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Chapter 3

Review of Relevant Literature.

3.1 Introduction

The results of a quantitative synthesis by Pflaum, Walberg, Karegianes, and Rasher (1980) point to the overall benefits of training programs in early reading during elementary school. However, even though Pflaum et al. reported on a total of 97 studies they found very few significant differences between variables such as IQ and numbers of children in training groups. The one gain, significantly larger than any other, included teaching children about letters and letter sounds, first separately and then blended together, an explicit-systematic approach. These findings, in essence, will be the thinking behind the design for the proposed training study.

As there is no ideal program, it may be that we could build even better programs - ones that are maximally effective, minimally time consuming, and optimally suited to the needs of our particular students - by selecting, adjusting, and combining the best of existing programs' individual assumptions and activities (Adams, 1990, p.54).

This statement sets the parameters for the proposed study. A wide selection of methods will be reviewed in the following chapter. Those methods which consistently produce significant gains in early reading will be combined with the aim of attaining the ideal teaching program advocated by Adams (1990).

3.2 Training Studies in Early Reading Acquisition Relevant to the Proposed Study

The training studies will be reviewed in three sections: phonemic awareness; phonemic awareness plus alphabet knowledge; and phonemic awareness and alphabet knowledge plus encoding/decoding instruction. This hierarchical model has been selected to demonstrate the usefulness, in particular settings, of each subskill. However, emphasis will be placed on the third grouping as this is the preferred method for the proposed study.

A selection of different models within each section has been chosen to demonstrate different approaches to teaching. Nevertheless, in most instances the different approaches achieve the same goals. Some are better suited to learning - disabled children, some to younger children, and some to teaching in a one-to-one, small group or classroom situation.

Some of the studies which are cited are difficult to categorise as there is some overlap, e.g., the “say-it and move-it” method which is part of several studies comes close to encoding/decoding when combined with letter/sound correspondences. This method requires the child to manipulate tiles, representing phonemes, into boxes representing a word. However, as the children did not have the opportunity to spell or read actual words these studies were not included in the encoding/decoding section.

The proposed study will include a combination of teaching strategies, beginning with phonemic awareness and alphabet knowledge (also referred to as letter-sound instruction by some researchers). This initial phase of instruction will take place when the children are approximately four years old. The second phase of instruction will take place one year later in kindergarten (the first year of formal

school). This second phase will include instruction in encoding and decoding and attempts to answer some of the questions posed by Lewkowicz, (1980);

It would be possible, of course, to follow a phonemic awareness program with any of the standard mixes of phonics and sight words that are taught in most of the schools. It might even be the case that a child well trained in phonemic awareness could indeed deduce phonics principles for himself or herself from sight vocabulary, as some earlier teaching methods assumed. However, it seems likely that methods of working up to decoding can be devised that build on well-developed phonemic awareness skills in a more focused and efficient way. There is a great need for experimentation in this area, which is largely unexplored, perhaps because kindergarten and first grade children with well developed phonemic awareness skills have been so rare in the past (p.697).

In the proposed study, it is predicted that there will be a group of kindergarten children with well developed phonemic awareness skills who should benefit from explicit training in encoding/decoding skills.

3.2.1 Phonemic Awareness Training Studies

Phonemic awareness can be developed before formal reading instruction and contributes to the subsequent acquisition of reading skills (Byrne & Fielding-Barnsley, 1991, 1993, 1995; Lundberg, Frost & Peterson, 1988; Olofsson & Lundberg, 1983; Torgeson, Morgan & Davis, 1992; Williams, 1980). However, there are several points which must be taken into consideration when implementing the training of phonemic

awareness. “We need to look, for example, at length of treatment, intensity, components of treatment, and timing of treatment” (Blachman, 94, p.288). In addition, “Effective instruction in phonemic awareness must be explicit and it must be sequenced logically” (Snider, 1995). By explicit it is meant that phonemic awareness must be related, in some respect, to the ultimate goal of reading (Cunningham, 1990; Williams, 1980, Hatcher, Hulme and Ellis, 1994). Logical sequencing, as suggested by Snider (1995), consists of introducing the easier concepts first and progressing to more difficult concepts. She suggests beginning with an awareness of rhyme, followed by blending, segmenting, sounding out and introducing letter-sound correspondences simultaneously. The following diagram (Figure 3.1) illustrates this progression.

