed the other two reading groups, and also the treatment control group in word reading, reading comprehension, decoding pseudowords, and phonemic awareness. The phonics only group outperformed the big book only group in decoding and phonemic awareness. The three ability groups ("at", "below", and "well-below") responded similarly on norm-referenced tests to the different approaches used in this study. The intervention did not advantage one ability group over the other.

Sub-sections of the word reading, phonemic awareness, and decoding tests were also analysed. In the word reading test, results showed that the combined group outperformed the other three groups in reading short, regular one-syllable words, and short, one-syllable, slightly irregular words. In the phonemic awareness test, the combined group outperformed the other groups in segmentation, blending, and deleting the first phoneme. In basic decoding skills, the combined group outperformed the other three groups in ability to decode consonant-vowel-consonant (cvc) pseudowords. A further analysis of weekly phonics quizzes given during the 12-week training period showed that the combined group performed better than the other three groups, and that the phonics group performed better than the shared book group.

The findings of the present study suggest that a combination of phonics and big book shared reading is more effective way to teach reading to 6-year-olds than providing them with only phonics instruction, or only shared book experience.

Acknowledgements

Many people contributed to the making and completion of this thesis. First, I wish to thank my primary supervisor, Professor Tom Nicholson, for his thoughtful comments, critique of my work, and encouragement over the years. I am grateful for his expertise which guided me through the development and completion of the research project as a whole. Secondly, I would like to thank my co-supervisors, Professor Bill Tunmer, and Dr. Keith Greaney. Their guidance and expertise have been invaluable.

I would particularly like to thank the students, teachers, principals and parents of the three primary schools for their participation and support. Thank you for giving me an opportunity to work with your students and your children. This research would not have been possible without their participation.

I am also very grateful to all my friends for their continual support and encouragement throughout, especially Polly, Shanti, Louise, Isabella and June, for their love, understanding and friendship. Finally, I thank my family for their patience, unconditional love, and support.

Table of Contents

List of Tables

List of Figures

Definitions

Phonological awareness is "the ability to consciously segment the speech stream into phonological units" (Tunmer, 1993). The speech stream can be broken down into different levels: (i) awareness that speech is made of words, e.g., there are three words in "see the basket"; (ii) awareness that words have form as well as meaning and that words are made of one or more syllables – called syllable awareness (e.g. two syllables in *bas/ ket*); (iii) awareness that syllables are made of onsets and rimes – called onset-rime awareness (e.g. *b* is an onset, and *as* is a rime, *k* is an onset, and *et* is a rime in the word *basket*); (iv) awareness that words can be segmented into constituent phonemes – called phoneme (or phonemic) awareness (e.g. the phoneme /b/ in *basket).* Phonemes are the units of speech sound represented by letters of the alphabet (Chappell, Stephens, Kinnison, & Pettigre, 2009; Gillon, 2004).

Phonemic awareness is one aspect of the phonological awareness. It is awareness that spoken words are composed of individual sound parts termed phonemes. Phonemes are the smallest units in spoken language. There are about 41 phonemes in English (i.e. *me* has two phonemes, *sock* has three phonemes, and *step* has four phonemes). Phonemic awareness is a skill, an awareness that develops to different levels. You can show phonemic awareness by identifying, counting, isolating, or segmenting them (Gough, 1996). Phonemic awareness starts with awareness of the beginning of the word, then the end, and lastly, the middle (Gough, 1996). Children can learn to segment or blend phonemes with or without letters of the alphabet (Gillon, 2004; National Reading Panel, 2000)

Phonics is a set of rules that teach the relationship between letters and sounds, which enables children to decode unfamiliar words. Different phonics approaches teach between 40 to 120 rules (Gough & Lee, 2007; Torgerson, Brooks, & Hall, 2006).

Synthetic phonics teaches children individual letter sounds very rapidly, and then it teaches how to blend the letter sounds from the beginning, middle, and to the end of the word (e.g., blending the sounds /b/ /a/ /g/ in the word *bag).* Children are taught some letter sounds first, and then they read real books. (de Graaf, Bosman, Hasselman, & Verhoeven, 2009; Johnston & Watson, 2007).

Analytic phonics teaches children letter sounds but does not teach them how to blend individual sounds to form a word. Children learn the sounds of letters by studying a set of words which share common beginning or ending letter positions (e.g. the initial /b/ in big, bus, book, boy) (de Graaf, Bosman, Hasselman, & Verhoeven, 2009; Torgerson, Brooks, & Hall, 2006).

Systematic phonics teaches children letter-sound correspondences explicitly and sequentially, from simple through to more complex correspondences. A systematic phonics programme has a scope and sequence (e.g., see Nicholson, 2005). This could be either systematic synthetic phonics or systematic analytic phonics (Torgerson, Brooks, & Hall, 2006).

Definition of the phonics instruction used in the present study

The present study teaches specific rules for mainly Anglo-Saxon words using phonics lesson plans and ideas in *The Phonics Handbook* (Nicholson, 2005). The researcher taught the rules explicitly and also used modified TurtleTalk phonemic awareness activities (Gough & Lee, 2007). In the modified TurtleTalk, the researcher wrote the TurtleTalk words on the whiteboard, she pronounced each phoneme of a word slowly, one after the other, and pupils have to guess the word. Pupils also did the activity in reverse. The phonics instruction in the present study did not include either normal sentence context or specially written decodable sentence context.

There was no use of connected text. In terms of definitions, the phonics in the present study was systematic and synthetic, and included teaching of phonemic awareness using modified TurtleTalk.

Shared book reading using big books

Shared book reading is an interactive experience. Students read Big Books together in a small group or as a whole class with guidance and support from their teacher (Ministry of Education, 2003). In shared reading of enlarged picture books (big books), teachers choose stories that are challenging to read but not too difficult for the group or class, that students would find too difficult to read on their own. These are books that the group would read at slightly below 90 percent accuracy. The teacher reads the story to the group, and points at the words while reading. Students revisit and reread the story several times as a group, focusing on critical thinking, problem-solving, and using

different strategies for word recognition (Blewitt, Rump, Shealy, & Cook, 2009; Holdaway, 1982; Ministry of Education, 2001; Wiesendanger, 2001).

In terms of definitions, the phonics taught in shared Big Book reading is unsystematic and analytic in that children study words in the big book that contain a particular letter-sound correspondence. The selection of words for study does not follow a strict scope and sequence in terms of letter-sound patterns.

Definition of big book shared reading instruction used in the present study

The shared reading instruction in the present study used guidelines from the Ministry of Education (2001) for Big Book reading. Children were taught in small groups of four. Each story was presented on separate occasions, being read to, with, and by the students. The researcher drew children's attention to one or two of the following things during each reading: phonics, punctuation, abbreviations (e.g., I'll), or an aspect of text structure such as plot or character.

Chapter 1: Introduction

1.1 Theories of learning to read

There has been a long tradition of research and theory on how children learn to read, and how best to reveal to children the letter-sound correspondences that exist between pairs of printed and spoken words. Support for the book reading approach to reading instruction comes from Thompson and Fletcher-Flinn (2006), and Thompson (2011) who argued that word recognition in learning to read is implicit. In Fletcher-Flinn and Thompson's knowledge sources theory, children learn patterns of letter-sound relations from vocabulary acquired from reading (lexical orthographic storage). Support for the phonological approach comes from Share and Stanovich's (1995) lexical learning theory, Gough and Juel's (1991) cipher theory, and Ehri's (1995) sight word theory. In these theories, children use their phonological recoding skills to decode words, and in this way develop lexical orthographic strategy. Tunmer and Nicholson (2011) have argued that neither the phonological approach nor the book reading approach on their own can enable all children to learn to read. Phonics cannot possibly teach all the letter-to-sound rules that children need to learn. Children can only learn these rules by reading, which is what the book reading approach advocates. They argue that the book reading approach, that is, learning to read by reading and re-reading text, will only benefit children who are well prepared to learn the cipher, that is, those who have phonemic awareness and good knowledge of letters and sounds. Many children will not learn to read with this approach if they are not well prepared, and if they simply memorise the text and do not learn the cipher. In support of their case, Byrne (2005) writes that there can be no one theory of learning to read:

> More generally, can we assume that all children make the same contribution to an act of learning?.....Thus, complicating the task of identifying what is that children contribute to learning any reading-relevant process is the fact that this will not be identical for all children. There will be no single theory of learning to read. (p. 108)

1.2 The problem – and a possible solution

Many children in New Zealand classrooms do not respond to the mainstream teaching approach, which is the book reading approach, and need to receive specialist

tuition in Reading Recovery (Lee, 2010). Overseas experience indicates that many children do not respond to phonics either (Gough, 1996a; Tunmer & Nicholson, 2011). A possible solution, to get a "best fit", might be combining both approaches so that pupils receive the best of both worlds. The present study is an attempt to find out whether combining both approaches is more effective than phonics alone, or book experience alone in the form of "big book" shared reading (using guidelines from Ministry of Education, 2003).

1.3 Aim and contribution

The current study is an experimental study, and the aim was to make an empirical comparison between three ways of teaching reading: phonics only, that is, the explicit teaching of letter-sound correspondences; big book shared reading only, which is a book experience strategy for learning to read; and a combined approach that uses phonics and big book reading together. The current study will make an original contribution to our knowledge by assessing whether a combined approach is more effective than either approach on its own.

1.4 The contemporary New Zealand literacy context

The teaching of reading in New Zealand has gone through phases in the last 100 years. The teaching of phonics first appeared in New Zealand during the 1920s, and remained popular and used until the 1940s (Openshaw, 2000). Phonics directly teaches grapheme-phoneme correspondence rules. Up until the 1940s, children's school reading material included stories with regular spellings, using phonics rules. Starting in the 1950s, there was a gradual trend away from phonics, starting with a "look and say" approach in the Janet and John readers, which emphasised learning to read words as wholes through reading and re-reading the same words many times in the readers (Nicholson, 2000). The 1970s and 1980s brought a major teaching shift, a revolution towards the book reading approach that emphasised syntactic, semantic, and grapho-phonic cues from the text, and the prior knowledge of the reader (Block & Israel, 2005; Greaney, 2011; Hall, 2006; Stuart, Stainthorp, & Snowling, 2008).

In 2009, the New Zealand government introduced National Standards. The National Standards are supported by the Literacy Learning Progressions (Ministry of Education, 2010b). The Standards consist of reading, writing, and mathematics

benchmarks for children to reach at the end of each year of school, from Years 1 to 8. The Progressions use similar benchmarks with expectations of knowledge and skills expected of children in Years 1 to 10. The new Standards and Progressions recommend that students learn a combination of phonics and whole language strategies. The present study took place before the introduction of National Standards when the predominant approach was the book reading approach.

1.5 The significance of the present study

The current study is very important given that many young children in New Zealand schools struggle to learn to read. Over 11,000 Year 2 children require additional reading tuition through Reading Recovery each year, after not responding adequately to mainstream schooling. This is 15 percent of the two thirds of schools that offer Reading Recovery. (Lee, 2010). Reading Recovery is a Tier 2 intervention, for pupils not responding to the regular classroom program.

The recent literature on "response to intervention" (Fuchs & Fuchs, 2006) suggests that Reading Recovery might be better as Tier 3, with Tier 2 reserved for small group teaching of pupils who are at-risk of reading difficulties. The present study is relevant as a possible Tier 2 intervention in that it involves teaching small groups of children with phonics, big book shared reading, or a combined approach. The present study is also relevant to classroom teaching. If we could improve the present approach or provide a new kind of reading approach that was more effective, then we would have less failure and less need for remedial tuition for these children. The Education Review Office (ERO) (2009) in New Zealand has highlighted a lack of effectiveness teaching of reading for Year 1 and Year 2 students:

> Thirty percent of teachers had little or no sense of how critical it was for children to develop confidence and independence in early reading and writing. These teachers had minimal understanding of effective reading and writing teaching…..In these classrooms learning opportunities to motivate, engage or extend children were limited. (p. 1)

1.6 Structure of this thesis

Chapter 2 is the literature review. It will examine theories and research relevant to the present study. Chapter 3 explains the methodology and research design used in

this study. Chapter 4 explains the quantitative results. Chapter 5 discusses the results and links them back to the literature review. This chapter also mentions the limitations of the current study and gives suggestions for future research.

Chapter 2:Literature Review

2.1 Introduction

The first part of this chapter reviews different theoretical perspectives on learning to read. The theories are important because they suggest how it is possible to learn to read in several different ways. Theories include code-cipher theory, sight word theory, knowledge sources theory, and psycholinguistic theory. The second part of the chapter reviews instructional research relating to the phonics approach and the book reading approach. It also reviews studies that have combined both approaches.

2.2 Part A: Theoretical perspectives

2.2.1 Code-cipher theory

In code-cipher theory, "code" refers to the strategy of using distinctive features, like the beginning letter, or the shape of a letter, to identify a word. Cipher refers to the letter-sound rules of English writing. The theory suggests that although children can acquire orthographic knowledge through reading and re-reading of text, and memory for text, this way of teaching may have problems. There is the danger that the child will rely only on memory and will not take the next step of inducing the letter-sound rules, therefore needing explicit instruction in phonics (Gough, 1996a; Gough & Hillinger, 1980). Code-cipher theory argues the beginner must learn the cipher of English, that is, the letter-sound rules, but that the cipher is not enough on its own to decode English, the world's most "awesome mess" (Pei, 1952). English has many words with partial orthographic irregularities. To learn these requires extensive reading.

Gough and Juel (1991) explain that the rules of the cipher are implicit, and there are over 500 rules. Cipher is fast and effortless. On the other hand, the rules of phonics are explicit, and there are about 75 to 100 rules. It takes more time to learn them, they are difficult, and they are slow. Gough, Juel and Roper-Schneider (1983) suggest there are four conditions to be met by the child in order to reach the cipher stage.

> First, the child must have cryptanalytic (unlock the cipher) intent. Second, the child must be aware of the letters in a word and their order. Third, the child must aware of the phonemes in the spoken word. Fourth, the child must be

given written words paired with spoken words (Gough, Juel & Griffith, 1992, p. 40).

Gough, Juel, and Griffith (1992) state that whether children are taught by whole language, phonics, or other reading instruction, learning the cipher is essential in the reading process.

Gough (1996a), in an article in Annals of Dyslexia explains, "it may not be apparent just how complex a cipher English orthography is" (p. 11). Many of the letter-sound rules children need to learn require extensive exposure to text and need to be unconscious rather than conscious. Gough gives as an example of an unconscious rule, the fact that most readers pronounce *th* differently in words like *thin* and *thick* from the way they pronounce *th* in words like *this* and *that* because they unconsciously know that *th* is always pronounced in a certain way in function words.

Another example of the complexity of the cipher in English, is that we pronounce the sounds of some letters differently depending on the letters that follow. For example, the letter *c* is /k/ when followed by *a*, as in *cat*, or /s/ when followed by *e*, as in *cent*, or /ch/ when followed by *h*, as in *chore*, or /k/ when followed by *h*, as in *chord*, or /sh/ when followed by *h*, as in *chef* (Gough, 1996a). The cipher is complex, and there are many hundreds of correspondences, making it difficult for the beginner to define a system which is reliable.

In addition, there will be many words that have orthographic patterns that follow no rule at all, for example, *one*, *watch*, and *yacht*. Yet beginner readers do have to learn the cipher. They need it as a base to decode not only regular words but also irregular words. Without the cipher, they will not make much progress. If they do not progress in cipher knowledge, developing reading fluency will be difficult.

Juel, Griffith, and Gough (1986) describe two types of words where the cipher alone is insufficient. The first type is irregular words, like *one, watch, what,* which violate general phonics rules. The second type is words with equivocal spelling patterns, patterns to which more than one correspondence rule can be applied (e.g., vowel digraphs with two sounds like /ea/ can sound like /ee/ in *eat* or /e/ in *head*, or something different again as in *area* and *theatrical*). These correspondences are

complex but children have to learn them. If they understand the cipher, they can attempt any unfamiliar word.

Gough and Hillinger (1980) suggest that readers have to learn the cipher, and internalise the orthographic cipher of English. Code-cipher theory requires ciphertext (written language) and plaintext (spoken language). Gough suggests learning the cipher through phonics is not necessary for everyone, but phonics is an additional tool which allows children to decode written words to match the spoken words they already know orally. *"Phonics does not install the cipher; at best, it instills it. It helps many children to discover it"* (Gough, 1996a, p.14). Gough points out that we do not know how the cipher operates in memory. It might be a set of rules, analogies, or neuron connections.

2.2.2 Sight word theory

According to Ehri (1992, 1995, 2005a, 2005b), expansion of sight vocabulary is the skill that best illustrates the developmental nature of reading. Sight words are stored in memory and accessed automatically. Ehri argues that children go through several stages before acquiring a consolidated sight word vocabulary. Sight word recognition links to knowledge of letter-sound correspondences. The correspondences provide mnemonic strength to enable the reader to store letters and sounds in memory as sight words.

The process described above does not happen immediately. Initially children acquire a store of words by pairing a printed form with its spoken form. This is *pre-alphabetic* reading. The paired association might depend on the overall shape of the word, a selective cue, or association with an illustration on the page of the book. Pre-alphabetic readers do not use letter-sound connections to remember sight words. They are not held to one pronunciation of the written word and they may remember the concept rather than the pronunciation. *Partial-alphabetic* readers remember how to read sight words by forming connections between only some of the letters in written words and sounds detected in their pronunciation. To learn sight words in this way, partial alphabetic readers must be able to distinguish some sounds in words. They must recognise which letters in the words relate to those sounds. These readers are unable to segment the word's pronunciation into all of its sounds, and lack full knowledge of the spelling system, particularly vowels.

Full-alphabetic readers can decode words phoneme by phoneme. When they practice reading specific words often enough, the words are stored as sight words. The final stage is *consolidated-alphabetic* where readers recognise letter patterns from different words as larger, phonological units (e.g., rimes, syllables, morphemes). The advantage of sight word reading over decoding is that sight word reading operates much faster, and readers can focus on the meaning of the text if words can be recognised immediately and automatically by sight.

2.2.3 Knowledge Sources Theory

Thompson and Fletcher-Flinn's (1993, 2006) knowledge sources theory argues that word recognition processes draw on four sources of knowledge: sublexical relations that is stored sight words, phonological recoding, lexicalised phonological recoding, and context clues. Each knowledge source allows the child to connect in memory the sounds and meaning of the word that they can then recall. The first knowledge source is induced sublexical relations (ISR) that represent in the mental lexicon the relationship between orthographic and phonological components common to words that have become familiar as reading vocabulary. This is an abstract, internal cognitive process where the child stores information from direct print experience. For example, a child identifies the print word *dog*. The initial letter *d* will form an orthographic representation linked with the phonological lexical entry, /dog/. The initial letter *d* and the final letter *g* may be the only orthographic parts of the word stored initially, and the letter *o* may be stored later. The child will secure the orthographic form of *g* with the phonological form in the lexicon when seeing other print words like *hog, bag, jog*, and *dig*. A second knowledge source is explicit grapheme-phoneme correspondences, that is, sound labels for graphemes, which depend on explicit teaching of the sounds for letters learned as items of knowledge, independent of any induction from accumulated print word experience phonics teaching. A third knowledge source is lexicalised phonological recoding. This is not an analogy process according to Thompson and Fletcher-Flinn (2006). It is lexicalised phonological recoding, without explicit letter-sound recoding. For example, in the case of the word *rain*, the child selects from memory the orthographic representation of a known print word, such as *tail*, that has the /ai/ pattern. The phonological component /ai/, cues a pronunciation response for the unfamiliar print word. A fourth knowledge source is sentence or visual context that represents a language context from the prior portion of text already read. This can be a

nonlinguistic context, such as an illustration. Context has very limited use as a source for the acquisition of word identification skill, unless used in combination with stored reading vocabulary in the form of induced sublexical relations, independent grapheme-phoneme correspondence or analogy cues (Thompson, 1999; Thompson, Cottrell, & Fletcher-Flinn, 1996, Thompson & Fletcher-Flinn, 1993, 2006).

McKay, Fletcher-Flinn, and Thompson (2004) describe two kinds of phonological recoding. The first type is Explicit Phonological Recoding, where beginning readers are taught explicitly the common sound for each letter (e.g., *a* in *ant* or *d* in *dog*), or letter combinations. The second type is Lexicalised Phonological Recoding, which is an implicit process which requires learning letter-sound patterns available in the child's current reading vocabulary. This is advanced phonological recoding knowledge, as child's brain can implicitly notice inconsistencies and also consistencies. When reading a new word, for example, regarding the word *tow,* the child might use *cow* as an analogy because it rimes with *cow*. However, by using lexicalised phonological recoding, the child would implicitly list out other words like *show*, *grow*, *mow*, *slow*, and the child probably would likely pronounce *tow* correctly than using analogy. Teachers should draw children's attention to similar words that are like analogue word *tow* rather than just use *ow*.

The knowledge sources theory shows how children can acquire implicit letter-sound correspondences even if they have not received explicit instruction in phonics because there are other sources of knowledge to draw on. Children can gradually build up a store of interconnected knowledge sources through repeated exposure to words in text, as in the book reading approach.

Supporting the knowledge sources theory, Thompson, Cottrell, and Fletcher-Flinn (1996) examined 5- and 6-year-old New Zealand children's use of sublexical relations and use of independent grapheme-phoneme correspondences. The researchers looked at whether sublexical relations can be formed and used for generating responses to unfamiliar print words, when grapheme-phoneme correspondences acquired independently of induction from print lexical sources are either not used or are insufficient for a response. They found that a high proportion of children were able to give the correct sound for target graphemes, particularly for graphemes *t*, and *m* in the final position because children could find them frequently in books, compared to the *b*,

and *th* in the final position. There was no effect for the same graphemes in the initial position. However, the knowledge of sublexical relations suggested that it is a common way of inducing the grapheme-phoneme relation to the initial position of print words than the final position.

Thompson, Connelly, Fletcher-Flinn, and Hodson (2009) reported a study of adults who had been taught to read with either phonics or whole language and found that they read words in different ways. The phonics adults (from Scotland) were likely to regularise a nonword like *thild* (pronounced as "thilled") which is the regular sound correspondence for the letter *i*. In contrast, the whole language adults were more likely to pronounce *thild* to rhyme with *child*, indicating that they paid more attention to the lexical unit /ild/, and its link to similar words like *mild* and *wild*. These results indicated that the whole language adults had developed an orthographic store that used different sources of knowledge to the phonics adults.

2.2.4 "Psycholinguistic guessing game" theory

Goodman (1967) wrote that reading is a "psycholinguistic guessing game" (p.15). Comprehension does not begin with what the text brings up to the brain but actually with what the brain brings down to the text. Based on the readers' prior language knowledge and experiences, they would have a good sense of what could be meaningful in the text. Readers use more than just decoding skills when they are reading. They use semantic cues (the meanings) and syntactic cues (grammatical or sentence sense). In this model, readers sample the print, assign a hypothesis about the identity of the upcoming word and use meaning to confirm their prediction. Meaning is the most important thing. If a child reads *sheep as lamb*, Goodman considers that is acceptable as long as the child's error seemed meaningful or as if he/she relied on the context not the graphic cues. If meaning is not constructed, the reader re-samples the text and forms a new hypothesis (Goodman & Goodman, 1979).

It is likely that context does help in reading words but there is debate as to whether it is a learning strategy or a skilled reader strategy (Nicholson & Tunmer, 2011; Swanborn & de Glopper, 1999; Tunmer & Nicholson, 2011). In the end, as Gough (1996a) puts it, context is probably a false friend in that it promises help but when you really need it, the promise is not reality because of the fact that most content words are

not predictable (see also Catts & Kamhi, 2005). In the case of predictable books, however, which are the mainstay of whole language teaching, prediction can be a temporary learning strategy. A predictable text is one where there are context clues and illustrations to help the reader to "guess" unfamiliar words.

The teacher handbook, *Effective Literacy Practice Years 1-4* explains that decoding skills are important for learning to read but that prediction can also be helpful. They explain prediction in this way:

> Very often, the reader decodes and constructs meaning by drawing on only some of the available information. Children select the best source or sources to focus on. For example, in the sentence, "The ducks are going to the river", certain words allow the reader to pay less attention to others. The fact that "ducks" is plural dictates "are". The structure of the English sentence determines the use of "going" and requires a noun at the end of the sentence. These sorts of factors make a text predictable". (Ministry of Education, 2003, p. 38)

There is support for this idea in a series of studies by Tunmer and Chapman (1998, 2006). They found that beginner readers combine their partial decoding skills with sentence context to "guess" unfamiliar words, and that this make a strong contribution to reading achievement (see also Nicholson, 1991; Tunmer & Nicholson, 2011). When children combine decoding and context in this way they produce successful "guesses" which then become positive learning trials. Share and Stanovich (1995) hypothesised that these successful "learning trials" enable the beginner reader to work out further letter-sound correspondences and orthographic rules and "lexicalise" their word reading skills. The combination of context and decoding skills acts as a "self-teaching" mechanism (see Catts & Kamhi, 2005). This process of lexicalisation and self teaching through reading words in context is similar to that in knowledge sources theory.

Groff (1983) carried out a study where he read a series of sentences aloud to children and in each sentence deliberately mispronounced a word, simulating the situation where a child had applied phonics rules but did not read the word correctly (e.g., read *find* as *finned*; read *have* as *hayv*). Groff concluded that many words can be successfully read with phonics, as long as the child uses context as a back-up. To

become successful in comprehension, children require skills beyond the phonological domain. They have to decode the text, understand the context, and then comprehend (Gough & Tunmer, 1986; Hall, 2006; McKenna & Stahl, 2003; Pearson, 2009; Silliman, Bahr, Wilkinson & Turner, 2002).

Goodman and Goodman (1979) argue that reading development is an almost instinctive, natural process. They explain that exposing children to print will enable them to learn to read. Gough (1996b) accepted that this idea had merits, "I think they are right in locating reading acquisition within the child" (p.18). He pointed out that there is much evidence to show that the good reader gets better and better through a huge amount of reading, and that the poor reader gets worse and worse through lack of reading. This is the Matthew effects phenomenon (Nicholson & Whyte, 1992; Stanovich, 1986).

2.2.5 The role of phonemic awareness

Recent theories of word recognition acquisition have indicated that phonemic awareness is the foundation for letter-sound correspondence knowledge, and that children's sight vocabulary acquisition is linked to phonemic awareness of spoken words (e.g., Ehri, 1980, 1992; Goswami, 1998; Rack, Hulme, Snowling, & Wightman, 1994; Stuart & Coltheart, 1988; Tunmer & Greaney, 2008). The National Reading Panel (2000) suggested that it is important to include letter and sound instruction when teaching phonemic awareness, so children can associate letters with phonemes.

To learn to decode and read printed English, children need to learn that spoken language consists of phonemes in words (Lonigan & Whitehurst, 2001; Ministry of Education, 2003). The Ministry of Education (2003) supports the importance of phonemic awareness:

> Phonemic awareness is fundamental to early success in reading and writing. It enables children to develop the understanding of letter-sound relationships that is essential to decoding and encoding. Children have to be able to distinguish sounds before they can match them with the letters that represent them. (p. 32)

If beginner readers have problems segmenting phonemes in spoken words, then they will have difficulties decoding printed words. For example, if readers cannot

"hear" the /en/ sound in *pen* and *hen*, or distinguish the first sound in *boy* and *dog*, learning to read will be difficult (Dickinson & McCabe, 2001; Lyon, 1988).

Code-cipher theory suggests that beginners need a certain level of phonemic awareness to begin to crack the cipher (Gough, 1996a; Gough & Juel, 1991). Phonemic awareness means when children learn to decode and read printed English, they must be aware that spoken words are composed of individual phonemes. Phonemic awareness is not the cipher but it is essential for acquiring the cipher. It is necessary but not sufficient (Byrne, 1991, 1993; Castle, Riach, & Nicholson, 1994; Gough & Hillinger, 1980; Juel & Minden-Cupp, 2000; Lyon, 1998; McKenna & Stahl, 2003; Snow & Juel, 2005; Torgesen, Wagner, & Rashotte, 1994).

Ehri (1999) has found that increased phoneme awareness leads to more complete letter-sound processing, which in turn allows more and more words to adhere in sight word memory. Once the beginner has the insight that written language is a cipher, they will begin to understand letter-sound correspondences. They will read pseudowords faster and more accurately than beginners who do not have the cipher, and they will spell more phonemically.

Stuart and Coltheart (1988) found that good phonological skills and letter sound knowledge are associated with better performance on other tasks assumed to require awareness of the "alphabetic principle", such as generalising from initial letters of known words to unknown words, and nonword reading. Gough (1996a) has argued that phonemic awareness is not enough to learn to read but "without phonemic awareness the child has no hope of reading well" (p. 17).

Researchers have found that phonemic awareness is a strong predictor of decoding, more than other phonological skills like rhyme awareness or syllable segmentation. When children develop phonemic awareness, they use this knowledge to decipher unfamiliar words (Justice, Chow, Capellini, Flanigan, & Colton, 2003; Koutsoftas, Harmon, & Gray, 2009; Nicholson, 2005; Share, Jorm, MacLean, & Matthews, 1984; Tunmer, Chapman, Ryan & Prochnow, 1998).

Phonemic awareness helps learning to read but learning to read also helps phonemic awareness in that children learn how to divide words up into their constituent sounds when they learn how to read. The printed word is a visual representation of the

phonemic structure of the spoken word (Bradley & Bryant, 1983; Goswami & Bryant, 1990; Henry, 2010; Perfetti, 1999). Learning to read has an impact on growth in phonological awareness. It is possible that exposure to print will facilitate phonemic awareness if children associate print with phonemes but many researchers have not found this. Children ask many questions when someone reads a book to them but they never ask about phonemes (Yaden, Smolkin, & Conlon, 1989, as cited in Gough, 1996a). Ehri, Nues, Willows, Schuster, Yaghoub-Zadeh, and Shanahan (2001b) evaluated the effectiveness of phonemic awareness instruction on learning to read, and found that teaching phonemic awareness with letters improved reading and spelling more than teaching without the letters. Children could associate the phoneme with letter.

It may be possible to promote phonemic awareness through reading books to children, for example, by reading certain kinds of books to children (e.g., poetry), or by repeated reading, or by finger pointing to words on the page when reading books aloud, but more research is needed to confirm this.

Phonemic awareness, learning letter-phoneme relationships, and text and storybook reading are interlinked (Harrison, 2004; Henry, 2010; Nicholson, 2004; Shankweiler & Fowler, 2004; Stanovich, 1993; Torgesen, Wagner, & Rashotte, 1994; Tunmer & Arrow, 2011; Tunmer & Rohl, 1991).

How children acquire phonemic awareness is a source of debate. Researchers argue about what is the right grain size. Hulme, Hatcher, Nation, Brown, Adams, and Stuart (2002) found that awareness of phonemes as single entities in a word, which is the smallest grain size, is a better predictor of early reading skill than onset-rime awareness, which is awareness at a larger grain size level, for example, as clusters of phonemes (such as *br* in *bread*) or as rimes (*ed* in *bread*). Seventy-two Reception and Year 1 primary school children participated in their study over a 2-year period. Hulme and colleagues assessed different levels of phonological awareness (onset, rime, initial, and final consonant) by using three tasks (sound detection, sound oddity, and sound deletion). The results showed that single phoneme awareness was a better predictor of early reading skills than onset-rime skills and that single phoneme deletion tasks were more reliable predictors than either detection or oddity.

Gough (1996a) suggested that young children recognised the beginning of the phoneme first, then the final phoneme, and then the middle phoneme. Gough asked 78 preschoolers if they could say the first sound in *fish*, and the last sound in *glass*. The results showed 42 children gave the /f/ sound correctly, but only 18 of these 42 children got the correct final phoneme, /s/, in *glass.* No child could do it the other way round, say the final phoneme but not the initial phoneme. This is similar to the Thompson et al. (1996) suggestion of knowledge of sublexical relations, that it is more common to induce the grapheme-phoneme relation in the initial position than the final position of printed words. In contrast to Thompson et al., Share (1995) suggested that explicit instruction is needed for letter–sound knowledge skill, and that phonemic awareness is also important in the beginning of reading acquisition. Johnston and Watson (2004) suggest that it is better to understand the relationship between letter names or sounds and sublexical phonological segments in spoken words in order to acquire phonemic awareness. Children acquire phonemic awareness through sounding and blending letters when decoding unfamiliar words, and through the process of spelling letters in words phonemically.

Phonemic awareness dawns gradually on the beginner reader. Gough writes that phonemic awareness is probably a "dimension" (Gough, 1996a, p. 15), that starts with the syllable, then onset-rime, and ends with the ability to segment all the phonemes in a word. It is this last part, ability to segment, that is necessary to crack the code.

2.2.6 Syllables, onsets, rimes and phonemes

Treiman (1983, 1985, 1986) found that children learn to analyse spoken syllables into onsets and rimes, then analyse onsets and rimes into phonemes. Children at a very early age are aware of shared onsets (e.g., *blank-blear*) and shared rimes (e.g., *stop-pop*). In English, rimes are less inconsistent than phonemes in pronunciation (Goswami, 2002).

Treiman and Zukowski (1996) examined kindergartners, preschoolers, and first graders in their ability to read words and nonwords with shared onsets, rimes or syllables. In the first study, 28 preschoolers and 31 kindergartners were asked to say 30 words which shared the single-consonant onset (e.g., *killed-kite*); two-consonant cluster (e.g., *snack-slop*); or had nothing in common (e.g., *dial-tweed*). The results showed

children performed better in shared single-consonant onset words than two-consonant cluster words. The kindergartners were 19% better than the preschoolers on the "nothing in common" category. In four subsequent studies, the researchers asked children to say words/nonwords containing shared whole syllable (e.g., *receive-conceive*); part of syllable shared (e.g., *attempt-unkempt*); no shared phonemes (e.g., *imply-address*) or rime shared items. The results showed that children said more words with syllables (whole/part shared) than rimes shared. The study suggested that children did have phonemic sensitivity at a very young age. Other studies also suggested that onsets and rimes play an important role in writing and spelling (Gross, Treimam, & Inman, 2000; Treiman, Kessler, & Bick, 2002).

Recently, Savage, Blair, and Rvachew (2006) investigated the size of the phonological unit within the phonological task, such as, shared head (e.g., *road-rope*), rime (e.g., *road-toad*), coda (e.g., *road-bed*), onset (e.g., *road-rock*). A sample of 91 children (70 nonreaders and 21 who read at least one word in the WRAT reading test), with a mean age of 5 years participated in the study. Children met with the researchers individually for 15 to 30 minute sessions, four times over a 6 month period. They received training and practiced word pairs containing shared heads, rimes, codas, and onsets. Children were asked to listen to the sounds of two different words, and indicate if the words shared the same or different sounds for each task. For example, in the practice item, the researcher asked the child "dog…doll…dog…doll. They both sound the same at the beginning, don't they?" The results showed that for the nonreading children, there was no significant difference between the means of the heads and rimes, and between the onsets and codas. For the children who could read at least one word, they performed better for codas than for rimes, heads, and onsets. The study suggested that children were able to identify different phonological units from a very young age.

Walton, Walton, and Felton (2001) examined the effectiveness of teaching rime analogy or letter recoding reading strategies to Grade 1 and kindergarten children. In the first of two studies, among 74 Grade 1 children, the lowest 40% in reading ability were randomly assigned to small groups, a letter recoding group, rime analogy group, and a low reading ability control group. The rest of the children (60%) were assigned to a high reading ability control group. Children received a 25 minute session, twice a week for 11 weeks. The results showed that both rime analogy and letter recoding

groups performed as well as the high ability control group on letter-sound knowledge, phoneme identity, and phoneme segmentation.

In the second study, the researchers repeated the first study with 53 kindergarten children. Children were randomly assigned to the same treatment groups. The study found that both rime analogy and letter recoding groups had a higher mean score than the control group on letter-sound knowledge. The rime analogy group performed better than the control group on phoneme identity and rhyming. The letter recoding group scored better than the control group on phoneme segmentation. The findings indicated that teaching rime analogy or letter recoding strategies both benefited children's development of reading skills.

2.3 Part B: Instructional perspectives

2.3.1 Book reading approach

The book reading approach uses three different strategies in regards to books. The first is "shared book" reading with a "big book". The teacher, when reading the book to the class, points to the words, and points out language features, punctuation, and letter-sound correspondences while reading the book. Children read and re-read the big book with the teacher. A second strategy is "guided reading", where the teacher works in groups and pupils read text material either silently or with the teacher and discuss it. A third strategy is independent reading, done silently by the child (Ministry of Education, 2003; Thompson, 1993).

The present study focused on shared book reading, so we will only focus on research related to this aspect of the book reading approach.

There is a large research literature to show that reading storybooks to children helps them to increase general knowledge, vocabulary, language structure, that is, grammatical forms, and book related knowledge such as directionality of print (Aram, 2006; Brett, Rothlein & Hurley, 1996; Csak, 2002; Connor, Morrison, & Katch, 2004; Dickinson & McCabe, 2001; Ehri, 1997; Elley & Mangubhai, 1983; Meyer & Wardrop, 1994; Ministry of Education, 2003; Nicholson & Dymock, 2010; Peck, 1989; Pollard-Durodola, Gonzalez, Simmons, Kwok, Taylor, Davis, Kim, & Simmons, 2011; Vadasy, Sanders, & Peyton, 2005).

Researchers suggest that reading aloud to children develops a sense of story: a schema for how stories work. Reading aloud to young children helps them learn the difference between written and spoken language (Adams, 1990; Block & Israel, 2005; Cunningham, 2005; Eldredge, Reutzel, Hollingsworth, & Young, 1996). In New Zealand, there are three components to reading in the classroom- reading to, by and with (Ministry of Education, 2001). These are included in reading programmes in primary classes with a great emphasis on the "reading to" (e.g., by the teacher to the class or small group) and "reading with" (e.g., teacher and child together) components at the early stages when the child is beginning to read. At this stage, there is less emphasis on "reading by" the child. As the child learns to read, the emphasis changes to more reading by the child and not so much emphasis on the reading to and with components. Normally, there is a combination of some reading to the child/small group/class by the teacher, and reading with, such as shared reading where the teacher and student read together and construct meaning together (Ministry of Education, 2003).

Shared book reading is an interactive experience where the teacher brings the book and child together. It enables students to gain an understanding of the benefits of reading together as a small group or whole class from a shared text, using big books (Ministry of Education, 2003). In shared book reading, teachers choose text slightly above students' instructional level, which is more challenging to read, and that students would find too difficult to read alone. The teacher reads the text at a fluent reading pace, pointing at the words when reading, stopping and inviting students to discuss an illustration, or predict what might happen next. The lesson can focus on critical thinking, problem-solving, and using different strategies in word recognition such as phonics knowledge, picture clues or re-reading the sentence for context clues (Mcllvaine, 1997; Ministry of Education, 2003; Wiesendanger, 2001).

Shared book reading is advantageous for ESOL (English for speakers of other languages) children or children who come from families where English is a second language. It can help English language development (Droop & Verhoeven, 2003; Ministry of Education, 2003). Estimates of levels of vocabulary have revealed major differences between first and second language learners: the smaller the second-language vocabularies children have, the larger the obstacles they face in reading (Droop & Verhoeven, 2003). Elley and Mangubhai (1983) found that shared book reading

improved the reading abilities of second language learners in Fiji. Children aged 9-11 years were divided into three groups: a shared book reading group, silent reading group, and a control group. Results showed the book groups produced reading growth of 15 months compared with 6.5 months for the control group during the 8 months of the study.

Another study involving ESOL children conducted by Koskinen, Blum, Bisson, Phillips, Creamer, and Baker (2000), reported the effectiveness of a book-rich classroom environment and shared book reading. The study involved 162 first-grade students, of whom 105 spoke English as a second language. All were randomly assigned to one of four conditions for 7 months. The first group was book-rich classrooms, with students taught in small-group shared reading, where teachers choose a book for a particular group based on their reading levels. The second group was book-rich environment and re-reading of books at home. The teachers conducted the same reading instruction as in the first group, and students re-read the stories at home. In the third group, teachers performed the same instruction as for the second group, and there were audiotapes of the stories which encouraged students to read along with the tapes. The fourth condition was the control where teachers provided daily regular reading instruction. The results indicated that the three small-group shared book reading groups performed better than the control group in comprehension, and the audiotapes benefitted ESOL students in particular.

Shared book reading is commonly used in the book reading classroom as a language intervention so children have more opportunity to explore oral and written language at a more advanced level (Ezell & Justice, 2005). Eldredge, Hollingsworth, Reutzel, and Young (1996) found that shared book reading benefitted students of average and low reading achievement in reading and comprehension. Their study compared the effectiveness of the shared book approach with round robin oral reading on the reading growth of 78 second graders. Students were randomly assigned to one of two treatment groups according to their achievement level ranging from above average to below average. During the 4 month intervention, the teachers implemented either shared book or round robin reading in their daily reading programme. Results showed that the shared reading group outperformed the round-robin group in vocabulary acquisition, word recognition, word analysis, reading fluency, and reading

comprehension. Average students in shared book reading moved from the 50th to the 80th percentile in word analysis. Average and below average shared reading groups were 20% and 41% respectively better than the round robin groups in oral reading.

Storybook reading, as occurs in shared book reading, improves children's oral language and exposure to new vocabulary through reading and re-reading books (Aram, 2006; Elley, 1989; Meyer & Wardrop, 1994). Blewitt, Rump, Shealy, and Cook (2009) reported that young children improved their vocabulary by using a scaffold-like method during shared book reading. They started by asking low demand questions where children could find the answer right away from the story. They then high demand questions which required more understanding of the story, for example, questions like "Why or why not?", and "Do you think...?". The study involved 50 preschoolers, and English was their first language. Children were randomly assigned to low demand questions only, high demand questions only, or to a scaffolding-like group (from low to high demand questions). The examiner met the children individually, read and re-read three storybooks in four reading sessions each week, over the 6 week intervention. They found that there were significant vocabulary gains in the scaffolding-like approach, but no difference in reading comprehension between the three treatment groups. The scaffolding approach enhanced children's vocabulary knowledge.

Hindman, Connor, Jewkes, and Morrison (2008) examined the literacy development of 130 preschool children during shared book reading sessions with their teachers and with their parents at home. The reading interactions were video-taped for 3 months during the school year, and at home during the holidays. Teachers chose their own reading books, which supported the curriculum. Parents were provided with reading books which contained salient print and narrative features. The video tapes were analysed into four categories: (i) "contextualised code-related talk", which involved questions and comments related to alphabet names or phonemes; (ii) "decontextualised code talk", that involved questions about letters or phonemes that were not presented on the page; (iii) "contextualised meaning-related talk" that involved describing illustrations in the book, (iv)"decontextualised meaning-related talk", that involved questions or comments that required children to think beyond the words and pictures in the story, for example to think about the plot of the story, or "why do you think the "character" did that?". The results suggested that reading experiences, both at

school and at home, were low in "code-related talk" about alphabet names and phonemes. Parents tended to use descriptive talk about meaning in the stories, whereas teachers used more "decontextualised meaning talk" like predicting, recalling, and inference-making strategies. In summary, studies of shared reading have shown positive effects. These effects have extended to vocabulary, fluency, and reading comprehension.

Interestingly, Connelly, Johnston, and Thompson (2001) compared the effects on reading comprehension when students received either book experience or phonics instruction. The results showed that the phonics group performed better than the book experience group in reading comprehension, although their reading speed was slower than that of the book experience group. Two groups of 6-year-olds attending schools in Scotland and New Zealand, a sample of 48 students were involved in the study. The students in Scotland received an intensive phonics programme, learning phonics rules like consonant sounds, vowel digraphs, and "silent e". Text reading had a phonics emphasis. The lessons began with phonics, and were followed with small groups reading text according to their ability level. The teacher would emphasise words from the text that had letter-sound correspondences covered in the phonics lessons. The other group in New Zealand received non-phonics book experience. Teachers used the same text in three different ways. Shared reading involved the whole class or small groups of students; guided reading involved teachers working with small groups of students or individual students with their own copies of the text; independent reading usually occurred after shared and guided reading practice when students read the text without assistance from the teacher. The study found that the phonics group was better in nonword reading, phonemic awareness, and regular word reading; the book experience group was better in reading exception words like "pint", "sword", or "shall". Although the phonics group was slower in reading speed, they were better at comprehension. The findings suggested that phonics instruction provided students with greater knowledge of explicit phonological recoding, and encouraged them to sound out unfamiliar words and think about the context of the story which may have helped their comprehension. The researchers wrote that, "*When they came across an unfamiliar word they tried to work it out by sounding it out, in order to fit their response appropriately to the story context"* (Connelly et al, 2001, p. 452).

2.3.2 Phonics and phonemic awareness

This section looks at research on phonics, and on phonemic awareness added to phonics. A body of international research supports early phonics. Chall (1983) reviewed 60 years of research, and concluded that an early focus on phonics produced better reading achievement. Adams (1990) and Stahl and Miller (1989) reviewed research in support of Chall's findings, and a recent meta-analysis conducted by the National Reading Panel (2000) came to a similar conclusion, and found evidence in support of teaching phonemic awareness to increase the chances of reading progress (Ehri, 2004; Ehri, Nunes, Stahl, & Willows, 2001a).

Teaching phonemic awareness may not be sufficient to learn to read. Tunmer and Nesdale (1985) found that it was necessary but not sufficient. Children with phonemic awareness may or may not learn to read, but in their study they found no children who learned to read without it. The 1980s and 1990s produced many studies of the effects of phonemic awareness teaching, showing that it improved word-reading skills (see Ehri, 2004; Gough & Lee, 2007; Koutosoftas, Harmon, & Gray, 2009; Nicholson, 1997, 2006). The following two studies illustrate how phonemic awareness training and phonics can be combined to teach beginning reading.

Nicholson and Ng (2005) reported a randomised study involving 22 Chinese-speaking preschoolers from Singapore who were learning to read English at 4 years of age. The experimental group received 30 sessions of simple letter-sound and phonemic awareness activities. The control group received interactive storybook reading. The results indicated that phonemic awareness training combined with simple letter-sound (consonant-vowel-consonant) decoding instruction, was more effective than interactive storybook reading for word reading and for reading a simple, decodeable sample of text from Dr Seuss' *Cat in the Hat*.

Castle, Riach, and Nicholson (1994) reported a randomised study of the effects of phonemic awareness training on the reading and spelling progress of 5-year-old children, who were also receiving daily instruction in whole language classrooms in New Zealand.

Their first experiment sought to determine whether the addition of phonemic awareness training had a greater effect on learning to spell, than the regular "whole

language" writing program that emphasised phonemic spelling. Children were taught once a week for 10 weeks in small groups of five. Lessons covered phonemic segmentation, phoneme substitution, phoneme deletion, and rhyme. Results showed that improvement in phonemic awareness ability lead to improved spelling skills especially of regularly spelled words rather than irregular words.

The second experiment had three groups: one received phonemic awareness and simple letter-sound training, one received semantic categorisation training that focused on word meaning, and one was a no-treatment control. Children in small groups of five received a 20 minute lesson each week for a period of 15 weeks. The results showed the phonemic group performed statistically better than the other groups in phoneme awareness, reading pseudowords (nonwords), and in spelling – but not in word reading or book reading. They also found that children who did not receive training in phonemic awareness were more likely to need Reading Recovery remediation.

Many researchers believe phonemic awareness is an essential component for the development of reading skills, and also essential for understanding the alphabetic principle (Bradley & Bryant, 1983, Henry, 2010). Gough (1996a) argued that phonemic awareness needs to be taught early, in kindergarten before formal reading instruction. Gough and Lee (2007) introduced a group of kindergarten children to a new phonemic awareness programme named TurtleTalk. Teachers asked children to say phonemes in a word slowly, like "g-ir-l" and then say the word "girl". The study found that children who received TurtleTalk instruction performed better in a phonemic awareness test than those who did not receive any TurtleTalk training. They compared 1147 kindergarten children from 78 classrooms who were randomly assigned into either TurtleTalk training or a stepwise group who received "isolating phonemes" training first and then TurtleTalk, and a control group without any training. Teachers spent 10-15 minutes per day on these activities. Children were taught with or without the training for 20 days. The results indicated that the "turtle group" and "stepwise group" were significantly better than the control group in the identification of initial phonemes and in full segmentation. The TurtleTalk procedure was used in the present study.