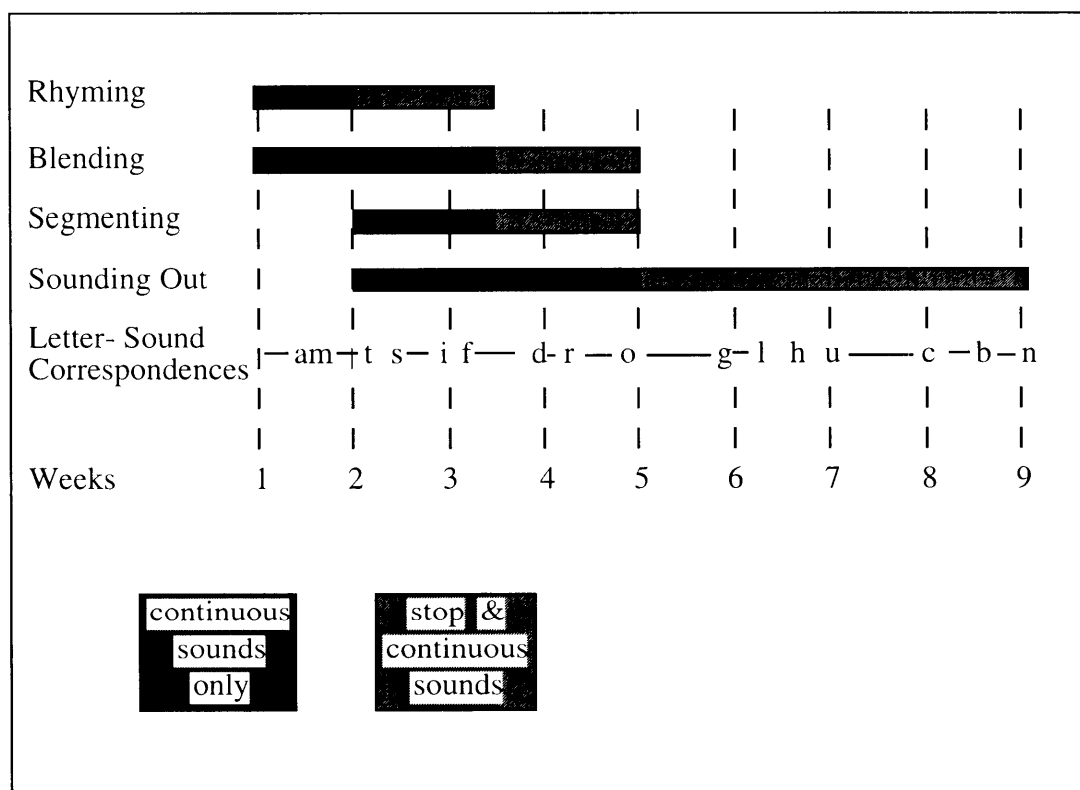


Figure 3.1 Scope and sequence for phonemic awareness activities.(Snider, 1995, p.449)

Some explanation of the terms which are frequently referred to in the following studies is needed. The distinction between auditory and articulatory training methods and those which combine auditory/articulatory skills with concrete/multisensory skills will be explained. Auditory methods include blending and segmenting activities where the skill is first demonstrated by the trainer and then practised by the child. An example of auditory blending would be the trainer saying the word *man* very slowly and then asking the child to guess what the word was. An example of auditory/articulatory segmenting would be to ask the child to break up the word *man* into smaller parts, either *m-an* or *m-a-n*. Blending and segmenting require a very stretched pronunciation of the word so that the child can hear the separate sounds (Lewcowicz, 1980). Sound blending and segmenting are the tasks which are

most closely associated with reading (Lewkowicz, 1980; Lundberg, Olofsson & Wall, 1980). Auditory plus multisensory strategies usually involves the child moving wooden or plastic discs which represent the individual phonemes, the most frequently-used examples being the Elkonin (1963) method and the “say-it-move-it” method used by Ball and Blachman (1988, 1991), see Figure 3.2. The Elkonin (1963) model has been modified by Clay (1985) and used in her Reading Recovery program. These methods introduce blank markers initially which are then replaced by letters.