However, some researchers have found that children will learn phonemic awareness while they are learning phonics. Johnston and Watson (2004) found that beginning readers did not require additional training in phonological awareness if

students were taught with synthetic phonics. They compared three groups of 5-year-old children who received analytic phonics, analytic phonics plus phonological awareness, or synthetic phonics. In the first study, children were randomly assigned to one of three interventions and received 20 minutes instruction every day for 16 school weeks. They were taught as a whole class. In synthetic phonics, students learnt how to decode unfamiliar words by blending letters sounds. In analytic phonics, students initially learnt to recognise words by sight, then learned beginning letter sounds, then end sound, and finally middle sounds through studying words in context. In analytic phonics plus phonological awareness, students spent 10 minutes analysing and synthesising sounds in spoken words without reference to print. Blending and segmenting phonemes to form a complete word was part of the training. The results showed that the synthetic phonics group was better in reading, spelling and phonemic awareness than the other two groups.

In the second study, 92 Primary 1 students were taught in small groups of four to five. The experimenter met with each group twice a week for 15 minutes for 10 weeks. They were randomly assigned into no-letter training (look-and-say whole word approach); accelerated letter learning (initial letter sounds were explicitly taught); and synthetic phonics (learnt and blended letter sounds in initial, middle and final phonemes of words). The results were that synthetic phonics was still better for reading and spelling, and students learnt phonemic awareness skills, that is, they were aware of the sequence of letters corresponding to phonemes in spoken words.

Support for combing phonemic awareness and phonics comes from a study by Stuart (1999), who found that children improved in reading and spelling when they received early phoneme awareness and phonics training. The study involved a total of 112 5-year-old students (96 were learning English as a second language), randomly assigned into big book (BB) reading or "Jolly phonics" (JP). The intervention took place in a classroom setting, every day for 12 weeks. The BB group used big books, focused on written words in the text, and talked about letter names and sounds in words. The JP group received phonemic awareness and phonics lessons. The results showed the JP group made more progress in phonemic awareness, reading words, and reading nonwords in a 12 month follow-up of the intervention.

Stuart (2004) reported a follow-up study of the same group of students 30 months after the intervention. There were 101 students (85 were second language learners) remaining from the previous study, and part of the BB group were treated as a third group ("LP"- late trained phonics) because they received structured phonics lessons after the intervention. The study asked whether the JP group benefited in reading comprehension as a result of receiving early phoneme awareness and phonics training. The results showed that the JP group still performed better than the BB group in phoneme segmentation, word reading and spelling, but their advantage did not extend to text reading accuracy and comprehension. This was a different result to that of Connelly, Johnston, and Thompson (2001) who found that the phonics-trained group scored significantly higher than the book experience group in reading comprehension. The study also found that the LP group did better than the BB group in phoneme segmentation, and in reading regular and nonwords.

Stuart's study did not have a third group that got only Jolly Phonics, so it is not clear what added value came from the phonemic awareness instruction. Doubt about the need for combining phonemic awareness with phonics comes from a study by Johnston, McGeown, and Watson (in press) who reported that boys benefitted more from learning synthetic phonics than did girls, and that there was no difference in reading irregular words when phonics students were compared with students who received an analytic approach. They compared the effects of synthetic and analytic phonics approaches on the reading skills of 10-year-old boys and girls who had been taught with either one of the approaches. Synthetic phonics taught students how to blend letter sounds to decode unfamiliar words from the beginning of the reading process, and then developed their reading comprehension skills. On the other hand, analytic phonics trained students in phonological awareness (i.e., rhymes), learning initial letter sounds, then final sounds, and then middle sounds. Students in this approach were taught how to pronounce words before sounding and blending their phonemes, and encouraged students to guess unknown words from context. The results showed children in the synthetic phonics approach were significantly better at reading words, spelling, and in reading comprehension skills than the analytic phonics group. This study supported the synthetic phonics approach (without specific phonological awareness training), showing that it is effective in helping students to develop sight

word reading ability, with no impairment when reading irregular words, and that it was also effective for reading comprehension (Johnston & Watson, 2004).

2.3.3 Combining phonemic awareness, phonics, and book reading

A number of researchers (Aram, 2006; Beard, 2000; Brady, 2011; Carbo, 1996; Donat, 2006; Freppon & Dahl, 1998; Iversen & Tunmer, 1993; Pressley, 2006; Soler & Openshaw, 2007) support the idea of combining both phonics and reading in context. It is reasonable to assume that combining both approaches will benefit children.

Aram (2006) investigated the differential outcomes on vocabulary and alphabetic skills of (1) storybook reading (2) alphabetic skills teaching and (3) a combined approach. Children from 12 low-SES preschools were in the study, and were divided into small groups of four to six children. They received 20-30 minute teaching sessions twice a week for 50 sessions. The results indicated that the combined group performed better than the alphabetic group on book vocabulary and better than the storybook reading group on alphabetic skills-initial letter retrieval.

Donat (2006) evaluated Reading Their Way (RTW), which combined phonics and whole language. She taught phonemic awareness and phonics directly, and used these skills for reading and writing. The aim was to accelerate the overall achievement of students in language arts when compared to students who received whole language. The study took place in a rural school district where whole language had been the main reading approach for 15 years. The RTW programme was gradually implemented into schools in the United States, from kindergarten to elementary schools over a period of 5 years. Approximately 4,500 children were involved in the study. The programme provided shared reading of literature, creative writing, and systematic, explicit phonics and phonemic awareness instruction with decodable books. The results showed the RTW program reduced the need for supplementary remedial services in later school years, from 40% to 19%. Those students involved in the combined program achieved higher instructional reading levels than students who did not receive the combined programme.

Ryder, Tunmer, and Greaney (2008) reported a New Zealand intervention study for 24 underperforming 6- and 7-year old readers. The study combined phonemic awareness, phonics instruction, and reading of text. The children were put into matched

pairs and then randomly assigned to training (experimental group) or to no extra training (control group). A trained teacher aide, using scripted lesson material, taught small groups of three children at a time, for 56 lessons over a period of 24 weeks, four lessons a week, 25 minutes a lesson. Children learned phonemic awareness and letter-sound correspondences, supported with decodable reading materials and activities. The control group received regular instruction and supplementary activities provided by their classroom teachers. The results showed that the intervention group performed significantly better in phonemic awareness, pseudoword decoding and word reading, compared with the control group. Two-year follow up measures for the 20 remaining students at follow up showed the intervention group was significantly better in word reading and in passage oral reading. These results suggested that the combination of phonemic awareness instruction, phonics, and reading of books had significant, positive long-term effects on reading progress.

Blaiklock and Haddow (2007) used a combined approach in a primary school classroom setting in Auckland, New Zealand. The teacher used the Jolly Phonics approach in a whole language classroom. The reason for the study was that her class had a significant number of children who struggled with learning to read and write. Although many children made good progress through the whole language approach, there was still a big gap between high achievers and low achievers. This was a case study research design with no control group. The sample in the study included 24 Year 1 students in the first year of the study and 22 Year 2 students in the second year. They were two different groups of children. In Year 1, the teacher covered letter sounds, digraphs and vowels and also grammar (e.g., parts of speech, sentence construction) in the third and fourth term. In Year 2, the teacher decided to go through all 42 sounds in the first 2 weeks of the first term as a revision for the students, with extra attention for lower readers. She taught one spelling pattern and one grammatical feature each week. All lessons started with a revision of sounds/spelling, then writing, then shared reading, and instructional reading. The teacher provided group and individual instruction to each child during writing sessions, and focused on sounds and spelling patterns taught in class. The teacher assessed pupils throughout the year for reading (running records) and spelling skills (weekly spelling quiz and dictation sentences). She also used a standardised reading test (Burt Word Reading) and a spelling test (South Australian

Spelling Test). At the end of the year, the children in Year 1 and 2 were about a year ahead of their chronological age in reading and spelling.

Tunmer, Chapman, and Prochnow (2002) modified the reading programme in Year 1 classrooms in Palmerston North, New Zealand by incorporating phonological instruction into whole language. Teachers in the modified programme used commercial packages which provided them with lesson plans or activities on teaching of letter-sound patterns, phonemic structures of speech, and phonemic awareness. Pupils in comparison classrooms received standard whole language literacy instruction. A total of 133 pupils in both groups were tested three times during the first year of the intervention, and then at follow up assessments at the end of the second year. The results showed no differences between the two groups at school entry, but students in the modified literacy programme showed significant improvement in standardised reading at the end of the first year. By the end of Year 2, the pupils in the modified programme were 14 months in reading age ahead of pupils who had not received the combined approach. This study suggests that a phonological approach should be part of the literacy programme, but that whole language is also important for learning to read.

Another study by Vadasy, Sanders, and Peyton (2005) compared the effectiveness of adding phonics through supplementary tutoring sessions. Fifty-seven Grade 1 students in the lowest quartile in reading were randomly assigned into one of three conditions: phonics and reading practice (RP), phonics and word study (WS), and a control group who received regular classroom reading instruction. The two treatment groups received one-to-one tutoring sessions for 30 minutes a day, 4 days a week during the 8 month intervention. The phonics-based intervention provided instruction in letter-sound correspondences, decoding strategies and spelling strategies. The difference between the two treatment groups was the RP group spent also 10-15 minutes practicing oral reading on decodable text, while the WS group only learnt the alphabetic principle and word-level reading skills. The results indicated that both treatment groups outperformed the control group on measures of reading accuracy, reading comprehension, passage reading fluency, and spelling. There was no significant difference between the two treatment groups, except that the Reading Practice group performed significantly better in passage reading fluency and reading accuracy than did the Word Study group. Although the study was not exactly a combination of phonics

and shared reading, it suggested that phonics could be combined with reading by using decodable text.

2.3.4 Less skilled readers

The National Reading Panel's (2000) meta-analyses confirmed that phonemic awareness is a necessary component as a foundation for reading and spelling, and should be explicitly taught as part of the reading programme. Children with better knowledge of print and letter-sound relationships tend to be more advantaged in decoding, and children who start with less letter-sound knowledge find decoding new words more challenging (Patel, 2010; Tunmer, Chapman, & Prochnow, 2002). Researchers suggest that for struggling readers, explicit instruction might be needed when teaching phonemic awareness, phonemic decoding skills, fluency in passage reading, word recognition, vocabulary, spelling and writing (Ehri, Dreyer, Flugman, & Gross, 2007; Ehri, Nunes, Willows, Schuster, Yaghoub-Zadeh, & Shanahan, 2001b; Mathes, Denton, Fletcher, Anthony, Frances, & Schatschneider, 2005). Other researchers have suggested that only struggling readers need this kind of instruction, and that other, high ability students should receive different kinds of instruction (Connor, Morrison, & Katch, 2004; Juel & Minden-Cupp, 2000; Stahl & Miller, 1989).

According to Ehri's sight word theory (2005b), less skilled readers require more time to decode a new word and take more time to store it as a sight word. Less skilled readers are often still at the partial alphabetic phase. They are able to form some connections between some of the letters in written words and sounds, but lack full knowledge of segmenting the word's pronunciation into all of its sounds, especially vowel sounds. Text reading, word reading, spoken vocabulary, world knowledge and the strategy of predicting words will help these readers to move to higher stages of reading skill. Share and Stanovich (1995) however, suggest that good readers rely less on context to identify words than do poor readers, and that poor readers are over-reliant on context to read words. It is critical for less skilled readers to acquire skill in phonological recoding (print-to-sound) for word recognition and spelling (Stanovich, 1980).

Ehri, Nunes, Stahl, and Willow (2001a) conducted a meta-analysis to evaluate the effect of systematic phonics. The results indicated that children learnt to read better

with systematic phonics programmes than with non-systematic phonics or non-phonics programmes. Systematic phonics had positive effects for kindergarten and first grade children. It also benefitted children with reading disabilities.

Mathes, Denton, Fletcher, Anthony, Frances, and Schatschneider (2005) compared two supplementary tuition programmes (Proactive Reading and Responsive Reading) with a school enhanced programme for struggling readers, and for students who were reading at their own chronological age. The study involved 30 first-grade classrooms from 6 primary schools across two years, students were assigned in different supplementary programmes. Proactive Reading used "scope and sequence" daily lesson plans, where teachers taught phonetic elements explicitly with decodable connected text and comprehension strategies, and writing only limited to spelling. In Responsive Reading, teachers observed students' needs and strengths before teaching. They then used less instructional time for practicing phonetic skills, used levelled text rather than decodable text, and students practiced writing and spelling and using complete sentences. In each cohort, both supplementary programmes were taught in small groups of three pupils at a time, for 8 months. The results showed the Proactive and Responsive groups were faster in phonological awareness, word reading and passage reading fluency than a comparison group of students who were reading at their chronological age. Proactive students performed better in word reading fluency and nonword reading fluency than the "enhanced" comparison group. The responsive and enhanced groups both improved at the same rate in word reading fluency and non word reading fluency. The study suggested that there might be more than one supplementary programme that benefits children's needs.

Hudson, Isakson, Richman, Lane, and Arriaza-Allen (2011) compared two interventions to improve reading fluency and decoding skills of second grade poor readers. The first intervention was an "accuracy condition" with repeated reading of a page of letter sounds and a page of words until students met a 98% accuracy criterion. The second intervention was "accuracy plus automaticity condition" with repeated reading of the same materials until students achieved a rate and accuracy criterion at 30–90 correct words per minute (cwpm). Students in both conditions learned the same words in the phonemic awareness warm-up practice and used the same materials for isolated letter sounds and word families. Small group teaching was provided to a

sample of 58 struggling readers. They met with the tutors two to four times a week in small groups of two to four students, and the mean number of sessions ranged from 27–40. The researchers found that both groups benefitted from practicing isolated words and letter sounds and that this helped with passage reading fluency. There was no significant effect for reading comprehension. The "accuracy plus automaticity" group had higher mean scores in phonemic decoding efficiency and nonsense word decoding than the "accuracy" group. The study suggests that instruction showed focus on accuracy and automaticity.

2.4 Summary

This review of research on theoretical perspectives found evidence to suggest that it is possible to learn to read with either the shared reading or phonics approach. The review of research on instructional perspectives suggests that shared reading and phonics are both effective. There is also research to support a combined approach but this researcher was unable to locate previous research that compared phonics only, shared book only, and a combination of shared book and phonics all in one study. The present study does this.

The research reviewed in this chapter suggests the following hypotheses for the present study:

That a combined approach using phonics and shared book teaching together is more effective than phonics or shared book instruction in isolation.

That reading instruction is better than no reading instruction, so that phonics, shared book, and the combination of the two strategies will produce results superior to a non-reading experience such as math instruction, where there is no extra reading instruction at all.

Chapter 3:Method and Design

3.1 Hypotheses

In the present study, the independent variables were the treatment groups (phonics only, big book only, phonics and big book combined, treatment control) and reading ability (“well below”, “below”, “at”). The dependent variables were word reading, passage reading, passage comprehension, basic decoding skills, spelling, phonemic awareness, receptive vocabulary, and math.

The study had two hypotheses, or predictions. The first hypothesis was that a combined approach that used phonics and big book shared reading (PBB) together would be more effective than teaching phonics (P) or big book shared reading (BB) in isolation. Specifically, the hypothesis was that the PBB group would perform better than the other groups in word reading, reading comprehension and accuracy, phonemic awareness skills, and spelling.

The second hypothesis was the PBB, P, and BB groups would perform better than the treatment control group in word reading, reading accuracy, reading comprehension, non-word reading, phonemic awareness, spelling, and vocabulary skills.

3.2 Preview of the chapter

This study evaluated the effects of three ways of teaching reading: phonics only, big book only, and a phonics and big book combined approach. The participants were Year 2 pupils (6-year-olds) attending three low-income schools in South Auckland. A sample of 96 pupils completed a series of reading and spelling pretests. Using these results, the researcher divided the children into three ability groups (“at”, “below”, and “well below”) according to their age-appropriate reading level, and then assigned the ability groups randomly to four conditions (phonics only, big book only, phonics and big book combined, and a treatment control condition). There were 24 pupils in each condition, eight pupils in each ability group in each condition, and two teaching groups of four pupils within each ability group. The allocation of pupils to groups in this way resulted in four conditions, three ability groups within each condition, and two teaching groups of four pupils within each ability group. The researcher taught each of the four

conditions. The lessons in the phonics only condition involved learning a series of phonics rules. The lessons in the big book only condition involved reading a series of big books. The phonics and big book combined condition was phonics and big book taught together. The treatment control lessons involved completing math exercises. Pupils in all conditions completed weekly phonics quizzes. The teaching interventions ran for 12 weeks, with one 30-minute lesson each week taught to each of the 24 subgroups of four pupils. At the end of the study, the researcher tested all pupils with the same measures as for the pretest.

3.3 Participants

All children in the study were from schools in South Auckland. The children were almost entirely from Pasifika and Maori ethnicities. South Auckland is one of the poorest parts of Auckland. The schools in the study had a Decile 1 rating for socioeconomic status. Decile 1 is the lowest socioeconomic classification (Norris, Bathgate, & Parkin, 1994) used by the Ministry of Education.

In 2007, the researcher recruited a sample of 96 Year 2 (6-year-old) pupils for the study from three primary schools. The pupils completed a series of reading and spelling pretests and then the researcher randomly assigned them to treatment conditions.

There were 55 boys and 41 girls. No children received Reading Recovery tuition during the study. All children completed a year of formal reading instruction in Year 1. The New Zealand Ministry of Education's (2010b) Literacy Learning Progressions suggest that students can exhibit the following kinds of knowledge and skill after 12 months in school:

- Read at Green level (5.5-6 years)
- Use comprehension strategies such as asking questions about the ideas of text.
- Monitor and self correct their own reading
- Know 100-200 high frequency words
- Show evidence of phonemic awareness

The average age of pupils at the start of the study was 75 months or approximately 6.3 years. The average ages of children in each condition were: phonics only (6.28 years); big book only (6.29 years); phonics and big book combined (6.25 years); and control (6.31 years). There were no subgroup differences between the four groups for chronological age, $F(6, 12) = 1.35$, $p > .05$. There were 41 girls (41%) and 55 boys (57%) who participated in the present study.

Forty-six percent of participants were Pasifika and the remaining participants were either Maori (43%) or Asian (11%). Forty-seven percent of children spoke only English at home. The rest spoke another language (16% Maori, 37% Pacific language, and 1% Vietnamese).

3.4 Ethics

Ethics approval for this study was granted by the Massey University Human Ethics Committee on April 16th, 2007 (Reference MUHECN 07/007). Details of information sheets and consent forms for pupils, parents, schools, and board of trustees are in Appendix A.

3.5 Design

The design of the study emerged after the researcher carried out a pilot study. The pilot study had a sample size of 48 pupils. The pilot results indicated that the interventions were not working. Another insight from the pilot study was that the sample had to double if the researcher wanted to use subgroups as the unit of analysis. A summary of the pilot study is in Appendix B. The researcher made a number of instructional changes to improve the effectiveness of the teaching and decided to double the number of participants. The reason for choosing a sample size of 96 pupils was because it would make it possible to analyse the data using subgroup means. A larger sample than 96 would have given more statistical power but the logistics of teaching more than this number of pupils on a weekly basis was beyond the time available to the researcher.

3.6 Random assignment and research design

Table 3.1 shows the structure of the treatment groups. The researcher divided the 96 pupils into three ability groups (“at”, “below”, and “well below”) and then

randomly assigned the three ability groups to four conditions (phonics only, big book only, phonics and big book combined, and a treatment control condition). There were 32 pupils in each ability group so this meant that eight pupils from each ability group was randomised to each of the four conditions. There were 24 pupils in each condition, made up of eight pupils from each of the three ability groups. Within each ability group of eight pupils, there were two teaching groups of four pupils. Thus, there were four conditions, three ability groups within each condition, and two teaching groups of four pupils within each ability group.

Table 3.1

Treatment conditions (N=96)

Reading Ability	Teaching subgroups	Conditions				Total *n* = 96
		Phonics only *n* = 24	Big Book only *n* = 24	Phonics and Big Book *n* = 24	Control (Math) *n* = 24	
”at”	Group1	4	4	4	4	32
	Group2	4	4	4	4	
”below”	Group3	4	4	4	4	32
	Group4	4	4	4	4	
”well	Group5	4	4	4	4	32
below”	Group6	4	4	4	4	
Total		24	24	24	24	96

3.7 The formation of the three ability groups

The researcher divided the sample into three ability groups based on their raw scores on the Burt Word Reading Test (Gilmore, Croft & Reid, 1981). The test is norm-referenced and starts at the 6-year-old level. A raw score of 17 is equivalent to a reading age of 6 years on this test. Some pupils did not score high enough to gain a 6-year-old’s reading level so the researcher estimated reading ages. These estimate ages are presented in Table 3.2 to give readers an indication of how their reading levels corresponded to their chronological ages (Hepplewhite, 2005).

Table 3.2 presents the mean pretest raw scores and reading ages (including estimates below the 6-year-old level) from the Burt Word Reading Test for the three ability groups in each of the four conditions.

Table 3.2

Pre-Assessment Reading Ages for the Burt Word Reading Test by Condition

Burt age (in years)		Phonics only	Big Book only	Phonics and Big Book	Control
”at”	Age	6.67	6.50	6.33	6.33
	Raw scores	27.00	25.00	23.00	23.00
”below”	Age	5.67	5.83	5.75	5.75
	Raw scores	11.00	14.00	12.00	12.00
”well below”	Age	5.33	5.33	5.25	5.25
	Raw scores	4.00	4.00	3.00	3.00

3.8 Measures

All children completed pretest and posttest assessments of word reading, reading accuracy, reading comprehension, basic word decoding skills, phonemic awareness, receptive vocabulary, word spelling and math computation. The researcher carried out all the assessments. The researcher took 4 weeks to complete the pre-assessments and 5 weeks to complete the post-assessments (see Appendix C). The researcher spent 2 days each week in School 1, and 1.5 days each in Schools 2 and 3. The pretests took place in May and the posttests in early November.

Word Reading. The Burt Word Reading Test (Gilmore, Croft, & Reid, 1981) is a norm-referenced test standardised in New Zealand which assesses the ability to read words out of context. Students read a list of words presented on test cards with 110 words printed in different sizes of type and graded in approximate order of difficulty. In this test, students read as many words as they can and stop when they make 10 consecutive errors (or miscues). They then look over the remaining words to see if they recognis any other words. The test manual reports high test- retest reliability ($r > .95$) and high internal consistency ($r > .96$). The reason for using this test is that it is the only New Zealand norm-referenced test standardised for use with 6-year-old children.

Spelling. The Schonell Spelling Test (Schonell, 1951) is a series of words graded in difficulty. The assessor says the word, says it in a sentence, and says the word again. The pupil then spells the word. The test starts with three-letter words (net, can, fun) and extends to multi-syllabic words (irresistible, hydraulic, anniversary). The

reliability of the test has been found to be .97 (Stevenson, Pennington, Gilger, Defries, & Gillis, 1993). A Cronbach's alpha of .95 was also obtained with a sample of 48 pupils in the pilot study reported in Appendix B. The reason for using the test is that it is suitable for use with young children in that the words slowly increase in difficulty. It also gives a spelling age rather than a grade equivalent like the WRAT 3- Wide Range Achievement Test (Wilkinson, 1993).

Passage reading and comprehension. The Neale Analysis of Reading-3rd Edition (Neale, 1999) is norm-referenced test for children aged 6 to 12 years which has two parallel forms. The test assesses passage oral reading accuracy, ability to comprehend passages, and speed of reading. The researcher did not assess rate of reading in this study. In this study, children completed the green form (Form 2) in the pretest and the yellow form (Form 1) in the posttest. Each form consisted of six passages graded in difficulty. The pupil read the passages aloud and then answered comprehension questions asked by the examiner. For passages 1-5, students can make up to 16 miscues per passage, and for passage 6 up to 20 miscues. Students cannot look back at the story when answering comprehension questions. The test gives reading ages for accuracy, comprehension, and speed of reading. The errors made when reading aloud and in the comprehension questions were used to convert to reading accuracy age and comprehension age. The Neale Analysis has a high level of internal consistency with correlations ranging from .71–.96. The researcher chose this test because it is the only available norm-referenced measure for 6-year-olds that assesses reading accuracy and comprehension of passages with norms for a similar population to New Zealand (the test was standardised in Australia).

Basic decoding skills. The Bryant Test of Pseudoword Reading (Bryant, 1975; reprinted in Nicholson, 2005) is a list of 50 nonwords or pseudowords read aloud by the student. The test starts with one-syllable consonant-vowel-consonant (CVC) combinations such as "buf", then moves to silent-e words such as "fute", consonant digraphs such as "cho" and vowel digraphs such as "groy"; and ends with multisyllabic pseudowords such as "vomazful". The students had to pronounce the word correctly as a whole word, not just sounding out each letter. When students made 10 consecutive errors, testing stopped and students were encouraged to look at the rest of the list to check if they could read any other words. Juel (1988) reported reliabilities between .90

and .96 for this test. This test is not norm-referenced. The researcher chose this test firstly because it assessed basic decoding skills (not word recognition or reading accuracy in context) and secondly because its scope and sequence of difficulty matched with the phonics rules taught in the study (e.g., the pseudoword "fute" targeted knowledge of the "silent e" rule).

Phonemic awareness. The Gough-Kastler-Roper Test (GKR) of Phonemic Awareness (Gough, Kastler, & Roper, 1984; reprinted in Nicholson, 2005) has 42 items divided into six categories of seven items each assessing a different aspect of phonemic awareness: phonemic segmentation; blending; deletion of initial and final phonemes; initial and final phoneme substitution. This is an oral assessment measure where students do not see the questions. The assessor reads out the questions and the students respond to them verbally (e.g., "how many sounds are there in "up"?). The researcher would stop after 10 consecutive errors. Roper (1984) reported reliabilities greater than .7 for all subtests of this measure. This test is not norm-referenced. The researcher chose this test because it has been successfully used in other New Zealand studies and it has a range of difficulty.

Receptive vocabulary. The British Picture Vocabulary Scale (BPVS II) (Dunn, Dunn, Whetton, & Burley, 1997) is a norm-referenced receptive vocabulary assessment. For example, one of the test pages has four pictures: butterfly, baby, bed and shoe. The pupil points to the picture that represents the word spoken by the examiner (e.g., "bed"). There are 168 target words presented on the record sheets, which divide into 14 sets, each set with12 items. The starting set was chosen according to the student's chronological age. Every student was allowed to make one or no errors on the basal set. After establishing the basal level, the researcher carried on testing until the student made 8 or more errors in one set. This measure gives a language age, standard score, percentile, and stanine for each student. The median reliability according to the examiner manual is .90 (Dunn, Dunn, Whetton, & Burley, 1997). The reason for choosing this measure is that it is suitable for the age group and the researcher wanted to know if the big book reading experience had a positive effect on vocabulary learning.

Math. The WRAT 3 Wide Range Achievement Test (Wilkinson, 1993) is a norm-referenced test of math computation. The test divided into 2 parts. Part 1 was given orally with 15 questions involving counting, identifying numbers, and solving

simple oral problems. Part 2 was a pencil and paper tests with 40 math problems, from easy questions like 1+1=____ to harder question like 15% of 175=____. Students answered as many questions as they could in 15 minutes. The test manual reported reliabilities from .87–.96. The researcher chose this test because it is norm-referenced, it starts with very simple calculations, and it does not involve reading, that is, there are no word problems.

3.9 Weekly Quizzes

The purpose of having quizzes was to assess learning of phonics. Each weekly quiz tested phonics rules taught to the phonics only and phonics and big book combined groups. To compare the extent of learning phonics explicitly and implicitly each week by the whole sample, the quizzes were given to all four groups in the study each week at the end of each lesson (except for the first lesson). The researcher made up the quizzes. Each quiz had five questions. Children in every group completed 10 quizzes over the 12 weeks of the intervention. The scope and sequence of the quizzes is in Table 3.3. The quiz was pencil and paper, and took 5 minutes to complete. Many of the quiz items involved spelling rather than reading but this was to focus attention on phonics patterns, for example, “ai” and “ay”. There were no quizzes in the first week of intervention. Each week had its own quiz except that the lessons on /ee/ and /ie/ had just one quiz. A sample of quizzes is in the appendix to this chapter. The full set of quizzes is in Appendix D at the end of the thesis. Quizzes tested understanding of phonics rules, for example, using the silent e rule, and choosing the correct consonant blend/digraph, and vowel digraph patterns.

Table 3.3

Scope and Sequence of the 10 Quizzes in Each Ability Group

Quiz	"well below"	"below"	"at"
1	Single sounds*	Consonant blends and digraphs*	Short and long vowels/ Silent e [split digraphs] 1*
2	Consonant blends and digraphs	Short and long vowels/ Silent e [split digraphs] 1	Short and long vowels/ Silent e [split digraphs] 2
3	Short and long vowels/ Silent e [split digraphs] 1	Short and long vowels/ Silent e [split digraphs] 2	r-affected vowels
4	Short and long vowels/ Silent e [split digraphs] 2	r-affected vowels	l-affected vowels
5	r-affected vowels	l-affected vowels	/ai/-/ay/ and /oi/-/oy/
6	l-affected vowels	/ai/-/ay/ and /oi/-/oy/	/ee/ and /ie/ **
7	/ai/-/ay/ and /oi/-/oy/	/ee/ and /ie/ **	/oa/ and /ew/
8	/ee/ and /ie/ **	/oa/ and /ew/	/au/ and /aw/
9	/oa/ and /ew/	/au/ and /aw/	/ea/
10	/au/ and /aw/	/ea/	/oo/ and /ou/

Notes. *Quiz 1 started in Week 2 of the intervention

**Lessons on /ee/ and /ie/ combined in one quiz

[1 & 2] The "silent e" pattern is called a "split digraph" in England

3.10 Procedure

The researcher taught each of the four conditions. A summary of the scope and sequence of the lessons and some examples of lesson plans are in the appendix to this chapter (see Appendix E1 to E4). Full details of lesson plans are in Appendix F1 to F4 at the end of the thesis. The lessons in the phonics only condition involved learning a series of phonics rules. The lessons in the big book only condition involved reading a series of big books. The phonics and big book combined condition was phonics and big book shared reading taught together. The treatment control lessons involved completing math exercises. Pupils in all conditions completed weekly phonics quizzes. The teaching interventions ran for 12 weeks, with one 30-minute lesson each week taught to each of the 24 subgroups of four pupils. At the end of the study, the researcher tested all pupils with the same measures as for the pretest.

The researcher always taught children in small groups of four. The small groups were "at", "below", and "well below" ability, so the phonics lesson plans, the big books, and the math exercises were different for each ability level. The lessons continued for three consecutive school terms. All groups received the same amount of time for instruction. The researcher met with the children once a week for 30 minutes.

3.11 Phonics only instruction

Children learnt and revised phonological rules for 25 minutes. Table 3.4 presents the scope of rules covered in the phonics lessons, which followed the sequence of rules of Anglo-Saxon words in English developed by Calfee and Patrick (1995).

Table 3.4

Scope of the Phonics Rules

<table>
<tr><td colspan="5">Consonants</td></tr>
<tr><td colspan="2">Single</td><td colspan="2">Blends</td><td>Digraphs</td></tr>
<tr><td colspan="2">b, d, f, h, j, k, l, m, n, p, q, r, s, t, v, w, x, y, z

Exception: c, g (two sounds)</td><td colspan="2"><u>Initial</u>
bl, br, cl, cr, dr, fl, fr, gl, gr, sl, pr, tr, sc, sk, scr, spl, sm, squ, sn, str, sp, st, sw, tw, thr,
<u>Final</u>
ft, mp, nt, lk</td><td><u>Initial</u>
th, sh, ch, wh, gh
<u>Final</u>
ng, ck, sh</td></tr>
<tr><td colspan="5">Vowels</td></tr>
<tr><td>Single: short</td><td>Single: long</td><td colspan="2">r and l controlled</td><td>Digraphs</td></tr>
<tr><td>a: mad
e: pet
i: time
o: hop
u: cut</td><td>a-e: made
e-e: Pete
i-e: time
o-e: hope
u-e: cute</td><td><u>r affected</u>
ar: park
er: her
ir: bird
or: for
ur: fur</td><td><u>l affected</u>
al: fall, ball, walk, talk</td><td><u>One sound</u>
ai-ay: rain-play
ee: meet
ie: piece
oi-oy: oil-boy
oa: boat
au-aw: sauce-law
ew: new
<u>Two sounds</u>
ea: beach-head
oo: moon-book
ou: house-soup
ow: cow-tow
ei: seize-rein</td></tr>
</table>

Source: Calfee and Patrick (1995, p. 108)

Note:

- to all ability groups
- to “well below” ability group only
- to “ well below” and “below” ability groups only
- to “at” ability group only

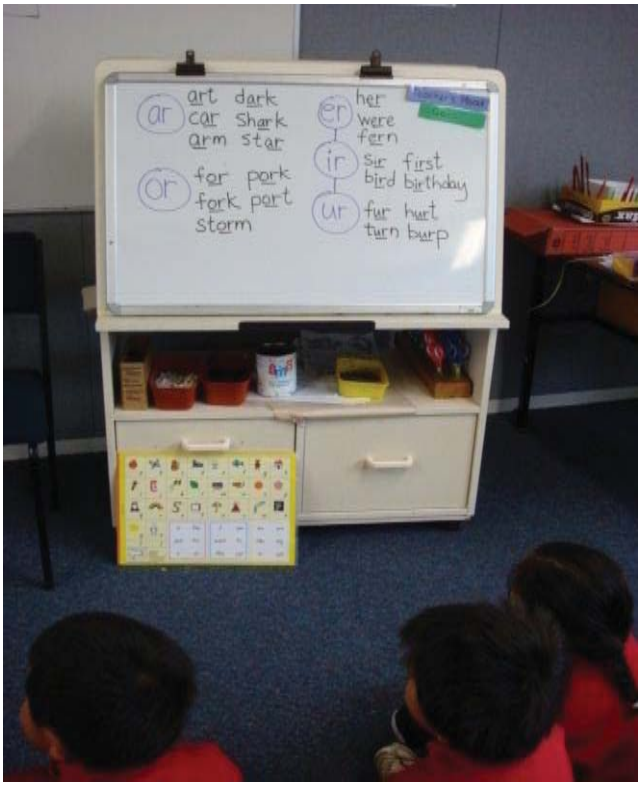
There was no sentence context or storybook context. The phonics only group received no metacognitive strategy training to transfer this phonics knowledge to actual reading, but received 5 minutes of phonemic awareness training through a "TurtleTalk" training programme each week (Gough & Lee, 2007). This was done by selecting five to eight words and stretching them out, so that pupils talked slowly like a turtle (e.g., sh-ar-k for "shark"). Instead of just a listening and sounding out activity, the researcher modified the "TurtleTalk" by showing the printed words to the pupils on the whiteboard while they were "turtle-talking". As the National Reading Panel (2000) suggested, "phonemic awareness with letters helps learners determine how phonemes match up to graphemes within words and this facilitates transfer to reading and spelling" (p. 33). A description of the kind of phonics instruction used in the present study is shown in Table 3.5. An example of the lesson plan and words selected for the phonics lesson is shown in Figure 3.1.

Table 3.5

The Description of the Kind of Phonics Instruction Used in the Present Study

What the phonics instruction in the present study does do……	What the phonics instruction in the present study does not do……
• It teaches specific rules for mainly Anglo-Saxon words • It is based on phonics lesson plans and ideas in The Phonics Handbook (Nicholson, 2005), rules for Anglo-Saxon words in English in Calfee & Patrick (1995), and rules for syllable breaking in Henry (2010) and Moats (2010) • It uses explicit instruction • It uses TurtleTalk phonemic awareness activities	• No sentence context • No decodable books • No Big Books • No analytic phonics • No teaching of consonant blends (except for a quick review in lesson 1 for "well below" and "below" groups) • No home involvement by parents

Figure 3.1. An Example of Words Selected for a Phonics Only Lesson ("Well below" Ability Group Lesson 4: r-affected vowels)



For the phonics "well below" ability group, the first session started with revising the 26 letter sounds of the alphabet, with the vowels restricted to short vowel sounds, and basic two- and three-letter words. According to the Ministry of Education (2010b), after the first year at school, children should have phonemic awareness and know all letters by name. The "below" ability group started at a higher level, with consonant blends and digraphs (e.g., bl, cl, dr, gr, gl, ch, wh). The "at" ability group began at an even higher level, for example, vowel digraphs (e.g., ai-ay, oi-oy, ee, oa, au-aw, ea, oo, ou), and syllable breaking (i.e., cvc/cvc).

The 30 minute lessons started with a quick revision of the previous phonics rule, then moved on to another new rule, phonemic awareness practice (listening and sounding out words exercise), and ended with a quiz based on the phonics rule from the previous lesson. Appendix F1 presents detailed lesson plans for the first, sixth and twelfth lesson.

Here is an example of a lesson for the "below" ability group. The lesson was adapted from *The Phonics Handbook* (Nicholson, 2005).

Introduction: recap from last week's lesson ("ea" pattern)

Researcher: Can anyone remember what sound "ea" makes? If you cannot, maybe you can think of a word that had "ea" in it. Yes, "EAT" is a good example (the researcher writes the word "eat" on the whiteboard). How about the word "head"? Can you hear the /ea/ sound in "head"? Yes, it has the /e/ sound (writes the word "head" on the whiteboard). /ea/ has either the /ee/ or /e/ sound.

Lesson: vowel digraphs /oo/ and /ou/

Researcher: Today, we are learning the digraph OO and OU. Let's have a look at the digraph OO first. The first sound is /oo/ as in b<u>oo</u>k and l<u>oo</u>k (words presented on the whiteboard, so the pupils can see them). The second sound is /ue/ as in m<u>oo</u>n, s<u>oo</u>n or kangar<u>oo.</u> An easier way to remember that /oo/ has two sounds is to remember this sentence "l<u>oo</u>k at the m<u>oo</u>n", so you have the /oo/ sound in look, and the /ue/ sound in moon.

Words from *The Phonics Handbook*	OO /oo/	OO /ue/
cook	*	
took	*	
roof		*
spoon		*
school		*
understood	*	
good	*	

Researcher: Let have a look at the list here (in A3 size). I want you to look at the OO in each word. Does it have the sound of /oo/ or /ue/?

(The researcher says the words, and pupils choose the correct sound for each word).

Researcher: The next digraph is OU. It also has two sounds. The first sound is /ow/ as in h<u>ou</u>se, <u>ou</u>t or sh<u>ou</u>t; the second sound is /ue/ as in s<u>ou</u>p, y<u>ou</u> or gr<u>ou</u>p. So, both OO and OU can share the same sound /ue/ (pupils see the words presented on the whiteboard).

Good, let have a look another list (in A3 size). Do you think these words have the /ow/ or /ue/ sound?

Words from *The Phonics Handbook*	OU /ou/	OU/ue/
mouse	*	
soup		*
house	*	
count	*	
group		*
you		*
hour	*	

Researcher: Well done, the final task we are going to do is "TurtleTalk". Have a look at these words on the whiteboard. If I say /c/-/oo/-/k/ (slowly), what is the word? Great, let's try another one….. Good. Now, I want you to choose a word and say it as slow as you can…yes, just like what I did before… talking slowly, just like a turtle.

mouse	m-ou-se
soup	s-ou-p
house	h-ou-se
cook	c-oo-k
took	t-oo-k
good	g-oo-d

Researcher: Great job. You have done so well. Let's finish the lesson by completing the Quiz on /ea/.

3.12 Big Book only shared reading

The children in the big book only reading approach read big books that were slightly above their instructional reading level. Books were from the *Ready to Read series* (Ministry of Education, 2001). Big books are almost 40cm high and 30cm wide, illustrated with large print for teaching groups of up to 30 pupils at a time. In the present study, the researcher used a whiteboard stand to hold the big book, so every pupil could see the big book. The pupils were sitting either on chairs or on the floor.

The "well below" ability group started with the story *Car Shopping* by Dot Meharry at red level (5–5.5 years). The "below" ability group started with the story *Keep Trying* by Jane Buxton at yellow level (5.5–6 years). The "at" ability group started with *The hole in the King's sock* by Dot Meharry at orange level (6.5–7 years).

Table 3.6 presents the titles of the stories and reading levels for each ability group in the present study.

Table 3.6

Titles of the Stories and Reading Levels of Big Book Reading Lessons for Each Ability Group

Lesson	"Well below" ability	"below" ability	"at" ability
1–3	Story: Car shopping Level: 5–6years	Story: Keep trying Level: 5–6 years	Story: The hole in the King's sock Level: 6–7 years
4–5	Story: What does Greedy cat like? Level: 5–6 years	Story: Lunch for Greedy Cat? Level: 5–6 years	Story: A good idea Level: 6–7 years
6–9	Story: Greedy cat's door Level: 5–6 years	Story: Hissing Bush Level: 5–6 years	Story: Earthquake Level: 6–7 years
10–12	Story: Keep trying Level: 5–6 years	Story: Magnetic Max Level: 5–6 years	Story: Firefighter Fred Level: 7–8 years

Source: Hartley (1999); Ministry of Education (2010a).

The researcher used the concepts and ideas from *Ready to Read: Teacher support material* (Ministry of Education, 2001). Each story lasted for three reading sessions. During the lesson, the researcher read the Big Book several times to and with the pupils.

Using the Ministry guidelines (2001), in the first reading the researcher read the book once to the group aloud, pointing at the words as she read, and only stopped to discuss an illustration, or predict what would happen on the next page of the text. For example, in the story *Car Shopping* by Dot Meharry, these are some Ministry guidelines for the teacher in the first reading:

- Discuss the cover illustration. "What do you think the story is going to be about?"
- Read the title with the group. Read the names of the author and the illustrator.
- Page 2–before the children start to read, talk about the colour of the car.
- Page 8–draw the children's attention to the exclamation mark and the use of large print. Which car would you have chosen?" "Why?"

(Ministry of Education, 2001, Teacher's Notes-"*Car Shopping*")

The Ministry provides teaching ideas when children revisit the text in the classroom. Teachers can choose to do one or two activities/tasks during each reading session such as:

- Listen to the children reread the text, observing their attempts to self-monitor, cross-check, and read expressively.
- Locate words in the text that start with "c", "l", or "w". List other words that start with the same letters
- Find the word "blue" in the text. Can you think of other words that start with "bl"? Make a list. Do the same for "sh" or "gr".
- Use the whiteboard to examine the contraction "we'll". Can you work out what they are? Write "we will" on the whiteboard, and show the children how the apostrophe replaces the "wi".

(Ministry of Education, 2001, Teacher's Notes-"*Car Shopping*")

Table 3.7 presents a description of the kind of big book instruction used in the present study. In the current study, the researcher read the text with the pupils as choral reading in the second and third reading. In the third reading, the researcher drew pupils' attention to one or two of the following things: phonics (e.g., the GR in "Greedy Cat"), punctuation (e.g., speech marks, full stops, capital letters), figurative language (e.g., opposites – "little" and "big", "old" and "new"), or an aspect of the text structure such as plot or character.

Table 3.7

The Description of the Kind of Big Book Instruction Used in the Present Study

What the Big Book shared reading instruction in the present study does do……	What the Big Book shared reading instruction in the present study does not do……
• Uses guidelines from the Ministry of Education (2001) for big book shared reading – "reading to" • Uses different teaching for each of the 3 average instructional reading levels represented by the three different ability groups • Uses analytic phonics- see guidelines from the Ministry of Education (2001) • Uses implicit phonics instruction– as in Ministry of Education (2001) • Uses picture clues • Uses sentence context • Punctuation • Story vocabulary • Prediction and discussion	• No explicit phonics • No spelling • No writing • No guided reading "reading with" • No independent reading "reading by" • No home involvement by parents

Here is an example of the big book lesson for the "below" ability group.

Introduction: Story-*Magnetic Max* by Parker (2006) (3rd reading).

Researcher: Remember Max and his magnet are hiding in a tree. What is Magnetic Max up to? Can anyone tell me? Yes, good memory. Let's read the story one more time, who can read the first page for us? (Pupils take turns to read the story, and correct any mispronunciations during reading).

Lesson: *Magnetic Max* (3rd reading)

Researcher: We talked about the term "nouns are naming words" last week, like in the story, the words "tree", "park", "pocket", "dog", and "skateboard" are all nouns. I am going to tell you another type of a noun, called "Proper Nouns", which could be the name of a person, city or a planet. In the story, "Julia", "Max", "Cookie" and "Joe" are all proper nouns. Can you think of any other examples? Yes, your name is a proper noun. Well done! (The researcher presents the below information on the whiteboard).

Researcher: Good, I want you to think about Joe, Julia, and Felix. What did they do when they walked past the "strange tree"? Did they try to find a way to solve the problems? The following chart is presented on the whiteboard, and the researcher writes down pupil's responses.

The different ways they dealt with the problem of the "strange tree"	
Joe	
Julia	
Felix	

Researcher: Well done and good thinking everyone! Now, I want you to take a seat and complete the Quiz on /ea/.

In this condition, over the twelve weeks, the researcher read twelve different big books, that is, four big books for each ability subgroup. Pupils read each book aloud three times. Appendix F2 presents detailed lesson plans for the first, sixth and twelfth lessons.

3.13 Phonics and Big Book combined approach

Children in the phonics and big book combined group received the same lessons as for the phonics only and big book only groups, but in abbreviated form. Figure 3.2 shows a description of the phonics and big book combined approach. The researcher started the lesson with a phonics rule and worked on a big book that had examples of the phonics rule. An example of the phonics rule for a phonics and big book combined lesson is in Figure 3.3. The researcher wrote eight 'TurtleTalk" words from the story *Lunch for Greedy Cat.* Pupils learnt l-affected vowels before reading the story (they had learnt other phonics rules like silent e, r-affected vowels, and consonant digraphs from previous lessons).

Figure 3.2. A Description of the "Phonics and Big Book Combined" Approach

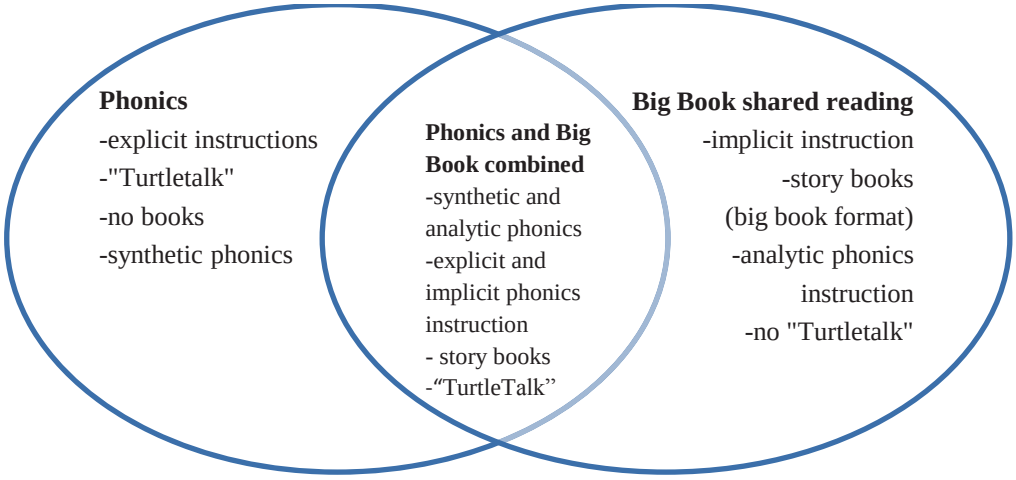
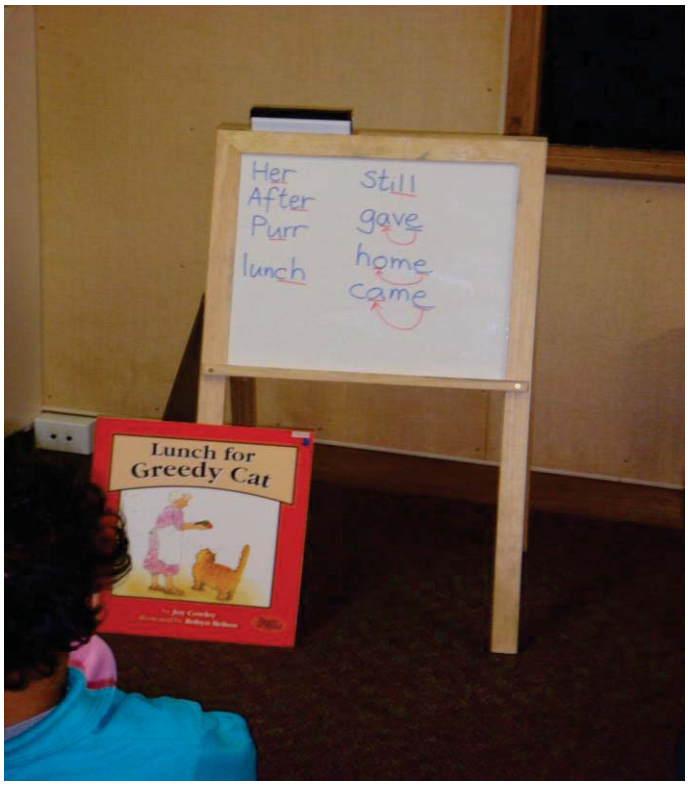


Figure 3.3. An Example of a Phonics and Big Book Combined Lesson (Lesson 5: "below" ability group



The first lesson for the "well below" ability group was alphabet sounds (like the first lesson in the phonics only condition). Children studied between eight to ten two-, three-, and four- letter words chosen from the big book *Car Shopping*, before reading the story aloud.