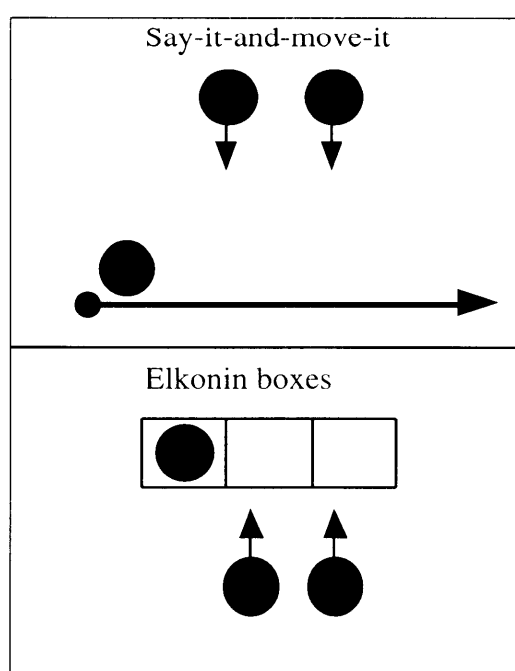


Figure 3.2 Two examples of multisensory activities for teaching segmenting where the discs represent phonemes (Snider, 1995, p.452.)

The more complex tasks which are sometimes used to train phonemic awareness are better left until reading instruction begins since these tasks impose higher degrees of memory and attention. They include counting the number of phonemes in a word, deletion of phonemes in a word, isolating the phoneme which has been deleted, and phoneme substitution. Lewkowicz, (1980) suggests that the

most useful, and easiest, phonemic analysis task is isolating the initial phoneme. This task, along with isolating final sounds, will be used in the proposed study.

Lewkowitz (1980) proposed the staggering of training in segmentation, blending, and practice in decoding, similar to the progression proposed by Snider (1995) in Figure 3.1. She also suggested, along with Lindamood and Lindamood (1969); and Ehri (1996), that it was not necessary to introduce all possible sounds before moving on to the next strategy. It seems to help a student's motivation to start by going through one complete section of a program with just a few sounds (Feitelson, 1988). This method has proved successful in Byrne and Fielding-Barnsley's (1991) study, with the additional finding that the training transferred successfully to untrained sounds.

The term "sounding out" (Snider, 1995), and referred to as encoding in the proposed study, is defined as using letter-sound correspondences to make words. This terminology will be referred to and explained in more detail in section 3.2.3

The following studies, in Table 3.1, cite examples of successful teaching methods to young children. In all instances the training took place *before* the children could read. No explicit letter instruction was included.

Table 3.1 Phonemic Awareness Training Studies

Phonemic Awareness Training Studies				
Study	Sample	Measures	Intervention	Results
Brady, Fowler, Stone and Winbury. (1994)	N = 42 (4 groups) Age 5 years 4 months Low SES	Reading, spelling, phonological awareness	Phonological awareness, phonemic awareness (Lindamood ADD), segmentation Training- 18 weeks	Only significant gains on measures of phonological awareness, none on reading or spelling
Byrne and Fielding-Barnsley (1991)	N = 126 (2 groups) Age 4 years 7 months Preschool	Phonemic awareness, letter knowledge, reading analogue task	Phonemic awareness/initial and final sound sharing in words Training-12 weeks	Significantly higher scores on phonemic awareness for trained and untrained sounds, and on reading analogue task

Table 3.1 continued ...

Study	Sample	Measures	Intervention	Results
Lundberg, Frost and Peterson (1988)	N = 235 (experimental), 155 (control) Age- 6 years (kinder)	Phonemic awareness, reading and spelling preschool plus posttest years 1 & 2.	Phonemic awareness Training- 8 months	Positive but selective effects. Most effect on phonological skills , no comprehension or letter learning effects. Reading and spelling year 2, significant group effect
Torgesen, Morgan, and Davis (1992)	N = 48 Age-5 years 11 months Low phonological awareness	Segmenting, blending and reading analogue tasks	Segmenting and blending versus blending alone Training- 8 weeks	Superior results on reading analogue task for children taught both segmenting and blending

The studies cited in Table 3.1 have shown that it is possible to train phonemic awareness without explicitly relating this instruction to letter names. This training has then transferred to measures of reading.

Other studies have pointed to the advantage of incorporating *articulatory awareness* training in addition to auditory activities. This seems to be particularly advantageous for children with reading disability (Brady et al. 1994). The Lindamood and Lindamood Auditory Discrimination in Depth (1969) is the most commonly used method using an articulatory awareness strategy. This method (ADD*) is covered in more detail in section 3.2.2.1. * Not to be confused with Attention Deficit Disorder.