The researcher presented words chosen from the story on a whiteboard (e.g., at, can, red, blue, green, looked, small, shopping). Children had to sound out the phonemes in each word and read them as a word, for example, they said /a/-/t/, and then pronounced it as the word /at/. Words included both phonically regular words like "van" and irregular words like "fast" (British pronunciation is "farst").

Phonemic awareness exercises involved the researcher saying the individual phonemes in a word slowly, one after the other, and pupils trying to guess the word. This activity is "TurtleTalk" because the research talks slowly like a turtle (Gough & Lee, 2007). The original "TurtleTalk" in the Gough and Lee (2007) study was a listening activity with no reading of text but the researcher modified the activity by writing the TurtleTalk words on the whiteboard. She wrote on the whiteboard a short list of words that followed phonics rules. The task for pupils was to associate TurtleTalk phonemes spoken by the researcher with their written representations on the whiteboard. For example, the researcher wrote words like *her, after, purr, lunch, gave, home, came, and still* on the whiteboard. The researcher asked the pupils to listen when she said slowly the phonemes, e.g., /h/-/er/ carefully, blend the phonemes together in their minds, then say the word aloud, and point to the correct answer on the whiteboard. Children also did the activity in reverse. They chose a word (e.g., *home*) on the whiteboard and pronounced each phoneme of the word slowly, like a turtle /h/-/oe/-/m/ ("oe" is a long vowel phoneme), and then say the word *home* quickly, as one word.

The big book activity was the same as for the big book only condition but with fewer activities, for example, a brief discussion of the title, author or the illustrations before reading the whole story.

The "below" ability group's first lesson started with phonics that focused on consonant blends (e.g., climb, skate, skipping, keep, trying, swim). Examples of these came from the big book *Keep Trying*.

Children listened and sounded out words as phonemic awareness practice before reading and discussing the story. During reading practice, the researcher pointed to phonics patterns from the book that had been taught during the phonics part of the lesson, for example, words with consonant blends like *climb, skate, try, swim.*

The “at” ability group’s first lesson started with a review of the silent e rule. The rule taught to the pupils was that the letter e at the end of an Anglo-Saxon word acts as a marker to indicate the preceding vowels says its letter name (not its sound). In England, the silent e is called the split digraph rule.

The group studied silent e words, like “hole”, from the big book *The Hole in the King’s Sock*. The group also studied other, more difficult words from the story.

The researcher read the story to the students and encouraged them to predict what might happen next. During the 12 lessons, children learnt new phonics rules each week, and revised phonics rules learnt from previous lessons with examples chosen from big books. Appendix F3 presents detailed lesson plans for the first, sixth and twelfth lessons.

Here is an example of a lesson on phonics and big book reading for the “below” ability group.

Introduction: recap-/ea/

Researcher: Last week we talked about the sounds of the vowel digraph /ea/, and it has two different sounds. Can anyone tell me? Or can you think of any words that have “EA” in them? Yes, /ee/ as in “eat”, and /e/ as in “head”.

Lesson: vowel digraph /oo/ and /ou/

Story-*Magnetic Max* (third reading)

Researcher: Today, we are learning the vowel digraphs /oo/ and /ou/. The first sound is /oo/ as in b<u>oo</u>k, c<u>oo</u>k or l<u>oo</u>k. (Words presented on the whiteboard with the “OO” underlined in each word). The second sound is /ue/ as in m<u>oo</u>n, s<u>oo</u>n, or kangar<u>oo.</u> The next digraph is /ou/. It also has two sounds. The first one is /ow/ as in h<u>ou</u>se, <u>ou</u>t or sh<u>ou</u>t. The second sound is /ue/ as in s<u>ou</u>p, y<u>ou</u> or gr<u>ou</u>p. This is very similar to the /ue/ sound in “moon”. So, the sound /ue/ could be spelled as “OO” or “OU”.

Now, have a look at the list here (in A3 size). Does the “OO” have the sound of /oo/ or /ue/, and does the “OU” has the sound of /ou/ or /ue/?

Words from *The Phonics Handbook*	OO/oo/	OO/ue/
spoon		*
cook	*	
good		*
	OU /ou/	OU/ue/
mouse	*	
soup		*
hour	*	

Researcher: Before we read the story about *Magnetic Max*, let's practice some "TurtleTalk". These are the words in the story *Magnetic Max*.

str<u>ee</u>t	s-t-r-ee-t
<u>ou</u>t	ou-t
p<u>a</u>p<u>er</u>	p-a-p-er
time	t-i-m (i:long vowel)
m<u>or</u>ning	m-or-n-i-ng
l<u>oo</u>ked	l-oo-k-ed
<u>th</u>ink	th-i-n-k

Researcher: Remember that Max and his magnet are hiding in a tree. What happened when Joe, Julia and Felix walked pass the tree? What did they do to solve their problem? (Due to the time constraint, this was only done verbally with the pupils, and it was different from the big book group when the researcher wrote pupil's answers on the whiteboard). Ok, if you are not sure, let's see if we can find the answers in the story.

Researcher: Good answers and good thinking. Well done! The last task I would like you to do for me is completing the Quiz on /ea/.

3.14 Treatment control group

Children in the treatment control group received math instruction. This group received the same amount of instructional time as the other treatment groups. This condition controlled for placebo effects, that is, the effects of receiving special attention. Pupils learnt about numbers and the quantities they stand for. They learnt counting, comparing numbers, addition, subtraction and multiplication. All three ability groups started with counting numbers and doing worksheet "missing numbers" as a warm up activity.

The “well below” ability group’s first lesson revised counting and writing numbers from 1-50. The lessons for this group covered addition and subtraction with one- and two- digit numbers, and simple multiplication.

The “below” ability group’s first lesson revised 1-50 by counting orally, and writing numbers on worksheets. This group learnt and revised addition and subtraction with two- and three- digit numbers, and multiplication with one- and two- digit numbers.

The “at” ability group learnt and revised at a more advanced level for addition, subtraction and multiplication. Appendix F4 presents detailed lesson plans for the first, sixth and twelfth lessons.

3.15 Summary

This chapter has explained the methodology. The aim was to carry out a study that compared the effectiveness of three ways to teach reading to 6-year-olds. It was a pretest-posttest experimental study. The researcher recruited 96 pupils and divided them randomly into four conditions, each condition with three levels of reading ability. The conditions were phonics only, big book shared reading, phonics and big book combined, and a treatment control group. The difference in phonics only group teaching was no sentence context or storybook context during the sessions. In big book shared reading, some phonics instruction was taught by the researcher (instruction adapted from Ministry of Education, 2001), and students reviewed these skills within story context. In the phonics and big book condition, students began with phonics rules, and then read the big book. The phonics rules were linked to words in the big book. “TurtleTalk” was taught to the phonics only, and the phonics and big book combined group but not to the big book group or to the control group. The researcher taught each condition. There were 12 weekly lessons of 30 minutes per lesson. Each week the researcher taught 24 small groups of four pupils. The pupils completed a quiz each week that assessed knowledge of phonics. The researcher assessed the pupils at the start and end of the study with a number of different reading, spelling, and vocabulary tests.

Chapter 4: Results

4.1 Hypotheses

The main hypothesis of the study was that a phonics and big book combined approach that used phonics and big book teaching together would be more effective than phonics or big book instruction in isolation.

The second hypothesis was that reading instruction is better than no reading instruction, so that the three approaches would each produce results superior to those of a treatment control group.

4.2 Description of the chapter

4.2.1 Design

The design of the study involved teaching pupils in four randomly selected groups: phonics only (P), big book only (BB), phonics and big book combined (PBB), and a treatment control (C) (the treatment was math instruction). Each group comprised 24 pupils, and in each group were three reading ability subgroups, "well below", "below", and "at" the reading level expected for their chronological age. Each ability subgroup comprised eight pupils, taught in two smaller subgroups of four pupils. The total number of pupils in the study was 96. The total number of subgroups in the study was 24.

Each week during the study, the researcher taught 24 small groups of four pupils. There were six small groups in big book only, six in phonics only, six in the phonics and big book combined approach, and six in treatment control. In each condition, there were two small groups of "well below" readers, two of "below", and two small groups who were "at" the expected reading level.

4.2.2 Units of analysis

The intervention involved teaching of pupils in small groups so the unit of analysis was the small group (Levin, 1985). There were 24 subgroups, each with four pupils. Subgroup mean scores were the units of analysis.

4.2.3 Statistical analyses

The main statistical analysis used in the chapter was a 3-way repeated measures analysis of variance (ANOVA). The independent variables were group (phonics only, big book only, phonics and big book combined, treatment control) and reading ability ("well below", "below", "at"). The repeated measures factor was time (pretest, posttest). The dependent variables were word reading, passage reading, passage comprehension, basic decoding skills, spelling, phonemic awareness, receptive vocabulary, and math. The results of interest were the pretest-posttest interactions with the group factor. When these interactions were significant, follow up analyses of covariance explored the nature of the interactions by covarying pretest scores to calculate adjusted posttest means. Pairwise comparisons of the adjusted means of each treatment group used Fisher's least significant difference (LSD) procedure to compare the relative change in mean score of each treatment group from pretest to posttest.

4.3 The 24 subgroup means as the unit of analysis -Word Reading

Table 4.1 shows the means and standard deviations for Burt Word Reading. In terms of National Standards (Ministry of Education, 2010b), the three reading levels of the children divide into those "well below", "below", and "at" the standard.

The pretest raw score for the four groups were between 12 and 14 (phonics only = 14, big book only = 14, phonics and big book combined = 12, control = 12). The average pretest raw score mean for the entire sample was 13.31 (estimated reading age of 5 years and 9 months). In comparison, the average chronological age (as shown in the Method chapter) of the total sample of children in the study was 6.28 years (or 6 years and nearly 4 months).

The pretest mean raw score means for the "well below" group were very low given their chronological age, below the norms for this test. We can estimate their reading ages by extrapolating from the norms. The estimated reading age for the "well below" group was 5 years and 4 months. The "below" group had an approximate reading age of 5 years and 9 months. The "at" group had an approximate reading age of 6 years and 6 months.

The posttest word reading mean raw scores for the four groups were between 22 and 27 which is in the reading age range of 6 years and 3 months to 6 years 7 months.

The mean raw score for the phonics and big book combined group was 27 (estimated reading age 6 years 8 months), which was higher than the score of 22 for phonics only and 22 for treatment control (estimated reading age 6 years 3 months). It was also higher than the score of 24 for big book only (estimated reading age 6 years 5 months). In approximate terms, the phonics and big book combined group had made 5 months more reading progress than the phonics only and control groups, and 3 months more progress than the big book only group. This was before adjusting for any differences in pretest scores among the four groups.

Table 4.1

Burt Word Reading Means and Standard Deviations for the Four Treatment Groups (unit of analysis = 24 subgroup means)

Reading Level		Phonics		Phonics and Big Book		Big Book		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	4.00	11.50	2.50	19.38	4.13	11.63	3.38	14.63
	SD	3.54	9.19	.00	6.89	2.65	1.94	1.59	1.59
Below	*M*	10.50	16.88	11.63	26.88	13.75	25.00	12.00	20.63
	SD	.35	.18	3.01	4.42	1.06	.35	3.18	1.94
At	*M*	27.25	39.25	22.75	36.75	24.63	36.63	23.25	31.38
	SD	1.77	2.47	1.41	.71	2.65	4.77	.71	1.94
Total	*M*	13.92	22.54	12.29	27.67	14.17	24.42	12.88	22.21
	SD	10.88	13.84	9.19	8.62	9.34	11.43	9.06	7.72

The statistical results are in Table 4.2. There was a significant effect for time. This showed that the total sample of students made statistically significant gains from pretest to posttest. There was a significant effect for ability. This showed that the differences in reading level among the three ability groups were statistically significant. There were no other statistically significant results except the result of most interest, which was the significant Time x Group interaction effect $F(3, 12) = 5.89$, $p = .01$, $\eta 2 = .60$. As Figure 4.1 shows, the phonics and big book combined group made more progress from pretest to posttest than the other groups. The large η^2 effect size accounted for 60% of variance in the results for word reading.

Figure 4.1. Burt Word Reading Raw Scores (Prestest and Posttest)

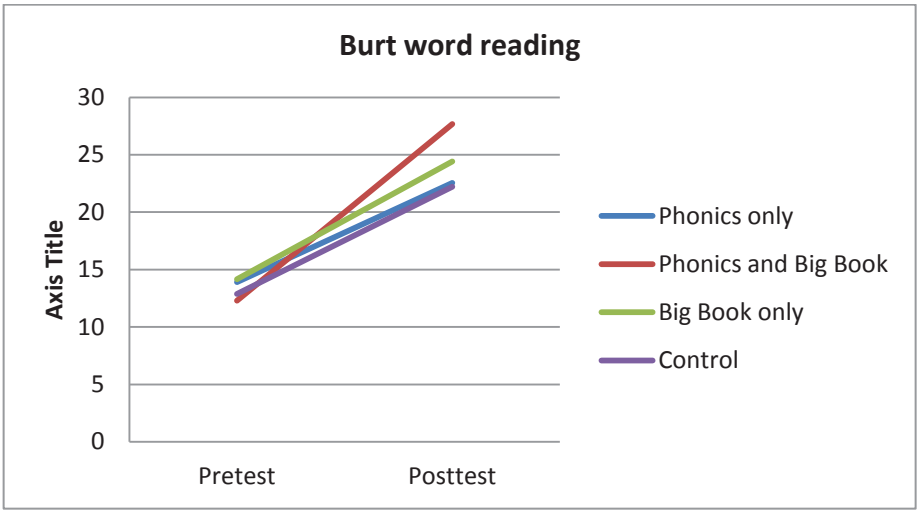


Table 4.2

Tests of Within-subjects Contrasts and Between-Subjects Effects in Burt Read Word Reading (N=24)

	MS	*df*	*F*	*p*	η2
Within Subjects					
Time	1424.63	1	298.94	.00**	.96
Time x Ability	1.38	2	.29	.75	.05
Time x Group	28.08	3	5.89	.01**	.60
Time x Ability x Group	6.06	6	1.27	.34	.39
MS Error	4.77	12	–	–	–
Between Subjects					
Ability	1853.10	2	115.26	.00**	.95
Group	14.14	3	.88	.48	.18
Ability x Group	24.00	6	1.49	.26	.43
MS Error	16.08	12	–	–	–

Note. ** $p<.01$ * $p<.05$

A follow-up analysis of covariance (ANCOVA) explored the nature of the interaction. The dependent variable was the posttest raw score for the Burt Word Reading Test. The independent variable was group (phonics only, phonics and big book combined, big book only, and control). The covariate was the pretest raw score for the Burt Word Reading Test. The mean scores of the four groups, after adjusting for pretest scores, were phonics only (P) = 22.05, phonics and big book combined (PBB) = 28.50, big book only (BB) = 23.72, and control (C) = 22.57.

Converted to approximate reading ages, the adjusted mean scores were: phonics only, = 6 years 3 months; phonics and big book combined, = 6 years 10 months; big book only, = 6 years 6 months; and control, = 6 years 4 months. The phonics and big book combined group was four to 7 months ahead of the other groups.

Pairwise comparisons of the adjusted mean scores showed a significant difference between the phonics and big book combined group and the other three conditions (PBB > P, $p = .000$; PBB > BB, $p = .003$; PBB > C, $p = .000$).

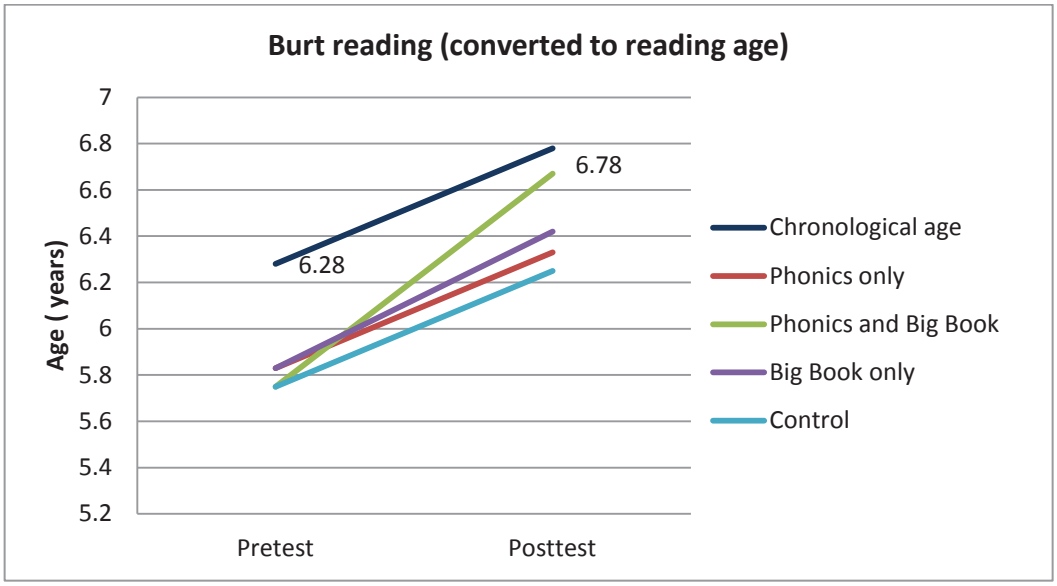
There were no significant differences for other pairwise comparisons (P vs. BB, $p = .276$; P vs. C, $p = .734$; BB vs. C, $p = .455$).

To obtain effect sizes for these significant differences, the researcher calculated pretest-posttest gain scores in word reading. The gain scores were, phonics only = 8.63 ($SD = 4.14$), phonics and big book combined = 15.38 ($SD = 3.53$), big book only = 10.25 ($SD = 2.46$), and treatment control = 9.33 ($SD = 1.69$).

Cohen's *d* effect sizes were, phonics and big book combined versus control = 2.19, phonics and big book combined versus phonics only = 1.75, phonics and big book combined versus big book only = 1.69, phonics only versus control = 0.22, phonics only versus big book = 0.48, and big book only versus control = 0.44. Cohen (1984) suggests the following criteria for interpreting effect sizes: small = 0.20, medium = 0.50, large = 0.80. The effect sizes showed large differences between the phonics and big book combined group and the other treatment groups, with the advantage for the phonics and big book combined group.

Figure 4.2 shows pretest and posttest differences in reading age among the four treatment conditions when compared with their pretest-posttest chronological age of the pupils. The phonics and big book combined group (PBB) achieved a mean reading level that was closer to the total group posttest average chronological age (6.78 years = around 6 years 9 months) than were the levels of the other treatment groups.

Figure 4.2. Burt Word Reading Age (Pretest and Posttest)



4.3.1 Detailed analysis of the Word Reading results

Table 4.3 shows the skill components that characterise some of the words in the Burt Word Reading Test. Inspection of the test items that children in the study had been able to read correctly indicated that they were in seven categories in terms of relative decodability. Table 4.3 shows the categories and Appendix G presents a detailed explanation of the words in each category. There were four categories of one-syllable items. Ten words had regular spellings (e.g., up), five words were a small set of semi-regular spellings (e.g., no), eleven words had regular spellings of consonant and vowel digraphs or alternate sound of "g" (e.g., fringe), and six words were irregular, one-syllable words (e.g., to). In the two-syllable word group, there were 15 words with regular spellings (e.g., quickly), 11 words that were partly regular (e.g., carry), and seven two-syllable words that had irregular spellings (e.g., water).

Table 4.3 presents a preview of the results that will follow. It shows that there was a significant treatment effect (i.e., treatment by group interaction) for Category 1 and 2 words that had regular spellings but not Category 3 words with irregular spellings. There was a significant treatment effect for Category 4 words (the "well below" reading group could not read these words so were left out of this analysis). Most children did not recognise any of the Category 5, 6, and 7 words, except for some of the "at" readers. Analyses of the performance of the "at" readers showed no treatment effects for these

categories. There were no time by group by ability interactions. The chapter will report only the results for Categories 1 to 4.

Table 4.3

Preview of the Results for the Burt Word Reading Test (unit of analysis = 24 subgroups) T x G = Treatment by Group Interaction; T x G x A = Treatment by Group by Ability Interaction

Category	T x G	T x G x A
(1) 1 syllable/regular consonant sounds	√	X
(2) 1syllable/regular consonant sounds (small set)	√	X
(3) 1 syllable/irregular consonant sounds (cvc/cv)	X	X
(4) 1 syllable/regular/consonant blends or digraphs/vowel digraphs	√	X
(5) 2+syllable/syllable breaking regular words	X	X
(6) 2+syllable/syllable breaking irregular words	X	X
(7) 2+syllable/semi-regular/ambivalent words	X	X

4.3.2 Category One

One-syllable regular words

Table 4.4 shows the means and standard deviations for scores out of 10 for one-syllable, regular words (up, big, at, sun, went, an, wet, just, pot, sad). The mean scores for the "well below" group at pretest were almost at floor level. The raw scores for the "below" group at pretest were at mid-point, and the scores for the "at" group were approaching ceiling. At posttest, some of the "at" groups were at ceiling with scores of 10 out of 10.

Table 4.4

Burt Word Reading Mean Scores and Standard deviations for 10 One-Syllable Regular Words (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	1.63	4.25	.63	7.50	1.50	4.13	1.38	5.25
	SD	1.94	3.18	.18	2.83	1.41	.88	.88	.35
Below	*M*	4.00	6.38	4.50	9.50	4.75	8.38	4.13	7.38
	SD	.71	.18	.00	.35	.71	.18	1.24	.88
At	*M*	9.38	10.00	7.38	10.00	8.13	10.00	7.50	9.00
	SD	.18	.00	.53	.00	.53	.00	.71	.71
Total	*M*	5.00	6.88	4.17	9.00	4.79	7.50	4.33	7.21
	SD	3.67	2.97	3.04	1.74	3.06	2.74	2.84	1.76

The statistical results are in Table 4.5. There was a significant effect for time, showing that the total sample improved their scores from pretest to posttest. There was a significant effect for ability, showing that the three ability groups were different in their scores. There was a significant time by ability effect showing that the lower ability groups gained more than the high ability group. This was because many in the "at" group scored nearly at ceiling on the pretest and at ceiling on the posttest so they could only make limited improvements in their scores. There was a non-significant time by ability by group interaction $F(6, 12) = 1.06$, $p = .44$, suggesting that the three ability groups made similar score changes.

Table 4.5

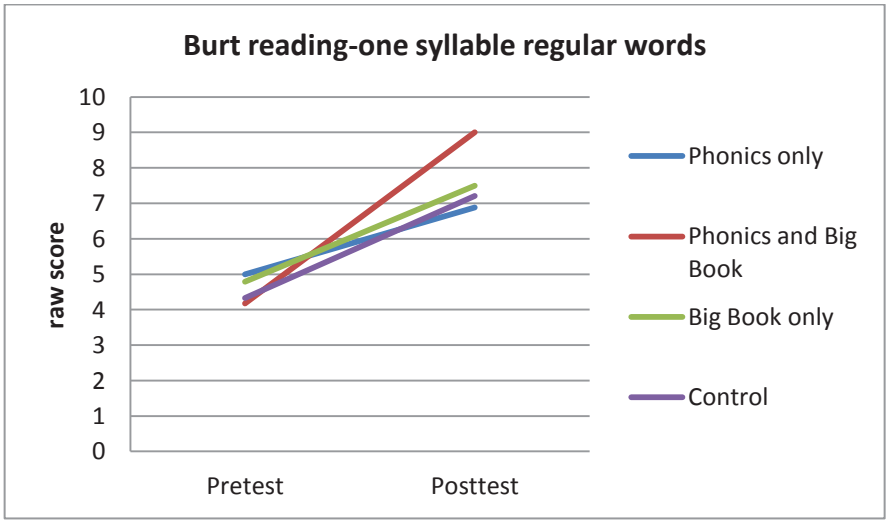
Test of Within-Subjects Contrasts and Between-Subjects Effects in Word Reading: One-Syllable, Consonant Sounds and Regular Words

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	113.31	1	200.98	.00**	.94
Time x Ability	6.21	2	11.02	.00**	.65
Time x Group	4.71	3	8.35	.00**	.68
Time x Ability x Group	.60	6	1.06	.44	.35
MS Error	.56	12	–	–	–
Between Subjects					
Ability	127.27	2	63.76	.00**	.91
Group	1.48	3	.74	.55	.16
Ability x Group	1.95	6	.98	.48	.33
MS Error	2.0	12	–	–	–

Note. ** $p<.01$ * $p<.05$

The result of most interest was the significant time by group interaction, $F(3, 12) = 8.35$, $p < .01$, $\eta^2 = .68$. The effect size was large, showing that the interaction accounted for 68% of variance in the word reading results. As can be seen in Figure 4.3, the change in mean score from pretest to posttest for the phonics and big book combined group was the largest of the four groups.

Figure 4.3. Word Reading: One-Syllable Regular Words



Exploring the nature of the interaction required analysis of covariance (ANCOVA). The dependent variable was the posttest score for regular one-syllable words. The independent variable was group (phonics only, phonics and big book

combined, big book only, and control). The covariate was the pretest raw score for regular one-syllable words. The mean scores, after adjusting for the pretest scores of the four groups, were phonics only = 6.52, phonics and big book combined = 9.34, big book only = 7.32, and control = 7.41.

Pairwise comparisons of the adjusted mean scores showed that the phonics and big book combined group adjusted mean score was significantly higher than the other three groups (PBB > P, p = .002; PBB > BB, p = .012; PBB > C, p = .011).

There were no significant differences for other pairwise comparisons (P vs. BB, p = .236; P vs. C, p = .212; BB vs. C, p = .888).

4.3.3 Category Two

One-syllable, small-set regular words (is, he, my, his, no)

Table 4.6 shows the means and standard deviations for scores out of five for one-syllable, small set words. The mean scores for the "well below" group at pretest were almost at floor level with scores of one out of five. The raw scores for the "below" group at pretest were at mid-point with scores of two and three out of five, and the scores for the "at" group were approaching ceiling with scores of four out of five. At posttest, some of the "at" groups had reached ceiling, with scores of five out of five.

Table 4.6

Burt Word Reading Mean Scores and Standard Deviations for the Five One-Syllable Small Set Words (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book only		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	1.00	2.63	1.13	4.25	1.38	3.63	.88	3.38
	SD	1.06	1.59	.18	.35	.88	1.24	.18	.18
Below	*M*	2.63	3.88	2.88	5.00	3.25	4.38	3.38	3.87
	SD	.18	.18	.53	.00	.35	.18	.18	.18
At	*M*	4.38	4.88	4.00	5.00	4.38	5.00	4.25	4.75
	SD	.18	.18	.35	.00	.53	.00	.35	.00
Total	*M*	2.67	3.79	2.67	4.75	3.00	4.33	2.83	4.00
	SD	1.59	1.24	1.33	.42	1.44	.83	1.58	.63

The statistical results are in Table 4.7. There was a significant effect for time, showing that the total sample improved their scores from pretest to posttest. There was a significant effect for ability, showing that the three ability groups were different in their scores. There was a significant time by ability effect showing that the lower ability groups gained more than the high ability group. This was because many in the "at" group scored nearly at ceiling on the pretest and at ceiling on the posttest so they could only make limited improvements in their scores. There were no other significant effects except for the time by group interaction.

Table 4.7

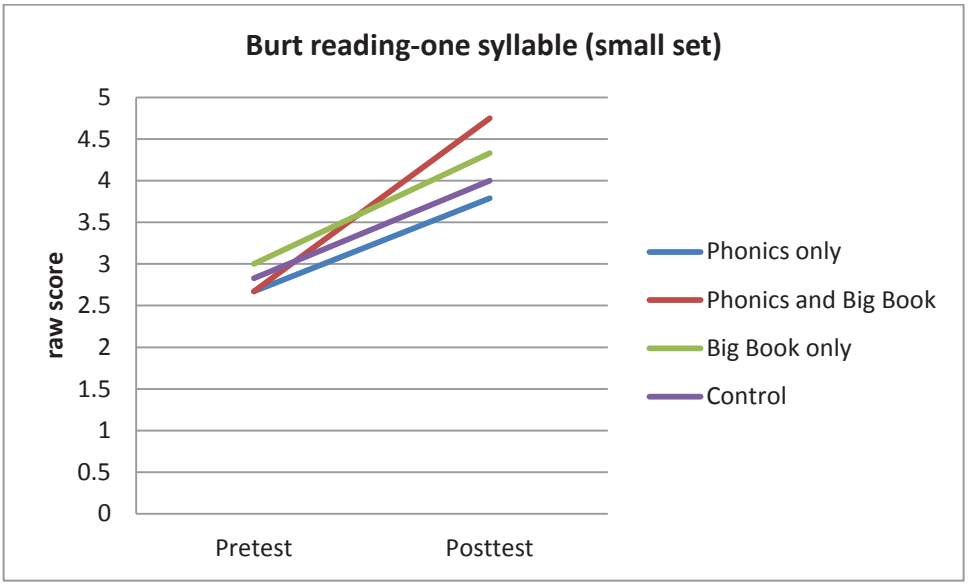
Test of Within-Subjects Contrasts and Between-Subjects Effects in Word Reading: One-Syllable, Consonant Sounds and Regular Words: Small Set

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	24.44	1	329.28	.00**	.97
Time x Ability	3.05	2	41.07	.00**	.87
Time x Group	.60	3	8.06	.00**	.67
Time x Ability x Group	.15	6	1.96	.15	.50
MS Error	.74	12	–	–	–
Between Subjects					
Ability	21.38	2	39.75	.00**	.87
Group	.61	3	1.13	.38	.22
Ability x Group	.20	6	.37	.88	.16
MS Error	.54	12	–	–	–

Note. ** $p<.01$ * $p<.05$

The result of most interest was the significant Time x Group interaction, $F(3, 12) = 8.06$, $p < .01$, $\eta^2 = .67$. The effect size was large, showing that the interaction accounted for 68% of variance in the word reading results. As can be seen in Figure 4.4, the change in mean score from pretest to posttest for the phonics and big book combined group was the largest of the four groups.

Figure 4.4. Word Reading: One-Syllable Regular (small set of five words)



Exploring the nature of the interaction required an analysis of covariance (ANCOVA). The dependent variable was the posttest score for one-syllable small set words. The independent variable was group (phonics only, phonics and big book combined, big book only, and control). The covariate was the pretest raw score for small set words. The mean scores, after adjusting for the pretest scores of the four groups, were phonics only = 3.91, phonics and big book combined = 4.87, big book only = 4.14, and control = 3.96.

Pairwise comparisons of the adjusted mean scores showed that the phonics and big book combined group adjusted mean score was significantly higher than the other three groups (PBB > P, p = .002; PBB > BB, p = .013; PBB > C, p = .003).

There were no significant differences for other pairwise comparisons (P ~BB, p = .360; P ~ C, p = .823; BB ~ C, p = .462).

4.3.4 Category Three

One-syllable, irregular words (six words - to, one, some, of, love, tongue)

Table 4.8 shows the means and standard deviations for scores out of six for one-syllable, irregular words. The mean scores for the "well below" group at pretest were almost at floor level with one out of six. The raw scores for the "below group" at pretest were at mid-point with two and three out of six, and the raw scores for the "at"

groups were close to ceiling level, with scores of four out of five. At posttest, an interesting finding was that the phonics "at" group did not improve like the other three conditions, and their raw scores were lower than the pretest.

Table 4.8

Burt Word Reading Mean Scores and Standard Deviations for One-Syllable Irregular Words (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book only		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	.75	2.00	.63	3.75	.63	3.50	.75	3.13
	SD	.35	1.77	.18	1.06	.18	.71	.35	.88
Below	*M*	2.50	3.88	2.38	4.75	3.00	5.00	2.50	4.38
	SD	.35	.18	1.24	.00	.00	.00	.71	.53
At	*M*	4.88	3.75	4.50	5.38	4.63	5.25	4.25	4.75
	SD	.18	2.12	.00	.18	.18	.00	.35	.35
Total	*M*	2.71	3.21	2.50	4.63	2.75	4.58	2.50	4.08
	SD	1.87	1.55	1.82	.88	1.80	.90	1.61	.90

The results in Table 4.9 indicated a non-significant Time x Group interaction, $F(3, 12) = 3.14$, $p = .07$, *ns*, and for Time x Group x Ability $F(6, 12) = .19$, $p = .97$, *ns*, suggesting there was no difference among the four conditions, and all ability groups made similar score changes.

Table 4.9

Word Reading: One-Syllable, Consonant Sounds and Irregular cvc/cv Words

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	27.38	1	56.98	.00**	.83
Time x Ability	5.26	2	10.94	.00**	.65
Time x Group	1.51	3	3.14	.07	.44
Time x Ability x Group	.90	6	.19	.97	.09
MS Error	.48	12	–	–	–
Between Subjects					
Ability	31.32	2	50.85	.00**	.89
Group	1.20	3	1.95	.18	.33
Ability x Group	.09	6	.14	.99	.07
MS Error	.62	12	–	–	–

Note. ** $p<.01$ * $p<.05$

4.3.5 Category Four

One-syllable, consonant blends/digraphs and vowel digraphs, regular words (11 words - for, girl, boys, day, that, or, now, things, told, nurse, fringe)

This analysis excludes the "well below" group because too many of them did not score at all. The analysis is restricted to the "below" and "at" reading ability groups. Table 4.10 shows the means and standard deviations for scores out of 11 for one-syllable words with consonant blends/digraphs and vowel digraphs. The mean raw scores for the "below" group at pretest were quite low with scores of one and two out of 11, and the scores for the "at" group were at mid point, with scores of five, six, and seven out of 11.

Table 4.10

Burt Word Reading Mean Scores and Standard Deviations for One-Syllable Consonant Blends/Digraphs and Vowel Digraphs (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book only		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Below	*M*	1.25	2.50	1.75	6.00	2.63	6.50	1.88	4.75
	SD	.00	.00	1.06	1.77	.18	.35	1.24	.00
At	*M*	7.13	9.25	5.63	9.13	6.63	9.00	6.00	7.63
	SD	.53	.35	.88	.18	1.60	.00	.35	.53
Total	*M*	4.19	5.88	3.69	7.56	4.63	7.75	3.94	6.19
	SD	3.41	3.90	2.38	2.08	2.49	1.46	2.45	1.69

The statistical results are in Table 4.11. This analysis did not include the "well below" reading level because too many students had zero scores. There was a significant effect for time, showing that the total sample improved their scores from pretest to posttest. There was a significant effect for ability, showing that the three ability groups were different in their scores. There was a significant group by ability effect in that the phonics only group based on pretest and posttest scores combined had the lowest mean score in the "below" reading group but the highest mean score in the "at" reading group. There were no other significant effects except for the time by group interaction.

Table 4.11

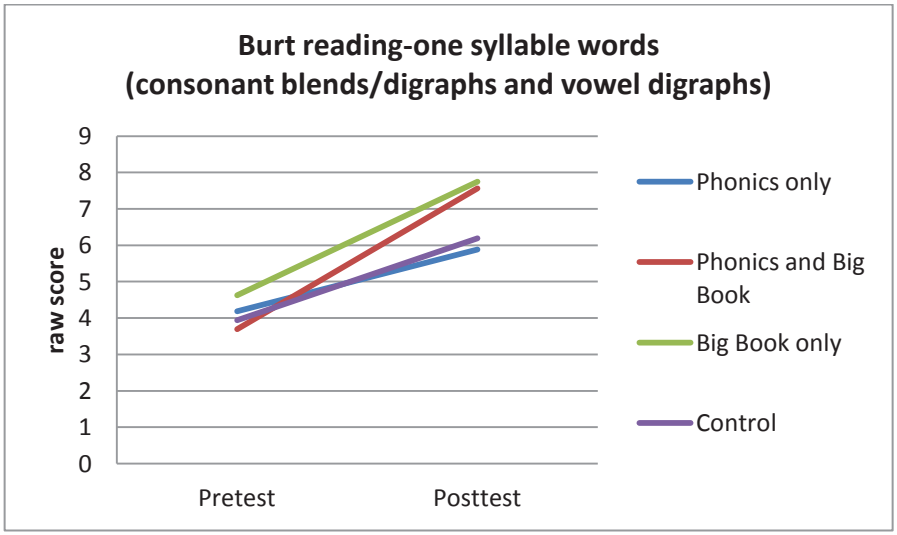
Analysis of Variance for Group (Phonics only, Phonics and Big Book combined, Big Book only, Control) and Reading Level (Below, At) for One-Syllable Consonant Blends/Digraphs and Vowel Digraphs (unit of analysis = 24 subgroup means)

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	59.81	1	158.68	.000**	.952
Time x Ability	.86	1	2.29	.169	.222
Time x Group	1.86	3	4.92	.032*	.649
Time x Ability x Group	.570	3	1.51	.284	.362
MS Error	.377				
Between Subjects					
Ability	137.16	1	155.02	.000**	.951
Group	2.39	3	2.70	.116	.503
Ability x Group	4.22	3	4.77	.034*	.641
MS Error	.885				

Note. ** $p < .01$ * $p < .05$

The result of most interest was the significant Time x Group interaction, $F(3, 12) = 4.92$, $p < .032$, $\eta^2 = .649$. The effect size was large, showing that the interaction accounted for 65% of variance in the word reading results. As seen in Figure 4.5, the change in mean scores from pretest to posttest for the phonics and big book combined and big book only groups was larger than for phonics only and the control.

Figure 4.5. Word Reading: One-Syllable (Consonant Blends/Digraphs and Vowel Digraphs)



Exploring the nature of the interaction required analysis of covariance (ANCOVA). The dependent variable was the posttest score for the set of 11 one-syllable consonant blends/digraphs and vowel digraphs words. The independent variable was group (phonics only, phonics and big book combined, big book only, and control). The covariate was the pretest raw score for the set of 11 words. The mean scores, after adjusting for the pretest scores of the four groups, were phonics only (P) = 5.88, phonics and big book combined (PBB) = 7.56, big book only (BB) = 7.75, and control (C) = 6.19.

Pairwise comparisons of the adjusted mean scores showed that the phonics and big book combined group adjusted mean score was significantly higher than two groups (PBB > P, p = .008; PBB > C, p = .021). The big book only group mean score was significantly higher than the phonics only group and the control BB > P, p = .005, BB > C, p = .012).

There were no significant differences for other pairwise comparisons (PBB ~ BB, p = .706; P ~ C, p = .533).

4.4 Passage accuracy (The Neale Analysis of Reading)

Table 4.12 shows the statistical results for Passage accuracy. Table 4.13 shows the means and standard deviations. There was a significant effect for time, meaning that the total sample improved from pretest to posttest. There was a significant ability effect showing that there was a difference in scores between the ability groups of the total sample, with the “at” group scoring highest, followed by the middle group, and then the low group. There was a significant time by ability effect. It showed that the low group improved four raw score points, the middle ability group improved eight raw score points and the at-ability group improved 13 points from pretest to posttest. The result of interest was the time by group interaction but it was not significant.

Table 4.12

Tests of Within-Subjects Contrasts and Between-Subjects Effects in Neale Accuracy (N=24)

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	1003.76	1	141.60	.00**	.92
Time x Ability	84.04	2	11.86	.00**	.66
Time x Group	6.86	3	1.00	.44	.20
Time x Ability x Group	3.49	6	.50	.80	.20
MS Error	7.09	12	–	–	–
Between Subjects					
Ability	1400.10	2	137.72	.00**	.96
Group	4.29	3	.42	.74	.10
Ability x Group	17.63	6	1.73	.20	.46
MS Error	10.17	12	–	–	–

Note. ** $p<.01$ * $p<.05$

Table 4.13

Neale Reading Accuracy Mean Scores and Standard Deviations (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book only		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	.63	4.63	.13	5.25	.13	3.25	.63	6.13
	SD	.88	6.19	.18	4.60	.18	1.06	.88	2.30
Below	*M*	1.88	7.50	3.13	14.63	3.88	16.13	4.13	12.38
	SD	.53	.35	1.24	5.13	.18	1.24	2.30	3.01
At	*M*	16.50	29.00	12.88	28.63	14.50	28.88	12.13	23.87
	SD	6.72	3.18	.18	.88	3.18	5.13	1.24	1.24
Total	*M*	6.33	13.71	5.38	16.17	6.17	16.08	5.63	14.13
	SD	8.46	12.32	5.99	10.97	6.82	11.71	5.41	8.25

Although the results for this test were not significant, for consistency in reporting, the results for ANCOVA and other comparisons are given below.

A follow-up analysis (ANCOVA) explored the nature of the non-significant interaction. The mean scores of the four groups, after adjusting for pretest scores, were phonics only (P) = 13.56, phonics and big book combined (PBB) = 16.31, big book only (BB) = 16.00, treatment control (C) = 14.20.

Converted to approximate reading age, the adjusted mean scores were phonics only = 6 years 3 months, phonics and big book combined = 6 years 4 months, big book only = 6 years 4 months, treatment control = 6 years 3 months. The big book only, and phonics and big book combined had the same adjusted mean scores. They were only 1 month more ahead than the other two groups.

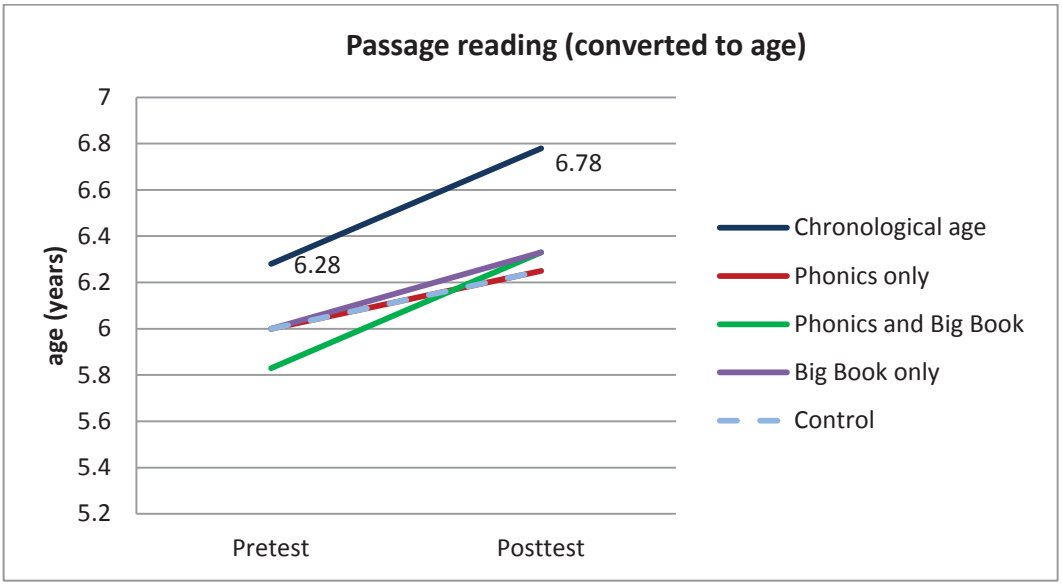
The Pairwise comparisons of the adjusted mean scores showed no significant differences between the groups (PBB ~ P, p = .22; PBB ~ BB, p = .89; PBB ~ C, p = .32; P ~ BB, p = .26; P ~ C, p = .77; BB ~ C, p = .40).

The researcher calculated the pre- posttest gain scores in reading accuracy. The gain scores were phonics only = 7.38 (*SD* = 6.44), phonics and big book combined = 10.79 (*SD* = 5.48), big book only = 9.92 (*SD* = 5.45), and treatment control = 8.50 (*SD* =2.89).

The large effect size did not occur in reading accuracy. Cohen (1984) suggests the effect size are defined as small (d = 0.20), medium (d = 0.50), and large (d = 0.80). There were only small and medium effect sizes between the four groups. The Cohen's d effect size were, PBB versus C = 0.52, PBB versus P = 0.57, PBB versus BB = 0.16, P versus C = 0.22, P versus BB = 0.43, BB versus C = 0.33.

Figure 4.6 shows passage reading age at pretest and posttest for each treatment group. The treatment groups started with the same pretest reading age of 6 years, but the phonics and big book combined group (PBB) was 2 months behind at 5.83 years (5 years 10 months). The phonics only (P) and treatment control group (C) had the same pretest and posttest reading age. The four groups gained 3 to 6 months in reading accuracy during the intervention, but they were still reading under their chronological age at posttest.

Figure 4.6. Neale Passage Reading Age (in years)



4.5 Passage comprehension (The Neale Analysis of Reading)

Table 4.14 shows the statistical results for Passage Comprehension. Table 4.15 shows the means and standard deviations. There was a significant effect for time, meaning that the total sample improved from pretest to posttest. There was a significant ability effect showing that there was a difference in scores between the ability groups of the total sample, with the "at" group scoring highest, followed by the middle group, and then the low group. There was a significant time by ability effect. It showed that the low group improved one raw score point, the middle ability group improved one raw score point and the "at" ability group improved two points from pretest to posttest.

Table 4.14

Tests of Within-Subjects Contrasts and Between-Subjects Effects in Neale Comprehension (N=24)

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	40.33	1	74.82	.00**	.86
Time x Ability	3.48	2	6.45	.01**	.52
Time x Group	3.04	3	5.64	.01**	.59
Time x Ability x Group	.65	6	1.20	.37	.38
MS Error	.54	12	–	–	–
Between Subjects					
Ability	72.20	2	132.65	.00**	.96
Group	1.66	3	3.04	.07	.43
Ability x Group	.50	6	.91	.52	.31
MS Error	.54	12	–	–	–

Note. ** $p<.01$ * $p<.05$

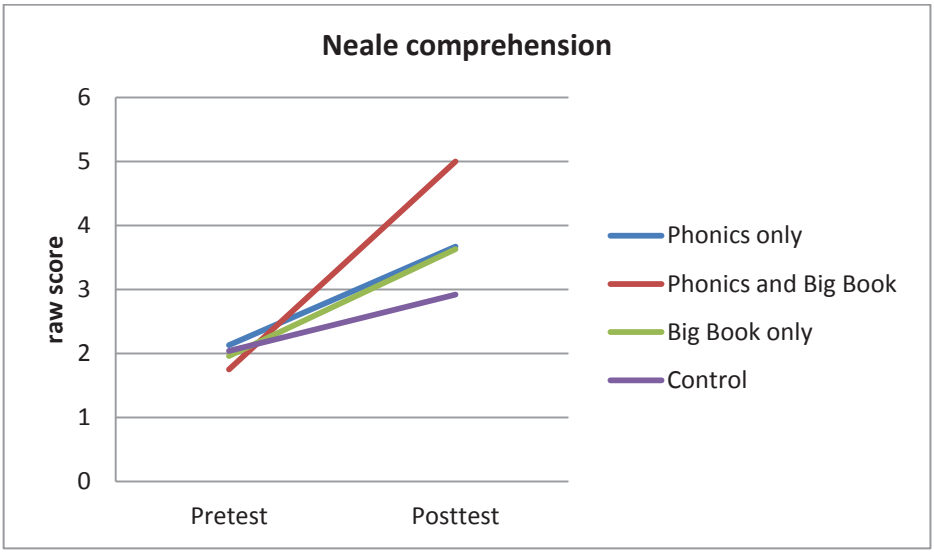
Table 4.15

Neale Reading Comprehension Mean Scores and Standard Deviations (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book only		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	.13	1.63	.25	2.25	.38	1.75	.63	1.25
	SD	.18	.53	.00	.35	.53	.35	.53	1.06
Below	*M*	2.38	2.25	1.50	4.38	1.38	3.00	2.00	2.50
	SD	.53	.35	.35	1.24	.53	.00	.35	1.41
At	*M*	3.88	7.13	3.50	8.38	4.13	6.13	3.50	5.00
	SD	.18	.88	.00	1.24	1.59	.53	.00	1.06
Total	*M*	2.13	3.67	1.75	5.00	1.96	3.63	2.04	2.92
	SD	1.71	2.73	1.47	2.89	1.91	2.04	1.32	1.94

The result of most interest was the significant Time x Group interaction effect, which showed that from pretest to posttest one or more groups had made more progress than had the other groups $F(3, 12) = 5.64$, $p < .01$, $\eta 2 = .59$. The effect size was large, showing that the interaction accounted for 59% of variance in results. Figure 4.7 presents the changes in mean scores from pretest to posttest for the four groups. The phonics and big book combined group outperformed phonics only, big book only, and the control. There were no other significant effects.

Figure 4.7. Neale Reading Comprehension Mean Scores



To find out which group or groups made more progress from pretest to posttest, a follow-up one-way ANCOVA compared the posttest means of the four groups, with their pretest means as a covariate. The adjusted posttest mean scores of the four groups, were phonics only (P) = 3.67, big book only (BB) = 3.63, phonics and big book combined (PBB) = 5.00, and treatment control (C) = 2.92.

Converted to approximate comprehension age, the adjusted mean scores were phonics only = 6 years 2 months, big book only = 6 years 2 months, phonics and big book combined = 6 years 3 months, and treatment control = 6 years.

A pairwise comparison of the adjusted means showed that the phonics and big book combined group made more progress than did the other groups. The other groups did not differ significantly from each other (PBB > P, p = .033; PBB > BB, p = .025; PBB > C, p = .003). There were no significant differences for other pairwise comparisons (P ~ BB, p = .941; P ~C, p = .181; BB ~ C, p = .204).

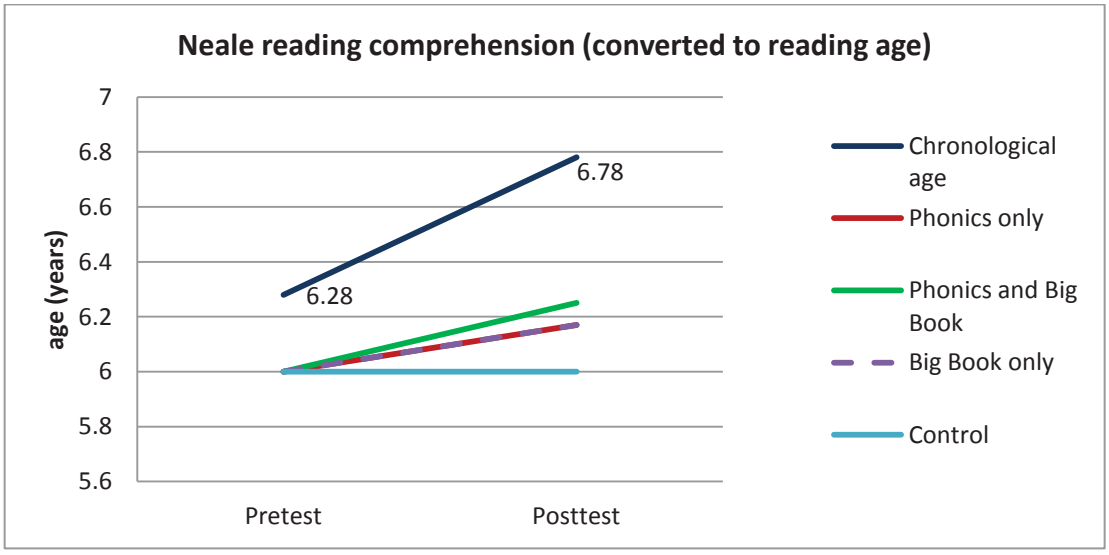
To obtain effect sizes for these significant differences, the researcher calculated pretest-posttest gain scores in reading comprehension. The gain scores were, phonics only = 1.54 (*SD* =1.66), big book only = 1.67 (*SD* = 1.09), phonics and big book combined = 3.25 (*SD* = 1.49), and treatment control = 0.88 (*SD* = .86).

There was a large effect size between the phonics and big book combined group and the treatment groups. The Cohen's *d* effect size were, PBB versus C = 1.95, PBB

versus P =1.08, PBB versus BB = 1.21, P versus C = 0.50, P versus BB = 0.09, and BB versus C = 0.80. Although there was a large effect size between big book only and control groups, this pairwise comparison was not statistically significant.

Figure 4.8 is a line graph showing the pretest and posttest comprehension ages of the pupils in each treatment condition, compared with the chronological ages of all pupils in the present study. The phonics only (P) and big book only (BB) group had the same pre- and posttest comprehension age. The treatment control (C) group did not make any gains in reading comprehension, and the other three groups gained 2 to 3 months in comprehension.

Figure 4.8. Neale Reading Comprehension (converted to reading age)



4.6 Phonemic Awareness (Gough-Kastler-Roper)

The results for total phonemic awareness are in Table 4.16. The total score is out of 42 and children at age six should have a reasonably high score, at least in the mid-20s (Gough, Kastler & Roper, 1984). One "well below" subgroup had a mean pretest score of zero. The mean scores for the "well below" children were very low even at posttest. Figure 4.9 shows the change in mean scores from pretest to posttest. The phonics and big book combined group made the most gains. A repeated measures analysis of variance compared the progress of the four groups and three ability groups from pretest to posttest for each group. These results are in Table 4.16 and 4.17.

The repeated measures results showed a significant effect for time in that the sample of pupils as a whole made significant gains from pretest to posttest. There was also a time by ability interaction showing that the "below" and "at" ability groups made more progress than the "well below" group. There was an effect for ability in that the three groups were significantly different from each other. There was an effect for groups showing that the phonics and big book combined (PBB) had significantly better from pretest to posttest than other three groups. There were no significant differences among the phonics only, big book only, and the control groups. This is based on the PBB group making greater gains than the other groups.

Table 4.16

Phonemic Awareness Mean Scores and Standard Deviations – Total Score (unit of analysis = 24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	2.88	2.88	.13	10.38	10.25	2.25	6.50	4.25	1.38	3.38	2.00
	SD	.00	.18	.18	.18	.53	.71	3.18	.35	3.53	1.94	4.07	2.12
Below	*M*	3.13	12.13	9.00	5.38	22.13	16.75	1.50	6.13	4.63	1.50	11.00	9.50
	SD	1.59	.53	1.06	.18	1.24	1.41	1.77	.88	.88	.35	1.06	.71
At	*M*	17.25	29.75	12.50	19.63	32.13	12.50	22.00	27.13	5.13	15.75	21.75	6.00
	SD	4.60	6.01	1.41	3.36	4.77	1.41	2.47	3.36	.88	3.89	2.47	6.36
Total	*M*	6.79	14.92	8.13	8.38	21.54	13.17	8.58	13.25	4.67	6.21	12.04	5.83
	SD	8.50	12.51	4.43	9.15	9.99	3.10	10.58	10.86	1.72	7.64	8.54	4.51

Figure 4.9. Phonemic Awareness Pretest and Posttest Means Scores for the four Groups

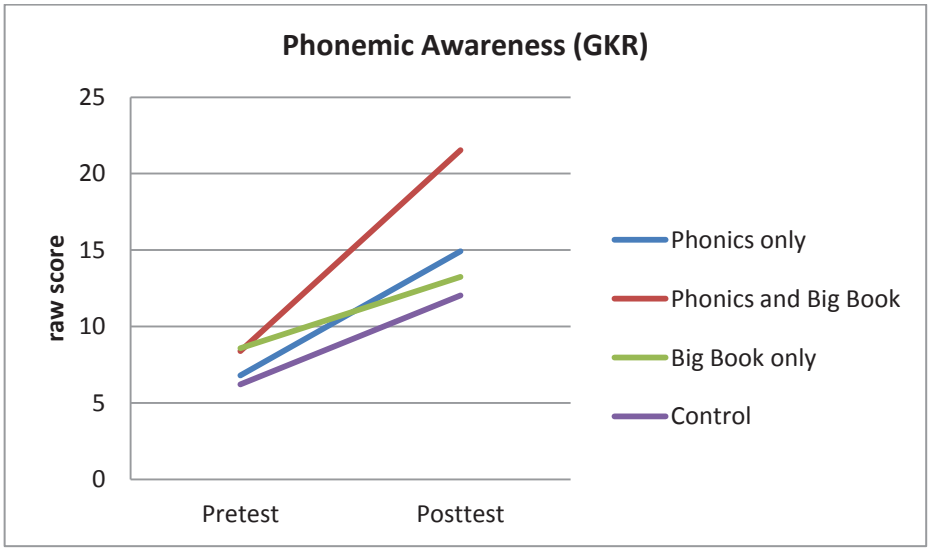


Table 4.17

Tests of Within-Subjects and Between-Subjects Effects in GKR Phonemic Awareness (N=24)

	MS	*df*	*F*	*p*	η2
Within Subjects					
Time	758.03	1	270.65	.00**	1.00
Time x Ability	29.79	2	10.64	.00**	.64
Time x Group	42.51	3	15.18	.00**	.79
Time x Ability x Group	6.37	6	2.28	.11	.53
MS Error	2.80	12	–	–	–
Between Subjects					
Ability	1726.02	2	151.41	.00**	.96
Group	73.41	3	6.44	.01*	.62
Ability x Group	24.56	6	2.15	.12	.52
MS Error	11.40	12	–	–	–

Note. ** $p<.01$ * $p<.05$

Exploring the nature of the time by group interaction seemed like it might be problematic with analysis of covariance because of the pretest zero scores of some subgroups, so the analysis changed to gain scores. A two-way analysis of variance compared the pre-post gain scores for each training group (the gain scores are in the table of means and standard deviations). Pairwise comparisons showed that the phonics and big book combined group made significantly greater gains than the other three groups (PBB > P, $p = .003$, PBB > BB, $p = .000$, PBB > C, $p = .000$) and that the phonics only group made a greater gain than the big book only group (P > BB, $p = .026$).

4.6.1 A detailed analysis of the sub-scores of the GKR Phonemic Awareness Test

To help the reader preview the overall results in this section, Table 4.18 shows the pattern of interaction effects for each subscore. The significant results have a check mark and the non-significant results have a cross. The general pattern of results for the twenty-four subgroups is that time by group interactions were significant for "segmentation", "blending" and "deletion of first phoneme". None of the time by group by ability interactions were significant. The overall picture is that some effects occurred for the segmenting, blending, and deletion parts of the test.

Table 4.18

Preview of the Results for the GKR Phonemic Awareness Test (unit of analysis =24 subgroups) TxG = Treatment by Group Interaction; TxGxA = Treatment by Group by Ability Interaction

Category	T x G	T x G x A
(1) segmentation	√	X
(2) blending	√	X
(3) deletion (first phoneme)	√	X
(4) deletion (final phoneme)	X	X
(5) substitution (first phoneme)	X	X
(6) substitution (final phoneme)	X	X

4.6.2 Category One

Segmentation

The mean scores for phonemic segmentation are in Table 4.19. The segmentation subscore is out of seven. One "well below" subgroup had a mean pretest score of zero.

A two-way analysis of variance compared the pre-post gain scores for each training group. Pairwise comparisons showed that the phonics and big book combined (PBB) group significantly outperformed the big book (BB) and control (C) groups (PBB > BB, $p = .006$, PBB > C, $p = .011$) and that the phonics only (P) group outperformed the big book only group (P > BB, $p = .036$). There were no differences between the BB and C groups ($p = .750$), the P and C groups ($p = .064$), or the PBB and P groups ($p = .347$).

Table 4.19

Phonemic Awareness (Segmentation) Mean Scores and Standard Deviations – Out of Seven (unit of analysis = 24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	1.00	1.00	.13	2.75	2.63	1.25	1.38	.13	.63	.38	-.25
	SD	.00	1.06	1.06	.18	.35	.53	1.77	.53	2.30	.88	.53	.35
Below	*M*	1.50	3.13	1.63	1.38	4.75	3.38	.38	2.38	2.00	1.00	2.13	1.13
	SD	.00	.53	.53	.53	.00	.53	.18	.53	.35	.00	.53	.53
At	*M*	2.63	5.13	2.50	5.25	5.88	.63	4.13	3.50	-.63	2.75	3.88	1.13
	SD	.53	.53	.00	.00	.18	.18	.53	.71	1.24	1.06	1.24	.18
Total	*M*	1.37	3.08	1.71	2.25	4.46	2.21	1.92	2.42	.50	1.46	2.13	.67
	SD	1.20	1.93	.86	2.40	1.43	1.32	1.94	1.06	1.69	1.19	1.69	.77

4.6.3 Category Two

Blending

The results for phonemic blending are in Table 4.20. The blending subscore is out of seven. Two "well below" subgroups had a mean pretest score of zero.

A two-way analysis of variance compared the pre-post gain scores for each training group. The phonics and big book combined group gained more than the other three groups. Pairwise comparisons showed that the phonics and big book combined group outperformed the big book only and treatment control groups (PBB > BB, p = .002; PBB > C, p = .002); and that the phonics only group outperformed the big book only and treatment control groups (P > BB, p = .028; P > C, p = .022). There was no significant difference between the phonics only and phonics and big book combined groups (P ~ PBB, p = .175).

Table 4.20

Phonemic Awareness (Blending) Mean Scores and Standard Deviations-Out of Seven

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	1.75	1.75	.00	4.88	4.88	.75	2.63	1.88	.50	1.63	1.13
	SD	.00	.71	.71	.00	.18	.18	1.06	.53	.53	.71	1.59	.88
Below	*M*	1.50	5.13	3.63	1.00	5.63	4.63	.50	1.88	1.38	.38	2.00	1.63
	SD	1.77	.18	1.94	.35	.53	.88	.71	.53	.18	.18	1.06	.88
At	*M*	2.00	6.00	4.00	3.88	6.50	2.63	3.38	4.75	1.38	3.38	5.00	1.63
	SD	.71	.00	.71	.88	.35	1.24	1.24	.71	.53	1.94	.35	2.30
Total	*M*	1.17	4.29	3.13	1.63	5.67	4.04	1.54	3.08	1.54	1.42	2.88	1.46
	SD	1.26	2.03	1.46	1.85	.79	1.30	1.63	1.41	.43	1.78	1.87	1.20

4.6.4 Category Three

Deletion (first phoneme)

The results for the phonemic awareness subtest, deleting the first phoneme, are in Table 4.21. There was a zero pretest score in one of the phonics only groups, and one of the phonics and big book combined groups.

Table 4.21 shows that the phonics and big book combined group (PBB) made the greatest gain from pretest to posttest. Analysis of variance does not like too many zero scores, so a two-way analysis of variance compared gain scores. A two-way analysis of variance determined which group made the most progress in pre-post gain scores. Pairwise comparisons showed that the PBB combined group significantly outperformed the other three groups (PBB > P, $p = .037$; PBB > BB, $p = .001$; PBB > C, $p = .018$). There were no significant differences between the phonics only, big book only and treatment control groups.

Table 4.21

Phonemic Awareness on Deleting First Phoneme Mean Scores and Standard Deviation-Out of Seven (unit of analysis=24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	.00	.00	.00	1.63	1.63	.13	1.13	1.00	.25	.25	.00
	SD	.00	.00	.00	.00	.18	.18	.18	.18	.00	.35	.35	.00
Below	*M*	.00	1.88	1.88	1.63	3.63	2.00	.38	1.00	.63	.00	2.00	2.00
	SD	.00	.18	.18	.53	.88	.35	.53	.00	.53	.00	.35	.35
At	*M*	3.63	5.75	2.13	2.88	6.13	3.25	5.38	5.25	-.13	2.38	3.88	1.50
	SD	.88	.71	.18	1.24	.18	1.06	1.24	.71	1.94	.88	.18	.71
Total	*M*	1.21	2.54	1.33	1.50	3.79	2.29	1.96	2.46	.50	.88	2.04	1.17
	SD	1.91	2.64	1.04	1.42	2.06	.91	2.72	2.19	1.04	1.24	1.64	1.00

4.6.5 Category Four

Deletion (final phoneme)

The results for deleting the final phoneme are in Table 4.22. The maximum score for the subtest is seven. All "well below" subgroups scored zero in the pretest, and the "well below" phonics only and treatment control groups scored zero again in the posttest.

An ANOVA check of the gain scores for the "below" and "at" groups showed no significant difference among phonics only, big book only, and phonics, big book combined, and the treatment control groups.

Table 4.22

Phoneme Awareness - Deleting the Final Phoneme - Means and Standard Deviations – Out of Seven (unit of analysis=24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	.00	.00	.00	.63	.63	.00	.38	.38	.00	.00	.00
	SD	.00	.00	.00	.00	.88	.88	.00	.53	.53	.00	.00	.00
Below	*M*	.00	1.75	1.75	.38	2.38	2.00	.13	.63	.50	.00	2.75	2.75
	SD	.00	.35	.35	.18	.18	.00	.18	.53	.35	.00	.35	.35
At	*M*	2.38	4.13	1.75	2.50	5.25	2.75	4.00	4.50	.50	2.13	2.63	.50
	SD	.88	.53	.35	2.12	2.47	.35	.35	1.77	2.12	1.24	.18	1.06
Total	*M*	.79	1.96	1.17	.96	2.75	1.79	1.38	1.83	.46	.71	1.79	1.08
	SD	1.29	1.87	.93	1.54	2.40	1.05	2.04	2.24	1.00	1.23	1.40	1.40

4.6.6 Category Five

Substitution (First phoneme)

The results for phonemic awareness for substituting the first phoneme are in Table 4.23. The total subscore is out of seven. All of the "well below" subgroups scored zero in the pretest, and there was one zero in the posttest from the phonics only "well below" subgroup.

An ANOVA check of the gain scores for the "below" and "at" groups showed no significant difference among phonics only, big book only, and phonics, big book combined, and the treatment control groups.

Table 4.23

Phoneme Awareness - Substituting the 1st Phoneme - Means and Standard Deviations – Out of Seven (unit of analysis=24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	.00	.00	.00	.63	.63	.13	1.00	.88	.00	.88	.88
	SD	.00	.00	.00	.00	.88	.88	.18	.00	.18	.00	1.24	1.24
Below	*M*	.00	.13	.13	.63	4.00	3.38	.13	.63	.50	.13	1.50	1.38
	SD	.00	.18	.18	.88	2.12	1.24	.18	.18	.35	.18	1.06	1.24
At	*M*	3.50	5.13	1.63	2.38	5.25	2.88	3.25	5.38	2.13	3.63	5.13	1.50
	SD	1.41	2.65	1.24	.88	.35	.53	1.77	.88	2.65	1.24	1.94	.71
Total	*M*	1.17	1.75	.58	1.00	3.29	2.29	1.17	2.33	1.17	1.25	2.50	1.25
	SD	1.91	2.87	.98	1.24	2.38	1.50	1.80	2.40	1.42	1.92	2.35	.89

4.6.7 Category Six

Substitution (final phoneme)

The results for substituting the final phoneme are in Table 4.24. The total subscore is out of seven. Many pupils did not score in both pretest and posttest, mainly in the "well below" and "below" subgroups.

An ANOVA check of the gain scores for the "at" group showed no significant difference between any of the treatment groups.

Table 4.24

Phonemic Awareness on Substituting the Final Phoneme Means and Standard Deviations –Out of Seven (unit of analysis=24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.25	.25
	SD	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.35	.35
Below	*M*	.00	.00	.00	.13	1.75	1.63	.00	.00	.00	.00	.63	.63
	SD	.00	.00	.00	.18	.35	.53	.00	.00	.00	.00	.18	.18
At	*M*	2.25	3.63	1.38	2.75	3.13	.38	1.13	3.13	2.00	1.63	1.25	-.38
	SD	1.41	1.59	.18	.00	1.59	1.59	.53	.88	1.42	.18	1.77	1.94
Total	*M*	.75	1.21	.46	.96	1.63	.67	.38	1.04	.67	.54	.71	.17
	SD	1.32	2.00	.71	1.39	1.58	1.07	.63	1.66	1.21	.84	.93	1.00

4.7 Spelling

Table 4.25 presents the means and standard deviations for the Schonell Spelling Test. The statistical results are in Table 4.26. There was a significant effect for time, showing that the total sample improved from pretest to posttest. There was a significant ability effect showing that there was a difference in scores between the three ability groups. That is, the "at" group scored the highest, followed by the "below" group, and then the "well below" group. There was a significant Time x Ability effect. It showed the "well below" ability group improved two raw score points, the middle group improved five raw score points, and the at-ability group improved nine points from pretest to posttest. The result of interest was the Time x Group interaction but it was not significant, $F(3, 12) = 1.71$, $p = .22$.

Table 4.25

Schonell Spelling Raw Score Means and Standard Deviations (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book only		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	.125	3.25	.13	5.25	.63	1.63	1.88	3.12
	SD	.18	4.24	.18	1.41	.88	.53	2.65	1.59
Below	*M*	4.00	4.38	3.00	12.13	.88	7.00	2.13	8.88
	SD	2.12	.53	2.83	3.36	.88	1.77	1.24	2.30
At	*M*	12.88	22.50	12.50	23.50	13.13	24.63	14.25	20.87
	SD	4.42	.71	2.83	.71	.53	5.83	1.06	1.24
Total	*M*	5.67	10.04	5.21	13.63	4.88	11.08	6.08	10.96
	SD	6.24	9.86	6.06	8.41	6.42	11.10	6.48	8.21

Table 4.26

Repeated Measures Analysis of Variance for Schonell Spelling (N=24 subgroup means)

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	427.51	1	74.50	.00**	.86
Time x Ability	50.30	2	8.77	.01*	.59
Time x Group	9.79	3	1.71	.22	.30
Time x Ability x Group	6.23	6	1.09	.42	.35
MS Error	5.74	12	–	–	–
Between Subjects					
Ability	1146.76	2	221.56	.00**	.97
Group	6.06	3	1.17	.36	.23
Ability x Group	4.23	6	.82	.58	.29
MS Error	5.18	12	–	–	–

Note. ** $p<.01$ * $p<.05$

4.8 Receptive vocabulary (British Peabody Vocabulary Test)

Table 4.27 shows the statistical results for Receptive Vocabulary. Table 4.28 presents the means and standard deviations. There was a significant effect for time, meaning that the total sample improved from pretest to posttest. There was a significant ability effect showing that there was a significant difference in scores between the three ability groups, with the high group scoring the highest, followed by the middle group, and then the low group. There were no other significant effects including that of most interest, the Time x Group interaction effect $F(3, 12) = 1.57$, $p = .25$.

Table 4.27

Repeated Measures Analysis of Variance for British Peabody Vocabulary Test (N=24)

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	450.19	1	77.07	.00**	.87
Time x Ability	5.81	2	1.00	.40	.14
Time x Group	9.16	3	1.57	.25	.28
Time x Ability x Group	7.54	6	1.29	.33	.39
MS Error	5.84	12	–	–	–
Between Subjects					
Ability	213.95	2	6.60	.01**	.52
Group	21.75	3	.67	.59	.14
Ability x Group	44.05	6	1.36	.31	.40
MS Error	32.43	12	–	–	–

Note. **$p<.01$*$p<.05$

Table 4.28

British Peabody Vocabulary Test Raw Score Means and Standard Deviations (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book only		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	42.50	51.25	41.00	49.63	45.38	50.25	44.50	52.25
	SD	2.12	4.95	3.54	.18	.18	4.24	2.83	6.36
Below	*M*	48.38	53.25	50.13	56.00	45.13	52.88	55.13	59.13
	SD	3.36	2.83	4.77	7.07	1.24	1.24	.53	5.13
At	*M*	53.50	62.38	52.13	60.75	50.88	50.88	49.25	52.75
	SD	1.06	.53	6.89	.00	5.83	5.48	9.19	5.66
Total	*M*	48.13	55.63	47.75	55.46	47.13	51.33	49.63	54.71
	SD	5.26	5.89	6.69	5.91	3.95	3.38	6.42	5.61

4.9 Math (Wide Range Achievement Test [WRAT] – Math)

Table 4.29 shows the statistical results for WRAT math. Table 4.30 presents the means and standard deviations. There was a significant effect for time, meaning that pupils in all conditions improved from pretest to posttest. There was a significant ability effect showing there was a difference in scores between the ability groups, with the high group scoring the highest, followed by the middle group, and then the low group.

The results of most interest was the significant time by group interaction effect, which showed that from pretest to posttest the treatment control group made more progress than did the other groups $F(3, 12) = 3.53$, $p = .048$, $\eta 2 = .47$. The eta squared effect size was large, showing that the interaction accounted for 47% of variance in math scores. Figure 4.10 shows that the change in mean scores from pretest to posttest for the treatment control group was larger than for the other three conditions.

Table 4.29

Repeated Measures Analysis of Variance for WRAT Math (N=24)

	MS	*df*	*F*	*p*	η^2
Within Subjects					
Time	82.03	1	12.41	.00**	.51
Time x Ability	4.64	2	.35	.71	.06
Time x Group	70.05	3	3.53	.048*	.47
Time x Ability x Group	36.04	6	.91	.52	.31
MS Error	79.33	12	–	–	–
Between Subjects					
Ability	109.75	2	10.99	.00**	.65
Group	25.61	3	2.56	.10	.39
Ability x Group	4.85	6	.49	.81	.20
MS Error	10.00	12	–	–	–

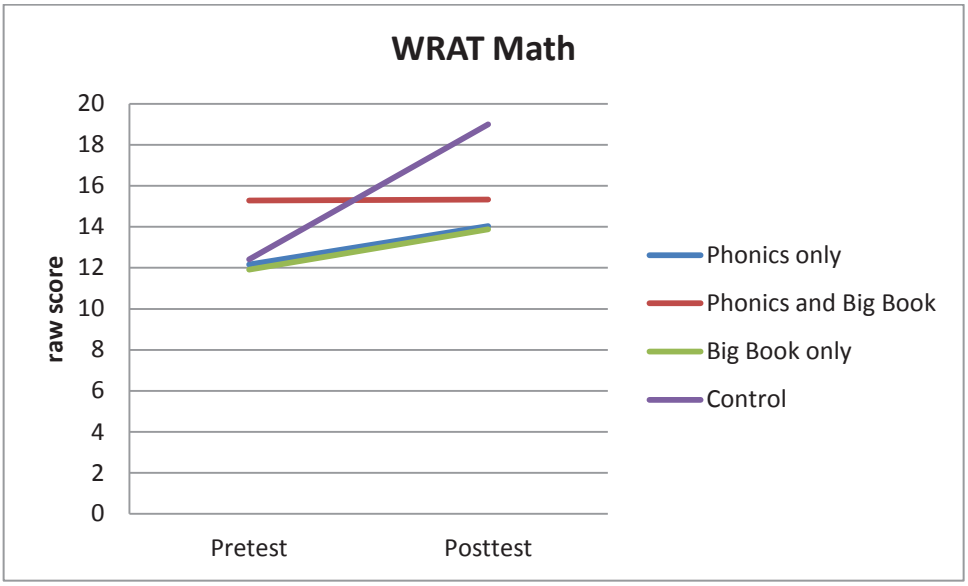
Note. ** $p<.01$ * $p<.05$

Table 4.30

WRAT Math Raw Score Means and Standard Deviations (unit of analysis = 24 subgroup means)

Reading Level		Phonics only		Phonics and Big Book		Big Book only		Control	
		Pre-	Post-	Pre-	Post-	Pre-	Post-	Pre-	Post-
Well below	*M*	9.50	11.00	11.50	13.75	10.25	12.75	10.25	15.63
	SD	.35	2.12	1.77	.00	.35	1.77	.35	1.24
Below	*M*	12.63	13.75	12.75	15.38	11.13	12.25	12.75	20.63
	SD	1.94	.00	.71	.18	1.24	1.06	.71	1.24
At	*M*	14.38	17.38	21.63	16.88	14.38	16.63	14.25	20.75
	SD	1.59	.88	12.20	.53	2.65	4.07	.71	1.06
Total	*M*	12.17	14.04	15.29	15.33	11.92	13.88	12.42	19.00
	SD	2.48	3.04	7.41	1.42	2.35	2.96	1.87	2.77

Figure 4.10. WRAT Math Mean Scores



To find out which group or groups made more progress from pretest to posttest, a follow-up one-way ANCOVA compared the posttest means of the four groups, with their pretest means as a covariate. Pairwise comparisons of the adjusted means showed that the treatment control group outperformed the other three groups (C > P, p = .000; C > PBB, p = .002; C > BB, p =.000). The other groups did not differ significantly from each other (P ~ PBB, p = .379; PBB ~ BB, p = .885; PBB ~ BB, p = .321).

4.10 Basic Decoding Skills (Bryant Test)

The means in Table 4.31 show that two of the "well below" ability subgroups and one "below" ability subgroup had zero scores. Analysis of variance does not like too many zero scores. To avoid this problem, a two-way analysis of variance compared pretest to posttest gain scores for the training groups and the ability levels.

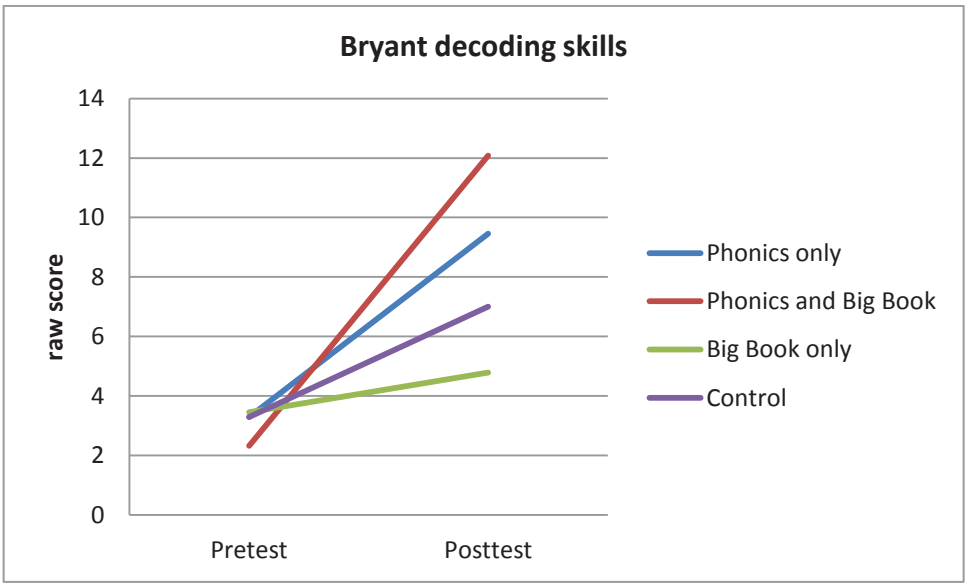
The two-way ANOVA showed a significant group effect, $F(3, 12) = 5.76$, p = .01, $\eta 2$= .59. Ability was significant ($\eta 2$= .55). The interaction of group and ability was not significant. Figure 4.11 shows the changes from pretest to posttest for the four groups. Pairwise comparisons showed that the phonics and big book combined group significantly outperformed the big book only and control groups (PBB > BB, p = .002; PBB > C, p = .015). The phonics only group outperformed the big book only group (P > BB, p = .042). There were no other significant differences.

Table 4.31

Bryant Pseudowords Decoding Skills Mean Scores and Standard Deviations (unit of analysis = 24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	1.75	1.75	.00	3.88	3.88	.13	.13	.00	.50	1.88	1.38
	SD	.00	2.47	2.47	.00	2.65	2.65	.18	.18	.35	.71	.53	1.24
Below	*M*	.38	4.38	4.00	.13	12.88	12.75	.13	1.00	.88	.00	3.13	3.13
	SD	.53	1.24	1.77	.18	5.13	4.95	.18	1.06	.88	.00	.88	.88
At	*M*	9.50	22.25	12.75	6.88	19.50	12.63	10.13	13.25	3.13	9.39	16.00	6.63
	SD	.35	8.13	8.49	3.71	3.89	.18	2.65	2.47	5.13	1.24	3.18	4.42
Total	*M*	3.29	9.46	6.17	2.33	12.08	9.75	3.46	4.79	1.33	3.29	7.00	6.63
	SD	4.82	10.69	6.58	3.89	7.67	5.20	5.30	6.67	2.74	4.76	7.15	4.42

Figure 4.11. Bryant Pseudowords Decoding Mean Scores



4.10.1 A detailed analysis of subcomponents of Bryant Test of Basic Decoding Skills

Table 4.32 shows the skill components that characterise Bryant pseudowords. These are consonant-vowel-consonant nonwords (e.g., buf, cos), silent e (split digraphs, e.g., bime, fute), consonant blends/digraphs (e.g., cho, thade), vowel digraphs (e.g., fler, troob), and syllable breaking (e.g., vomazful, prefute).

Table 4.32 presents a preview of the results that will follow. The significant results have a check mark and the non-significant results have a cross. It shows a significant treatment effect (time by group interaction) for category 1 that had consonant-vowel-consonant nonwords. Most children could not decode any of the category 2, 3, and 4 pseudowords, except for some of the "at" readers.

Table 4.32

Preview of the Results for the Bryant Pseudowords Decoding Test (unit of analysis =24) T x G = Treatment by Group Interactions; T x G x A = Treatment by Group by Ability Interaction

Category	T x G	T x G x A
(1)consonant cvc words (out of 20)	√	X
(2) silent e [split digraph] (out of 6)	X	X
(3)consonant digraphs and vowel digraphs (out of 14)	X	X
(4)syllable breaking (out of 10)	X	X

4.10.2 Category One

Consonant cvc words (buf, cos, nuv etc.)

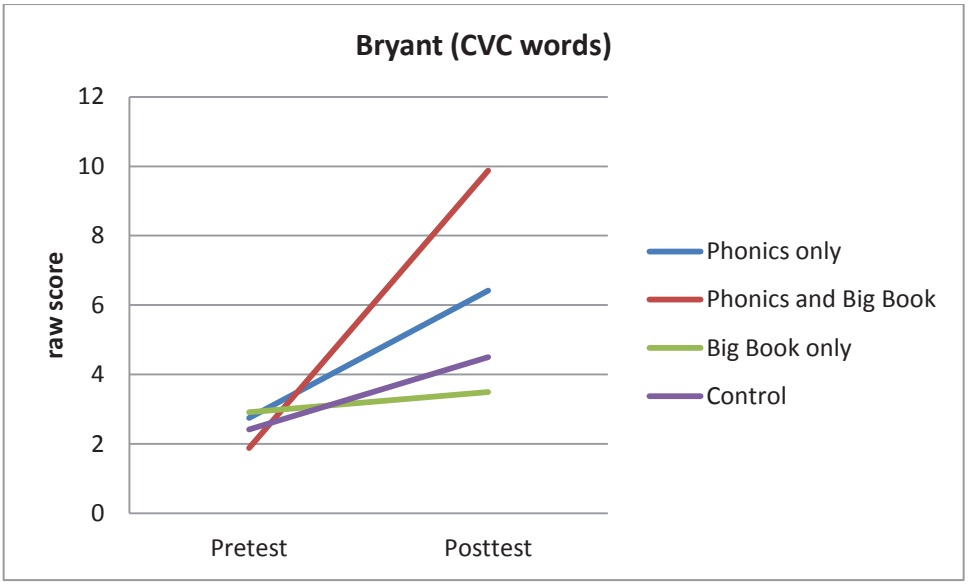
The means in Table 4.33 show that some of the "well below" and "below" subgroups scored "zero" in the pretest. To avoid an analysis with too many zero scores, a two-way analysis compared gain scores for group and ability. There was a significant group effect, $F(3, 12) = 10.45$, $p = .001$, $\eta 2 = .723$. The ability effect and the group by ability interaction were not significant. Figure 4.12 shows the changes from pretest to posttest. Pairwise comparisons showed that the phonics and big book combined group significantly outperformed the other groups (PBB > P, $p = .009$; PBB > BB, $p = .000$; PBB > C, $p = .001$). The phonics only group outperformed the big book only group (P > BB, $p = .048$). The other comparisons were not significant (P ~ C, $p = .281$; BB ~ C, $p = .305$).

Table 4.33

Bryant Pseudowords Decoding Skills (CVC words) Means and Standard Deviations (unit of analysis = 24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	1.75	1.75	.00	5.25	5.25	.13	.13	.00	.50	1.88	1.38
	SD	.00	2.47	2.47	.00	4.95	4.95	.18	.18	.35	.71	.53	1.24
Below	*M*	.38	4.00	3.63	.13	10.63	10.50	.13	1.00	.88	.00	2.63	2.63
	SD	.53	1.06	1.59	.18	2.65	2.47	.18	1.06	.88	.00	.18	.18
At	*M*	7.88	13.50	5.63	5.50	13.75	8.25	8.50	9.38	.88	6.75	9.00	2.25
	SD	1.24	2.12	.88	1.77	2.83	1.06	1.06	.53	1.59	2.83	2.12	4.95
Total	*M*	2.75	6.42	3.67	1.88	9.88	8.00	2.92	3.50	.58	2.42	4.50	2.08
	SD	4.02	5.79	2.21	2.92	4.76	3.45	4.35	4.60	.94	3.61	3.64	2.35

Figure 4.12. Bryant Pseudoword Decoding Skills for "Consonant-Vowel-Consonant" Pseudowords: Mean Scores from Pretest to Posttest



4.10.3 Category Two

Silent e [split digraph] (fute, yode, bime etc.)

Table 4.34 presents the means and standard deviation raw scores out of six for "silent e" pseudowords. It did not seem worthwhile to analyse the results for the "well below" and "below" groups because they had such low scores. A check of the gain scores of the four "at" groups showed no significant difference among the groups.

Table 4.34

Bryant Pseudowords Decoding Skills (silent e) Mean Scores and Standard Deviations for Three Ability Levels (unit of analysis = 24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	.00	.00	.00	.13	.13	.00	.00	.00	.00	.00	.00
	SD	.00	.00	.00	.00	.18	.18	.00	.00	.00	.00	.00	.00
Below	*M*	.00	.25	.25	.00	.75	.75	.00	.00	.00	.00	.13	.13
	SD	.00	.00	.00	.00	1.06	1.06	.00	.00	.00	.00	.18	.18
At	*M*	.25	3.00	2.75	.13	2.13	2.00	.63	1.25	.63	.63	1.63	1.00
	SD	.00	1.77	1.77	.18	.53	.71	.53	.35	.88	.88	.18	1.06
Total	*M*	.08	1.08	1.00	.04	1.00	.96	.21	.42	.21	.21	.58	.38
	SD	.13	1.67	1.57	.10	1.06	1.03	.40	.66	.51	.51	.82	.68

4.10.4 Category Three

Consonant digraphs and vowel digraphs (shi, smar, spail etc.)

Table 4.35 presents the means and standard deviations for scores out of 14 for "consonant/vowel digraphs" pseudowords. The scores for the "well below" and "below" groups were very low. A check of the gain scores for the four "at" groups showed no significant difference among the groups.

Table 4.35

Bryant Pseudowords Decoding Skills (Consonant/Vowel Digraphs) Mean Scores and Standard Deviations for Three Ability Levels (unit of analysis = 24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	.00	.00	.00	.38	.38	.00	.00	.00	.00	.00	.00
	SD	.00	.00	.00	.00	.53	.53	.00	.00	.00	.00	.00	.00
Below	*M*	.00	.13	.13	.00	1.38	1.38	.00	.00	.00	.00	.13	.13
	SD	.00	.18	.18	.00	1.59	1.59	.00	.00	.00	.00	.18	.18
At	*M*	1.25	4.88	3.63	.25	3.50	3.25	1.00	1.25	.25	2.00	3.63	1.63
	SD	1.41	3.01	4.42	.35	1.41	1.06	1.06	.00	1.06	.71	.18	.88
Total	*M*	.42	1.67	1.25	.08	1.75	1.67	.33	.42	.08	.67	1.25	.58
	SD	.90	2.83	2.70	.20	1.73	1.58	.70	.65	.49	1.08	1.84	.90

4.10.5 Category Four

Syllable breaking (cosnuv, relhime, defev etc.)

Table 4.36 presents the means and standard deviation scores for scores out of 14 for the multi-syllable pseudowords. There was no statistical analysis for these data because so many mean scores were zero. Table 4.36 shows clearly that training effects did not extend to these decoding patterns.

Table 4.36

Bryant Pseudoword Decoding Skills (Syllable Breaking) Mean Scores and Standard Deviations for Three Ability Levels (unit of analysis = 24 subgroup means)

Reading Level		Phonics only			Phonics and Big Book			Big Book only			Control		
		Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain	Pre-	Post-	Gain
Well Below	*M*	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	SD	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Below	*M*	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	SD	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
At	*M*	.13	.88	.75	.00	.13	.13	.00	.13	.13	.00	1.63	1.63
	SD	.18	1.24	1.41	.00	.18	.18	.00	.18	.18	.00	1.24	1.24
Total	*M*	.04	.29	.25	.00	.04	.04	.00	.04	.04	.00	.54	.54
	SD	.10	.71	.74	.00	.10	.10	.00	.10	.10	.00	1.01	1.01

A brief summary of the pseudoword decoding results is that the phonics and big book combined group made the most progress. They outperformed all other groups in the consonant-vowel-consonant decoding patterns. The phonics only group outperformed the big book only group. The training effects were statistically significant for three-letter pseudowords but did not extend to the more complex patterns.

4.11 The weekly phonics quizzes (total of 10 quizzes)

All pupils had to take a quiz at the end of each weekly lesson. Each quiz had five questions based on what the phonics group learnt from the previous lesson. There were no quizzes in the first week of the intervention, and vowel digraphs /ee/ and /ie/ lessons had just one quiz. Children completed 10 quizzes over the 12 weeks of the intervention.

Table 4.37 shows the means and standard deviations for the 10 quizzes for each treatment group. The bar graph in Figure 4.13 presents the average scores for the quizzes for each of the 10 assessments. The phonics and big book combined group (PBB) had higher mean scores than the other three groups in seven quizzes (quiz 2, 3, 4, 6, 7, 9 and 10).

To study the effects in more detail, the next step was an analysis of variance with a group factor and 10 repeated measures corresponding to the 10 quizzes. The dependent variable was quiz score. Only the main effect of group, the repeated measures linear trend component, and their interaction are reported. These results are in Table 4.37. There was a main effect for group, $F(3, 20) = 3.47$, $p = .022$, $\eta^2 = .375$. Follow-up contrasts, using Fisher's least significant difference (LSD) procedure (Levin, Serlin, & Seaman, 1994), showed that the phonics and big book combined group had statistically higher scores than the big book only group ($p = .014$) and the control group ($p = .005$) but not statistically higher than the phonics only group ($p = .182$). The other contrasts were also not significant. The linear trend component of the repeated measures factor was not significant ($p = .088$). The interaction was not significant ($p = .907$).

The researcher did not include ability groups in this analysis because each quiz had three different versions (“well below”, “below” and “at” level). For example, in quiz 1, the “well below” group did a quiz on single sounds, the “below” group did a quiz on consonant blends and digraphs, and the “at” group did a quiz on silent e (split digraph). The quizzes were not standardised tests. The researcher designed them as recaps of the previous week’s phonics lesson. All pupils completed a quiz at the end of the lesson according to their ability level.

Table 4.37

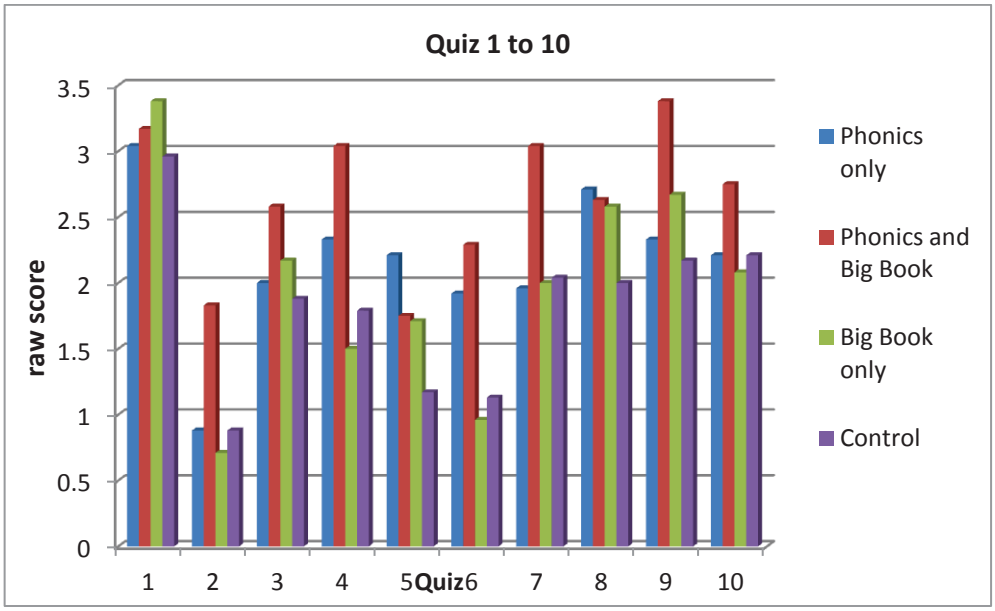
Means, Standard Deviations, and ANOVA for the 10 Quizzes in the Four Treatment Conditions (unit of analysis= 24 subgroups)

Quiz[1]		Phonics only	Phonics and Big Book	Big Book only	Control	ANOVA		
						Linear trend	Group	Interaction
						F(1,20)	*F*(3,20)	*F*(3,20)
						1.75	3.47*	.49
1	*M*	3.04	3.17	3.38	2.96			
	SD	1.21	1.37	.80	1.02			
2	*M*	.88	1.83	.71	.88			
	SD	.54	1.10	.70	.61			
3	*M*	2.00	2.58	2.17	1.88			
	SD	.71	.56	.47	1.01			
4	*M*	2.33	3.04	1.50	1.79			
	SD	1.37	.73	.45	.43			
5	*M*	2.21	1.75	1.71	1.17			
	SD	1.23	.92	1.31	1.14			
6	*M*	1.92	2.29	.96	1.13			
	SD	1.13	1.26	1.04	.85			
7	*M*	1.96	3.04	2.00	2.04			
	SD	1.41	.80	1.40	.77			
8	*M*	2.71	2.63	2.58	2.00			
	SD	.73	1.39	1.49	.94			
9	*M*	2.33	3.38	2.67	2.17			
	SD	.63	.67	1.38	1.37			
10	*M*	2.21	2.75	2.08	2.21			
	SD	.81	.67	.86	.58			
Total	*M*	2.16	2.65	1.98	1.82			
	SD	.35	.38	.65	.45			

Note. [1]each quiz contained five questions

*<0.05 **<0.01

Figure 4.13. Means Scores for Quiz 1-10 Between the Four Conditions (N=24 Subgroup Means)



In the present study, each ability group completed different quizzes each week. The "at" group completed more difficult quizzes than did the "below" and "well below" groups. For this reason, ability was excluded from the first repeated measures analysis because it was not fair to look at the interaction of group and ability for the reason that the ability groups completed different quizzes, with different levels of difficulty. Instead, the first repeated measures analysis only used the treatment group factor as a between-subjects factor. The analysis used all 24 subgroup means.

This analysis left unanswered the question about whether there was a difference in the responsiveness of each ability group to the quizzes. To explore this question, a series of three separate repeated measures analysis compared quiz results for each of the four treatment groups according to ability. The analysis used eight subgroup means for each of the three ability groups.

To summarise so far, instead of analysing the three ability levels together, the researcher looked at the time by group interaction effect for each ability level separately for the 10 quizzes. The repeated measures factor was the 10 quizzes. The between-subject factor was treatment group.

The first analysis looked at the quiz results for the "at" ability group. Table 4.38 shows the means and standard deviations for the 10 quizzes for the "at" ability treatment

group. The analysis of variance used treatment group as the group factor (P, PBB, BB, C) and quizzes (quizzes 1 to 10) as the repeated measures factor for the "at" ability group. These results are in Table 4.38. The linear trend factor was significant (p = .021, η^2 = .771). This showed that the groups as a whole gradually got higher scores over the course of the 10 quizzes. The group by linear trend interaction was not significant. The results for the group factor, which compared the average mean scores for all 10 quizzes across the four treatment groups, was not statistically significant, $F(3, 4) = 0.57$, p = .666. As a check on this result, a one-way ANOVA compared the four treatment groups on their average mean scores for the 10 quizzes combined. The results also showed no significant difference among the groups, $F(3, 4) = 0.57$, p = .666.

The second analysis looked at the quiz results for the "below" group. Table 4.39 presents the means and standard deviations for the "below" ability group. There was no significant effect for linear trend and no significant linear trend by group interaction effect. The results for the group factor, which compared the average mean scores for all 10 quizzes across the four treatment groups, was not statistically significant, $F(3,4) = 1.02$, p = .474.

The third analysis looked at the quiz results for the "well below" group. The means and standard deviations for the "well below" ability group are in Table 4.40. There was no statistical effect for linear trend or for the linear trend by group interaction. The results for the group factor, which compared the average mean scores for all 10 quizzes across the four treatment groups, was statistically significant, $F(3, 4) = 16.17$, p = .011, η^2 = .924. This showed that one or more of the treatment groups had gained better results on the quizzes than had other groups. To find out which groups gained better results, the next step was to carry out follow-up contrasts, using Fisher's least significant difference (LSD) procedure (Levin, Serlin, & Seaman, 1994). These analyses showed that the phonics and big book combined group (PBB) and the phonics only group (P) both had statistically higher scores than the big book only (BB), and the control (C) groups (PBB > BB, p = .005; PBB > C, p = .005; P > BB, p = .017; P > C, p = .018). The other contrasts were not significant (PBB ~ P, p = .156; C ~ BB, p = .953).