The following questions posed and answered by Lundberg et al. (1988) are indicative of what training programmes in phonemic awareness aim for and are capable of achieving

1. *Can phonemic awareness be developed by training before reading instruction starts?*
2. *What is actually learned during metalinguistic training?*
3. *Is the training effect lasting, and does it transfer to new metalinguistic tasks?*
4. *Does the preschool training facilitate reading and spelling acquisition in school?*
5. *How specific is the training effect? Does it affect aspects of general language competence, or only skills involved in phonemic analysis and synthesis? (p.267).*

In answer to the first and fourth questions, the studies by Lundberg et al. support the claims that “.....phonological awareness can be developed *before* reading ability and independently of it, and second, that this phonological awareness facilitates subsequent reading acquisition, thus providing unconfounded evidence of a causal link” (p.282). Further support for the first point comes from Byrne and Fielding-Barnsley’s (1991) study, and for the third point from their two follow-up studies, (Byrne & Fielding-Barnsley, 1993, 1995). These follow-up studies showed that the experimental group’s superior results on tests of phonemic awareness transferred to reading and spelling measures at the end of grade 1. In response to question five, the training had a positive but selective effect in the Lundberg et al. study. It did not promote general language comprehension or the tendency to learn alphabet letters informally. Wagner and Torgesen (1987) re-analysed the findings of Lundberg et al. and found that differences in original level of reading proficiency could have been responsible for the observed relations between kindergarten phonological awareness and first-grade reading achievement, thus making ambiguous the causal implications of these data’ (Wagner & Torgeson, p.199).

Torgesen et al. (1992) studied the effects of two types of phonological awareness training in kindergarten children. They made a distinction between analytic (segmenting) skills and synthetic (blending) skills. One group was taught both skills, another just blending skills, and there was also a language- experience only control group. The training program which included both blending and segmenting produced significant improvement in the children’s ability to segment words into phonemes. The blending only group did not show the same significant improvements in comparison with the control group.

Given the fact that concepts are frequently tied very closely to specific contexts in young children, the failure to generalise awareness of phonological elements from synthesis to analysis tasks suggests that training in both types of tasks may lead to a more complete, decontextualised concept of the phonological structure of words than training on a single task. (p.368)

These findings are in contrast to those of Byrne and Fielding-Barnsley who only taught analytic (segmenting) tasks to the children in their study. These children were able to transfer their analytic skills successfully to a reading analogue task. The Torgesen study failed to include an analysis-only group on the grounds that Fox and Routh (1984) found no significant effects on a reading analogue transfer task for an analysis-only training group.

Both the Byrne & Fielding-Barnsley (1991) study and the Lundberg et al. (1988) study lend support for the training of phonemic awareness without the addition of visual support or graphemes. The methods used by Byrne and Fielding-Barnsley (1991) will be examined in detail in the next section (3.2.1.1).

3.2.1.1 Methods of Instruction in Phonemic Awareness

Brady et al. (1994) included the teaching of rhyme and segmentation in their training study but on reflection they cautioned against spending too much time on these activities. The ability to rhyme, a measure of phonological awareness as opposed to phonemic awareness, has been identified as a more natural ability and does not require formal training (Morais, Bertelson, Cary and Algeria, 1986). Rhyming does not require conscious and deliberate manipulation of phonemes. Segmenting

words into smaller units, in the Brady et al. study, was also misleading for some children. Nevertheless a grounding in phonological awareness, utilising rhyme, would not be totally misplaced and could be introduced at a very early age in a preschool setting. Byrne & Fielding-Barnsley (1991) took note of the findings from the Brady et al. study and rather than including training in rhyme, they concentrated on phonemic awareness training in the form of sound sharing amongst words. Byrne & Fielding-Barnsley (1989) had also noted in their previous studies that segmenting was not an effective teaching strategy, especially with the four-year-old children with whom they were working. The segmenting task required each child to imitate a frog puppet that broke up a word by pronouncing the first sound followed by the rest of the word.