To summarise the quiz results, the follow-up analyses for each ability group showed that treatment group differences in response to the quizzes applied not to the "at" or "below" ability groups but to the "well below" ability group. Differences among treatment groups in the "at" and "below" ability children were not statistically significant. As shown in Table 4.38, the overall mean quiz raw scores out of five for each treatment group in the "at" ability group were quite similar (P = 2.48, PBB = 2.79, BB = 2.35, C = 2.26). As seen in Table 4.39, this was also the case for the "below" ability group (P = 1.84, PBB = 2.64, BB = 2.20, C = 1.81). In contrast, Table 4.40 shows that the "well below" PBB and P subgroups made greater total gains in the quizzes than did the BB and C groups (P = 2.16, PBB = 2.51, BB = 1.38, C = 1.39). The discussion chapter will provide possible reasons for differences in responsiveness to the quizzes of the "at", "below", and "well below" ability groups.

Table 4.38

Means, Standard Deviations, and ANOVA for the 10 Quizzes in the Four Treatment Conditions: "At" Ability Group (unit of analysis= eight subgroups- note that it is possible for a standard deviation of zero in some of the quizzes if the two subgroup means for each of the 4 groups were identical or if the two total average means of the 10 quizzes were identical)

Quiz[1]		Phonics only	Phonics and Big Book	Big Book only	Control	ANOVA		
						Linear trend	Group	Interaction
						F(1,4)	*F*(3,4)	*F*(3, 4)
						13.44*	.57	.74
1	*M*	2.13	2.38	3.00	2.50			
	SD	.53	.18	1.06	.71			
2	*M*	.75	2.25	.50	1.13			
	SD	1.06	1.41	.35	.53			
3	*M*	1.38	2.63	2.13	2.75			
	SD	.53	.88	.88	.35			
4	*M*	2.63	2.63	2.00	1.88			
	SD	2.65	.18	.35	.18			
5	*M*	3.50	2.88	2.00	2.38			
	SD	.71	.18	.35	.88			
6	*M*	3.25	3.38	2.13	2.13			
	SD	.71	.53	.88	.53			
7	*M*	3.38	3.75	3.00	2.75			
	SD	1.24	.35	2.12	1.06			
8	*M*	2.63	1.88	2.88	1.88			
	SD	1.24	1.59	1.24	1.24			
9	*M*	2.88	3.75	3.50	2.88			
	SD	.53	.71	1.41	.88			
10	*M*	2.25	2.38	2.38	2.38			
	SD	.35	.53	.88	.53			
Total	*M*	2.48	2.79	2.35	2.26			
	SD	.00	.34	.64	.48			

Note. [1]each quiz contained five questions

*<0.05 **<0.01

Table 4.39

Means, Standard Deviations, and ANOVA for the 10 Quizzes in the Four Treatment Conditions: "Below" Ability Group (unit of analysis= eight subgroups)

Quiz[1]		Phonics only	Phonics and Big Book	Big Book only	Control	ANOVA		
						Linear trend	Group	Interaction
						F(1,4)	*F*(3,4)	*F*(3, 4)
						3.67	1.02	2.38
1	*M*	2.50	4.13	3.00	2.38			
	SD	.71	.18	.35	.53			
2	*M*	1.13	2.25	1.38	1.13			
	SD	.18	1.41	.88	.88			
3	*M*	2.13	2.25	2.00	2.13			
	SD	.88	.35	.35	.88			
4	*M*	1.63	3.63	1.13	1.38			
	SD	.88	1.24	.18	.53			
5	*M*	1.38	1.13	2.63	.25			
	SD	.88	.53	1.94	.35			
6	*M*	1.50	1.63	.63	.88			
	SD	.35	1.59	.53	.18			
7	*M*	1.88	2.25	2.25	1.88			
	SD	.88	.71	.00	.18			
8	*M*	2.88	3.63	3.38	2.75			
	SD	.88	1.94	2.30	.35			
9	*M*	1.75	3.00	3.38	2.75			
	SD	.35	1.06	.18	1.41			
10	*M*	1.63	2.50	2.25	2.63			
	SD	.88	.00	1.41	.53			
Total	*M*	1.84	2.64	2.20	1.81			
	SD	.41	.69	.71	.19			

Note. [1]each quiz contained five questions

*<0.05 **<0.01

Table 4.40

Means, Standard Deviations, and ANOVA for the 10 Quizzes in the Four Treatment Conditions: "Well Below" Ability Group (unit of analysis= eight subgroups)

Quiz[1]		Phonics only	Phonics and Big Book	Big Book only	Control	ANOVA		
						Linear trend	Group	Interaction
						F(1,4)	*F*(3,4)	*F*(3, 4)
						2.44	16.17**	3.28
1	*M*	4.00	3.00	4.13	4.00			
	SD	.00	2.47	.53	1.06			
2	*M*	.75	1.00	.25	.38			
	SD	.35	.00	.35	.18			
3	*M*	2.50	2.88	2.38	.75			
	SD	.35	.53	.18	.00			
4	*M*	2.75	2.88	1.38	2.13			
	SD	.00	.18	.18	.18			
5	*M*	1.75	1.25	.50	.88			
	SD	1.06	.35	.35	.88			
6	*M*	1.00	1.88	.13	.38			
	SD	.35	1.24	.18	.18			
7	*M*	.63	3.13	.75	1.50			
	SD	.18	.53	.00	.35			
8	*M*	2.63	2.38	1.50	1.38			
	SD	.53	.18	.71	.88			
9	*M*	2.38	3.38	1.13	.88			
	SD	.53	.18	.53	1.24			
10	*M*	2.75	3.38	1.63	1.63			
	SD	1.06	.88	.53	.18			
Total	*M*	2.16	2.51	1.38	1.39			
	SD	.16	.23	.28	.05			

Note. [1]each quiz contained 5 questions

*<0.05 **<0.01

4.12 Summary of the chapter

The hypotheses

The results support the first hypothesis, that the phonics and big book combined approach would be more effective than the other approaches. The phonics and big book combined group outperformed the other groups in word reading, reading comprehension, decoding, and phonemic awareness.

The results did not fully support the second hypothesis. Only the combined group consistently outperformed the control group on the formal measures. The phonics group outperformed the big book group in decoding and phonemic awareness but not on other measures.

The results for the informal measures, that is, the quizzes showed that the combined and phonics groups outperformed the control group, but the big book did not.

4.13 Major results

The general pattern of results was that the phonics and big book combined group outperformed the other groups in word reading, reading comprehension, decoding, phonemic awareness, and in the weekly phonics quizzes. There were no differences among the groups for passage reading accuracy, receptive vocabulary, or spelling. The three reading ability groups seemed to respond similarly to training.

4.14 Minor results

A detailed analysis of the results for the Word Reading Test showed that the combined condition outperformed the other three groups in reading short, one-syllable, regular words, and short, one-syllable, slightly irregular, small set words. When the "well below" ability readers were removed from the analysis, the combined group's "below" and "at" ability levels outperformed the other two groups on words with consonant blends/vowel digraphs. Training effects did not extend to irregular words.

A detailed analysis of the results for the Phonemic Awareness Test showed that the combined condition outperformed the other three conditions in segmentation, blending and deleting the first phoneme. Training effects did not extend to deleting the final phoneme, or to substituting the first or final phoneme.

A detailed analysis of the results for the Bryant Test of Basic Decoding Skills showed that the combined group outperformed the other three groups, and the phonics only group performed better than the big book only group. The training effects only extended to three-letter, regularly spelled pseudowords like “maz”. The training effects did not extend to silent e (split digraphs) or consonant blends/vowel digraphs patterns. The training did not extend to reading multi-syllable pseudowords.

An analysis of the overall results for the weekly quizzes showed that the combined group outperformed the big book and control groups, but not the phonics group. When looking at ability levels separately, the results showed that only the “well below” phonics, and combined groups outperformed the big book and control groups.

Chapter 5: Discussion and Conclusion

5.1 Hypotheses

The main hypothesis of this study was that a phonics and big book combined approach that used phonics and big book shared reading together would be more effective than teaching phonics or big book shared reading in isolation.

The second hypothesis was that reading instruction is better than no reading instruction, so that the three treatments tested in this study would produce results superior to those of the treatment control.

In New Zealand classrooms, teachers aim to give beginning readers a range of strategies that will help them to integrate different sources of knowledge when they are reading text. Beginner readers in the present study meant students who have already received a year formal reading instruction with an expectation that they can read texts at a beginning 6-year-old level (or green level). At six years of age there is an expectation that children have the ability to respond and think critically about texts including fiction and non-fiction books (Ministry of Education, 2010b). Teachers want their students, when reading, to combine their background knowledge with grammatical and semantic information in the text, and visual and grapho-phonic sources of information, in order to read and understand text. The following is an example of how this integration process works:

> Hayley was reading the sentence "At last the wolf woke up". She read fluently until the written word "woke" which was unfamiliar. She recognised that the sentence structure required a verb and that the word began with "w" so she tried "walked". The next word "up" was familiar and Hayley realised that "walked up" would not make sense in the context so she self-corrected to "woke up". (Ministry of Education, 2003, p. 30)

The motivation for the present study was to find out how best to facilitate this integration process for 6-year-old beginner readers, by comparing the effectiveness of three kinds of instruction: phonics only, big book shared reading only, and a combination of both. The design of the present study was a randomised controlled trial that also included a treatment control group.

5.2 The research hypotheses

The results confirmed the first hypothesis. The phonics and big book combined group made more reading progress than the phonics only and big book only reading groups in word reading, pseudoword reading, reading comprehension, and phonemic awareness. The phonics group made more progress than did the big book shared reading group in pseudoword reading and phonemic awareness.

The results did not confirm the second hypothesis completely. The phonics and big book combined group outperformed the treatment control group in word reading, reading comprehension, decoding pseudowords, and phonemic awareness. The phonics only and big book only groups did not outperform the control group on any of the formal measures.

The results for the informal measures, that is, the phonics quizzes showed that the combined and phonics groups outperformed the control group. The big book group did not do better than the control group.

On another positive note, the treatment control group (who received math tuition) outperformed the other three conditions in math computation. It was not just a cosmetic treatment.

5.3 The weekly phonics quizzes

Results for the weekly quizzes showed that the phonics and big book combined group outperformed the big book only and treatment control groups, but not the phonics only group. An explanation could be that both the phonics and big book combined, and phonics only groups benefited from phonics teaching and the weekly revision of the previous week's phonics rule. This enabled them to complete the quizzes more accurately than the big book only and treatment control groups. For example, in the quiz on /ai/, /ay/ and /oi/, /oy/ vowel digraphs, pupils had to fill in the blanks using these vowel digraphs as in "(1) tr_ _, (2) m_ _l, (3) p_ _nt, (4) ann_ _, (5) v_ _ce". One pupil from the phonics and big book combined group answered all five questions correctly, compared with a pupil from the big book only group who made two mistakes (m**ay**l instead of m**ai**l; v**oy**ce instead of v**oi**ce). This was significant to see because it indicated that the combined condition had learnt about how to use the /ay/ and /oy/ spelling at the end of the word; and /ai/ and /oi/ spelling at the beginning or in the middle of the word.

The results also showed that the "well below" ability groups made greater gains than the "below" and "at" groups. One possible explanation could be that this group of low ability pupils benefitted more than the other ability groups from explicit phonics instruction. Another possible explanation could be that the weekly revision and the modified "TurtleTalk" activities also made the phonics and big book combined, and phonics only "well below" groups more aware of letter-sound relationships. A more possible explanation is that the quizzes for the "well below" ability group were easier than for the "below" and "at" groups. The phonics quizzes for the higher ability groups may have been a little too difficult for them. Researchers suggest that for less skilled readers, explicit instruction as in the study is helpful for teaching phonemic awareness, phonemic decoding skills, and word recognition (Ehri et al., 2007; National Reading Panel, 2000).

5.4 Practical implications for teaching in the Year 2 classroom

The results of the present study add weight to recommendations from other research reviews, that the teaching of reading to beginners is more effective when we combine phonics instruction with opportunities to read text (Aram, 2006; Blaiklock & Haddow, 2007; Brady, 2011; Castle, Nicholson, & Riach, 1994; Pressley, 2006; Tunmer & Arrow, 2011; Tunmer & Nicholson, 2011; Tunmer, Chapman, Ryan, & Prochnow, 1998).

The phonics and big book combined condition was more effective than phonics only and big book only for word reading, decoding, phonemic awareness, and reading comprehension but not passage reading accuracy. A possible explanation for the lack of instructional impact on passage reading accuracy is that the decoding gains from teaching phonics in combination with big book reading showed more clearly in isolated word reading and pseudoword reading than in passage reading. When reading passages, the availability of context clues was a compensatory strategy that may have enabled pupils with lesser decoding skills to read the passage words just as well as pupils with better decoding skills. Many studies have shown that poor readers are able to read words far more accurately in extended text than in isolation and this may have masked the differences found for word reading (Goodman, 1967; Nicholson, 1991; Stanovich, 1980). Another explanation is that the word reading gains of the combined group (the

gains were 4 to 7 months over the other groups) were too small to show up when reading extended text.

5.5 Levels of reading ability and differentiated instruction

There were no significant differences from pretest to posttest results among the three levels of reading ability, no matter which intervention they received, except in the quizzes. This is positive in that all ability groups seem to have responded to instruction. One explanation for this is that students were in small groups and the lessons focused on teaching them at their level of instructional need. Each ability group had lessons tailored to their skill levels. A practical implication of this finding is that a phonics and big book combined approach might be better than dividing the class into code-based instruction for low-ability readers and context-based instruction for high-ability readers as suggested in differentiated instruction (Connor, Morrison, & Katch, 2004; Juel & Minden-Cupp, 2000). Instead, it might be that the critical element in helping "well below", "below", and "at" ability readers is to provide the same kind of instruction, but use a phonics and big book combined approach, and focus on levels of instructional need. The present results suggest that we do need to differentiate according to the instructional level of the pupil and that it is possible to teach pupils of different ability levels in small groups using a phonics and big book combined approach.

5.6 Theoretical implications

For word reading, the combined instruction seemed to have most effect on one-syllable regular words like "up", "big", "at", and "sun" and partly regular, small set words like "is", "he", and "my". It was not effective for one-syllable, irregular words like "was". It was also not effective for words more than one-syllable. One possible explanation could be that pupils require more combined instruction and reading practice to learn these words. Researchers suggest that reading connected text provides an effective way to do this (Ehri, 1997; Harrison, 2004; Juel, Griffith, & Gough, 1986; Meyer & Wardrop, 1994; Ministry of Education, 2003; Mitchell, 1982; Pressley, 2002; Thompson & Fletcher-Flinn, 1993, 2006; Vadasy, Sanders, & Peyton, 2005). The present study showed that a combination of phonics and extensive reading of text was more effective than simply reading connected text. This suggests that a higher dosage of "combined" instruction will enable children to continue to improve their word recognition skills.

On the other hand, the present study obtained results that suggest reading connected text on its own may be just as effective as the "combined" approach for certain kinds of words. The follow up analysis of word types on the Burt Word Reading Test showed that the combined group nearly always did better than the other groups. The exception was that the big book group (BB) was just as successful as the combined group, and did better than the phonics and control groups, when it came to one-syllable words like *nurse* and *fringe*(see section 4.3.5 for results). This result for these types of words supports Knowledge Sources Theory and psycholinguistic guessing game theory.

A number of researchers (Ehri, 1991; Gough, 1983, 1996a; Gough & Hillinger, 1980; Juel et al., 1986; Johnston et al., in press) suggest that one advantage of phonics is that it allows the reader to decipher unfamiliar words. The problem is that there are some words that need to be decoded with specific lexical knowledge, not just with ciphering skills, for example, "tongue", "one", "luncheon" and "theory" in the Burt Word Reading Test. In the present study, the phonics and big book combined group read correctly more one-syllable, regular words than the other three groups. A plausible explanation is that those groups received explicit instruction in phonics plus reading of text, which enabled them to decode one-syllable regular words. For words with more than one-syllable, there was no significant difference among the four groups. A simple explanation is that the words were too difficult for these 6-year-olds. The "at" ability groups did receive instruction in syllable breaking but it may not have been enough to take hold.

The big book group did not improve as much as the combined group in word reading. This fits with Iversen and Tunmer's (1993) study. When they added phonics to the Reading Recovery programme, children learnt to read faster than they did in a normal Reading Recovery group. The results of the present study converges with the Iversen and Tunmer study, suggesting that there is power in adding phonics to a book reading approach.

The present study also presented similar results for accuracy and comprehension to Connelly, Johnston and Thompson's (2001) study. They found that the book experience group was faster in reading speed, but the phonics group was better at comprehension. The researcher in this study found no significant difference in reading

accuracy among the treatment groups at the end of the study, but the combined phonics-big book group (PBB) were better at comprehension than the other groups.

To summarise, the word reading findings for the combined group give support to the code-cipher theory that decoding is a powerful lever to improve reading (Gough, 1996a; Gough & Juel, 1991). On the other hand the word reading findings for the Big Book group support part of the Knowledge Sources Theory (Thompson & Fletcher-Flinn, 1993, 2006), that children can acquire implicit letter-sound correspondences even if they have not received explicit phonics instruction. It also supports Goodman and Goodman (1979) who argued that children learn to read by reading. Children in the big book group read and re-read stories. This is because in this study, the big book group performed the same as the combined group but better than the phonics and control groups for certain words in the Burt Word Reading Test (e.g., *nurse* and *fringe*).

There were no significant differences among the groups in receptive vocabulary at the end of the study even though there is a theoretical literature to suggest that book reading improves vocabulary because of its emphasis on reading of text and the theory that you learn vocabulary by reading (Aram, 2006; Nicholson & Dymock, 2010). In this present study, a possible explanation is that the instructional time was too short to influence vocabulary. The researcher met the children once a week for 30 minutes for 12 sessions. In the study by Aram (2006), for example, which compared reading of books with teaching of alphabetic skills, vocabulary gains occurred but there were 50 training sessions, and children received instruction twice a week for 20-30 minutes. Another possible reason for the lack of an effect is that in the combined and big book only reading conditions, the researcher only explained the meanings of a few words before reading the big books. Another reason could be that more than half (54%) of the children who participated in this study spoke another language at home besides English; fewer than half (47%) spoke English all the time. Children who speak another language at home might require a longer period to improve their vocabulary skills. Another reason could be that early reading texts, as in this study, contain mostly familiar words rather than unfamiliar ones. Also, the probability of children learning an unfamiliar word while reading text is quite low for young children who are reading on their own (at grade 4, the probabilities is only .08) (Swanborn & de Glopper, 1999). Even when stories are read to them, as in the present study, below-average readers find it hard to

learn new word meanings (Nicholson & Whyte, 1992), and any learning that does occur may not extend to standardised measures like the one used in the present study (see Pollard-Durodola et al., 2011).

For phonemic awareness, the detailed analyses showed that the phonics and big book combined group (except for the "well below" readers in that group) outperformed the big book only and treatment control groups in segmentation, blending and deleting the first phoneme. The phonics group performed better than the big book only group in segmentation and blending. Phonemic awareness could be one of the key reasons for the present results. Theoretically, once children understand that spoken words are made of sounds and that letters in words represent phonemes, then reading progress begins. Many studies have found that growth in phonemic awareness has positive effects on children's reading (Bradley & Bryant, 1985; Matches et al., 2005; Nicholson, 2006; Nicholson & Ng, 2003; Pressley, 2006; Ryder et al., 2008; Shankweiler & Fowler, 2004; Tunmer et al., 2002). Another possible explanation could be the specific nature of the modified "TurtleTalk" activity, which focus on blending, plus the linking of phonemes to letters. According to the National Reading Panel (2000) and Ehri et al. (2001a), it is more to combine teaching of phonemic awareness with letters, when teaching reading and spelling.

For pseudoword decoding, the detailed analyses showed that the phonics and big book combined, and phonics groups improved their ability to read consonant-vowel-consonant pseudowords, more than did the big book only reading group and the control group. Researchers suggest that pseudoword reading skills are important, especially for struggling beginning readers (Hulme et al., 2002; Justice et al., 2003; Snow & Juel, 2005; Tunmer & Greaney, 2008). The phonemic awareness activities combined with phonics instruction may have made children more aware of how to decode unfamiliar words.

A possible explanation of the lack of progress of the big book only group in pseudoword reading is that decoding is not what shared reading tried to teach. Goodman and Goodman (1979) explain that children will acquire orthographic knowledge through reading and re-reading the text but they will learn real words, not pseudowords. Children in the big book reading group only read real words in real text so it was unlikely that they could learn strategies for decoding pseudowords.

Knowledge sources theory also predicts this result (McKay, Fletcher-Flinn, & Thompson, 2004; Thompson & Fletcher-Flinn, 2006).

Pseudowords are nonwords without any meaning, so why do children need to learn this skill? The reason is that it seems to have a protective effect. Castle et al. (1994) and Ryder et al. (2008) found that the addition of phonemic awareness and simple phonics training for children already receiving whole language instruction improved their pseudoword decoding skills and that this seemed to be a preventive factor in whether or not they received extra reading remediation later.

5.7 Limitations and directions for future research

A limitation of the study was that the distribution of participants across the three primary schools was uneven. One school had more pupils in the phonics only condition, and another school more pupils in the treatment control condition. The researcher re-analysed the results by taking out the school with more phonics pupils. The subgroups were not even, but the analysis showed the same pattern of significant results as occurred when the school was in the analysis, except for math, which was not significant. Surprisingly, the spelling test was nearly significant, $p = .06$. The researcher understood that the ideal number of participants would be for each school to have the same subgroups for each treatment condition, and with the same ability subgroups but there were not enough children with parent consents to participate to enable a full balancing of numbers. Further research could overcome this possible school effect by conducting the same study within one school, say a very large school.

A second limitation of the study was that duration of the intervention was short. In the present study, the researcher only met with the pupils for 30 minutes at a time, once a week for 3 months, a total of 6 hours. At the end of the study the intervention groups were still reading below their chronological age but the combined group had made more progress than the other groups. The extent of progress for the combined group may have been greater if the intervention time had been longer. For example, in Reading Recovery, children receive 40-50 hours of instruction in contrast to the six hours in this study.

A third limitation of the study was the phonics lessons were too challenging for the “well below” and “below” phonics only (P) and phonics and big book combined

groups (PBB). The Bryant pseudoword decoding test indicated that both P and PBB "well below" and "below" groups scored zero or less than 1out of a possible score of 50 in the pretest, which showed students in these two groups required more lessons on the foundation skills in reading CVC (consonant-vowel-consonant) and CCVC (consonant-consonant-vowel-consonant) words before moving to the next level, that is, learning the silent e rule and vowel digraphs. This explains why the "well below" P and PBB groups did not achieve higher scores in the weekly quizzes when all the quizzes were based on the previous phonic lessons. The mean quiz results for the "well below" P group was 2.16 out of a maximum score of 5.0, and the mean score for the well below PBB group was 2.51 out of 5.0. These results indicate that learning has not been consolidated and "well below" students needed to focus on foundation decoding skills first (i.e., letter sounds and CVC words).

A fourth limitation of the study might be that instruction in letter names and sounds should have been part of program for the well below phonics groups in the present study. Since the Bryant pseudoword decoding test showed that both "well below" and "below" groups scored zero or less than 1 in the pretest, this indicates that students needed to learn the sounds of the letters.

A fifth limitation of the study were teacher variables. The study was based on observations in 3 classrooms (one in each participating school in the present study), and assumed that the teachers were following Ministry of Education guidelines as set out in Effective Literacy Practice: Year 1-4 (Ministry of Education, 2003), but it cannot be certain what was taught outside the treatment conditions. In a future study, a survey could ask teachers questions like "are you teaching explicit/implicit phonics?" "Are you using big books / guided reading, and if so, in what way?" "Is the school using any other phonics programme i.e. Jolly Phonics?", and assess characteristics of the teachers (years of experience, gender, years of experience teaching Year 2?"

A sixth limitation of the study might be that it did not have enough phonological and phonemic awareness activities (i.e., syllable awareness, onset-rime awareness, phoneme deletion or substitution etc.) in addition to the modified "TurtleTalk" activity that focused on segmenting and blending phonemes only. The researcher did not add these components in the present study because of time constraints with the intervention only being 30 minutes per week with each treatment group.

A seventh limitation of the present study might be that the same researcher carried out all the pre- and post-assessments. Although the researcher asked her family members and friends to re-check the assessments, she was not blind to the grouping arrangement during both pre- and post-assessments. It is possible to argue that there were unintentional biases during the assessment. On the other hand, if this was the case, why were some results significant, but not others (e.g., Neale accuracy)? The results for the quizzes support the main results found by the researcher, in that the researcher did not administer the quizzes, pupils filled out their own quizzes.

The last limitation of the study might be that writing instruction was not included in any of the treatments and this may be why there was no treatment effect for spelling. Donat (2006) and Blaiklock and Haddow (2007) included writing as part of their studies when combining phonics in the whole language classroom setting. The results of their studies showed that pupils improved in reading accuracy and spelling, something that was not achieved in the present study. Future studies could compare treatments that include writing activities as part of the treatments.

5.8 Summary and Conclusion

Imagine you are a teacher and want to know whether to provide supplementary instruction to small groups of children by using phonics or big book reading. The findings of the present study indicate that it is wise to combine them in the one lesson. The phonics and big book combined group in the present study performed significantly better than the phonics only, big book only and treatment control groups in word reading, reading comprehension, decoding nonwords, and phonemic awareness skills.

The present findings are relevant to recent models of "response to intervention". The findings of the present study support the suggestion of Fuchs and Fuchs (2006) that one-to-one interventions such as Reading Recovery (RR) might be better as Tier 3 instruction, with Tier 2 reserved for small group teaching of students who are at-risk of reading difficulties. In New Zealand, we have Tier 1 (classroom teaching), and then we go straight to Tier 3 (RR), but we do not have Tier 2 (small group intervention). The results of the present study suggest that it is possible to have small group intervention with successful outcomes, and such intervention would be less expensive and would reduce the number of students that need to go on to RR.

What made the phonics and big book combined approach effective? It might be that the linkage between phonics skills and reading of connected text was more explicit in the phonics and big book combined approach, and integrated with reading of text. The researcher started the combined lesson with a recap of the previous phonics lesson, and then taught a new phonological rule. The teacher selected vocabulary from the big book that had the same phonics pattern as the new phonological rule. The phonics rule related directly to vocabulary from the big book so that the phonics focused on specific words from the story before reading the story aloud. The book reading also included comprehension activities, with follow-up questions about character description, plot, figurative language, and so on, which may have contributed the positive results for reading comprehension. As in Blaiklock and Haddow (2007), the combined lessons incorporated phonics with meaningful reading of text. Pupils in the phonics and big book combined group were better in segmentation, blending and deleting first phonemes possibly perhaps because of the modified "TurtleTalk" phonemic awareness activity was added as a result of the nil effects in the pilot study. This is supported by a weight of research saying that phonemic awareness is important when developing reading skills. Including letters when teaching phonemic awareness could also possibly helped pupils associate letters and phonemes when decoding unfamiliar words (Castle et al., 1994; Ehri et al., 2001b; Gough, 1996a; National Reading Panel, 2000).

Another positive finding was that the instruction did not privilege one ability group over another (except in the quiz results). All ability groups seemed to respond positively and in a similar pattern to instruction. A possible explanation for this result might be that the researcher tailored all small group lessons according to the children's reading ability levels.

The present findings support some of the recommendations of the Ministry of Education in its National Standards guidelines (Ministry of Education, 2010b). The Standards state that after one year at school, children should be able to decode unfamiliar words that contain vowel digraphs such as /ow/, /ai/, /oy/. Pupils in the current study learnt these patterns. The Standards state that children will be able to blend phonemes in spoken words (e.g., /m/a/n is "man") and segment phonemes (e.g., "seat" has three phonemes s/ea/t). The phonics and big book combined group in this study achieved outcomes in line with these goals.

In New Zealand, over 11,000 Year 2 children required additional reading tuition, after not responding to mainstream schooling (Lee, 2009). The current study provides an alternative approach in combining phonics and big book shared reading to small group teaching.

The conclusion, based on present findings, is that children learn better in a reading environment that combines phonics and big book shared reading as part of the same lesson, where phonics teaching directly applies to words in the big books used for shared reading. Teaching phonemic awareness might also be helpful for children in reading unfamiliar words. The ultimate goal in reading is for children to understand the meaning of what they read, and the phonics and big book combined approach could be a better option for achieving this goal than relying just on teaching phonics rules, or just on big book shared reading (Brady, 2011, Bulter & Silliman, 2002; Gough &Tunmer, 1986; Harrison, 2004; Henry, 2010).

References

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

Aram, D. (2006). Early literacy interventions: The relative roles of storybook reading, alphabetic activities, and their combination. *Reading and Writing: An Interdisciplinary Journal, 19,* 489-515.

Beard, R. (2000). Long overdue? Another look at the National Literacy Strategy. *Journal of Research in Reading, 23,* 245-255.

Blaiklock, K., & Haddow, S. (2007). Incorporating phonics within a New Zealand whole language literacy programme. *New Zealand Journal of Educational Studies, 4*(1&2), 143-159.

Blewitt, P., Rump, K. M., Shealy, S. E., & Cook, S. A. (2009). Shared book reading: when and how questions affect young children's word learning. *Journal of Educational Psychology, 101*(2), 294-304.

Block, C. C., & Israel, S. E. (2005). *Reading first and beyond: The complete guide for teachers and literacy coaches*. Thousand Oaks, CA: Corwin Press.

Bradley, L., & Bryant, P. E. (1983). Categorizing sounds and learning to read - a causal connection. *Nature, 301*, 419-421.

Brady, S. (2011). Efficacy of phonics teaching for reading outcomes: Indications from post NRP research. In S. Brady, D. Braze, & C. Fowler (Eds.), *Explaining individual differences in reading: Theory and evidence* (pp.69-96). New York, NY: Psychology Press.

Brett, A., Rothlein, L., & Hurley, M. (1996). Vocabulary acquisition from listening to stories and explanations of target words. *The Elementary School Journal, 96*, 417-422.

Bryant, D. (1975). *Bryant Test of Basic Decoding Skills*. New York, NY: Teachers College Press.

Buxton, J. (2000). *Keep trying*. Wellington, New Zealand: Learning Media.

Byrne, B. (2005). Theories of learning to read. In M. Snowling & C. Hulme (Eds.), *The science of Reading: A handbook* (pp. 104-119). Oxford, UK: Blackwell.

Byrne, B., & Fielding-Barnsley, R. (1991). Evaluation of a programme to teach phonemic awareness to young children. *Journal of Educational Psychology, 83*(4), 451-455.

Byrne, B., & Fielding-Barnsley, R. (1993). Evaluation of a programme to teach phonemic awareness to young children: A 1-year follow-up. *Journal of Educational Psychology, 85*(1), 104-111.

Calfee, R. C., & Patrick, C. L. (1995). *Teach our children well*. Stanford, CA: Stanford University Alumni Association.

Carbo, M. (1996). Whole language or phonics? Use both. *Education Digest, 61*(6), 60.

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 programme. *Journal of Educational Psychology, 86*, 350-359.

Catts, H., & Kamhi, A. (Eds.). (2005). *Language and reading disabilities* (2nd ed.). Boston, MA: Allyn & Bacon.

Chall, J. S. (1983). *Learning to read: The great debate*. New York, NY: McGraw-Hill.

Chappell, J. C, Stephens, T. L., Kinnison, L., & Pettigrew, J. D. (2009). Educational diagnosticians' understanding of phonological awareness, phonemic awareness, and reading fluency. *Assessment for Effective Intervention, 35*(1), 24-33.

Connelly, V., Johnston, R., & Thompson, G. (2001). The effect of phonics instruction on the reading comprehension of beginning readers. *Reading and Writing, 14*, 423-457.

Connor, C. M., Morrison, F. J., & Katch, L. E. (2004). Beyond the reading wars: Exploring the effect of child-instruction interactions on growth in early reading. *Scientific Studies of Reading, 8*, 305-336.

Csak, N. L. B. (2002). "What's important when you're six?"-Valuing children's oral stories. *Language Arts, 79*, 488-497.Cunningham, A. E. (2005). Vocabulary growth through independent reading and reading aloud to children. In E. H. Hiebert & M. L. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research to practice* (pp. 45-68). Mahwah, NJ: Lawrence Erlbaum.

de Graaff, S., Bosman, A. M., Hasselman, F., & Verhoeven, L. (2009). Benefits of systematic phonics instruction. *Scientific Studies of Reading, 13*(4), 318-333.

Dickinson, D. K., & McCabe, A. (2001). Bring it all together: The multiple origins, skills, and environmental supports of early literacy. *Learning Disabilities Research & Practice, 16*, 186-202.

Donat, D. J. (2006). Reading their way: A balanced approach that increases achievement. *Reading and Writing Quarterly, 22*, 305-323.

Droop, M., & Verhoeven, L. (2003). Language proficiency and reading ability in first- and second-language learners. *Reading Research Quarterly, 38*, 78-103.

Dunn, L. M., Dunn, L., Whetton, C., & Burley, J. (1997). *BPVS II(kit: The British Picture Vocabulary Scale*) (2nd ed.). Windsor, UK: National Foundation for Educational Research-Nelson.

Education Review Office. (2009). Reading and Writing in Years 1 and 2 (December 2009). Wellington, New Zealand: ERO.

Ehri, L. C. (1980). The development of orthographic images. In U, Frith. (Ed.), *Cognitive processes in spelling* (pp. 311-338). London, UK: Academic Press.

Ehri, L. C. (1991). Development of the ability to read words. In R. Barr, M. L. Kamil, P. B. Mosenthal & P. D. Pearson (Eds.), *Handbook of reading research* (Vol. 2, pp. 383-417). New York, NY: Longman.

Ehri, L. C. (1992). Reconceptualizing the development of sight word reading and its relationship to recording. In P. B. Gough, L. C. Ehri & R. Treiman (Eds.), *Reading acquisition* (pp. 107-143). Hillsdale, N.J: Lawrence Erlbaum.

Ehri, L. C. (1995). Phases of development in learning to read words by sight. *Journal of Research in Reading, 18*(2), 116-125.

Ehri, L. C. (1997). Sight word learning in normal readers and dyslexics. In B. A. Blachman (Ed.), *Foundations of reading acquisition and dyslexia: Implications for early intervention* (pp. 163-189). Mahwah, NJ; Lawrence Erlbaum.

Ehri, L. C. (1999). Phases of development in learning to read words. In J. Oakhill & R. Beard (Eds.), *Reading development and the teaching of reading: A psychological perspective* (pp. 79-108).Oxford, UK: Blackwell.

Ehri, L. C. (2004). Teaching phonemic awareness and phonics: An explanation of the National Reading Panel meta-analyses. In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research* (pp. 153-186). Baltimore, MD: Paul H. Brookes.

Ehri, L. C. (2005a). Learning to read words: Theory, findings, and issues. *Scientific Studies of Reading, 9*(2), 167-188.

Ehri, L. C. (2005b). Development of sight word reading: Phase and findings. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook* (pp. 135-154). Malden, MA: Blackwell

Ehri, L. C., Dreyer, L. G., Flugman, B., & Gross, A. (2007). Reading rescue: An effective tutoring intervention model for language-minority students who are struggling readers in first grade. *American Educational Research Journal, 44*(2), 414-448.

Ehri, L. C., Nunes, S. R., Stahl, S. A., & Willows, D. M. (2001a). Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel's meta-analysis. *Review of Educational Research, 71*(3), 393-447.

Ehri, L. C., Nunes, S. R., Willows, D. M., Schuster, B. V., Yaghoub-Zadeh, Z., & Shanahan, T. (2001b). Phonemic awareness instruction helps children learn to read: evidence from the National Reading Panel's meta-analysis. *Reading Research Quarterly, 36*(3), 250-287.

Eldredge, J. L., Hollingsworth, P. M., Reutzel, D. R., & Young, B. (1996). Comparing the effectiveness of two oral reading practices: Round-robin reading and the shared book experience. *Journal of Literacy Research, 28*, 201-225.

Elley, W. B. (1989). Vocabulary acquisition from listening to stories. *Reading Research Quarterly, 24*, 174-187.

Elley, W. B., & Mangubhai, F. (1983). The impact of reading on second language learning. *Reading Research Quarterly, 19*, 53-67.

Ezell, H. K., & Justice, L. M. (2005). *Shared Book Reading: Building young children's language and emergent literacy skills*. Baltimore, MD: Paul H. Brookes .

Freppon, P. A., & Dahl, K. L. (1998). Balanced instruction: Insights and considerations. *Reading Research Quarterly, 33*(2), 240-251.

Fuchs, D., & Fuchs, L. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*(1), 93-99.

Gillon, G. T. (2004). *Phonological awareness: from research to practice*. New York, NY: Guilford Press.

Gilmore, A., Croft, C., & Reid, N. (1981). *Burt word reading test: New Zealand revision*. Wellington, New Zealand: New Zealand Council for Educational Research.

Goodman, K. (1967). Reading: A psycholinguistic guessing game. *Journal of the Reading Specialist, 6*(4), 33-43.

Goodman, K. S., & Goodman, Y. M. (1979). Learning to read is natural. In L. B. Resnick & P. A. Weaver (Eds.), *Theory and practice of early reading* (pp. 137-154). Hillsdale, NJ: Lawrence Erlbaum.

Goswami, U. (1998). *Cognition in children*. East Sussex, UK: Psychology Press.

Goswami, U. (2002). In the beginning was the rhyme? A reflection on Hulme, Hatcher, Nation, Brown, Adams, and Stuart (2002). *Journal of Experimental Child Psychology, 82*(1), 47-57.

Goswami, U., & Bryant, P. (1990). *Phonological skills and learning to read*. Hillsdale, NJ: Lawrence Erlbaum.

Gough, P. B. (1996a). How children learn to read and why they fail. *Annals of Dyslexia, 46*, 3-20.

Gough, P.B. (1996b, February). *A pox on both of your house.* Paper presented to symposium on integrated direct instruction in reading, sponsored by the Language Arts Foundation of America and Oklahoma City School, Oklahoma City.

Gough, P. B., & Hillinger, M. L. (1980). Learning to read: an unnatural act. *Bulletin of the Orton Society, 30,* 179-196.

Gough, P. B., & Juel, C. (1991). The first stage of word recognition. In L. Rieben & C. A. Perfetti (Eds.), *Learning to read: Basic research and its implications* (pp. 47-56). Hillsdale, NJ: Lawrence Erlbaum Associates.

Gough, P. B., Juel, C., & Griffith, P. L. (1992). Reading, spelling, and the orthographic cipher. In P. B. Gough, L. C. Ehri & R. Treiman (Eds.), *Reading acquisition*. Hillsdale: NJ: Lawarence Erlbaum Associates.

Gough, P. B., Juel, C., & Roper-Schneider, D. (1983). Code and cipher: A two-stage conception of initial reading acquisition. In J. A. Niles & L. A. Harris (Eds.), *Searches for meaning in reading/language processing and instruction* (pp. 207-211). Rochester, NY: National Reading Conference.

Gough, P. B., Kastler, L., & Roper, D. W. (1984). *GKR Phonemic Awareness Test.* Unpublished manuscript, University of Texas, Austin, TX.

Gough, P. B., & Lee, C. H. (2007). A step toward early phonemic awareness: The effects of the turtle talk training. *Psychologia, 50*, 54-66.

Gough, P. B., & Tunmer, W. (1986). Decoding, reading and reading disability. *Remedial and Special Education, 7*(1), 6-10.

Greaney, K. (2011). *The multiple cues or 'searchlights' word reading theory: implications for Reading Recovery*. Unpublished manuscript. Massey University. Palmerston North, New Zealand.

Groff, P. (1983). A test of the utility of phonics rules. *Reading Psychology, 4*, 217-225.

Gross, J., Treiman, R., & Inman, J. (2000). The role of phonology in a letter detection task. *Memory & Cognition, 28*(3), 349-357.

Hall, K. (2006). How children learn to read and how phonics helps. In M. Lewis &S. Ellis (Eds.), *Phonics practice, research and policy* (pp. 9-22). London, UK: Paul Chapman.

Harrison, C. (2004). *Understanding reading development*. London, UK: Sage.

Hartley, M. (1999). *Levelling the boxes and books*. Unpublished manuscript, Language Reading Team, School of Education, University of Waikato, New Zealand.

Henry, M. K. (2010). *Unlocking literacy. Effective decoding & spelling instruction* (2nd ed.). Baltimore, MD: Paul H. Brookes.

Hepplewhite, D. (2005). *Burt reading test. Revised norms for Burt (re-arranged).* Retrieved from http://www.syntheticphonics .com/burtreadingtestpage.htm.

Holdaway, D. (1982). Shared book experience: Teaching reading using favourite books. *Theory Into Practice, 21*(4), 293-300.

Hindman, A. H., Connor, C. M., Jewkes, A. M., & Morrison, F. J. (2008). Untangling the effects of shared book reading: multiple factors and their associations with preschool literacy outcomes. *Early Childhood Research Quarterly, 23*, 330-350.

Hudson, R. F., Isakson, C., Richman, T., Lane, H. B., & Arriaza-Allen, S. (2011). An examination of a small-group decoding intervention for struggling readers: Comparing accuracy and automaticity criteria. *Learning Disabilities Research & Practice, 26*(1), 15-27.

Hulme, C., Hatcher, P. J., Nation, K., Brown, A., Adams, J., & Stuart, G. (2002). Phoneme awareness is a better predictor of early reading skill than onset-rime awareness. *Journal of Experimental Child Psychology, 82*, 2-28.

Iversen, S., & Tunmer, W. E. (1993). Phonological processing skills and the reading recovery programme. *Journal of Educational Psychology, 85*(1), 112-126.

Johnston, R. S., McGeown, S., & Watson, J. E. (in press). Long-term effects of synthetic versus analytic phonics teaching on the reading and spelling ability of 10 year old boys and girls. *Reading and Writing: An Interdisciplinary Journal*.

Johnston, R., & Watson, J. (2007). *Teaching synthetic phonics.* Exeter: Learning Matters.

Johnston, R. S., & Watson, J. E. (2004). Accelerating the development of reading, spelling and phonemic awareness skills in initial readers. *Reading and Writing: An Interdisciplinary Journal, 17*(4), 327-357.

Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology, 80*, 437-447.

Juel, C., & Minden-Cupp, C. (2000). Learning to read words: Linguistic units and instructional strategies. *Reading Research Quarterly, 35*, 458-492.

Juel, C., Griffith, P. L., & Gough, P. B. (1986). Acquisition of literacy: A longitudinal study of children in first and second grade. *Journal of Educational Psychology, 78*, 243-255.

Justice, L. M., Chow, S. M., Capellini, C., Flanigan, K., & Colton, S. (2003). Emergent literacy intervention for vulnerable preschoolers: Relative effects of two approaches. *American Journal of Speech-Language Pathology, 12, 3*20-332.

Koskinen, P. S., Blum, I. H., Bisson, S. T., Phillips, S. M., & Creamer, T. S. (2000). Book access, shared reading, and audio models: The effects of supporting the literacy learning of linguistically diverse students in school and at home. *Journal of Educational Psychology, 91*(1), 23-36.

Koutosoftas, A. D., Harmon, M. T., & Gray, S. (2009). The effect of Tier 2 intervention for phonemic awareness in a response-to-intervention model in low-income preschool classrooms. *Language, Speech, and Hearing Service in Schools, 40*, 116-130.

Lee, M. (2010). *Annual monitoring of reading recovery: The data for 2009*. Wellington: New Zealand: Ministry of Education.

Levin, J. R. (1985). Some methodological and statistical 'bugs' in research on children's learning. In M. Pressley & C. J. Brainerd (Eds.), *Cognitive learning and memory in children: Progress in cognitive development research* (pp. 205-233). New York, NY: Springer-Verlag.

Levin, J.R., Serlin, R.C., & Seaman, M.A. (1994).A controlled, powerful multiple-comparison strategy for several situations. *Psychological Bulletin, 115*, 153-159.

Lonigan, C. J., & Whitehurst, G. J. (2001). Emergent literacy: Development from prereaders to readers. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 11-29). New York, NY: Guilford Press.

Lyon, G. R. (1998). Why reading is not a natural process. *Educational Leadership, 55*(6), 14-18.

Mathes, P. G., Denton, C. A., Fletcher, J. M., Anthony, J. L., Francis, D. J., & Schatschneider, C. (2005). The effects of theoretically different instruction and student characteristics on the skills of struggling readers. *Reading Research Quarterly, 40*(2), 148-182.

McIlvaine, K. (1997). How shared reading experiences help children develop knowledge of phonics. (ERIC Document Reproduction Service No. ED413589). Retrieved from http://www.eric.ed.gov/PDFS/ED413589.pdf

McKay, M. F., Fletcher-Flinn, C., & Thompson, G. B. (2004). New theory for understanding reading and reading disability. *Australian Journal of Learning Disabilities, 9*, 3-7.

McKenna, M. C., & Stahl, S. A. (2003). *Assessment for reading instruction.* New York, NY: Guilford Press.

Meharry, D. (1999). *Car shopping*. Wellington, New Zealand: Learning Media.

Meharry, D. (2001). *The hole in the king's sock*. Wellington, New Zealand: Learning Media.

Meyer, L. A., & Wardrop, J. L. (1994). Effects of reading storybooks aloud to children. *Journal of Educational Research, 88,* 69-85.

Ministry of Education. (2001). *Reading to read: Teacher support material.* Wellington, New Zealand: Learning Media.

Ministry of Education. (2003). *Effective literacy practice in years 1 to 4*. Wellington, New Zealand: Learning Media.

Ministry of Education. (2010a). Assessment resources map-reading. Retrieved from http:// assessment.tki.org.nz/ Assessment-tools-resources / Assessment-resources-maps.

Ministry of Education. (2010b). *The literacy learning progressions.* Wellington, New Zealand: Learning Media.

Mitchell, D. C. (1982). *The process of reading: A cognitive analysis of fluent reading and learning to read*. London, UK: John Wiley & Sons.

Moats, L.C. (2010). *Speech to Print. Language essentials for teachers* (2nd ed.). Baltimore, MD: Paul H. Brookes.

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 [on-line]. Available: http://www.nichd.nih. gov/publications /nrp/report.cfm.

Neale, M. D. (1999). *Neale analysis of reading ability (3rd ed.)*. Hawthorn, Australia: Australian Council for Education Research.

Nicholson, T. (1991). Do children read words better in context or in lists? *Journal of Educational Psychology, 83*(4), 444-450.

Nicholson, T. (1997). *Solving reading problem across the curriculum.* Wellington: New Zealand and Australian Council for Educational Research.

Nicholson, T. (2000). *Reading the writing on the wall*. Palmerston North: Dunmore Press.

Nicholson, T. (2004). How to avoid reading failure: Teach phonemic awareness. In A. McKeough & V. Timmons (Eds.), *International perspectives on literacy* (pp. 31-48). Mahwah, NJ: Lawrence Erlbaum.

Nicholson, T. (2005). *The phonics handbook.* London, UK: Whurr.

Nicholson, T (2006). How to avoid reading failure: Teach phonemic awareness. In A. McKeough, L. Phillips, V. Timmons & J. L. Lupart (Eds.), *Understanding literacy development: A global view* (pp.31-48). Mahwah: NY: Lawrence Erlbaum.

Nicholson, T., & Dymock, S.J. (2010). *Teaching reading vocabulary.* Wellington: New Zealand Council for Educational Research.

Nicholson, T. W., & Ng, G. L. (2005). The case for teaching phonemic awareness and simple phonics to preschoolers. In R. M. Joshi & P. G. Aaron (Eds.), *Handbook of orthography and literacy* (pp.637-647). Mahwah, NJ: Lawrence Erlbaum.

Nicholson, T., & Tunmer, W.E. (2011). Reading: The great debate. In C. Rubie-Davies (Ed.), Educational psychology: *Concepts, research and challenges* (pp. 36-50). London: Routledge.

Nicholson, T., & Whyte, B. (1992). Matthew effects in learning new words while listening to stories. *National Reading Conference Yearbook, 41*, 499-503.

Norris, M., Bathgate, M., & Parkin, M. (1994, December). *Development of a socioeconomic indicator for schools*. Paper presented at the meeting of the New Zealand Association for Research in Education Conference, Christchurch, New Zealand.

Openshaw, R. (2000). The changing face of phonics: 1920s-1970s. In J. M. Soler & J. W. A. Smith (Eds.), *Literacy in New Zealand: Practices, politics and policy since 1900* (pp. 46-56). Auckland, New Zealand: Longman.

Parker, A. (2006). *Magnetic Max.* Singapore: Learning Needs Centre.

Patel, S. (2010). Reading at risk: Why effective literacy practice is not effective. *Waikato Journal of Education, 15*(3), 51-68.

Pearson, P. D. (2009). The roots of reading comprehension instruction. In S. E. Israel & G. G. Duffy (Eds.), *Handbook of research on reading comprehension* (pp. 3-31). New York, NY: Routledge.

Peck, J. (1989). Using storytelling to promote language and literacy development. *Reading Teacher, 43*, 138-141.

Pei, M. (1952). *The story of English*. Philadelphia, PA: Lippincott.

Perfetti, C. A. (1999). Cognitive research and the misconceptions of reading education. In J. Oakhill & R. Beard (Eds.), *Reading development and the teaching of reading: A psychological perspective* (pp. 42-57). Oxford, UK: Blackwell.

Pollard-Durodola, S., Gonzalez, J. E., Simmons, D. C., Kwok, O., Taylor, A. B., Kim, M., & Simmons, L. (2011). The effects of an intensive share book-reading intervention for preschool children at risk for vocabulary delay. *Exceptional Children, 77*(2), 161-183.

Pressley, M. (2006). *Reading instruction that works: The case for balanced teaching*. NY: Guilford Press.

Rack, J., Hulme, C., Snowling, M., & Wightman, J. (1994). The role of phonology in young children learning to read words: The direct-mapping hypothesis. *Journal of Experimental Child Psychology, 57*, 42-71.

Roper, H. D. (1984). *Spelling, word recognition and phoneme awareness among first grade children* (Unpublished doctoral dissertation). University of Texas, Austin.

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: An Interdisciplinary Journal, 21*, 349-369.

Savage, R., Blair, R., & Rvachew, S. (2006). Rimes are not necessarily favored by prereaders: Evidence from meta- and epilinguistic phonological tasks. *Journal of Experimental Child Psychology, 94*(3), 183-205.

Schonell, F. (1951). *Essentials in teaching & testing spelling*. London, UK: Macmillan.

Shankweiler, D., & Fowler, A. E. (2004). Questions people ask about the role of phonological processes in learning to read. *Reading and Writing: An Interdisciplinary Journal, 17*, 483-515.

Share, D. L. (1995). Phonological recoding and self-teaching: Sine qua non of reading acquisition. *Cognition, 55*(2), 151-218.

Share, D.L., Jorm, A.F. MacLean, R. & Matthews, R. (1984). Phonological recoding skills and learning to read: A longitudinal study. *Applied Psycholinguistics, 5,* 201-207.

Share, D. L., & Stanovich, K. E. (1995). Cognitive processes in early reading development: Accommodating individual differences into a model of acquisition. *Issues in Education: Contributions from Educational Psychology, 1*, 1-57.

Silliman, E., Bahr, R. H., Wilkinson, L. C., & Turner, C. R. (2002). Language variation and struggling readers: Finding patterns in diversity. In K. Bulter & E. Silliman (Eds), *Speaking, reading, and writing in children with language learning disabilities: New paradigms in research and practice* (pp.109-150). Mahwah, NJ: Lawrence Erlbaum.

Snow, C. E., & Juel, C. (2005). Teaching children to read: what do we know about how to do it? In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook*. Malden, MA: Blackwell.

Soler, J., & Openshaw, R. (2007). 'To be or not to be?': The politics of teaching phonics in England and New Zealand. *Journal of Early Childhood Literacy, 7,* 333-352.

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.

Stanovich, K. E. (1980). Toward an interactive-compensatory model of difference in the development of reading fluency. *Reading Research Quarterly, 16,* 32-71

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21,* 360-406.

Stanovich, K. E. (1993). The language code: Issues in word recognition. In S. R. Yussen & M. C. Smith (Eds.), *Reading across the life span* (pp. 111-127). New York, NY: Springer-Verlag.

Stevenson, J., Pennington, B. F., Gilger, J. W., DeFries, J. C., & Gillis, J. J. (1993). Hyperactivity and spelling disability: Testing for shared gentic aetiogly. *Journal of Child Psychology and Psychiatry, 34,* 1137-1152.

Stuart, M. (1999). Getting ready for reading: Early phoneme awareness and phonics teaching improves reading and spelling in inner-city second language learners. *British Journal of Educational Psychology, 69,* 589-605.

Stuart, M. (2004). Getting ready for reading: a follow-up study of inner city second language learners at the end of Key Stage 1. *British Journal of Educational Psychology, 74,* 15-36.

Stuart, M., & Coltheart, M. (1988). Does reading develop in a sequence of stages? *Cognition, 30,* 139-181.

Stuart, M., Stainthrop, R., & Snowling, M. (2008). Literacy as a complex activity: Deconstructing the simple view of reading. *Literacy, 42,* 59-66.

Swanborn, M., & Glopper, K. (1999). Incidental word learning while reading: A meta-analysis. *Review of Educational Research, 69*(3), 261-285.

Thompson, G. B. (1993). Reading instruction for the initial years in New Zealand schools. In G. B. Thompson, W. E. Tunmer & T. Nicholson (Eds.), *Reading acquisition processes* (pp. 148-155). Clevedon, UK: Multilingual Matters.

Thompson, G. B. (1999). The processes 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.

Thompson, G. B. (2011, July). *No stages in learning to read? But continuity of process into adulthood in new theory and research*. Paper presented at the Conference of the Australasian Human Development Association, Dunedin, New Zealand.

Thompson, G. B., Connelly, V., Fletcher-Flinn, C. M., & Hodson, S. J. (2009). The nature of skilled adult reading varies with type of instruction in childhood. *Memory & Cognition, 37*(2), 223-234.

Thompson, G. B., Cottrell, D. S., & Fletcher-Flinn, C. (1996). Sublexical orthographic-phonological relations early in the acquisition of reading: The knowledge source account. *Journal of Experimental Child Psychology, 62*, 190-222.

Thompson, G. B., & Fletcher-Flinn, C. (1993). A theory of knowledge sources and procedures for reading acquisition. In G. B. Thompson, W. E. Tunmer & T. Nicholson (Eds.), *Reading acquisition processes* (pp. 20-73). Clevedon, UK: Multilingual Matters.

Thompson, G., & Fletcher-Flinn, C. M. (2006). Lexicalised implicit learning in reading acquisition: The knowledge sources theory. In C. M. Fletcher-Flinn & G. M. Haberman (Eds.), *Cognition and langauge: perspective from New Zealand* (pp. 141-156). Bowen Hills, Qld: Australian Academic Press.

Torgerson, C. J., Brooks, G., & Hall, J. (2006). A systematic review of the research literature on the use of phonics in the teaching in reading and spelling (Research Report no 711). Retrieved from the European Archive website: http://collection.europarchive.org/tna/ 20060731065549/ http://www.dcsf.gov.uk/rsearch/data/uploadfiles/RR711_.pdf.

Torgesen, J. K., Wagner, R. K., & Rashotte, C. A. (1994). Longitudinal studies of phonological processing and reading. *Journal of Learning Disabilities, 27*, 276-286.

Treiman, R. (1983). The structure of spoken syllables: Evidence from novel word games. *Cognition, 15*(1-3), 49-74.

Treiman, R. (1985). Onsets and rimes as units of spoken syllables: Evidence from children. *Journal of Experimental Child Psychology, 39*(1), 161-181.

Treiman, R. (1986). The division between onsets and rimes in English syllables. *Journal of Memory and Language, 25*(4), 476-491.

Treiman, R., Kessler, B., & Bick, S. (2002). Context sensitivity in the spelling of English vowels. *Journal of Memory and Language, 47*(3), 448-468.

Treiman, R., & Zukowski, A. (1996). Children's sensitivity to syllables, onsets, rimes, and phonemes. *Journal of Experimental Child Psychology, 62*(3), 193-215.

Tunmer, W.E., & Arrow, A.W. (2011). *Reading: Phonics Instruction*. Manuscript submitted for publication.

Tunmer, W. E., & Chapman, J. W. (1998). Implicit and explicit processes in reading acquisition. In K. Kirsner, C. Speelman, M. Maybery, A. O'Brien-Malone, M. Anderson, & C. Macleod (Eds.), *Implicit and explicit mental processes* (pp.357-370). Mahwah, NJ: Lawrence Erlbaum.

Tunmer, W. E., & Chapman, J. W. (2006). Metalinguistic abilities, phonological recording skill, and the use of context in beginning reading development. A longitudinal study. In R. Malatesha. Joshi, P.G. Aaron (Eds). *Handbook of Orthography and Literacy* (pp.617-635). Mahwah, NJ: Lawrence Erlbaum Associates.

Tunmer, W., Chapman, J., & Prochnow, J. (2002). Preventing Negative Matthew Effects in at-risk readers: An retrospective study. Wellington: New Zealand: Ministry of Education.

Tunmer, W. E., Chapman, J. W., Ryan, H., & Prochnow, J. E. (1998). The importance of providing beginning readers with explicit training in phonological processing skills. *Australian Journal of Learning Disabilities, 3*(2), 4-14.

Tunmer, W. E., & Greaney, K. T. (2008). Reading intervention research: An integrative framework. In G. Reid, A. J. Fawcett, F. Manis & L. S. Siegel (Eds.), *The SAGE handbook of Dyslexia* (pp.241-267). Washington, DC: SAGE.

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. (2011). The development and teaching of word recognition skill. In P. D. David, R. Barr, M. L. Kamil & P. Mosenthal (Eds.), *Handbook of reading research* (pp.405-431). New York, NY: Longman.

Tunmer, W. E., & Rohl, M. (1991). Phonological awareness and reading acquisition. In D. J. Sawyer & B. J. Fox (Eds.), *Phonological awareness in reading: The evolution of current perspectives* (pp. 1-30). New York, NY: Springer-Verlag.

Vadasy, P. F., Sanders, E. A., & Peyton, J. A. (2005). Relative effectiveness of reading practice or word-level instruction in supplemental tutoring: How text matters. *Journal of Learning Disabilities, 38*, 364-380.

Walton, P. D., Walton, L. M., & Felton, K. (2001). Teaching rime analogy or letter recoding reading strategies to prereaders: Effects on prereading skills and word reading. *Journal of Educational Psychology, 93*(1), 160-180.

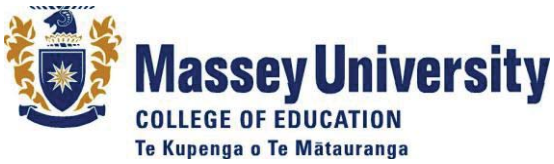
Wiesendanger, K. D. (2001). *Strategies for literacy education*. Upper Saddle River, NJ: Prentice Hall.

Wilkinson, G. S. (1993). *Wide Range Achievement Test*: Wilmington, DE: Jastak Associates.

Yaden, D.B., Jr., Smolkin, L.B., & Conlon, A. (1989). Preschoolers' questions about pictures, print convention, and story text during reading aloud at home. *Reading Research Quarterly, 24(2),* 188-214.

Appendices

Appendix A: Information Sheets and Consent Forms to Schools and Parents



School of Education
Massey University in Auckland
Albany Campus
Private Bag 102 904,
North Shore Mail Centre

Research Project Information Sheet

Dear Principal and Board of Trustees,

Title of Project: A comparative study on the effects of book experience, phonics, a combination of both, compared with Maths instruction in a control group

Introduction

My name is Laura Tse. I am a PhD student in the School of Education at Massey University. This year, I am conducting a study that compares the effects of a book reading approach to teaching reading and spelling with a phonological approach in low decile primary school. I am conducting this research for the purpose of the possible effects of combining adding phonological instruction to the book reading approach to improve the reading abilities of young children.

The research project

Your students at the 6-year level are invited to participate in the study. The study will run from 5 March to 20 December 2007. Each child will be given a 60 minute assessment of spelling, reading and basic decoding skills both at the beginning of the study and at the end of the study. The study will involve all Year 1 children who are not attending the Reading Recovery Programme. All children are to be taught in small groups of five. They will be organized into matched quadruplets to control for prior reading and language knowledge, and then randomly assigned to a book reading group, a phonics group, a book reading & phonics group and control group for 3 consecutive school terms. All will receive the same amount of time for instruction. I will teach the children in small groups once a week for 30 minutes including the untrained control group. The control group will receive maths instruction. I will need the consents of all the parents of the children who participate in the study. In the event that a parent withdraws their child from the study they will still receive normal instruction in their normal classroom.

In the phonological group, children will learn and review phonological rules such as short vowel sounds, beginning and ending consonant sounds, consonant blends and digraphs, short and long vowels. The book reading group will be give oral reading and shared reading lessons. Storybooks will be chosen according to graded books that are appropriate for students' reading levels. Students in the

combined group will receive some but not all instruction provided in both the phonological and storybook reading lessons. The control group will receive the same instructional time as for the other groups but will receive maths lessons.

Who will be involved?
I would like to invite you to nominate pupils from your school who are in the age of 6 years by the 1 March 2007.

Parent consent
I would then like to invite their parents to participate in the project. I will provide information and consent forms to the school to send home to parents. I will organise a set time at the school to meet with parents who may have questions about the project.

Confidentiality
If the information of students you provide is reported or published, this will be done in a way that does not identify them as its source. The progress of the entire group of children in the programme will be summarised for a PhD thesis. Data will be stored by the principal investigator (PhD supervisor) in a locked cabinet on University premises, and will be destroyed by shredding in 5 years.

You may withdraw your school from this study at any time without having to give a reason up until 20 December 2007 and ask questions at any time as well. If you have any queries or wish to know more about the proposed project, please contact me at 021-0490608 or email: tse_laura@hotmail.com

---

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application / . If you have any concerns about the conduct of this research, please contact Associate Professor Andrew Parsons, Acting Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x9455, email humanethicsnorth@massey.ac.nz.

Massey University
COLLEGE OF EDUCATION
Te Kupenga o Te Mātauranga

Private Bag 102 904,
North Shore Mail Centre,
Auckland, New Zealand
Telephone: 64 9 443 9685
Facsimile: 64 9 443 9717

Title of Project: A comparative study on the effects of book experience, phonics, a combination of both, compared with Maths instruction in a control group

PARTICIPANT CONSENT FORM
Principal and Board of Trustees

This consent form will be held for a period of five (5) years

We have read the Information Sheet and have had the details of the study explained to us in the information sheet and by conversation with the researcher. We understand that we may ask further questions at any time.

We agree/do not agree to take part in this project

We agree/do not agree that children at this school may participate in the reading project

We understand that the School may withdraw from this project and withdraw any information traceable to the School at any time up to 20 December 2007 without giving any reason.

Signature of school Principal: ..... **Date:** .....

Full Name - printed .....

Massey University
COLLEGE OF EDUCATION
Te Kupenga o Te Mātauranga

Private Bag 102 904,
North Shore Mail Centre,
Auckland, New Zealand
Telephone: 64 9 443 9685
Facsimile: 64 9 443 9717

Information Sheet
Title of Project: A comparative study on the effects of book experience, phonics, a combination of both, compared with Maths instruction in a control group

Dear Parent/Caregiver,

My name is Laura Tse. I am a PhD student in the School of Education at Massey University. This year, I am conducting a study that compares the effects of a book reading approach to teaching reading and spelling with a phonological approach in low decile primary school. I am conducting this research for find out the possible effects of combining adding phonological instruction with the book reading approach to improve the reading abilities of young children. Your child is invited to participate in this study and I would appreciate any assistance you can offer us.

Your child is invited to participate in the study. The study will run from 5 March to 20 December 2007. Your child will be given a 60 minute assessment of spelling, reading, and basic decoding skills both at the beginning of the study and at the end of the study. Your child will take part in the study in a small group of five, with permission will be withdrawn from class for approximately 30 minutes each week. The study will take place in terms 2 to term 4. In order for the study to proceed I will need the consent of every parent who has a child who will be involved in the study.

Your child will be assigned randomly to either a phonological, book-reading, combined, or control group. In the phonics group, children will learn and review phonological rules such as short vowel sounds, beginning and ending consonant sounds, consonant blends and digraphs, short and long vowels. The book reading group will be given oral reading and shared reading lessons. Storybooks will be chosen according to the graded books that are appropriate for each group. Students in the combined group will receive a combination of instruction provided to both the phonological and storybook reading groups. The control group will receive the same instructional time as for the other groups but will receive maths lessons.

Confidentiality
If the information of students you provide is reported or published, this will be done in a way that does not identify them as its source. The progress of the entire group of children in the programme will be summarised for a PhD thesis. Data will be stored by the principal investigator (PhD supervisor) in a locked cabinet on University premises, and will be destroyed by shredding in 5 years.

You may withdraw your child from this study at any time without having to give a reason up until 20 December 2007 and ask questions at any time as well. If you have any queries or wish to know more about the proposed project, please contact me at 021-0490608 or email: tse_laura@hotmail.com

---

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application / . If you have any concerns about the conduct of this research, please contact Associate Professor Andrew Parsons, Acting Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x9455, email humanethicsnorth@massey.ac.nz.

PARTICIPANT CONSENT FORM
Parents/Caregivers

We will hold this consent form for a period of five (5) years

Title of Project: A comparative study on the effects of book experience, phonics, a combination of both, compared with Maths instruction in a control group

I have read the Information Sheet and have had the details of the study explained in the information sheet. I understand that I may ask more questions at any time.

I agree/do not agree that my child may participate in the reading project

I understand that I may withdraw my child from this project and withdraw any information traceable to my child at any time up to 20 December 2007 without giving any reason.

Signature ..... **Date:** .....

Full Name - printed .....

Child's Name .....

Massey University
COLLEGE OF EDUCATION
Te Kupenga o Te Mātauranga

Private Bag 102 904,
North Shore Mail Centre,
Auckland, New Zealand
Telephone: 64 9 443 9685
Facsimile: 64 9 443 9717

Child Information Sheet

Note: We will read the Information Sheet to the pupil

Title of Project: A comparative study on the effects of book experience, phonics, a combination of both, compared with Maths instruction in a control group

Researcher: Laura Tse

Hello. My name is Laura. I am carrying out a special reading project. What this means for you is that I will be teaching you in a slightly different way once a week from now until the end of the year. You might be listening to a story book, or you might be learning the sounds of letters, you might be doing both these things, or you might be doing some maths activities.

To do this project I will need to assess/test your reading, spelling and your understanding of how to sound out words that are "alien" words that are not English words. This will take about 60 minutes of your time. I will assess/test you this month, and I will assess/test you again at the end of the year. The assessments are quite enjoyable and will not take very long.

I will keep the results of the lessons and the tests confidential. Only your parents and the school can see them.

The results of this project will be presented at a conference or in a publication but your name and the name of your schools will be kept completely confidential.

If you decide that you do not want to come to these lessons, you can stop coming at any time. You do not have to do these lessons unless you want to. You can stop coming to the lessons any time you want. You do not have to tell me why you don't want to come.

Would you like to join this programme? To join, you need to write your name and the date on the consent form.

Do you have any other questions? I can answer them for you.

Child Consent Form

We will hold this consent form for 5 years

Title of Project: A comparative study on the effects of book experience, phonics, a combination of both, compared with Maths instruction in a control group

Researcher: Laura Tse

My teacher has read out the information about the reading programme and let me ask questions about it. I understand what the reading programme is about.

I understand that I do not have to attend the lessons unless I want to. I can drop out of the lessons if I want to, at any time. I do not have to say why I am dropping out.

I agree/do not agree to attend weekly reading lessons at school

Signature: ..... **Date:** .....

Full Name - printed .....

Appendix B: Summary of the pilot study

Method

Participants. The sample consisted of 48 Year 2 children, 27 boys and 21 girls. Mean chronological age was 77.90 months (*SD* = 3.51) or 6.49 years. Ages ranged from 5.92 years to 6.92 years. Participants attended two schools in a low-socioeconomic suburb of Auckland, 40 from school A and 8 from school B. The majority of the students were Pasifika and Maori.

Table 1
Demographic Characteristics of Pupils in Experiment 1 (N=48) by Condition

Characteristic	Phonics only (n=12)	Big Book only (n=12)	Phonics and Big Book combined (n=12)	Control (n=12)	Total N=48
Female	7 out of 12	6 out of 12	5 out of 12	3 out of 12	21
Maori	3	4	1	8	16
Pasifika	9	8	10	4	31
Asian	-	-	1	-	1
ESOL	3	4	7	2	16
n School 1	12	12	12	4	40
n School 2	0	0	0	8	8
Age in years	6.38	6.45	6.54	6.60	6.50

Design. All children in the study had parental consent. The children completed a range of assessments of language, reading, and spelling before the study began. These assessments enabled the researcher to divide children into three ability groups with high, average, and low assessment results. Pupils' scores on the Burt Word Reading test acted as the main cut-off to divide the ability groups. The high group had scores above 6.5 years, the average group had scores from 6–6.5 years, and the low group had scores below 6 years. Each ability group had 16 pupils.

The researcher then randomly assigned pupils from the three ability groups into three treatment conditions and one treatment control condition so that each condition had 12 pupils (i.e., four each in the high, average, and low ability group). The conditions were phonics only, big book only, phonics and big book

combined approach, and a treatment control condition that did math activities. Each condition contained equal numbers of high, average, and low ability students.

Table 2
Assignment of Pupils to Conditions and Ability Groups (N = 48)

Ability	Phonics and Big Book combined	Phonics only	Big Book only	Control
High	4	4	4	4
Average	4	4	4	4
Low	4	4	4	4
Total	12	12	12	12

Measures. The experiment made use of seven measures. Pupils completed the measures at the start of the study and again at the end.

The Burt Word Reading test (Gilmore, Croft & Reid, 1981) is designed and individually administered to measure a child's word recognition skills. Students read a series of words presented on test cards and graded in approximate order of difficulty. They are encouraged to read as many words as they can until they make 10 consecutive errors. The test has high test-retest reliability ($r > .95$) and high internal consistency ($r > .96$). The New Zealand edition of the Burt has been revised and standardised for New Zealand children. The researcher used the combined norms for boys and girls.

The Neale Analysis of Reading Ability (Neale, 1999) assesses passage accuracy and comprehension. There are six graded stories to be read aloud by students individually. In the current study, pupils completed the green form of the test at the beginning of the study and the yellow form of the test at the end of the study. Students answered comprehension questions about each passage. The test has high level of consistency with correlations ranging from .71 to .96 (Neale, 1999). The Neale test is normed in Australia and not commonly used in New Zealand schools.

The Schonell spelling test (Schonell, 1951) is a list of words ranging from simple three-letter words (net, can, fun, cap) to multi-syllabic words (irresistible, hydraulic, anniversary). Children continue spelling the words until they make ten

consecutive errors. The reliability of the test had been found to be .97 (Stevenson, Pennington, Gilger, Defries, & Gills, 1993).

The Bryant Test of Basic Decoding Skills (Bryant, 1975) is a pseudoword test. Pupils individually read aloud a list of 50 pseudowords. The test has 20 one-syllable consonant-vowel-consonant (cvc) combinations such as "buf", six silent e words such as "fute", four consonant digraphs like "cho" 10 vowel digraphs such as "groy", and 10 multisyllabic pseudowords like "vomazful". The student has to pronounce the whole word correctly, not just sounding out each letter in each pseudo-word. When the student reaches ten consecutive errors, testing stops and students can look at the rest of the list to see if they can read any of the words. Juel (1988) reported reliabilities between .90 and .96 for this test.

The Gough-Kastler-Roper test (GKR) has 42 items divided into six categories of seven items each assessing different aspects of phonemic awareness: phonemic segmentation; blending; deletion of initial and final phonemes; and substitution of initial and final phonemes. This is an oral assessment. Students do not see the items. The examiner reads out the question for each item and students respond to them verbally (Gough, Kastler & Roper, 1984). Roper-Schneider (1984) reported reliabilities greater than 0.70 for all subtests of this measure.

The British Picture Vocabulary Scale (BPVT) is a receptive vocabulary assessment, standardised from age 3-15. Students look at a booklet with four pictures on each page, there is a target word for each page. The researcher says the target word and the student points to the correct picture. The median reliability according to the examiner manual is .90 (Dunn, Dunn, Whetton & Burley, 1997).

Procedure. At the start of the study, the researcher assessed all children individually in word reading (Burt Test), passage reading and comprehension (Neale), word spelling (Schonell), decoding skills (Bryant), phonemic awareness (Roper), listening vocabulary (BPVT) and math (WRAT) before and after the intervention. The researcher carried out the assessments in two sessions each of 40 minutes.

The researcher taught pupils in each condition in small groups of four at a time. This meant teaching separately three subgroups of four pupils in each condition. Pupils in each subgroup met with the researcher for one 30-minute lesson each week for 10 weeks. In total, the researcher taught 12 subgroups (groups of four children) each week.

Phonics only condition. Each ability group received a different package of lessons. The lessons for the low ability group covered the 26 letter sounds of the alphabet, with vowel sounds restricted to short sounds, and word reading restricted to basic two- (vowel-consonant) and three-letter words (consonant-vowel-consonant). The average ability group began at a higher level of complexity, with consonant blends and digraphs (e.g., bl, cl, dr, gr, gl, ch, wh). The high ability package of lessons started at an even higher level. Their lessons started with consonant digraphs (ch, sh, wh, th), then moved to the silent e principle (e.g., hat-hate, pin-pine, cut-cute), r- and l-affected vowels sounds (ar, er, ir, or, al), vowel digraphs (e.g., ai-ay, oi-oy, ee, oa, au-aw, ea, oo, ou), and syllable breaking (e.g., closed syllable patterns). Lessons plans came from the Phonics Handbook (Nicholson, 2005). The lessons in the book in turn followed orthographic patterns from Anglo-Saxon, Latin, and Greek (Calfee & Patrick, 1995).

Big Book only condition. Pupils read aloud together a big book that was slightly above their instructional reading level. Books came from the *Ready to Read* series. This series consists of a large number of books graded in difficulty from a 5- to 7-year-old level, published by Learning Media, the publishing arm of the Ministry of Education. The researcher used stories from the series that were in a big book format, printed in a size large enough so that a whole class could see the print on each page.

The low ability group started with the story *Car Shopping* by Dot Meharry (1999) at red level (reading level 5–6 years). The average ability group started with the story *Keep Trying* by Jane Buxton (2000) at yellow level (5–6 years); and the high ability group started with *The hole in the King's sock* by Dot Meharry (2001) at orange level (6–7 years).

The researcher used four books with each subgroup, reading the same story for three lessons before changing to a new book. In the first lesson, the researcher read the book once to the pupils aloud, pointing at the words as she read, and only stopped to discuss an illustration, or predict what happened on the next page of the text. In the second reading, the researcher read the text with the pupils as choral reading, that is, where the teacher and pupils all read the big book aloud together in unison. It was important to ensure that all students participated during the choral reading. In the third reading, the researcher focused on specific points such as phonics (e.g., the GR phonics blend in "Greedy Cat"), punctuation (e.g., speech marks, full stops, capital letters), character description, plot, figurative language, setting, or theme. In big book only reading, the teacher focused on just one or two of these possibilities in any one lesson.

Altogether, the researcher used twelve books, four books for each ability subgroup. Pupils read each book three times, that is, 12 choral readings per ability subgroup.

Phonics and Big Book combined condition. Children in the combined group received some but not all instruction provided by the phonics and big book shared reading approach. The researcher selected big books to match particular sounds in the phonics lessons. The researcher started each lesson with phonics and then read a big book with the group.

As an example, in the first lesson, the low ability group practiced alphabet sounds and studied between 8–10 two-, three-, and four- letter words chosen from the big book "*Car Shopping",* before reading the story aloud. The researcher presented words chosen from the story on a whiteboard. Pupils sounded out the phonemes in each word and read them as a word, for example /a/-/t/, and then as a word /at/. Words included both phonically regular words like "van" and irregular words like "fast" (British pronunciation is "farst"). The big book reading activity covered the same material as for the big book only group but with fewer activities.

In the first lesson for the average ability group, for example, the group practiced consonant blends and digraphs, and used words from the big book that

illustrated this phonics rule. The researcher also drew attention to more irregular, difficult words from the big book, *Keep Trying*. The big book procedure involved the group reading the story aloud and discussing it. During the big book reading, the researcher pointed out words that linked to phonics patterns already covered in the lesson, for example, cl in "climb", sk in "skate", tr in "try" and sw in "swim".

In the first lesson for the high ability group, for example, the lesson started with a review of the silent e rule. The rule taught to the pupils is that the letter e at the end of an Anglo-Saxon word acts as a marker to indicate the preceding vowel says its letter name (not its sound). The group studied silent e words from the big book *"The hole in the King's sock",* that is, words like "hole". The group also studied other, more difficult words from the story. The researcher read the big book with the students as choral reading and during the reading encouraged them to predict what might happen next.

Treatment control condition. Children in the control group received math instruction. The researcher showed pupils how to present numbers and what quantities they stand for. Pupils practiced counting, ordering, and comparing numbers, addition, subtraction and multiplication. The control group received the same amount of instructional time as the other treatment groups. This condition controlled for placebo effects, that is, the effects of receiving special attention. All three ability groups started with a warm-up activity, learning the names of different shapes. The researcher presented shapes and names on the whiteboard for the students to put into correct pairs.

As an example, in the first lesson, the low ability group revised counting and writing numbers from 1–50. The group practiced "skip counting" using a worksheet. The lessons for this group covered addition and subtraction with one- and two-digit numbers, and multiplication, practicing times tables.

In the first lesson for the average group, pupils revised 1–100 by counting them orally as a group, and writing numbers on worksheets as practice. The lessons for this group covered addition and subtraction with two- and three-digit numbers, and multiplication with one- and two-digit numbers.

The high ability group lessons covered addition, subtraction and multiplication but at a more advanced level. All groups practiced and computed math questions either on a whiteboard or on worksheets.

Results and Discussion. A 3-way repeated measures analysis of variance (ANOVA) of data for all 48 pupils, showed significant effects for conditions but no interaction of ability with conditions, even with Time 1 results acting as a covariate. Since ability did not interact with conditions, and since the researcher taught the children in the study in small groups, the researcher used subgroup means as the units of analysis in a one-way ANOVA with conditions as the group factor. For each measure, the dependent variable was the subgroup mean at Time 2. The covariate was the subgroup mean at Time 1. There were 12 subgroup means for the 48 pupils in the study.

Table 3 presents the Time 1 and Time 2 means and standard deviations for the four conditions. There were no significant differences among the conditions except for the phonemic awareness measure, $F(3,7) = 5.83$, $p = .026$, $\eta 2 = .714$. The phonics only condition gained 13 raw score points, the phonics and big book combined condition gained 10, the big book only condition gained 6, and the control group condition gained 5. Follow-up contrasts showed that the phonics only condition performed significantly better than the big book only and control conditions, but not better than the phonics and big book combined group. The results in Table 3 showed that each reading condition made gains from Time 1 to Time 2 but, with the exception of phonemic awareness, the control group made similar gains.

Table 3
Study 1 – Subgroup Raw Score Means and Standard Deviations for Pretest and Posttest, by Condition (N = 12)

Measure (raw score)		**Phonics only**		**Phonics and Big Book combined**		**Big Book only**		**Control**	
		Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
Pseudoword reading	*M*	8.00	18.83	12.42	21.67	11.58	14.31	6.58	10.22
	SD	8.01	9.50	12.73	14.15	10.90	10.35	6.63	7.27
Phonemic awareness	*M*	14.25	27.25	17.42	27.75	16.08	22.53	16.42	22.83
	SD	10.11	9.43	13.50	9.31	12.54	9.21	9.47	7.65
Spelling	*M*	14.33	24.75	16.00	24.83	18.25	27.61	11.33	14.33
	SD	11.97	15.99	11.18	12.57	12.57	12.75	8.81	11.97
Real Word Reading	*M*	24.00	36.00	25.67	37.42	26.67	36.94	21.75	29.33
(Burt)	*SD*	15.10	17.02	11.51	14.56	11.99	9.71	13.91	14.50
Passage accuracy	*M*	15.50	25.33	16.67	27.75	18.00	27.14	14.08	21.11
	SD	14.00	18.20	10.42	15.81	10.40	13.67	11.75	13.50
Passage meaning	*M*	3.83	4.92	3.08	5.83	3.75	4.92	4.00	5.83
	SD	3.26	3.75	2.13	2.98	2.00	1.01	2.95	1.76
Listening Vocabulary	*M*	47.92	54.33	51.67	54.08	51.08	55.78	50.75	47.92
	SD	9.13	5.76	9.47	9.67	1.66	5.61	7.15	9.13

The lack of significant training effects cause the researcher to carry out a new study but with some changes to lesson design including a start-of-lesson 5-minute recap from the previous lesson, and an end-of-lesson quiz for each lesson in each condition. The weekly recap reminded pupils about the lessons learnt the previous week. The end-of-lesson phonics quiz gave phonics only, and phonics and big book combined pupils an opportunity to generalise their learning to new words and the results gave the researcher information as to whether the pupils had

internalised the ideas covered in the lesson. To control for the effects of the weekly quiz, all pupils in all conditions completed it. In addition, given that phonemic awareness scores at Time 2 were still quite low, the new study added a phonemic awareness activity to each lesson for the phonics only, and phonics and big book combined groups. Other changes were to increase the number of participants in the whole study and extend the number of weekly lessons.

Appendix C
Assessment Booklet

Massey University, College of Education
PhD Thesis: A Comparative Study of the effects of shared book experience, phonics and combination of both, and with maths instruction
Assessment Summary

Remember to use the same tests for pre tests and post tests for comparison and progress reporting

Name of Child	
School	
Classroom # and Teacher's name	
Date of Birth	
Age as of date of assessment (in years and months)	
Examiner Name	
Date of assessment	

Measures	Maximum Score	Child's Score
Burt Reading Score	/110	Burt Reading Score
Burt Reading Age	Reading Age = take lowest score from boys and girls column and add 3 months	Burt Reading Age
Neale Raw Score	Accuracy- 100 Comprehension – 36	
Neale Reading Age	Accuracy- 6-12 yrs Comprehension – 6-12 yrs	
Bryant Reading	/50	
Phonemic awareness	/42	
British Picture Vocabulary Scale (BPVT)	Raw Score Standard Score Language Age	
Schonell Spelling	Raw Score Spelling Age = Raw Score divided by 10 plus 5	
WRAT (Maths)	Raw Score Standard Score Grade (Pre K-High School)	

THE BURT WORD READING TEST (New Zealand Revision) RECORD FORM

Name: ..... Number correct

School: ..... Sex: ..... Equivalent Age Band

Age: ..... years ..... months Class: ..... Norms Used (circle one) Boys Girls Boys &

to	is	up	for	big
he	at	one	my	sun
went	girl	boys	day	some
his	that	of	an	wet
love	water	no	just	pot
or	now	things	told	sad
carry	village	quickly	nurse	beware
return	scramble	twisted	journey	luncheon
known	shelves	explorer	tongue	projecting
terror	serious	belief	events	emergency
refrigerator	steadiness	obtain	overwhelmed	universal
nourishment	encyclopaedia	commenced	circumstances	fringe
formulate	motionless	trudging	theory	destiny
scarcely	exhausted	labourers	urge	atmosphere
apprehend	binocular	domineer	melodrama	economy
ultimate	reputation	humanity	excessively	philosopher
autobiography	contemptuous	terminology	mercenary	glycerine
unique	microscopical	perpetual	efficiency	influential
perambulating	renown	physician	champagne	exorbitant
hypocritical	atrocious	constitutionally	contagion	palpable
melancholy	eccentricity	fatigue	phlegmatic	fallacious
alienate	poignancy	phthisis	ingratiating	subtlety

Neale Analysis of Reading Ability

3rd edition

INDIVIDUAL RECORD STANDARDISED TEST **FORM 1**

Name			Sex M/F	School	Year Level (Grade)	Year of Schooling
Date of Birth	Date of Testing	Age at Testing yrs mths		Language(s) spoken at home		
Test Administrator				Class Teacher		

RAW SCORE SUMMARY *Directions for administering and scoring this test can be found on pp. 10–25 of the Manual

Passage	ACCURACY			COMPREHENSION	RATE		
	Maximum Possible Score	Errors	Passage Score	Questions Correctly Answered	Words Read	Cumulative Number of Words	Time in Seconds Per Passage
Level 1 Bird	16	-	=		26	26	
Level 2 Road Safety	16	-	=		+ 52	= 78	
Level 3 Ali	16	-	=		+ 73	= 151	
Level 4 Jan	16	-	=		+ 96	= 247	
Level 5 The Fox	16	-	=		+ 117	= 364	
Level 6 Migration	20	-	=		+ 141	= 505	
					Total Words Read:		Total Time:
TOTAL RAW SCORES:	Accuracy:			Comprehension:	$\text{Rate} = \frac{\text{Words Read}}{\text{Total Time}} \times 60$		Rate:

STANDARDISED SCORE SUMMARY

	Raw Score	Percentile Rank	Stanine	Performance Descriptor	National Profile Level	Reading Age
ACCURACY						
COMPREHENSION						
RATE						

ERROR COUNT

$\frac{\text{Error Count}}{\text{Total Errors}} \times 100$ = % of Total Count	Total Mispronounciations	Total Substitutions	Total Refusals	Total Additions	Total Omissions	Total Reversals	Total Errors
% of Total Count							

Summary and recommendations:

FORMAL TESTING STARTS

Bird (Level 1)

A bird hopped up to my window. I gave her some bread. She made a nest in my garden. Now I look after her little ones.

(26 words)

COMPREHENSION QUESTIONS

1. Where did the bird hop to?
   To my (the) window.
2. What did the little boy/girl give the bird?
   Bread (crumbs).
3. What did the bird do in the garden?
   Built a nest.
4. What does the little boy/girl do now for the bird?
   Looks after (feeds) the baby birds. The little ones.

Mispronounciations	Substitutions	Refusals	Additions	Omissions	Reversals	Total Errors	Comprehension	Time

Road Safety (Level 2)

Kim stopped on her way to school. In the middle of the traffic lay two children. Their bicycles had crashed into each other. Kim ran quickly to help. She saw that no-one was hurt. The children pointed to a television camera. 'We are taking part in a road safety lesson,' they said. *(52 words)*

COMPREHENSION QUESTIONS

1. Where was Kim going?
   To school.
2. Why did Kim stop?
   She saw two children lying on the road. She saw an accident etc.
3. What had happened to the bikes?
   They had crashed (into each other).
4. How do you think Kim felt?
   Frightened, curious, anxious, scared, etc.
5. What did Kim do?
   She ran to help them.
6. Were the children hurt?
   No.
7. What were the children really doing?
   Taking part in a lesson. Making a television program.
8. How did Kim find out what was happening?
   She saw the cameras. The children pointed to the cameras. The children told her.

Mispronounciations	Substitutions	Refusals	Additions	Omissions	Reversals	Total Errors	Comprehension	Time

Ali (Level 3)

As Ali sheltered in an old temple, his shoulder knocked a secret spring. Instantly, he was thrown into an underground room. In the darkness the walls seemed to be covered with jewels. Ali rested awhile. He knew that desert travellers often imagined strange things. Later, he explored the place for a way to escape. To his amazement, the jewels were still there. He had found a palace that had been buried long ago. *(73 words)*

COMPREHENSION QUESTIONS

1. Why did Ali go into the temple?
   To shelter.
2. How did he find the secret spring?
   His shoulder bumped (knocked) against it.
3. What happened when he touched the spring?
   He fell into an underground room (cellar).
4. What did he see there?
   Precious jewels.
5. Why did Ali not rush to look at the jewels?
   He did not think that they were real. He thought his eyes were playing tricks on him. He thought he was imagining things.
6. After he had rested, what did Ali try to find?
   A way (out) to escape.
7. Why was he so surprised?
   To find that the jewels were real.
8. How had the jewels come to be there?
   They belonged to a buried palace of long ago.

Mispronounciations	Substitutions	Refusals	Additions	Omissions	Reversals	Total Errors	Comprehension	Time

Jan (Level 4)

Jan buckled on her diving belt of metal weights and dropped from the launch. Skipper Kells supervised her air-hose to prevent tangling. Leo, following the bubbles, guided the dinghy above the diver, as she searched the mysterious underwater world. Jan surfaced frequently clutching crayfish. The required number of specimens was almost obtained when the grey nurse shark advanced directly towards her. Jan retreated cautiously without signalling for assistance. The creature brushed by, ignoring her, as baby sharks emerged from some rocky grooves. Their welfare was more important to the shark than the diver's now motionless figure. *(96 words)*

COMPREHENSION QUESTIONS

1. What equipment assisted Jan in her exploration under water?
   Diving belt, weights, and air-hose (name two).
2. What did Skipper Kells do to help Jan?
   Supervised her air-hose. Stopped the air-hose from tangling.
3. How did Leo know where the diver was?
   By following the bubbles.
4. What do you think Jan was diving for?
   Specimens and/or crayfish.
5. Why did it seem that the shark might attack her?
   It advanced (swam) directly towards her.
6. How did Jan avoid trouble with the shark?
   Retreated cautiously and remained motionless. Kept still, etc.
7. What kind of a home protected the baby sharks from enemies?
   Rocky grooves.
8. Why was the shark not interested in Jan?
   She wanted to protect her baby sharks. Was worried about the baby sharks, etc.

Mispronounciations	Substitutions	Refusals	Additions	Omissions	Reversals	Total Errors	Comprehension	Time

The Fox (Level 5)

Among animals the fox has no rival for cunning. Suspicious of man, who is its only natural enemy, it will, when pursued, perform extraordinary feats, even alighting on the backs of sheep to divert its scent. Parent foxes share the responsibilities of cub-rearing. Through their hunting expeditions they acquire an uncanny knowledge of their surroundings which they use in an emergency. This is well illustrated by the story of a hunted fox which led its pursuers to a neglected mine-shaft enclosed by a circular hedge. It appeared to surmount the barrier. The hounds followed headlong, only to fall into the accumulated water below. The fox, however, apparently on familiar territory, had skirted the hedge and subsequently escaped. *(117 words)*

COMPREHENSION QUESTIONS

1. Who is the chief enemy of the fox?
   Mankind, people, humans.
2. Why does the hunted fox sometimes jump onto the back of a sheep?
   To divert (break) its scent trail.
3. Who provides food for the cubs?
   Both parents.
4. How do foxes know the best hiding places in their surroundings?
   From their hunting expeditions. Knowledge of the area.
5. To where did the fox in this story lead the hounds?
   To a mine-shaft. A neglected mine-shaft. An old mine.
6. Was the mine working?
   No, it had been closed down.
7. How did the fox avoid falling into the water?
   He skirted the hedge. Went round the hedge. Pretended to jump over.
8. Why were the hounds unable to see the danger?
   Because the hedge enclosed the mine-shaft. Because the hedge was in the way. Because they were intent on the fox.

Mispronounciations	Substitutions	Refusals	Additions	Omissions	Reversals	Total Errors	Comprehension	Time

Migration (Level 6)

Each Spring, at the reappearance of the swallows in their familiar haunts, bird-watchers must marvel at the accurate flights with which birds span the considerable distances between their seasonal abodes. What motivates these regular journeys? The theory that rigorous winters compel birds to migrate is insufficient, as some migrate in summer. Neither can it be argued that the fledglings imitate the older generation, for the offspring generally migrate alone. One reasonable explanation may be that migration is an inborn behaviour, probably originating in the distant past when the flights were essential for survival. Most species favour particular routes. On one occasion when some storks from East Germany were captured and released among storks in West Germany, they did not accompany their relatives along the western migration route. Instead, with unerring instinct, they rediscovered the traditional south-easterly path of their eastern ancestors. *(141 words)*

COMPREHENSION QUESTIONS

1. When can bird-watchers hope to see the swallows reappear?
   Spring.
2. Why do bird-watchers think that birds are such remarkable creatures?
   Migration. The distances birds fly. Regular journeys of the birds.
3. Why is it wrong to say that the cold of winter makes all the birds migrate?
   Many birds migrate in summer. Many birds stay in winter.
4. Do the young birds learn the migration routes from their parents?
   It doesn't seem so. No. (They generally fly or migrate alone.)
5. What do people think causes the birds to migrate in this way?
   It's inborn. Inborn behaviour, instinct, etc.
6. Where was an experiment done with storks?
   Germany.
7. What route did the eastern storks usually take when migrating?
   South-easterly. Easterly.
8. In which direction did the eastern storks fly when they were taken to the west?
   South-easterly. Easterly. Same way.

Mispronounciations	Substitutions	Refusals	Additions	Omissions	Reversals	Total Errors	Comprehension	Time

Bryant

Name: _____ Date Tested: _____

Tester: _____

buf	fute	cosnuv
cos	yode	relhime
dit	bime	defev
fev	nepe	gaction
gac	cabe	prefute
huz	phune	uncabeness
jod	cho	exyoded
kib	shi	sanwixable
lek	whe	bufkibber
maz	thade	vomazful
nuv	staw	
pof	plew	
quig	fler	
rel	smar	
san	blor	
tup	cleef	
vom	troob	
wix	spail	
yeg	groy	
zad	groaf	

APPENDIX 2 (Roper, 1984)

ROPER PHONEMIC AWARENESS TEST

1. PHONEMIC SEGMENTATION
"Say (target)". "What are the (2) sounds in (target)?"

1.	2	no
2.	2	at
3.	2	up
4.	3	keep
5.	3	man
6.	3	teeth
7.	4	into

2. BLENDING
"Say (target phonemes ___....)". "What word is (___....)?"

1.	n i ce
2.	t oo
3.	h e
4.	r a ke
5.	t r ai n
6.	p l a ne
7.	f u nn y

3. DELETION OF A PHONEME
"Say (target)". "Now say (target) without the (first phoneme)".

1.	top	t
2.	gasp	g
3.	find	f
4.	paint	p
5.	up	u
6.	at	a
7	so	s

4. "Say (target)". "Now say (target) without the (final phoneme)".

1.	same	m
2.	me	e
3.	ate	t
4.	go	o
5.	frog	g
6.	grab	b
7.	stride	d

5. PHONEME SUBSTITUTION
"Say (target)". "Instead of (first phoneme); begin a new word with (new phoneme)".

1.	ball	b	c
2.	goat	g	b
3.	took	t	c
4.	fish	f	d
5.	two	t	z
6.	chair	ch	p
7.	meat	m	f

6. "Say (target). "Instead of (last phoneme); end a new word with (new phoneme)".

1.	park	k	t
2.	run	n	g
3.	late	t	m
4.	mess	s	n
5.	rope	p	d
6.	fame	m	s
7.	wet	t	b

Score = /42

The British Picture Vocabulary Scale Second Edition

Performance Record

nferNelson
understanding potential

Name (last) _____ (first) _____ Sex: M F (Circle)

School _____ Teacher _____

Home Address _____ Tel. _____

Reason for Testing _____

LANGUAGE OF THE HOME: ☐ Standard English ☐ Other _____ DISABILITY: ☐ None ☐ Suspected ☐ Confirmed

(Specify foreign language or type of English dialect spoken.) Type (if any): _____ (Specify: hearing/vision loss, speech defect, etc.)

Norms Table B

Conversion of Standardized Scores to Percentile Ranks

Standardized Score	Percentile Rank	Standardized Score	Percentile Rank
139+	99+	99	48
138-133	99	98	45
132-130	98	97	42
129-128	97	96	40
127-126	96	95	37
125	95	94	34
124-123	94	93	32
122	93	92	30
121	92	91	28
120	91	90	26
119	90	89	24
118	89	88	22
117	87	87	20
116	86	86	18
115	84	85	16
114	82	84	14
113	80	83	13
112	78	82	12
111	77	81	11
110	74	80	9
109	72	79	8
108	70	78	7
107	68	77-76	6
106	66	75	5
105	63	74-73	4
104	60	72-71	3
103	58	70-68	2
102	55	67-62	1
101	52	61	1-
100	50		

Dates	Year	Month	Day
Date of Testing			
Date of Birth			
Age in years and completed months			

Record of Scores

		Confidence Bands SS–6		SS+6
Raw Score	◯			
Standardized Score	☐ (From Norms Table A)	☐	to	☐
Percentile Rank	☐	☐ (From Norms Table B)	to	☐
Age Equivalent	☐	☐ (From Norms Table C)	to	☐

Please see Testbook for details of Calculation and Interpretation (pages 10 to 18)

5(12.03)
Printed in Great Britain
Code 0090006119

Administering the Test Items

Caution: Before administering the actual test items, it is essential to begin the test session correctly, use the training plates appropriately, and only then introduce these test items. Instructions to carry out all three of these steps are found on the examiner's side of the training plates.

Where to start the Test
For a subject assumed to be of average ability, find the set corresponding with the person's age and begin the test with the first word in that set (otherwise consult the manual). Once you begin a set, always administer every item in it.

How to establish the Basal Set
If no more than one error is made in the Start Set, a basal is established. If more than one error is made, test backwards by sets in reverse order until no more than one error is made in a set. This becomes the Basal Set.

How to establish the Ceiling Set
Only after the Basal Set has been established, test forward by sets until eight or more responses are wrong in a set of 12 items. This is the Ceiling Set.

How to record the responses and errors
As illustrated below, record the subject's responses for each item administered and draw an oblique line through the circle (◯) after the response if incorrect. If correct, leave the circle blank.

12 drum (3) 4 ◯/

Upon completion of each set, record the number of wrong responses in the space provided.

Remember these Rules

* Once a set is started, always administer *all 12 items* in that set.
* The Basal Set rule is *one or no errors* in a set.
* Use the *lowest* Basal Set to obtain the raw score.
* If the subject has made more than one error in Set 1, item 1 becomes the Basal.
* The Ceiling Set rule is *eight or more errors* in a set.
* Use the *lowest* Ceiling Set to obtain the raw score.

Set 1	↓Start – Ages 2½-3	Response
1	hand	(1) ◯
2	baby	(2) ◯
3	cat	(2) ◯
4	jumping	(4) ◯
5	bus	(4) ◯
6	drinking	(3) ◯
7	tractor	(4) ◯
8	running	(1) ◯
9	gate	(3) ◯
10	reading	(2) ◯
11	cow	(1) ◯
12	drum	(3) ◯

No. of errors ☐

Set 2	↓Start – Ages 4-5	Response
13	ladder	(2) ◯
14	plant	(1) ◯
15	circle	(4) ◯
16	candle	(2) ◯
17	wooden	(2) ◯
18	nest	(4) ◯
19	dancing	(4) ◯
20	tortoise	(1) ◯
21	farmer	(3) ◯
22	cobweb	(3) ◯
23	neck	(3) ◯
24	penguin	(1) ◯

No. of errors ☐

Set 3	↓Start – Ages 6-7	Response
25	wrapping	(4) ◯
26	fruit	(1) ◯
27	smelling	(3) ◯
28	arrow	(1) ◯
29	teacher	(2) ◯
30	full	(3) ◯
31	panda	(4) ◯
32	exercising	(4) ◯
33	coin	(2) ◯
34	claw	(1) ◯
35	measuring	(2) ◯
36	peeling	(3) ◯

No. of errors ☐

Set 4	↓Start – Ages 8-9	Response
37	tambourine	(1) _____ ○
38	castle	(2) _____ ○
39	lock	(4) _____ ○
40	telescope	(3) _____ ○
41	dripping	(2) _____ ○
42	huge	(3) _____ ○
43	furry	(4) _____ ○
44	nostril	(1) _____ ○
45	roots	(1) _____ ○
46	vegetable	(3) _____ ○
47	diving	(2) _____ ○
48	liquid	(4) _____ ○

No. of errors ☐

Set 7	↓Start – Age 12	Response
73	greeting	(4) _____ ○
74	antlers	(1) _____ ○
75	orbit	(1) _____ ○
76	collision	(1) _____ ○
77	inflated	(4) _____ ○
78	applauded	(3) _____ ○
79	nutritious	(3) _____ ○
80	adjustable	(2) _____ ○
81	scalp	(2) _____ ○
82	reptile	(2) _____ ○
83	resuscitation	(3) _____ ○
84	links	(4) _____ ○

No. of errors ☐

Set 10		Response
109	detonation	(2) _____ ○
110	summit	(4) _____ ○
111	salutation	(1) _____ ○
112	agricultural	(4) _____ ○
113	geriatric	(3) _____ ○
114	talon	(3) _____ ○
115	consuming	(3) _____ ○
116	dwelling	(1) _____ ○
117	emaciated	(2) _____ ○
118	lubricating	(1) _____ ○
119	descending	(2) _____ ○
120	spherical	(4) _____ ○

No. of errors ☐

Set 5	↓Start – Age 10	Response
49	luggage	(3) _____ ○
50	dentist	(3) _____ ○
51	weasel	(2) _____ ○
52	tugging	(1) _____ ○
53	hive	(1) _____ ○
54	delighted	(4) _____ ○
55	globe	(3) _____ ○
56	furious	(4) _____ ○
57	swamp	(1) _____ ○
58	waiter	(2) _____ ○
59	target	(2) _____ ○
60	eagle	(4) _____ ○

No. of errors ☐

Set 8	↓Start – Ages 13-15	Response
85	arctic	(2) _____ ○
86	glider	(2) _____ ○
87	lecturing	(3) _____ ○
88	engraving	(1) _____ ○
89	co-operation	(2) _____ ○
90	fictional	(3) _____ ○
91	hoisting	(1) _____ ○
92	isolation	(3) _____ ○
93	syringe	(4) _____ ○
94	composing	(4) _____ ○
95	fern	(1) _____ ○
96	weary	(4) _____ ○

No. of errors ☐

Set 11		Response
121	exterior	(1) _____ ○
122	trestle	(2) _____ ○
123	perforated	(2) _____ ○
124	fowl	(3) _____ ○
125	cascade	(4) _____ ○
126	vagrant	(1) _____ ○
127	trajectory	(1) _____ ○
128	inoculating	(2) _____ ○
129	arable	(3) _____ ○
130	beacon	(4) _____ ○
131	deciduous	(4) _____ ○
132	submerging	(3) _____ ○

No. of errors ☐

Set 6	↓Start – Age 11	Response
61	pair	(2) _____ ○
62	coming	(4) _____ ○
63	tubular	(2) _____ ○
64	interviewing	(1) _____ ○
65	snarling	(1) _____ ○
66	medication	(4) _____ ○
67	pod	(1) _____ ○
68	grain	(4) _____ ○
69	pedal	(3) _____ ○
70	predatory	(2) _____ ○
71	balcony	(3) _____ ○
72	polluting	(3) _____ ○

No. of errors ☐

Set 9	↓Start – Ages 16-21	Response
97	parallel	(4) _____ ○
98	dilapidated	(3) _____ ○
99	departing	(2) _____ ○
100	easel	(4) _____ ○
101	embracing	(3) _____ ○
102	utensil	(2) _____ ○
103	quartet	(4) _____ ○
104	citrus	(3) _____ ○
105	digit	(1) _____ ○
106	feline	(2) _____ ○
107	pillar	(1) _____ ○
108	timer	(1) _____ ○

No. of errors ☐

Set 12		Response
133	physician	(1) _____ ○
134	attire	(4) _____ ○
135	converging	(2) _____ ○
136	receptacle	(1) _____ ○
137	festoon	(3) _____ ○
138	incarcerating	(3) _____ ○
139	incline	(4) _____ ○
140	encumbered	(3) _____ ○
141	caster	(1) _____ ○
142	equestrian	(2) _____ ○
143	convex	(4) _____ ○
144	culinary	(2) _____ ○

No. of errors ☐

Set 13		Response
145	munificence (mew-nif-i-sens)	(1) _____ ○
146	nautical (naw-ti-kuhl)	(4) _____ ○
147	incertitude (in-suhrt-uh-tude)	(2) _____ ○
148	gaff (gaf)	(1) _____ ○
149	terpsichorean (tuhrp-sik-uh-ree-uhn)	(2) _____ ○
150	bovine (boh-viyn)	(3) _____ ○
151	pedagogue (ped-uh-gog)	(4) _____ ○
152	succulent (suhk-yuh-luhnt)	(3) _____ ○
153	altercation (ol-ter-kay-shon)	(3) _____ ○
154	copious (koh-pee-uhs)	(2) _____ ○
155	objurgating (ob-juhr-gayt-ing)	(4) _____ ○
156	cenotaph (sen-uh-taf)	(1) _____ ○

No. of errors ☐

Set 14		Response
157	nidificating (nid-uf-fuh-kayt-ing)	(3) _____ ○
158	perambulating (per-am-bew-layt-ing)	(2) _____ ○
159	vitreous (vi-tree-uhs)	(3) _____ ○
160	supine (soo-piyn)	(4) _____ ○
161	osculating (os-kyuh-layt-ing)	(1) _____ ○
162	laciniated (luh-sin-ee-ayt-ed)	(1) _____ ○
163	lugubrious (luu-goo-bree-uhs)	(2) _____ ○
164	pachyderm (pak-i-duhrm)	(2) _____ ○
165	imbibing (im-biyb-ing)	(4) _____ ○
166	casement (kay-sment)	(3) _____ ○
167	tonsorial (ton-sohr-ee-uhl)	(4) _____ ○
168	calyx (kay-liks)	(1) _____ ○

No. of errors ☐

Pronunciation key

ay = long a as in day
ee = long e as in feet
iy = long i as in vine
oh = long o as in road
oo = long u as in soup
a = short a as in man
e = short e as in leg
i = short i as in bit
o = short o as in dog
u = short u as in bun
j = short g as in jam
g = hard g as in gas
s = soft c as in sent
k = hard c as in cat
aw as in law
uh as in shove
uhr as in circle
ah as in lamb
ohr as in shore

Calculating the Raw Score

Record below the number of the Ceiling Item, which is the last item in the Ceiling Set. Subtract from it the total number of errors made by the subject from the Basal Set through to the Ceiling Set.
This is the Raw Score.

Ceiling Item _____

minus errors _____

Raw Score

Notes and Observations

For example, briefly describe the subject's test behaviour, such as interest in the task, quickness of response, signs of perseveration, work habits, disabilities, etc.

_____

_____

_____

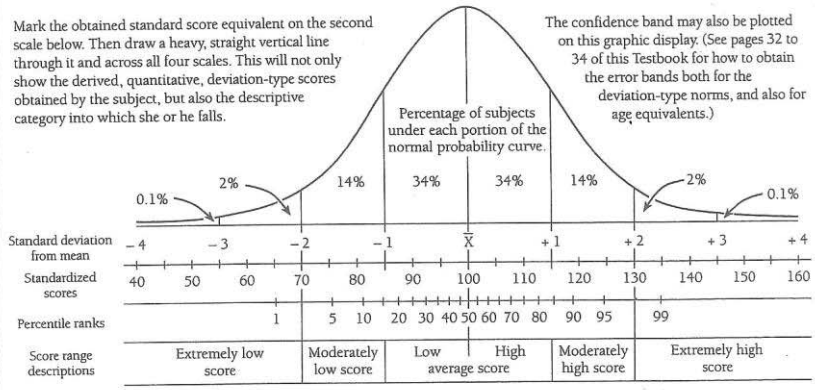
_____

_____

Graphic Display of Test Results

Mark the obtained standard score equivalent on the second scale below. Then draw a heavy, straight vertical line through it and across all four scales. This will not only show the derived, quantitative, deviation-type scores obtained by the subject, but also the descriptive category into which she or he falls.

The confidence band may also be plotted on this graphic display. (See pages 32 to 34 of this Testbook for how to obtain the error bands both for the deviation-type norms, and also for age equivalents.)



Results from Other Tests

Test	Date	Results

Performance Evaluation

This standardized test provides an *estimate* only of this individual's hearing vocabulary in Standard English, as compared with a cross-section of British persons of the same age.

Do you believe the performance of this subject represents fairly his or her true ability in this area? Yes _____ No_____ (tick).

If not, cite reasons such as rapport problems, poor testing situation, hearing or vision loss, visual-perceptual disorder, test too easy or too hard (automatic basal or ceiling used), and so on.

Recommendations (including suggestions for follow-up testing)

In testing this subject, I certify that I used an original record form, not an illegal reproduction

Examiner's Printed Name

Examiner's Signature

SCHONELL SPELLING
DIAGNOSTIC and ATTAINMENT TESTING

S1 GRADED WORD SPELLING – TEST A

1. net	2. can	3. fun	4. top	5. rag
6. sat	7. hit	8. lid	9. cap	10. had
11. let	12. doll	13. bell	14. yes	15. then
16. may	17. tree	18. by	19. ill	20. egg
21. land	22. how	23. your	24. cold	25. talk
26. flower	27. son	28. seem	29. four	30. loud
31. ground	32. lowest	33. brain	34. write	35. amount
36. noise	37. remain	38. hoped	39. worry	40. dancing
41. damage	42. else	43. through	44. entered	45. cough
46. fitted	47. spare	48. daughter	49. edge	50. search
51. concert	52. domestic	53. topic	54. method	55. freeze
56. avoid	57. duties	58. recent	59. type	60. instance
61. liquid	62. assist	63. readily	64. guess	65. attendance
66. description	67. welfare	68. various	69. genuine	70. interfere
71. accordance	72. mechanical	73. anxious	74. signature	75. allotment
76. approval	77. accomplished	78. remittance	79. financial	80. capacity
81. surplus	82. exceptionally	83. successful	84. preliminary	85. resource
86. prologue	87. colonel	88. coarse	89. referring	90. courteous
91. exhibition	92. affectionately	93. attorney	94. pinnacle	95. toboggan
96. definite	97. guarantee	98. anniversary	99. irresistible	100. hydraulic

Score / 10 + 5 = Spelling Age

For example: raw score 16
Spelling age = 16 / 10 + 5
= 1.6 + 5
= 6.6 yrs

SCHONELL SPELLING

1. net	A fish was caught in the net
2. can	Can you swim?
3. fun	We had a lot of fun
4. top	A book is on top of the table
5. rag	Wipe the table with a rag
6. sat	My friend sat beside me
7. hit	A car hit the tree
8. lid	Put the lid on the rubbish bin
9. cap	Put your cap on
10.had	I had a dream last night
11.let	I will let you go home when the bell goes
12.doll	My Barbie doll is lying on my bed
13.bell	The bell will ring at lunchtime
14.yes	Yes. When you're finished you can go home
15.then	I ate my sandwich then I ate my apple
16.may	You may have a banana when you have finished your sandwich
17.tree	The tree has pink flowers on it
18.by	We will pass by the shops on our way to the bus
19.ill	I felt ill after I had eaten a green apple
20.egg	A bird laid an egg
21.land	The plane came into land on the runway
22.how	How are you today?
23.your	Where is your schoolbag?
24.cold	It is very cold in winter
25.talk	I will talk to the teacher
26.flower	I put a flower in a vase

Schonell Spelling Test

Name of Tester: _____

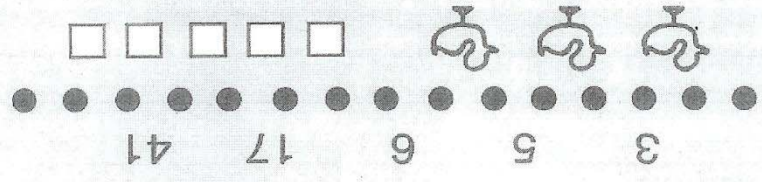
Name of Pupil _____

Age of pupil _____(years) _____(months)

Date _____

1	26	51
2	27	52
3	28	53
4	29	54
5	30	55
6	31	56
7	32	57
8	33	58
9	34	59
10	35	60
11	36	61
12	37	62
13	38	63
14	39	64
15	40	65
16	41	66
17	42	67
18	43	68
19	44	69
20	45	70
21	46	71
22	47	72
23	48	73
24	49	74
25	50	75

WRAT 3 ARITHMETIC/ A MEASURE OF NUMBER COMPUTATIONS



3 Fingers | 8 Fingers | 9 or 6? | 42 or 28?

3 pennies, spend 1? | 3 + 4 apples? | 9 marbles, lose 3? (15)

REDUCE ALL ANSWERS TO LOWEST TERMS

$1 \div 1 =$ ____

$5 - 1$

$2 + 7 =$ ____

$8 - 4 =$ ____

$32 \div 40$

$9 + 3$

$36 - 15$

$3 \times 4 =$ ____

$68 + 23$

7×6

23×3

$33 - 17$

$6 \div 2 =$ ____

$4\overline{)16}$

17×4

$724 - 597$

$229 + 5048 + 63 + 1381$

$\frac{15}{5} =$ ____

$9\overline{)4527}$

$\frac{1}{3} + \frac{1}{3} =$ ____

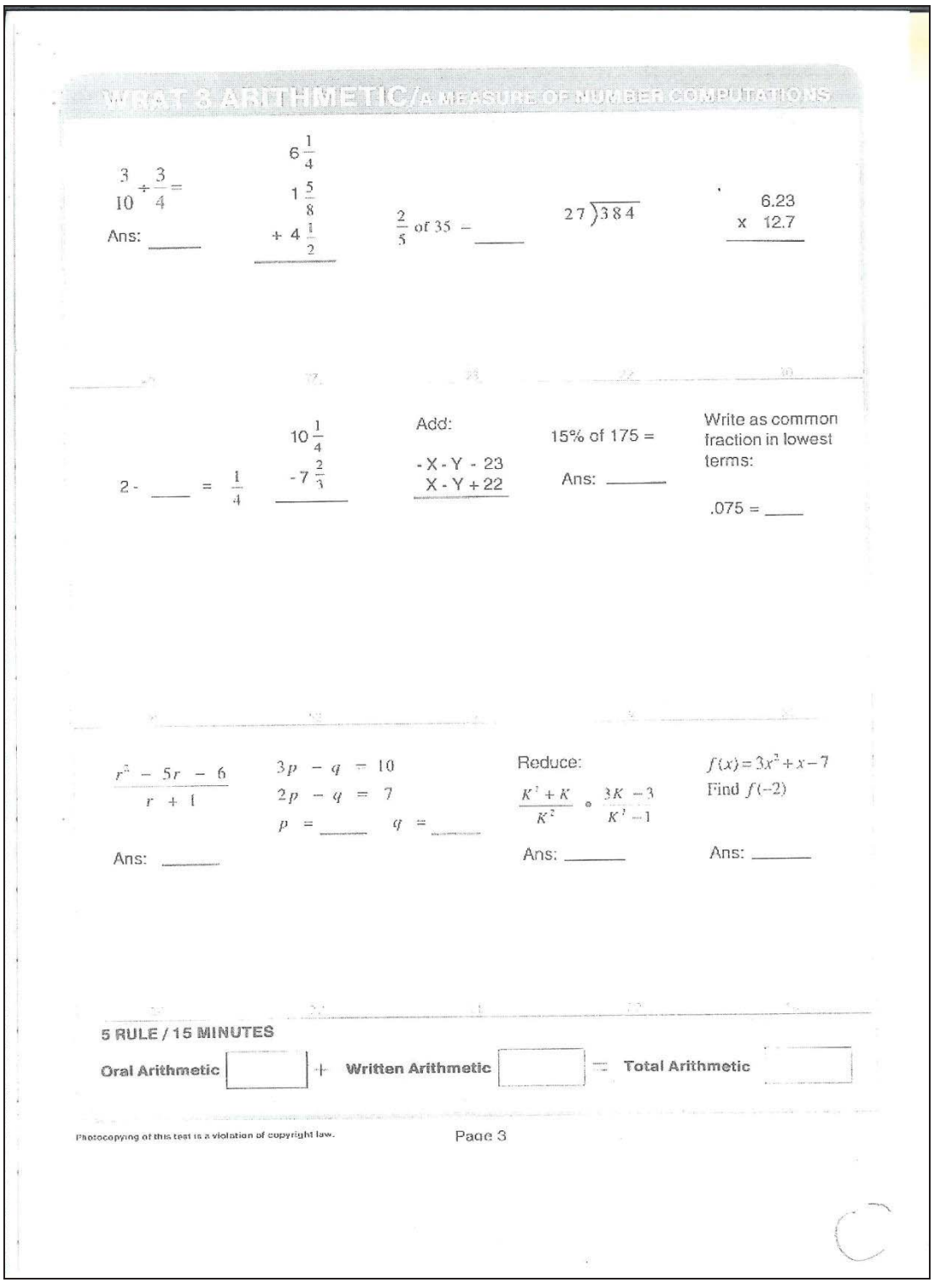
$2\frac{1}{2} + 1\frac{1}{2} =$ ____

823×96

$.42 =$ ____ %

$\frac{1}{4} \times \frac{1}{2} =$ ____

38×2.4



WRAT 3 ARITHMETIC/A MEASURE OF NUMBER COMPUTATIONS

$\frac{3}{10} \div \frac{3}{4} =$

Ans: _____

$6\frac{1}{4}$
$1\frac{5}{8}$
$+ 4\frac{1}{2}$

$\frac{2}{5}$ of 35 = _____

$27\overline{)384}$

6.23
x 12.7

$2 - \_\_\_\_ = \frac{1}{4}$

$10\frac{1}{4}$
$-7\frac{2}{3}$

Add:

- X - Y - 23
X - Y + 22

15% of 175 =

Ans: _____

Write as common fraction in lowest terms:

.075 = _____

$\frac{r^2 - 5r - 6}{r + 1}$

Ans: _____

$3p - q = 10$
$2p - q = 7$
$p =$ _____ $q =$ _____

Reduce:

$\frac{K^2 + K}{K^2} \circ \frac{3K - 3}{K^2 - 1}$

Ans: _____

$f(x) = 3x^2 + x - 7$
Find $f(-2)$

Ans: _____

5 RULE / 15 MINUTES

Oral Arithmetic [ ] + Written Arithmetic [ ] = Total Arithmetic [ ]

Appendix D1
Quiz 1-10 for “at” ability groups

1. 

plan	plane

2. 

snak	snake

3.  (spelling)

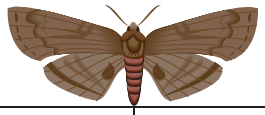
4.  (spelling)

5. 

(spelling)

Name: _____

1.



2.

Milk-

3.

4.

5.

Name: _____

ar/or ir/er/ur

1. Sc __ __
2. F __ __ get
3. Th __ __sty
4. S __ __ prise
5. P __ __ fect

Name: _____

all	ell	ill	oll	ull

1. Dr __ __ __

2. Sm __ __ __

3. W __ __ __

4. D __ __ __

5. Sk __ __ __

Quiz 4 – “at” ability (l-affected vowels)

Name: _____

ai	ay		oi	oy

1. Tr __ __
2. M __ __ l
3. P __ __n t
4. Ann __ __
5. V __ __ ce

Quiz 5 – “at” ability

Name: _____

ee	ie

1. Sw__ __ p
2. Th __ __ f
3. Arch__ __ ve
4. Gr __ __ t
5. N__ __ d
6. P__ __ ce

Name: _____

oa	ew

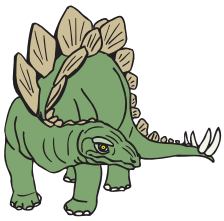
1. Thr__ __ t
2. G __ __ t
3. Vi__ __
4. Neph __ __
5. T__ __ st
6. N__ __

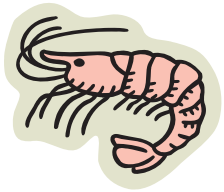
NAME:_____

Tick ☑ the box with the correct spelling

1.  draw ☐ or drau ☐

2.  astronawt ☐ or asronaut ☐

3.  dinosaur ☐ or dinosawr ☐

4.  praun ☐ or prawn ☐

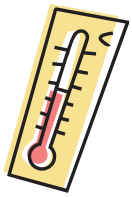
5.  straw ☐ or strau ☐

NAME:_____

Tick ☑ the box with the correct spelling

1.  beech ☐ or beach ☐

2.  ice-cream ☐ or ice-creem ☐

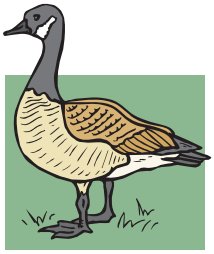
3.  weather ☐ or wearther ☐

4.  wheet ☐ or wheat ☐

5.  fairther ☐ or feather ☐

NAME:_____

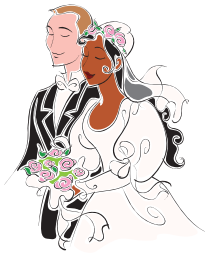
Tick ☑ the box with the correct spelling

1. 

gouse ☐ or goose ☐

2. 

wound ☐ or woond ☐

3. 

groum ☐ or groom ☐

4. routine ☐ or rootine ☐

5. understoud ☐ or understood ☐

Appendix D2
Quiz 1-10 for "below" ability groups

1. 

sn	sw	sl

2. 

ch	wh	th

3. 

shut	shoes	shark

4. 

thumb	teeth	tooth

5. 

whale	wheel	which

Name: _____

1. Do you remember the 5 vowels?

2.

hat	hate

3.

pin	pine

4.

5.

Name: _____

1.

Win	Wine

2.

Shake	Shak

3.

Spoke	Spok

4.

Hope	Hop

5.

Hom	Home

Quiz 3 – “below” ability (silent e) 2

Name: _____

ar/or ir/er/ur

1. D __ __ k
2. H __ __
3. B __ __d
4. T __ __ n
5. H __ __ se

Quiz 4 – “below” ability (r-affected vowels)

Name: _____

all	ell	ill	oll	ull

1. P__ __ __
2. Sm __ __ __
3. W __ __ __
4. D __ __ __
5. Sk __ __ __

Quiz 5 – “below” ability

Name: _____

ai	ay		oi	oy

1. Tr __ __
2. M __ __ l
3. P __ __ nt
4. Ann __ __
5. V __ __ ce

Quiz 6 – “below” ability

Name: _____

ee	ie

1. Sw __ __ t
2. Th __ __ f
3. Arch __ __ ve
4. Gr __ __ n
5. N __ __ d
6. P __ __ ce

Quiz 7 – “below” ability

Name: _____

oa	ew

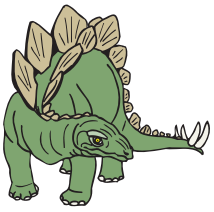
1. Thr__ __ t
2. G __ __ t
3. Vi__ __
4. Neph __ __
5. T__ __ st
6. N__ __

NAME: _____

Tick ☑ the box with the correct spelling

1.  draw ☐ or drau ☐

2.  laun ☐ or lawn ☐

3.  dinosaur ☐ or dinosawr ☐

4.  sau ☐ or saw ☐

5.  straw ☐ or strau ☐

NAME:_____

Tick ☑ the box with the correct spelling

1.  beech ☐ or beach ☐

2.  ice-cream ☐ or ice-creem ☐

3.  meat ☐ or meet☐

4.  bread ☐ or bred ☐

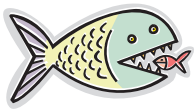
5.  seet ☐ or seat ☐

Appendix D3
Quiz 1-10 for "well-below" ability group

1.

b	d	g

2.

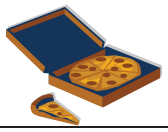


f	c	r

3.

t	a	h

4.



b	p	q

5.

n	m	v

Quiz 1 – “well-below” ability (single sounds)

Name: _____

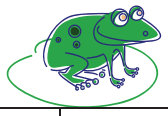
1.

kap	cap	pap

2.

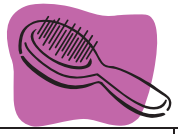
plant	plent	plunt

3.



4.

5.



Name: _____

Vowels/Silent e

1. 5 vowels

a				

2.

Hat	Hate

3.

Made	Mad

4.

Hon	Home

5.

Pin	Pine

Quiz 3 – “well-below” ability-short vowels and silent e

Name: _____

1.

Win	Wine

2.

Shake	Shak

3.

Spoke	Spok

4.

Hope	Hop

5.

Gav	Gave

Quiz 4 – “well-below” ability (silent e) 2

Name: _____

ar	or

ir	er	ur

1. F__ __
2. B__ __d
3. P __ __ k
4. H__ __
5. F __ __

Name: _____

all	ell	ill	oll	ull

1. P__ __ __
2. Sm __ __ __
3. W __ __ __
4. D __ __ __
5. Sk __ __ __

Name: _____

ai	ay
oi	oy

1. T __ __

2. M __ __ l

3. P __ __ nt

4. D __ __

5. J __ __

Name: _____

ee	ie

1. Tr __ __
2. Th __ __ f
3. F __ __ ld
4. Gr __ __ n
5. B __ __
6. P __ __ ce

Name: _____

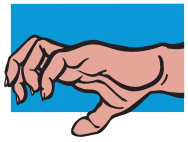
oa	ew

1. B__ __ t
2. G __ __ t
3. Vi__ __
4. T__ __ st
5. N__ __

NAME: _____

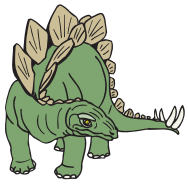
Tick ☑ the box with the correct spelling

1.  draw ☐ or drau ☐

2.  clau ☐ or claw ☐

3.  sau ☐ or saw ☐

4.  straw ☐ or strau ☐

5.  dinosaur ☐ or dinosawr ☐

Appendix E1
Scope and Sequence of the Phonics Only (P) Lessons

Lesson	"well below"	"below"	"at"
1	Alphabet Chart	Blends and Digraphs	Silent e rule (lesson 1)
2	Consonant Blends	Silent e (lesson 1)	Silent e rule (lesson 2)
3	Vowels + silent e (lesson 1)	Silent e (lesson 2)	R-affected vowels
4	Silent e (lesson 2)	R- affected vowels	L-affected vowels
5	R-affected vowels	L-affected vowels	Vowel digraphs ai/ay and oi/oy
6	L-affected vowels	Vowel digraphs ai/ay and oi/oy	/ee/
7	Vowel digraphs ai/ay and oi/oy	/ee/	/ie/
8	/ee/	/ie/	/oa/ and /ew/
9	/ie/	/oa/ and /ew/	/au/ and /aw/
10	/oa/ and /ew/	/au/ and /aw/	/ea/
11	/au/ and /aw/	/ea/	/oo/ and /ou/
12	/ea/	/oo/ and /ou/	Syllable breaking (cvc/cvc)

Appendix E2
Scope and Sequence of the Big Book Only (BB) Lessons

Lesson	"well below"	"below"	"at"
1	Story: Car shopping (1st reading)	Story: Keep trying (1)	Story: The hole in the King's sock (1)
2	Story: Car shopping (2nd reading)	Story: Keep trying (2)	Story: The hole in the King's sock (2)
3	Story: Car shopping (3rd reading)	Story: Keep trying (3)	Story: The hole in the King's sock (3)
4	Story: What does Greedy Cat like? (1)	Story: Lunch for Greedy Cat (1)	Story: A good idea (1)
5	Story: What does Greedy Cat like? (2)	Story: Lunch for Greedy Cat (2)	Story: A good idea (2)
6	Story: What does Greedy Cat like? (3)	Story: Lunch for Greedy Cat (3)	Story: A good idea (3)
7	Story: Greedy Cat's door (1)	Story: Hissing Bush (1)	Story: Earthquake (1)
8	Story: Greedy Cat's door (2)	Story: Hissing Bush (2)	Story: Earthquake (2)
9	Story: Greedy Cat's door (3)	Story: Hissing Bush (3)	Story: Earthquake (3)
10	Story: Keep Trying (1)	Story: Magnetic Max (1)	Story: Firefighter (1)
11	Story: Keep Trying (2)	Story: Magnetic Max (2)	Story: Firefighter (2)
12	Story: Keep Trying (3)	Story: Magnetic Max (3)	Story: Firefighter (3)

Appendix E3
Scope and Sequence of the Phonics and big book combined (PBB) lessons

Lesson	"well below"	"below"	"at"
1	Alphabet Chart Story: Car shopping (1st reading)	Blends and Digraphs Story: Keep trying (1)	Silent e rule (lesson 1) Story: The hole in the King's sock (1)
2	Consonant Blends Story: Car shopping (2nd reading)	Silent e (lesson 1) Story: Keep trying (2)	Silent e rule (lesson 2) Story: The hole in the King's sock (2)
3	Vowels + silent e (lesson 1) Story: Car shopping (3rd reading)	Silent e (lesson 2) Story: Keep trying (3)	R-affected vowels Story: The hole in the King's sock (3)
4	Silent e (lesson 2) Story: What does Greedy Cat like? (1)	R- affected vowels Story: Lunch for Greedy Cat (1)	L-affected vowels Story: A good idea (1)
5	R-affected vowels Story: What does Greedy Cat like? (2)	L-affected vowels Story: Lunch for Greedy Cat (2)	Vowel digraphs ai/ay and oi/oy Story: A good idea (2)
6	L-affected vowels Story: What does Greedy Cat like? (3)	Vowel digraphs ai/ay and oi/oy Story: Lunch for Greedy Cat (3)	/ee/ Story: A good idea (3)
7	Vowel digraphs ai/ay and oi/oy Story: Greedy Cat's door (1)	/ee/ Story: Hissing Bush (1)	/ie/ Story: Earthquake (1)
8	/ee/ Story: Greedy Cat's door (2)	/ie/ Story: Hissing Bush (2)	/oa/ and /ew/ Story: Earthquake (2)
9	/ie/ Story: Greedy Cat's door (3)	/oa/ and /ew/ Story: Hissing Bush (3)	/au/ and /aw/ Story: Earthquake (3)
10	/oa/ and /ew/ Story: Keep Trying (1)	/au/ and /aw/ Story: Magnetic Max (1)	/ea/ Story: Firefighter (1)
11	/au/ and /aw/ Story: Keep Trying (2)	/ea/ Story: Magnetic Max (2)	/oo/ and /ou/ Story: Firefighter (2)
12	/ea/ Story: Keep Trying (3)	/oo/ and /ou/ Story: Magnetic Max (3)	Syllable breaking (CVC/CVC) Story: Firefighter (3)

Appendix E4
Scope and sequence of the treatment control (C) lessons

Lesson	"well below"	"below"	"at"
1	Shapes worksheet Counting 1-50	Shapes worksheet Counting 1-100/ Shapes	Shapes worksheet Names/Numbers
2	1-60 (Names/Numbers) Comparing numbers	1-100 (Names/Numbers) Comparing numbers	Addition (1/2 digits)
3	Addition (1 + 1 digit)	Addition (2 digits)	Addition (2/3 digits)
4	Additions (1/2 digits)	Addition (2 digits)	Subtraction(1/2 digits)
5	Subtraction (1 digit)	Subtraction (1/2 digits)	Subtraction (2/3 digits)
6	Subtraction (2 digits))	Subtraction (2/3 digits)	Addition/Subtraction
7	Addition/Subtraction (1/2 digits)	Addition/Subtraction (1/2 digits)	Addition/Subtraction (2 digits)
8	Additions/Subtractions (2/3 digits)	Additions/Subtractions (2/3 digits)	Addition/Subtraction (3 numbers)
9	Additions/Subtractions (3 numbers)	Addition/Subtraction (3 numbers)	Multiplication (concepts)
10	Multiplication (concepts)	Multiplication (concepts)	Multiplication (1 digit x 1 digit)
11	Multiplication (1 digit x 1 digit)-lesson 1	Multiplication (1 digit x 1 digit)-lesson 1	Multiplication (2 digits x 1 digit)
12	Multiplication (1 digit x 1 digit)-lesson 2	Multiplication (1 digit x 1 digit)-lesson 2	Multiplication (3 digits x 1 digit)

Appendix F1

Phonics lesson plan (Lesson 1) R: researcher S: students

"well-below" ability	"below" ability	"at" ability
Introduction: Alphabet Chart (5 minutes) R: Do you know your alphabet chart really well? Do you think you can tell me the letter names/sounds from A-Z? If you are not sure...you can look at this chart on the whiteboard to help you. Okay..let's start...A,B, C.....Z. Excellent. Well done!	Introduction: Consonant Blends and Digraphs R: The blend BL stands for two sounds /bl/....like the first sound you can hear in BLUE, BLACK or BLINK. Let us try another one, the blend BR stands for two sounds? What do you think they are? Yes...BR…/br/ like BRAIN, BRAKE, BROKE, BRUSH.	Introduction: Silent e rule (1st lesson) R: Do you know what a "vowel" is? In English, we have 5 special vowels and each of them has two sounds, one long and one short. They usually change from short to long when there is a special "e" at the end of the word, and we called it a "silent e rule". The 5 vowels are: a, e, i, o, u and sometimes 'y' is also included as well. (Then we do a revision of the short sounds and the long sounds).
Lesson: (10-15 minutes) R: Now, what is the sound for /a/? Like the word "AT"...what is the first sound you can hear in "AT"? /ay/...very good! What is the sound for /b/? .....how about the sound for /z/ ? Yes.../z/..is the first sound in "ZEBRA". Activity: Phonemic awareness (TurtleTalk) The researcher wrote 5-8 words on the whiteboard. R: Now, I am going to put some sounds together and see if you can tell me what does that say, and see if you can find them on the whiteboard. Okay.../a-t/? How about /b-a-t/? (cat, dog, duck, sun, bun, mat, hat, leg etc) Children will also	Lesson: R: Look at this Blends and Digraphs Chart (Blend card-A3 size). Let us read the blends and digraphs in each box and can you think of a word that starts with this sound? S: BL... R: Can you tell me some words that start with /bl/? S: BLUE, BLACK R: Good Note: children will go over all the blends and digraphs (reference: Phonics Handbook-Chapter 21 &22)	Lesson: R: The silent e rule for A_E means that when you see the word "ATE" we say "ATE"- the special e makes the vowel says its name. Can anyone come and underline the vowels for me? S: Yes, A and E are vowels (<u>A</u>T<u>E</u>) R: Well done! Let us have a look at some other examples on the whiteboard. <u>Short vowel Long vowel</u> at ate hat hate cap cape (about 10-12 words)

take turns to give me the sounds of the word.	Activity: Phonemic awareness (TurtleTalk) Researcher wrote 5-8 words on the whiteboard. Children will listen to the sounds of the word and point to the correct answer that present on the whiteboard. Ask children to take turns in choosing words on the whiteboard- begin with 2/3 syllable words, and say each phoneme slowly, like a turtle, and then say the word.	Activity: Phonemic awareness (TurtleTalk) Researcher wrote 5-8 words on the whiteboard. Children will listen to the sounds of the word and point to the correct words that present on the whiteboard. Ask children to take turns in choosing words on the whiteboard- begin with 2/3 syllable words, and say each phoneme slowly, like a turtle, and then say the word.
No quizzes in the first lesson		

Appendix F1

Phonics only lesson plan (Lesson 6)

<table>
<tr><td>“well-below” ability</td><td>“below” ability</td><td>“at” ability</td></tr>
<tr>
<td>Introduction:
Recap: Last week we talked about /ar/, /er/, /ir/, /or/, /ur/ where the letter r changes the vowel sound to make a new sound. Who can tell us what does /ar/ sound like and can you give me a word with the /ar/ sound in it? (write them on the whiteboard and underline all the r-affected vowels)</td>
<td>Introduction:
Recap: Last week we talked about the –ll patterns like /all/, /ell/, /ill/, /oll/, /ull/. Let us have a look at the word lists and see if you can remember them.
<table>
<tr><td>-all</td><td>-ell</td><td>-ill</td><td>-oll</td><td>-ull</td></tr>
<tr><td>all</td><td>bell</td><td>ill</td><td>doll</td><td>dull</td></tr>
<tr><td>ball</td><td>tell</td><td>bill</td><td>toll</td><td>gull</td></tr>
<tr><td>wall</td><td>yell</td><td>hill</td><td>roll</td><td>hull</td></tr>
<tr><td>mall</td><td>fell</td><td>kill</td><td>poll</td><td>cull</td></tr>
<tr><td>tall</td><td>well</td><td>pill</td><td>troll</td><td>skull</td></tr>
<tr><td>small</td><td>smell</td><td>still</td><td>scroll</td><td>mull</td></tr>
</table>
</td>
<td>Introduction:
Recap: Last week we talked about AI-AY pattern and OI-OY pattern. Can you remember what sounds they make? The AI spelling is usually in the middle of the word, AY is at the end of the word. OI usually is at the beginning or middle of the word, and OY is at the end of the word. Let’s read the words list together.
<table>
<tr><td>-ai</td><td>-ay</td><td>-oi</td><td>-oy</td></tr>
<tr><td>train</td><td>say</td><td>oil</td><td>toy</td></tr>
<tr><td>rain</td><td>tray</td><td>boil</td><td>enjoy</td></tr>
<tr><td>mail</td><td>play</td><td>ointment</td><td>annoy</td></tr>
<tr><td>plain</td><td>may</td><td>toilet</td><td>joyful</td></tr>
</table>
</td>
</tr>
<tr>
<td>Lesson: L-affected vowels
Today we are going to learn about adding -ll after the five vowels. (Whiteboard)
1.-all has the /or/ sound like all, ball, wall, mall. Can anyone tell me a word that has the /orl/ pattern? (call, fall, hall, tall, stall)
2.-ell has a sound like in the words bell, sell, tell, and fell. Can you tell me a word that has –ell pattern? (smell, well, yell)
3.-ill has a sound like in the words ill, bill, hill, kill and mill. Can you think of a</td>
<td>Lesson: Vowel digraphs ai/ay and oi/oy
Today we are going to learn about putting two vowels together and make a new sound. The first one is /ay/ sounds and the second one is /oy/ sound.
The AI-AY pattern represents the /ay/ sound. The AI spelling is usually in the middle of the word, and the AY spelling is usually at the end of the word.</td>
<td>Lesson: Vowel digraph /ee/
Today we are going to put another two vowels together and make a new sound. The sound is /ee/ and spelled as EE in the middle of the word like in (TEETH) or the end of the word like in (BEE). Can you tell me another word with /ee/ sound in it?

Look at these words and read them aloud with me.
<table>
<tr><td>List 1</td><td>List 2</td></tr>
<tr><td>bee</td><td>weed</td></tr>
<tr><td>see</td><td>seed</td></tr>
<tr><td>tree</td><td>need</td></tr>
</table>
</td>
</tr>
</table>

word that has –ill pattern? (pill, chill, will, still)
4.-oll has a sound like in the words doll, toll, roll and poll. Can you think of a word that has –oll pattern? (troll, stroll, scroll)
5.-ull has a sound like in the words dull, gull and cull. Can you tell me a word that has –ull pattern? (skull, mull)
*Note: Meanings of the words will also be explained to the students while learning the sounds.

Humpty Dumpty
(the story is printed on A3 paper)

Humpty Dumpty sat on the WALL,
Humpty Dumpty had a great FALL,
When Humpty Dumpty FELL,
He Fell onto a BELL.
Humpty Dumpty went to the MALL,
Humpty Dumpty went to the STALL,
He took a PILL because he felt ILL,
Now he is WELL, and best of ALL
Humpty Dumpty is back on the WALL.

Look at List 1 and 2 and read them aloud with me.

List 1	List 2
rain	ray
pail	pay
sail	say
train	tray
plain	play
mail	may

Question: What is the different between the way we spell the /ay/ sound in list 1 and list 2? (answer: AI-usually in the middle of the word and AY- at the end of the word).

The OI-OY pattern has one sound as in /oi/. The OI is always spelled in the beginning or middle of a word and OY at the end of a word. Let us read these OI and OY patterns together.

List 1	List 2
oil	boy
boil	joy
foil	toy
join	roy
noise	enjoy
toilet	annoy
poison	

I have underlined all the /oy/ sounds. OI spelled in the beginning or middle of the word, and OY spelled at the end of the word.

free	green
sheep	sweet
peek	greet
feet	creep
greek	steed

Students then read the following sentences with the tutor. (prepared in A4 paper)

1. I want to be free.
2. I seem to be green.
3. I peek at the creek.
4. I see a free bee in the tree.

(from the *Phonics Handbook* p.299)

Activity:

List 1	List 2
bee	beet
fee	feet
see	greet
tree	fleet
free	sweet

Questions:

1. Circle the word that has something to do with walking (Ans: feet)
2. Circle the word that is like sugar and you love it very much. (Ans: sweet)
3. Put a line under the word about something you can find in the park.

<table>
<tr>
<td>Activity:
-read the Humpty Dumpty story above, and go through all the –ll patterns in the story.
-TurtleTalk activity</td>
<td>*Note: Meanings of the words will also be explained to students while learning the sounds.

Activity: Phoneme Awareness (TurtleTalk)<table><tr><td>rain</td><td>paint</td><td>boy</td></tr><tr><td>play</td><td>toy</td><td>toilet</td></tr><tr><td>day</td><td>point</td><td>joy</td></tr></table></td>
<td>(Ans: tree)
4. Circle the word that means someone who is let out of jail. (Ans: free)

Activity: Phonemic Awareness (TurtleTalk)<table><tr><td>bee
fee
see
tree
free</td><td>beet
feet
greet
fleet
sweet</td></tr></table></td>
</tr>
<tr>
<td>Quiz: r-affected vowels</td>
<td>Quiz: l-affected vowels</td>
<td>Quiz: /ai/-/ay/ and /oi/-/oy/</td>
</tr>
</table>

Appendix F1

Phonics only lesson plan (Lesson 12)

"well-below" ability	"below" ability	"at" ability
Introduction: Recap: Last week we talked about AU-AW that has one sound of /or/. Can you remember the spelling rule? AW can be spelled at the end of the word or in the middle of a word, and AU is usually spelled in the middle of the word. If I say the word "SAW", should I use AU or AW? How about the word "Claw"? How about "Autumn"? How about the word "Dinosaur"?	Introduction: Recap: Last week we talked about the EA digraph that has two sounds. Can anyone remember what the two sounds are? If you can't, try to think of a word that has EA in it? (how about like the word EAT? What are the two sounds in EAT? How about HEAD? What are the 3 sounds in HEAD?)	Introduction: Recap: Last week we talked about OO and OU digraph. Can you remember what are they sound like? OO sounds like…..yes like /oo/ in book or /ue/ in moon or roof. Good, how about OU? Yes, /ou/ in out and shout, also it has another sound like /ue/ in soup, you, group or wound. So, both OO and OU have a sound like /ue/.
Lesson: vowel digraph /ea/ Today we are going to learn about the EA digraph. It has two sounds like /ee/ in SEA and TEA or a /eh/ sound as in HEAD, HEAVY and BREAD. R: Can you think of any other words which have /ee/ sound? S: egg, get, pet….. R: Nice try..but I want some words that have /ee/ sound and spell as EA. Like SEAT, TREAT, SEA, TEA, HEAT, SPEAK ********** R: How about any words have /eh/ sound and spell as EA? S: I don't know…not sure…	Lesson: vowel digraph /oo/ and /ou/ We are going to learn the digraph OO and OU. We are looking at the digraph OO first. The first sound is /oo/ as in BOOK and LOOK. The second sound is /ue/ as in MOON, SOON and KANGAROO. Another way to remember the two sounds is to think of a "trigger word/sentence", like LOOK at the MOON...and you remember OO has two sounds as /oo/ and /ue/. (note: then go to activity 1) The next digraph is OU. It also has two sounds. The first OU sound is	Lesson: Syllable breaking CVC/CVC Today, we are going to learn how to read longer words. We can break them into small chunks…we call it syllable breaking. When we speak, we speak in syllables. Words are made up of one or more syllables. Like the word "Rabbit"…there are 2 syllables….(I then clap my hands to show the students…"Rab…(clap)….bit..(clap)"---2 syllables. Listening carefully….how many syllables can you hear in "Robot"? We can clap our hands and find out. (Ro…(clap)…bot…(clap))----2 syllables (Good work!) Every syllable has a vowel sound. I am going to write it on the

R: That's ok. I can give you some examples: HEAD, BREAD, WEATHER, LEATHER, HEAVY.

Activity:
1.Write some EA words on the whiteboard and ask students to listen to the sounds and put a magnet to indicate whether it has /ee/ sound or /eh/ sound.

	/ee/	/eh/
eat	*	
sea	*	
dead		*
heat	*	
tea	*	
head		*
bread		*
dream	*	
heavy		*
ready		*

Sentences to practice: (if time allowed)

1. What shall I eat?
2. I have a sore head.
3. Are you ready yet?
4. A cup of tea.

Phonemic Awareness (TurtleTalk)
-use the list above

/ow/ as in HOUSE, OUT and SHOUTS. The second OU sound is /ue/ as in SOUP, YOU and GROUP. This is very similar to the second sound of OO digraph.
(note: then go to activity 2)
Activity:
1.Does the OO sound like /oo/ or /ue/? (read the words and choose the correct sound)

	OO /oo/	OO /ue/
cook	*	
took	*	
roof		*
spoon		*
school		*
understood	*	
good	*	

- Can you read these words to me?
- Can you make a sentence using the OO words from the list above?

whiteboard and show you how to do syllable breaking.

R: How many vowels are there?
S: Two
R: Put a tick on top of each vowel sound.

	√			√	
r	a	b	b	i	t

T: Good. There is a rule for splitting a word like RABBIT. This is called a CVC/CVC pattern. If there are two consonants after the first vowel, then you spilt them in the middle: RAB-BIT, and they are both short vowel sounds.

	√		/	√	
r	a	b	b	i	t

Activity:

1. Let's have a look at these words here. See if you can divide the words into syllables.

r	u	b	b	i	s	h

2.

	OU /ou/	OU/ue/
mouse	*	
soup		*
house	*	
count	*	
group		*
you		*
hour	*	

- Can you read these words to me?
- Can you make a sentence using the OO words from the list above?
- I am going to give you the sounds of the word and you have to tell me the word. (i)Y-ou (ii) ou-t (iii) sh-ou-t (v)gr-ou-p

Phonemic Awareness (TurtleTalk)

cook	mouse
roof	house
good	hour
spoon	soup

R: Do you remember what do you need to do first?
S: Tick all the vowels.
R: Excellent. Two vowel sound= Two syllables

	√			√		
r	u	b	b	i	s	h

R: Then, what shall we do next?
S: um…..draw a line in the middle….??
R: Where about in the middle? Between which two letters?
S: B and B
R: Great!

	√			√		
r	u	b	b	i	s	h

R: Now, we break this word into two small chunks. Can you say the first part? "Rub-" then "Bish", can you put them together and say it like a word?
S: Rub-bish.
R: Very good

		Let's try few more to practice. • Ten/nis • Hap/pen • Cof/fee • Stop/ping • Run/ning Phonemic Awareness: TurtleTalk
Quiz: /au/ and /aw/	Quiz: /ea/	Quiz- /oo/ and /ou/

Appendix F2

Big Book only lesson plan (Lesson 1)

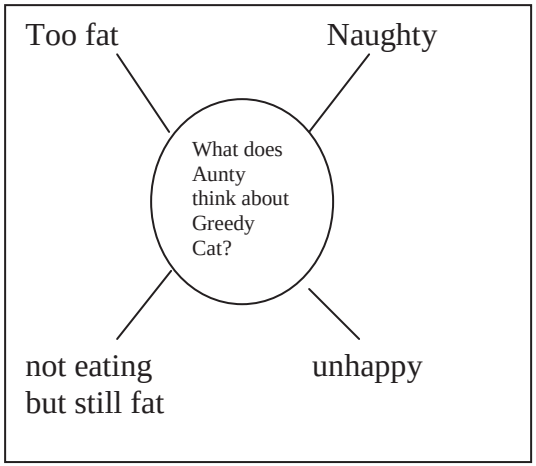
"well-below" ability	"below" ability	"at" ability
Introduction: (5 minutes) Story-Car shopping (Level-Red) R: I have a book for you to read that is about a family who wants to choose a car. What features do you think a family car should have? (show them some pictures of cars-pictures from magazines/books) Would any of these be good cars for a family? What do you know about different kinds of cars?	Introduction: Story-Keep trying (Level-Yellow) R: I have a book for you to read that is about learning a new skill/thing like riding a bike, playing piano...How did you feel when you had to learn a new thing? Did anyone help you? How did you feel when you mastered it/ finally knew how to ride a bike or played the piano?	Introduction: Story-The hole in the King's sock (Level-Orange) R: I have a book for you to read that is about the King and his socks. How many of you are wearing socks today? Where do you get your socks from? Students: supermarket, warehouse, 2-dollar shop….
Lesson: (15-20 minutes) Car shopping (1st reading) 1. Discuss the cover illustration. What can you see from the cover of the story? Have you been car shopping with your parents? If so, where did you go and what did you see? 2. Read the title with the group. Do you think the family will buy this car? Discuss the expressions on the faces of the various family members. Read the name of the author and the illustrator. 3. Look at the title page. Will they buy this one? Why or why not? 4. Talk about the colour of the car. Write the name of the colour on a	Lesson: Story-Keep trying (1st reading) 1. Discuss the cover illustration. What is the boy trying to do? How is he feeling? (The expression on his face, the position of his body, and the "wobble" lines around him all suggest that he is having trouble). 2. Look at the cover page. What can he do to get better at skating? 3. Can you read the title? Who is the illustrator? Can you find his name on the cover page? 4. The researcher reads the story to the students. 5. If time allowed, we will read the	Lesson: Story-The hole in the King's sock (1st reading) 1. Discuss the illustrations on the front and back covers of the book and read the title. Who is this person? Where does he live? What might you expect to see in a book about a King? 2. Read the title and the names of the writer and the illustrator. Talk about the use of possessive apostrophe in "King's" 3. The researcher reads the story to the students. 4. During the reading, encourage students to predict what might

flash card before students start to read. (White, Blue, Yellow, Green, Red)   5. I read the story to the students. How does the family feel about this car? 6. If time allowed, we will read the story one more time.	story one more time.	happen next.
Activity: Comprehension questions (orally) 1. Can you remember how many people were in the story? Who were they? 2. Where did they go? (car dealer) 3. What sort of car did they buy at the end? Why?	Activity: Comprehension questions (Orally) 1. Can you recall the new skills that the little boy learnt in the story? (Riding a bike, swimming, skating, catching a ball, climbing a tree). 2. Did anyone help the little boy? (Yes) Who? (Father) What did the father say to him? (Keep trying) 3. There's a skill that father couldn't do. What was it? (Skipping) 4. What's the message of the story? (If you want to learn a new skill, what do you need to do .....keep trying and you can do it).	Activity: Comprehension questions (Orally) 1. What is the King's problem? 2. Did he find a solution? What was that? (iii) Did it work? If not, why did it not work? (iv)Was the problem solved at the end?
No quizzes in the first lesson		

Appendix F2

Big Book only lesson plan (Lesson 6)

"well-below" ability	"below" ability	"at" ability
Introduction: (5 minutes) Story-What does Greedy Cat like? (3rd reading) Level: Red Researcher: Hello everyone, can you remember the story we read last week? Students: The cat…Greedy cat. Researcher: Yes, that's right. The Greedy cat likes lot of things. ...but what does he like for dinner? Students: Chocolate cake! Researcher: Good!	Introduction: (5 minutes) Story-Lunch for Greedy Cat (3rd reading) Level: Light Blue Researcher: Morning everyone, who can tell me the title of the story we read last week? Students: Greedy Cat. Researcher: Good, what happened to Greedy Cat this time? Students: He went to the school and ate the children's food. He was too fat. Researcher: Very good!	Introduction: (5 minutes) Story-A good idea (3rd reading) Level: Green Researcher: Hi everyone, remember the story we read last week about animals who live in Africa…and what they want is to find a way so they can all have relief from the hot weather. Did they solve the problem at the end? What happened?
Lesson: Story-What does Greedy Cat like? (3rd reading) (15-20 minutes) Student read the story first. Researcher: Today, we are going to look at words start with "Ch". Can anyone tell me a word which started with /Ch/? Students: Cheese, chips, chocolate….	Lesson: Story-Lunch for Greedy Cat (3rd reading) Student read the story first.	Lesson: Story-A good idea (3rd reading) Student read the story first. Students discuss and answer the following questions and students/ the researcher wrote them down on the whiteboard.

<table>
<tr>
<td>Researcher: Let's have a look at the list on the whiteboard and they are words all start with /ch/. We are going to read List 1 and 2 together.
<table>
<tr><th>List 1</th><th>List 2</th></tr>
<tr><td>chat</td><td>cheese</td></tr>
<tr><td>chin</td><td>chair</td></tr>
<tr><td>chum</td><td>chase</td></tr>
<tr><td>chip</td><td>chick</td></tr>
<tr><td>chop</td><td>check</td></tr>
<tr><td>champ</td><td>chalk</td></tr>
</table>
The researcher discussed the meaning of the words with the students.
Activity:
Students take turns writing sentences on the whiteboard using words from List 1 and 2.</td>
<td>Ideas about the characters and opinions of Greedy Cat were written on the whiteboard.
1. What does Aunty think about Greedy Cat?
 

2. Should the family have let her look after Greedy Cat? (Why? Why not?)
3. Who is Greedy Cat's favourite person? Why?</td>
<td>Problem solving task:
• Imagine you were walking in the forest and got lost, what would you do?
• What would you do if you lost your mum in the shopping mall/ street?
(each student took turn wrote his/her answers on the whiteboard,)

If time allows, students could draw a picture re the above situations.</td>
</tr>
<tr>
<td>Quiz: r-affected vowels</td>
<td>Quiz: l-affected vowels</td>
<td>Quiz: /ai/-/ay/ and /oi/-/oy/</td>
</tr>
</table>

Appendix F2

Big Book only lesson plan (Lesson 12)

<table>
<tr><th>“well-below” ability</th><th>“below” ability</th><th>“at” ability</th></tr>
<tr><td>Introduction:
Story: Keep trying (3rd reading)
Level: Yellow
Researcher: Who can tell me what sort of skills/things the little boy is learning in the story “Keep trying”? Yes, that is right…riding a bike, swimming, skating, catching a ball and climbing a tree.
(if students can’t remember… let’s read the story one more time)
(If they do, we read the story as a quick revision, so we can remember all the details in the story)</td><td>Introduction:
Story-Magnetic Max (3rd reading)
Level: Fluent level 14
Researcher: Max and his magnet is hiding in a tree. What is Magnetic Max up to?
(if students can’t remember…., let’s read the story one more time)
(If they do, we read the story as a quick revision, so we can remember all the details in the story)</td><td>Introduction:
Story- Firefighter Fred’s busy day(3rd reading
Level: Fluent level 19
Researcher: Why does Fred tell Jake that he is good at cooking? (Ans: He practices during the day while he waits to fight fires)

(if students can’t remember…. let’s read the story one more time)
(If they do, we read the story as a quick revision, so we can remember all the details in the story)</td></tr>
<tr><td>Lesson: Story-Keep trying (3rd reading)

R: We are learning the use of contractions today. What it means is when we are writing the word “can’t”…it is actually the short form of “cannot”, and the apostrophe replaces “no”. So, who can tell me the opposite of can’t (or cannot)? Good…can is the opposite of can’t. Have a look at the list on the whiteboard and see if you can tell me the opposite of each one.

<table><tr><td>can</td><td>can’t (cannot)</td></tr><tr><td>is</td><td>isn’t (is not)</td></tr><tr><td>are</td><td>aren’t (are not)</td></tr></table></td><td>Lesson: Story-Magnetic Max (3rd reading)

R: Remember we talked about the term “nouns - are naming words” in the story….like tree, park, pocket, dog, and skateboard. Today I am going to teach you another one….”Proper Nouns”- name of a person, city or a planet. In the story- Julia, Felix, Max, Cookie and Joe are proper nouns. Can you think of any other proper nouns? Yes, your name is a proper noun…any others?

R: Here is a character chart on the whiteboard, I want all of you all spend a</td><td>Lesson: Story- Firefighter Fred’s busy day(3rd reading)

R: We are learning about contracted words today. What it means is when we are writing the word “can’t” the apostrophe replaces “no”…can’t is actually the short form of “cannot”. Let us have a look at the list here.

<table><tr><td>can’t</td><td>cannot</td></tr><tr><td>we’re</td><td>we are</td></tr><tr><td>I’m</td><td>I am</td></tr><tr><td>it’s</td><td>it is</td></tr><tr><td>I’ll</td><td>I will</td></tr></table></td></tr>
</table>

would	wouldn't (would not)
could	couldn't (could not)
should	shouldn't (should not)

Let us have a look if we can find any sentences which include the above contractions in the story. If not, maybe you can think of a sentence and write it on the board? Let us have a look at story again – write up the contraction "can't".

1. I **can't** ride. (p.2)
2. You can do it. (p.2, 4,6, 8, 10, 12)
3. And I could (p.2, 5,7, 9, 11)
4. I **can't** swim. (p.4)
5. I can't skate. (p.6)
6. I can't catch. (p.8)
7. I can't climb. (p.10)
8. I can't skip. (p.12)
9. You can do it! (p.12)

How about using the word "couldn't"? Can any of you think of a sentence using the word "couldn't"? Let us write it on the board.

If time allows, students make more sentences using the above contractions.

Quiz: /au/ and /aw/

few minutes and think about how Joe, Julia and Felix dealt with the problem of the "strange tree", and we can write your answers on the whiteboard.

The different ways they dealt with the problem of the "strange tree"	
Joe	
Julia	
Felix	

Quiz: /ea/

So, **"can't"** is the opposite of can. Are is the opposite of aren't..let's draw a chart to see the differences in the following:

can't (cannot)	can
we're (we are)	we aren't (are not)
it's (it is)	it isn't (is not)
I would	I wouldn't (would not)
she could	she couldn't (couldn't)
he should	he shouldn't (should not)

Let us see we can find any sentences which include the above contracted words in the story or if you can think of a sentence with one of the above contracted words?
Let us have a look at the story again.

Quiz- /oo/ and /ou/

Appendix F3

Phonics and Big Book combined lesson plan (Lesson 1)

"well-below" ability	"below" ability	"at" ability
Introduction: 1. Alphabet Chart 2. Story: Car Shopping (Level-Red) R: Do you know your alphabet chart really well? Do you think you can tell me from A-Z? If you are not sure...you can look at this chart on the whiteboard which can help you. Okay..let's start...A,B, C.....Z. Excellent. Well done! R: Now, we are going to go through the sound of each alphabet and then we are going to read a story about "Car shopping".	Introduction: 1. Consonant Blends and Digraphs 2. Story: Keep Trying (Level-Yellow) R: The blend BL stands for two sounds /bl/....like the first sound you can hear in BLUE, BLACK or BLINK. Let's try another one, the blend SW stands for two sounds? What do you think they are? Yes...SW…/sw/ like swim, swing, sweet. R: Now, we are going to learn more blends before reading our story "Keep Trying".	Introduction: 1. Silent e rule (1st lessons) 2. Story: The hole in the king's sock (Level-Orange) R: Hello, we are going to learn a rule which called "silent e" rule, and then read the story about the King found a hole in his sock. R: Do you know what a "vowel" is? In English, we have 5 special vowels and each of them has two sounds, one long and one short. They usually change when there is a special "e" at the end of the word, and we called it a "silent e rule". First of all, the 5 vowels are: a, e, i, o, u and sometimes 'y' is also included as well. (Then recap the short sounds and the long sounds are just the name of the letters).
Lesson: R: Can anyone tell me what the sound for /a/ is? Like the word "AT"...what is the first sound you can hear in "AT"? /ay/...very good! How about the sound for /b/? .....how about the sound for /z/? Yes.../z/..like the first sound in "ZEBRA". (Students are prompted by looking at the	Lesson: R: Look at this Blends and Digraphs Chart (Blend card-A3 size). Let's read the blends and digraphs in each box - can you think of a word that starts with this sound? S: BL... R: Can you tell me any words that start with /bl/?	Lesson: (using whiteboard) R: The silent e rule for A_E means that when you see the word spelled "ATE" it says "ATE"- the special e makes the vowel says its name. I am going to underline the vowels.

alphabet chart when they don't know the sound of the letter).

R: This is the story we are going to read today. The title is "Car shopping". Have you been car shopping with your family? Have a look at the cover of this book…what sort of car do you think this family is going to buy? Good, before we look at the story, I would like you to have a look these words on the whiteboard. Let's see if you can read them and understand the meaning for each one of them.

car	red	big
van	new	old
looked	**gr**een	**sm**all
blue	**wh**ite	**sh**opping

car: c-ar	looked: l-oo-k-ed
red: r-e-d	green: gr-ee-n
big: b-i-g	small: sm-all
van: v-a-n	blue: bl-ue
new: n-ew	white: wh-ite
old: o-l-d	shopping: sh-op-ping

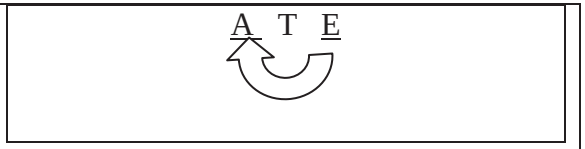
Activity: Phonemic task (5-8words) Turtle talk
The students listen to the phonemes of the words provided by the researcher, and they

S: BLUE, BLACK
R: Good
Note: students are to sound out each consonant blend and digraph with other examples provided by the researcher/ students.

R: The story we are going to read today is "Keep Trying". How did you feel when you had to learn something new? Like riding a bike, learning to swim? Did anyone one help you? "Keep trying" is about a little boy who learnt new things. Before we start reading the story, I would like you all to have a look at these words on the whiteboard. Let's see if you can sound them out and know the meanings of them.

can't	could	couldn't
climb	**sk**ate	**sk**ipping
keep	**tr**ying	catch
swim		

Students looked at the word as a whole first, sounding them out if they did not know the word. They repeat and read the words 2 times.



*note: the letter E is silent in "ate", and this special E is going to make the other vowel "A" says its name.

R: Well done! Let's have a look at some other examples on the whiteboard.

Short vowel	Long vowel
at	ate
hat	hate
pet	pete
pin	pine
cop	cope
cut	cute

R: Let's have a look at these words from the story - you are going to see them in the story later.

c**a**m**e**	g**a**v**e**	m**a**d**e**
wove	stitched	dough
knit	knitting	wriggled
gold	learn	thread

Students look at the word as a whole first, sounding them out if they do not know the word. They repeat and read the words 2 times.

point out the correct answer on the whiteboard. Pupils will get a chance to TurtleTalk and say the word.

R: Great, I am going to read you the story about "car shopping" and I want you to listen to the story carefully because I am going to ask you some questions about what happened in the story.
(during the reading, encourage students to predict what might happen next).

Comprehension questions (orally)

4. Can you remember how many people in the story? Who are they?
5. Where did they go? (car dealer)
6. What sort of car did they buy at the end? Why?

(If students have difficulty answering the questions, the researcher revisited the story with the students and answered the questions together).

R: Wonderful, we are going to read the story again next week.

can't : c-an-t (irregular word- means cannot)	climb: cl-i-mb
keep: k-ee-p	skate: sk-ate (silent e)
skipping: sk-ip-ping	trying: tr-y-ing
swim: sw-im	catch: c-a-tch
could: c-ould (irregular verb)	couldn't-could not (irregular verb)

Activity: Phonemic task (5-8 words) Turtle talk
The students listen to the phonemes of the words provided by the researcher, and they point out the correct answer on the whiteboard. Pupils will get a chance to TurtleTalk and say the word.

The researcher explained briefly the use of contraction "can't", irregular verb "could" and "couldn't".

R: Great, I am going to read you the story now, and I am going to ask you some questions about what happened in the story afterwards. So, please listen carefully.
(During the reading, encourage students to predict what might happen next).

came: c-ame (silent e)	gave: g-ave (silent e)
made: m-ade (silent e)	wove: w-ove (silent e) past tense of weave
stitched: sti-tch-ed (tch-/ch/ sound)	dough: irregular word
knit: n-i-t (silent k)	knitting: n-i-ting
wriggled: w-ig-gled	gold
learn	thread

Activity: Phonemic task (5-8 words) Turtle talk
The students listened to the phonemes of the words provided by the researcher, and they had to point out the correct answer on the whiteboard. Pupils will get a chance to TurtleTalk and say the word.

The researcher explained the silent e rule again when reading the words from the story that had the pattern - came, gave, made and wove. The word "dough, gold, learn, thread" are irregular words. "-tch" in stitched has the /ch/ sound because the /ch/ is is spelled tch after a short vowel sound. "Knit" and "knitting" have a silent k; "wriggled" has a silent w.

	Comprehension questions (Orally) 5. Can you recall the new skills that the little boy learnt in the story? (Riding a bike, swimming, skating, catching a ball, climbing a tree). 6. Did anyone help the little boy? (Yes) Who? (Father) What did father say to him? (Keep trying) 7. There's a skill that father couldn't do. What was it? (Skipping) 8. What's the message of the story? (If you want to learn a new skill, what do you need to do .....keep trying and you can do it).	R: Great, I am going to read you the story of "The Hole in the King's sock", and I am going to ask you some questions about what happened in the story afterwards. So, please listen carefully. (during the reading, encourage students to predict what might happen next). Comprehension questions (Orally) 3. What was the King's problem? 4. Did he find a solution? What was that? Did it work? If not, why did it not work? Was the problem solved at the end?
No quizzes in the first lesson		

Appendix F3

Phonics and Big Book combined lesson plan (Lesson 6)

<table>
<tr><th>"well-below" ability</th><th>"below" ability</th><th>"at" ability</th></tr>
<tr>
<td>Introduction:
1. Topic -- r-affected vowels
2. Story Title - What does Greedy Cat like? (Level-Red) 3rd reading
<u>Recap:</u>
R: Last week we talked about the /ar/, /er/, /ir/, /or/, /ur/ where the letter r changes the vowel sound to make a new sound. Like /ar/ in car and dark; /or/ in for and pork; /er/ in her and mother; /ir/ in first and thirst; /ur/ in fur and surf (Write them on the whiteboard and underlined all the r-affected vowels).</td>
<td>Introduction:
1. Vowel digraphs ai/ay and oi/oy
2. Story- Lunch for Greedy Cat (Level-Blue) 3rd reading
<u>Recap</u>:
R: Last week we talked about the –ll patterns like /all/, /ell/, /ill/, /oll/, /ull/. Let's have a look at this words list and see if you can remember them.

<table>
<tr><td>-all
all
ball</td><td>-ell
bell
tell
fell</td><td>-ill
ill
hill
still</td><td>-oll
doll
toll
roll</td><td>-ull
gull
skull
mull</td></tr>
</table>
</td>
<td>Introduction:
1. Vowel digraph /ee/
2. Story-A good idea (Level-Green) 3rd reading
<u>Recap:</u>
R: Last week we talked about AI-AY pattern and OI-OY pattern. Can you remember what sounds do they make? The AI spelling is usually in the middle of the word, AY is at the end of the word. OI is usually at the beginning or middle of the word, and OY is at the end of the word. Let's read this word list together.

<table>
<tr><td>-ai
train
rain
mail
plain</td><td>-ay
say
tray
play
may</td><td>-oi
oil
boil
ointment
toilet</td><td>-oy
toy
enjoy
annoy
joyful</td></tr>
</table>
</td>
</tr>
<tr>
<td>Lesson:
l-affected vowels
Today we are going to learn about adding -ll after the five vowels.

(Whiteboard)
1.-all has the /or/ sound like <u>all</u>, b<u>all</u>, w<u>all</u>, m<u>all</u>. Can anyone tell me a word that has the /orl/ pattern? (call, fall, hall, tall, stall)</td>
<td>Lesson: Vowel digraphs ai/ay and oi/oy
Today we are going to learn about putting two vowels together and make a new sound. The first one is /ay/ sound and the second one is /oy/ sound.
The AI-AY pattern represents the /ay/ sound. The AI spelling is usually in the middle of the word, and the AY spelling is usually at the end of the word.</td>
<td>Lesson: Vowel digraph /ee/
Today we are going to put another two vowels together and make a new sound. The sound is /ee/ and spelled as EE in the middle of the word like in (TEETH) or the end of the word like in (BEE). Can you tell me another word with /ee/ sound in it?

Look at these words and read them aloud with me.</td>
</tr>
</table>

2.-ell has a sound like in the words bell, sell, tell, and fell. Can you tell me a word that has –ell pattern? (smell, well, yell)
3.-ill has a sound like in the words ill, bill, hill, kill and mill. Can you think of a word that has –ill pattern? (pill, chill, will, still)
4.-oll has a sound like in the words doll, toll, roll and poll. Can you think of a word that has –oll pattern? (troll, stroll, scroll)
5.-ull has a sound like in the words dull, gull and cull. Can you tell me a word that has –ull pattern? (skull, mull)
*Note: Meanings of the words will also be explained to the students while learning the sounds.

Look at List 1 and 2 and read them aloud with me.

List 1	List 2
rain	pay
train	say
plain	play
mail	may

Question: What is different between the way you spell the /ay/ sound in list 1 and list 2? (answer: AI-usually in the middle of the word and AY- at the end of the word).

The OI-OY pattern has one sound as in /oi/. The OI is always spelled in the beginning or middle of a word and OY at the end of a word. Let's read these OI and OY patterns together.

List 1	List 2
oil	boy
boil	toy
foil	enjoy
join	annoy

I have underlined all the /oy/ sounds. OI spelled in the beginning or middle of the word, and OY spelled at the end of the word.

*Note: Meanings of the words will also be explained to the students while learning the sounds.

List 1	List 2
bee	weed
see	seed
tree	need
free	green
sheep	sweet
peek	greet
feet	creep
greek	steed

Questions:

5. Circle the word that has something to do with walking (Ans: feet)
6. Circle the word that is like sugar and you love it very much. (Ans: sweet)
7. Put a line under the word about something you can find in the park. (Ans: tree)
8. Circle the word that means someone who is let out of jail. (Ans: free)

*Note: Meanings of the words will also be explained to the students while learning the sounds.

<table>
<tr>
<td>Activity: Phoneme awareness (Turtle talk)
(words chosen from phonics rules and the story)
<table><tr><td>ball (-all)</td><td>doll (-oll)</td><td>cake (-ake)</td></tr><tr><td>bell (-ell)</td><td>skull (-ull)</td><td>dinner (-er)</td></tr><tr><td>pill (-ill)</td><td>cheese (ch)</td><td>not</td></tr></table>**********

R: Let’s read the story about Greedy Cat one more time.

R: Remember what kind of food Greedy Cat likes the most in the story that starts with the first sound /ch/?

S: Cheese, chips, chocolate….

R: Good</td>
<td>Activity: Phoneme awareness (Turtle talk)<table><tr><td>came (-ame)</td><td>holiday (-ay)</td><td>today (-oy)</td></tr><tr><td>lunch (-ch)</td><td>still (-ill)</td><td>boy (-oy)</td></tr><tr><td>went</td><td>after (-er)</td><td>join (-oi)</td></tr></table>**********
R: Let’s read the story one more time.

Verbal discussion
R: Should the family have let aunty look after Greedy cat? (Why? Why not?)</td>
<td>Activity: Phonemic awareness (Turtle talk)<table><tr><td>List 1 (-ee)
bee
see
tree
sweet
green</td><td>List 2
first (-ir)
perfect (-er)
all (-ll)
shade (a-de)
made (a-de)</td></tr></table>**********
R: Let’s read the story one more time.

Verbal discussion
R: What would you do if you lost your mum in the shopping mall/ in the park?</td>
</tr>
<tr>
<td>Quiz: r-affected vowels</td>
<td>Quiz: l-affected vowels</td>
<td>Quiz: /ai/-/ay/ and /oi/-/oy/</td>
</tr>
</table>

Appendix F3

Phonics and Big Book combined lesson plan (Lesson 12)

"well-below" ability	"below" ability	"at" ability
Introduction: 1. Vowel digraph /ea/ 2. Story-Keep Trying (Level-yellow) 3rd reading <u>Recap:</u> R: Last week we talked about AU-AW has one sound of /or/. Can you remember the spelling rule? AW can be spelled at the end of the word or in the middle of a word, and AU is usually spelled in the middle of the word. If I say the word "SAW", should I use AU or AW? How about the word "Claw"? How about "Autumn"? How about the word "Dinosaur"?	Introduction: 1. vowel digraph /oo/ and /ou/ 2. Story-Magnetic Max (Level-Fluent 14) 3rd reading <u>Recap</u>: R: Last week we talked about EA digraph has two sounds. Can anyone remember what the two sounds are? If you can't, try to think of a word that has EA in it? (how about like the word EAT? What are the two sounds in EAT (ea-t)? How about HEAD? What are the 3 sounds in HEAD(h-ea-d?)	Introduction: 1. Syllable breaking cvc/cvc 2. Story-Firefighter Fred's busy day (Level-Fluent 19) 3rd reading <u>Recap</u>: R: Last week we talked about OO and OU digraph. Can you remember what do they sound like? OO sounds like…..yes like /oo/ in book or /ue/ in moon or roof. Good, how about OU? Yes, /ou/ in out and shout, also it has another sound like /ue/ in soup, you, group or wound. So, both OO and OU have a sound like /ue/.
Lesson: vowel digraph /ea/ Today we are going to learn about the EA digraphs. It has two sounds like /ee/ in SEA and TEA or a /eh/ sound as in HEAD, HEAVY and BREAD. Activity1 : 1.Write some EA words on the whiteboard and students will listen	Lesson: vowel digraphs /oo/ and /ou/ We are going to learn the digraph OO and OU. We are looking at the digraph OO first. The first sound is /oo/ as in BOOK and LOOK. The second sound is /ue/ as in MOON, SOON and KANGAROO. The next digraph is OU. It also has two sounds. The first sound is /ow/ as in HOUSE, OUT and SHOUT. The second sound is /ue/	Lesson: Syllable breaking CVC/CVC Today, we are going to learn how to read longer words. We can break them into small chunks…we call it a syllable breaking. When we speak, we speak in syllables. Words are made up of one or more syllables. Like the word "Rabbit"…there are 2 syllables….(I then clapped my hands to show the students… "Rab…(clap)….bit..(clap)"---2 syllables. Listening carefully….how many syllables can

to the sounds and put a magnet to indicate whether it has /ee/ sound or /eh/ sound.

	/ee/	/eh/
eat	*	
sea	*	
dead		*
heat	*	
tea	*	
head		*
bread		*
dream	*	
heavy		*
ready		*

R: Anyone heard of the word contraction before? What it means is when we are writing the word "can't"…it is actually the short form of "cannot", and the apostrophe replaces "no". So, who can tell me what is the opposite of can't (or cannot)? Good…can is the opposite of can't. Have a look at the list on the whiteboard and see if you can tell me the opposite of each one. I find them in the story we read last week "Keep Trying".

as in SOUP, YOU and GROUP. This is very similar to the second sound of OO digraph.

Activity1

1.Does the OO sounds like /oo/ or /ue/? (read the words and choose the correct sound)

	OO /oo/	OO /ue/
cook	*	
took	*	
roof		*
spoon		*
school		*
understood	*	
good	*	

Activity 2

	OU /ou/	OU /ue/
mouse	*	
soup		*
house	*	
count	*	
group		*
you		*
hour	*	

****

you hear in "Robot"? We can clap our hands and find out. (Ro…(clap)…bot…(clap))----2 syllables (Good work!) Every syllable has a vowel sound. I am going to write it on the whiteboard and show you how to do syllable breaking.

R: How many vowels are there?
S: Two
R: Put a tick on top of each vowel sound.

	√			√	
R	A	B	B	I	T

T: Good. There is a rule for splitting a word like RABBIT. This is called a CVC/CVC pattern. If there are two consonants after the first vowel, then you spilt them in the middle: RAB-BIT, and they are both short vowel sounds.

	√			√	
R	A	B	B	I	T

Activity:

2. Let's have a look at these words here. See if you can divide the words into syllables.

R	U	B	B	I	S	H

can	can't (cannot)
is	isn't (is not)
are	aren't (are not)
would	wouldn't (would not)
could	couldn't (could not)
should	shouldn't (should not)

****

Phonemic awareness (Turtle talk)
Activity 2: Let's try to sound out these words.

Keep	Can	Ride
Skate	Trying	But
Swim	Said	Skip

R: Let's read the story about one more time.

Phonemic awareness (Turtle talk)

street	odd	looked
our	amazing	flew
paper	morning	out
time	think	magnet

R: Let's read the story together

R: Do you remember what do you need to do first?
S: Tick all the vowels.
R: Excellent. Two vowel sounds= Two syllables

	√			√		
R	U	B	B	I	S	H

R: Then, what shall we do next?
S: um…..draw a line in the middle….??
R: Where about in the middle? Between which two letters?
S: B and B
R: Great!

	√			√		
R	U	B	B	I	S	H

R: Now, we break this word into two small chunks. Can you say the first part? "Rub-"then "Bish", can you put them together and say it like a word?
S: Rub-bish.
R: Very good

Let's try few more (from the story).
Syllable breaking + turtle talk

- Rescue (res/cue)
- Outside (out/side)
- Someone (some/one)
- Afternoon (after/noon)

<table>
<tr>
<td></td>
<td></td>
<td>**********
R: We are learning the use of the contracted words today. What it means is when we are writing the word “can’t” and the apostrophe replaces “no”…it is actually the short form of “cannot”. Let’s have a look at the list here.

<table><tr><td>can’t</td><td>cannot</td></tr><tr><td>we’re</td><td>we are</td></tr><tr><td>i’m</td><td>i am</td></tr><tr><td>it’s</td><td>it is</td></tr><tr><td>I’ll</td><td>I will</td></tr></table>
R: Let’s read the story together.</td>
</tr>
<tr>
<td>Quiz- /au/ and /aw/</td>
<td>Quiz-/ea/</td>
<td>Quiz- /oo/ and /ou/</td>
</tr>
</table>

Appendix F4

Math Lesson Plan (Lesson 1)

"well-below" ability:

1. counting 1-50
2. worksheet (missing numbers)

Introduction:
R: Can you count for me from 1-50 (verbally)? (If they cannot)..Okay…let's count them together. If you are not sure, I have a numbers chart here for you to look at….

Lesson:
R: Now, let's see if you can write them on the whiteboard for me. Let's do them in order (sequence) from 1-10, then 11-20, 21-30 and so on… I will do the first row as an example, does anyone want to come and write from 11-20?

1	2	3	4	5	6	7	8	9	10

The correct answers were on the other side of the chart.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

(Note: most of the students needed assistance to write the numbers).

"below" ability:

1. counting 1-50
2. worksheet (missing numbers)

Introduction:
R: Can you count for me from 1-100 (verbally)? (If they cannot)..Okay…let's count them together. If you are not sure, I have a numbers chart here for you to look at….

Lesson:
R: Now, let's see if you can write them on the whiteboard for me. Let's do them in order (sequence) from 1-10, then 11-20, 21-30 and so on… I will do the first row as an example, does anyone want to come and write from 11-20?

1	2	3	4	5	6	7	8	9	10

The correct answers were on the other side of the chart.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

(Note: most of the students needed assistance writing the numbers).

"at" ability:

1. counting 1-100
2. worksheet (missing numbers)

Introduction:
R: Let's do a revision on the numbers chart. Can you all count from 1-100? Are you ready? Let's start. (Here's a numbers chart for you to look at if you are not sure)

Lesson:
R: Let's see if you can write the numbers on the whiteboard. We are going to do them in order first. Does anyone want to come up and try the first row?

A number chart was on the whiteboard, so students could write them on the chart.

1	2	3	4	5	6	7	8	9	10

Correct answers:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

Activity 2:
Let's practice what we have just learnt. I have a worksheet here for you to fill in (see below).
I have a numbers chart here, but some numbers are missing, can you fill in those missing numbers in the chart? (like the first line….1, 2,____, 4, 5…what will the missing number in here? Yes, 3 is the answer.

1	2	3	4	5			8		10
	12			15		17			20
		23			26			29	
31			34			37			
	42			45			48		50

Activity 2: Let's practice what we have just learnt. I have a worksheet here for you to fill in (see below).
I have a numbers chart here, but some numbers are missing, can you fill in those missing numbers in the chart? (like the first line….1, 2,____, 4, 5…what is the missing number in here? Yes, 3 is the answer.

1	2	3	4	5			8		10
	12			15		17			20
		23			26			29	
31			34			37			
	42			45			48		50

31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The correct answers were on the other side of the chart.

Activity: Let's practice what we have just learnt. I have a worksheet here for you to fill in.
I have a numbers chart here, but some numbers are missing, can you fill in those missing numbers in the chart? (like the first line….1, 2,____, 4, 5…what will the missing number in here? Yes, 3 is the answer

1	2	3	4	5			8		10
	12			15		17			20
		23			26			29	
31			34			37			
	42			45			48		50
	52								
		63							70
			74			77			
		83			86				
							98		100

No quizzes in the first lesson

Appendix F4

Treatment control lesson plan (Lesson 6)

"well-below" ability: 1. Subtraction (2 digit)	"below" ability: 1. Subtraction (2/3 digit)	"at"ability: 1. Addition/ Subtraction (2 digit)
Introduction: Recap: subtraction (between 0-10) Researcher put up questions on the whiteboard and worked together with the students. 7 - 6 = ___ | 6 - 0 = ___ | 8 - 4 = ___ | 8 - 2 = ___	Introduction: Recap: subtraction (1/2 digit) Researcher put up questions on the whiteboard and worked together with the students. 20 - 10 = ___ | 44 - 3 = ___ | 50 - 22 = ___ | 76 - 6 = ___ *remind students that they have to start from the right hand side (the ones), then tens. The place values of numbers are very important when subtracting 2 digit numbers.	Introduction: Recap: subtraction (2/3 digit) Researcher put up questions on the whiteboard and worked together with the students. 123 -18 | 265 - 5 | 388 - 60 | 419 - 14 *remind students that they have to start from the right hand side (the ones), then tens. The place values of numbers are very important when subtracting 2/3 digit numbers. **if the bottom number is bigger than the top one, then you have to borrow from the neighbor.
Lesson: R: Let's have a look at how you can do subtraction when there are numbers bigger than 10. I have some counting beads here, each of you take 20 beads…Good, now can you tell me how many beads you will have if you take away 10 beads?	Lesson: R: Subtraction gives you the difference of two numbers – this is what we did last week. This week we are going to have a look at subtracting 3 digit numbers. Can anyone give me a 3 digit number? Good….100, let me write it on the	Lesson: R: Let's have a look at these problems together. They are very challenging, but it will get easier when you practice more on your own. Remember we start from the ones column and then tens…from right to left…column by column.

R: Yes, 10 beads. I am going to show you another way to do it if you don't have the beads….

Step 1	Step 2	Step 3
20 -10	20 -10 0	20 -10 10

R: Let's try another question. Use your beads in front of you…I want all of you count out 15 beads….good…then take away 4 beads. How many beads do you have now?

R: Good…let's see if we can do the same question without the beads.

Step 1	Step 2	Step 3
15 - 4	15 - 4 1	15 - 4 1 1

(students practiced few more problems using the beads and then the whiteboard)

board….now I need a 2 digit number…good..30. Let's see if we can do 100-30.

Step 1-look at the ones column…0-0	Step 2-because 0 cannot take away 3, borrow 10 from hundreds column	Step 3-
100 -30 0	⊕ 100 - 30 70	⊕ ~~1~~00 - 30 70

R: Now, we are going to try few more problems on the whiteboard.

Activity 2:
Worksheets on subtraction will be given to students as practice. Researcher will work with students individually.

*remember if we have too many ones to write, we trade 10 ones for a ten.

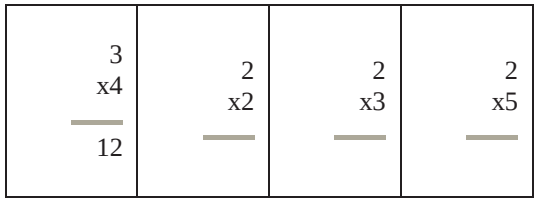
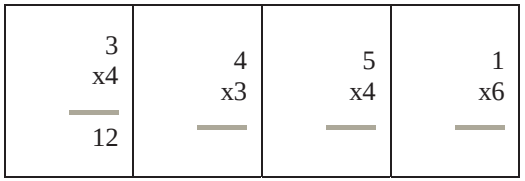
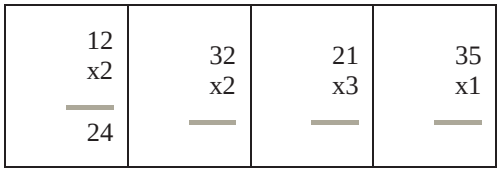
321 +87 -10	357 - 5 +23	388 +160 +12	419 - 14 +87

Activity 2:
Worksheets will be given to students to practice and researcher will work with them individually.

Activity 2: Students will be given a worksheet to work on their own as practice.		
Quiz: r-affected vowels	Quiz: l-affected vowels	Quiz: /ai/-/ay/ and /oi/-/oy/

Appendix F4

Treatment control lesson plan (Lesson 12)

"well-below" ability: Multiplication (1-digit x 1 digit)-lesson 2 (multiplication by 4, 5, 6	"below" ability: Multiplication (1-digit x 1 digit)-lesson 2	"at" ability: Multiplication (3-digit x 1 digit)-lesson 2
Recap: multiplication Researcher put up questions on the whiteboard and worked together with the students.  R: (i) when you see the symbol 3x4, try to think 3 groups of four things being combined (use beads as a tool if needed). That's multiplication. (ii) If I combine three groups if 4, I can count them to see that there are 12 altogether…so 3x 4 =12. (iii) or combine two of the groups, 4+4, then you can add the other group of 4…4+4+4=12 (example shown to students on the whiteboard as above). R: Let's solve few more problems together.	Recap: multiplication Researcher put up questions on the whiteboard and worked together with the students.  R: (i) when you see the symbol 3x4, try to think 3 groups of four things being combined (use beads as a tool if needed). That's multiplication. (ii) If I combine three groups if 4, I can count them to see that there are 12 altogether…so 3x 4 =12. (iii) or combine two of the groups, 4+4, then you can add the other group of 4…4+4+4=12 (example shown to students on the whiteboard as above). R: Let's solve few more problems together.	Recap: multiplication Researcher put up questions on the whiteboard and worked together with the students.  R: (i) multiply the ones place digits (2x2=4). Place the four below the line in the ones place column (wrote the number 4 on the whiteboard). (ii) multiply the digit in the tens place column(1) by the digit in the ones place of the second number (2). The result is (1 x 2=2). Place the answer below the line and to the left of the 2. So 12 x 2 =24 (example shown to students on the whiteboard as above). R: Let's see if we can do the next problem.
Lesson: R: We will learn multiplication by 4, 5 and 6 today. I have a chart here (see below), what is the answer for 4 x 1? Can you	Lesson: R: Today, we are learning multiplication of 2-digit number. Can anyone give me a 2-digit number? Good….31 (wrote it on the	Lesson: R: Today, we are learning multiplication of 3-digit number. Can anyone give me a 3-digit number? Good….531 (wrote it on

<table>
<tr>
<td>come up and write down the answer for me? You can also use the beads on the table to help you work out the answer…like for 4 x 2..take four groups of two beads, and you have eight beads together!
Chart 1
<table><tr><td>4 x 1=</td><td>4 x 6=</td></tr><tr><td>4 x 2 =</td><td>4 x 7=</td></tr><tr><td>4 x 3=</td><td>4 x 8 =</td></tr><tr><td>4 x 4=</td><td>4 x 9=</td></tr><tr><td>4 x 5=</td><td>4 x 10=</td></tr></table>
Answer:
<table><tr><td>4 x 1= 4</td><td>4 x 6=24</td></tr><tr><td>4 x 2 =8</td><td>4 x 7=28</td></tr><tr><td>4 x 3=12</td><td>4 x 8 =32</td></tr><tr><td>4 x 4=16</td><td>4 x 9=36</td></tr><tr><td>4 x 5=20</td><td>4 x 10=40</td></tr></table>*remember you can also write 4 x 1 =4 in another way as:
<table><tr><td>4
x1
—
4</td></tr></table>*Similar charts will be used for multiplication by 5 and 6. The researcher and the students can work together.</td>
<td>whiteboard). I need a 1-digit number as well….yes…4. This is very similar to what Let me show you how to do this with a 2-digit number (researcher showed how to do it step by step as below).
<table><tr><td>Step 1</td><td>Step 2</td><td>Step 3</td></tr><tr><td>31
x4
—
4</td><td>31
x4
—
4</td><td>31
x4
—
124</td></tr></table>*(i) multiply the ones’ place digits (1x4=4). Place the four below the line in the ones’ place column (wrote the number 4 on the whiteboard). (ii) multiply the digit in the tens’ place column(3) by the digit in the ones place of the second number (4). The result is (3 x4 =12). Place the answer below the line and to the left of the 2. So 31 x 4 =124 (example showed to the students on the whiteboard as above).

R: Let’s solve a few more problems together, and you can try to do a few by yourself.</td>
<td>the whiteboard). I need a 1-digit number as well….yes…3. This is very similar to what you did just before with the 2-digit x 1-digit number. Let me show you how to do this with 3-digit number (researcher showed how to do it step by step as below).
<table><tr><td>Step 1</td><td>Step 2</td><td>Step 3</td></tr><tr><td>531
x3
—
3</td><td>531
x3
—
93</td><td>531
x3
—
1593</td></tr></table>
R: Let’s solve a few more problems together, and you can try to do a few by yourself.</td>
</tr>
<tr>
<td>Quiz: /au/ and /aw/ vowel digraphs</td>
<td>Quiz: /ea/ vowel digraph</td>
<td>Quiz: /oo/ and /ou/ vowel digrpahs</td>
</tr>
</table>

Appendix G

Detailed Explanation of the Words in the Burt Word Reading Test (New Zealand Revision)

1 syllable				2 + syllable		
Consonant sounds			Consonant blends/digraphs and vowel digraphs	Syllable breaking		Ambivalent (can be worked out phonically but have to try two pronunciations of some parts)
Regular	Regular	Irregular	Regular	Regular	Irregular	Semi-irregular
	Small set	CVC/CV				
Up	Is (s sounds as /z/)	To (o has a /oo/ sound)	For-or affected vowel	Quickly-qu-ick-ly (qu-blends/ick- vcc/ ly-adverb suffix)	Water (a has the sound of or instead of usual a as in at or a as in ate)	Carry- – it can be carr-ie or car-ree depending on y sound at end of word – or it could be car as in far
Big	He (e as a long e sound. Also in words like she, we, be)	One (w-u-n) – o has uh sound	Girl- ir affected vowel	Return-ur as a vowel digraph	Village (vill-age) – can't say "age" as in "page" because "age" is unstressed vowel in "village" (schwa) – in syllable breaking, should be vil-layj	Known (silent k and also two pronunciations of ow)
At	My (y with a long /i/ sound. Also in words like by, shy, try and why)	Some (s-u-m) – o has uh sound	Boys-oy as a vowel digraph	Scramble-scr-am-ble ("ble " is a syllable type in able, table, cable, stable)	Beware(are- sounds like /air/ normally we would pronounce ar as in car – but there is a small set of words with this spelling, as in care, fare, share, mare. hare	Shelves (shelvez or shelvz)
Sun	His (s sounds as /z/) – same pattern as "is"	Of (f sounds like /v/)	Day-ay as a vowel digraph	Twisted-tw as a consonant blend	Journey – the our is irregular, pronounced as er; they–ey is ambivalent, could be ey as in they, or ey as in key	Emergency(the first e is open syllable – the er is an r-affected vowel – the g is j before an e - and c is "s" before the y – the y has hasee

1 syllable				2 + syllable		
Consonant sounds			Consonant blends/digraphs and vowel digraphs	Syllable breaking		Ambivalent (can be worked out phonically but have to try two pronunciations of some parts)
Regular	Regular	Irregular	Regular	Regular	Irregular	Semi-irregular
	Small set	CVC/CV				
						sound for final position as in baby and quickly (but could be y with an ie sound so is not 100% phonic)
went	No (o has a long /o/ sound. Also in words like go and so)	Love (l-u-v) – o has uh sound	That (th is a regulardigraph and at is a regular vc	Explorer (ex-prefix/ pl/or-blend &er-r affected vowel)	Luncheon-eo is pronounced oh – the e in eo is silent – so irregular, pupil is likely to say lunch - ee - on	Refrigerator (refrygeraytor- the syllable -fri-instead of an open syllable- a long /i/ sound, this is a short /i/ sound)
An		*Tongue the ng is a phoneme But the ue is not pronounced Also the o in tongue is pronounced uh as in up when it is normally o as in on or oe as in oh *exception word- sounds like t-u-ng (1 syllable)	Or-r affected vowel	Projecting (Pro-prefix - Open syllable/ ject/ ing-suffix)	Terror(the er is pronounced uhwhen we normally say or as in for; -or sounds like /uh/ instead of /or/)	Universal (younieversal) Uni or u-niv? Could be open or closed syllable
Wet			Now-ow as a vowel digraph	Belief (-ie is a vowel digraph as in thief and brief) – so is regular be- is an open syllable	Serious (s/ea/ree/yous) In phonics you would say “sir-ie-ous”	Destiny- In phonics you would say “dest-ie-nie” or des-tin-ie or des-tin-ee depending on the y sound at end of word

1 syllable				2 + syllable		
Consonant sounds			Consonant blends/digraphs and vowel digraphs	Syllable breaking		Ambivalent (can be worked out phonically but have to try two pronunciations of some parts)
Regular	Regular	Irregular	Regular	Regular	Irregular	Semi-irregular
	Small set	CVC/CV				
				sound		
Just			Things (th is a digraph- and – ing is vcc – ng is a regular phoneme - And the plural s has z sound	Events (e-open syllable/ vents)	Steadiness (-ea has 2 pronunciations) – the I is irregular, pronounced as ee	
Pot			Told (-old as in fold, bold, cold, gold, hold, mold)	Obtain (ai as an vowel digraph)	Nourishment (Noorishment) – the oo is pronounced irregularly as in uh	
Sad			Nurse-ur as a vowel digraph – the final e is irregular	Overwhelmed(over- prefix/ el- l affected vowel/ ed- suffix)	Encyclopedia (soft C sound and ia-unstable digraph)	
			Fringe (fr-consonant blend / g has j sound before e, i, or y	Commenced (soft C sound)	Theory-unstable digraph	
				Circumstances (the c has an /s/ sound before an I, e, or y – the other patterns are regular)		
				Formulate (or-r affected vowel, u – open syllable,		

1 syllable				2 + syllable		
Consonant sounds			Consonant blends/digraphs and vowel digraphs	Syllable breaking		Ambivalent (can be worked out phonically but have to try two pronunciations of some parts)
Regular	Regular	Irregular	Regular	Regular	Irregular	Semi-irregular
	Small set	CVC/CV				
				late-silent e rule)		
				Motionless (-tion as Latin suffix)		
				Trudging (the g has j sound) -dg indicates short vowel u sound before the dg		
/ 10	/5	/6*	/11	/15	/11	/7