The training methods used in the Byrne and Fielding-Barnsley (1991a) study will be incorporated in the proposed study. The main advantages of the Byrne and Fielding-Barnsley study over other similar studies, were the uncomplicated training methods which were completed in a short period of time with significant results. Another important attribute of the program was the actual teaching of the concept followed by practice items, a modeling technique advocated by Rosenshine (1986). However, the proposed study will also include letter/sound training as Byrne and Fielding-Barnsley did acknowledge the fact that the children who knew the relevant letters were more successful on a forced-choice word test.

Byrne and Fielding-Barnsley taught the 64 children in their experimental group that words can begin, or end, with the same sound. They did this using a program which they designed specifically for the purpose of teaching sound invariance. The program, * Sound Foundations (Byrne & Fielding-Barnsley 1991b) consists of a set of large colour posters depicting scenes containing objects either beginning or ending

with the same phoneme, e.g., sun, seal, sand, sailboat, etc., and bus, horse octopus, mouse, etc. (see Appendix B). The program also utilises worksheets, card games and an audiotape, all designed to emphasise sound sharing among words.

The 64 preschool children were trained in small groups of 4-6, for 30 minutes per week for 12 weeks. The children were given examples of the significant target sound and then invited to find an object in the poster which either began or ended with that sound. The control group used the same program but selected objects on semantic grounds, e.g., colour, shape, animicity, edibility, etc.

The findings of the study showed that the experimental group made greater gains in measures of phonemic awareness than the control group. An interesting finding was that this improvement in phonemic awareness extended to sounds which were not trained. The experimental group were also superior on a forced-choice word test. This test involved the child choosing whether the displayed word *sat*, said *sat* or *mat*, etc.

The superior results of the experimental group were maintained a year later, at the end of kindergarten (Byrne & Fielding-Barnsley, 1993) and two and three years later (Byrne & Fielding-Barnsley, 1995). However, the gains were restricted to pseudoword decoding and not to rarer word reading, comprehension or spelling. When the children were reclassified into those who had passed the phonemic awareness test at the end of preschool, and those that had not, irrespective of the training, the passers outperformed the nonpassers on all three literacy measures at the end of kindergarten. This finding adds weight to the causal role of phonemic awareness for the acquisition of literacy.

However, the major shortcoming of the research into training phonemic awareness in isolation has been the “necessary but not sufficient” phenomenon. Most researchers point to the necessity of including instruction in relating phonemes to letters, in addition to training in phonemic awareness for efficient decoding (Brady et.al., 1994; Bradley & Bryant, 1983; Byrne & Fielding-Barnsley, 1991a; Lundberg et al., 1988; Tunmer, Herriman & Nesdale, 1988). The “necessary but not sufficient” phenomenon has been illustrated in the study by Byrne and Fielding-Barnsley (1991a). The results showed that to pass a structured decoding test both phoneme identity and letter knowledge needed to be established. Of the 125 children in the study 39 passed the structured decoding test and of these only 3 were not secure in both phoneme identity and letter knowledge. There were reasons given for these apparent anomalies. One child was secure in initial but not final phoneme identity which was sufficient for him to pass the decoding test. One child failed on her letter knowledge because she was a Japanese speaker and mistook /l/ for /r/ but was still able to pass the decoding test. The third child knew the names but not the sounds of the letters and therefore failed the letter sound knowledge test but was able to pass the decoding test.

The same phenomenon, necessary but not sufficient, has also been noted for the training of letter knowledge in isolation (Ball & Blachman, 1991). “Findings suggest that some minimal level of phonological awareness must be achieved by children before they can derive much benefit from letter-name knowledge” (Tunmer, Herriman & Nesdale, 1988, p. 154).

* Further details of the Sound Foundations program (Byrne & Fielding-Barnsley, 1991b) can be found in the Stimuli section 4.6, page 143.

3.2.2 Phonemic Awareness plus Alphabet Training Studies

The following studies presented in Table 3.2 concentrate on making an explicit connection between the phonemes and the corresponding graphemes.

Table 3.2 Training Studies which Include Letter/Sound Instruction with Phonemic Awareness

Study	Sample	Measures	Intervention	Results
Ball and Blachman (1991)	N= 89 (3 groups) Age- 5.7 yrs	Woodcock Word read Read 21 reg. words Spelling 5 words	Letter/sound correspondences versus Letter/sound correspondences + phonemic awareness (segmenting/Elkonin) Training-7 weeks	Letter/sound + phonemic awareness group significantly higher on all 3 measures of reading and spelling
Blachman, Ball, Black and Tangel (1994)	N = 159 Age 5.6 years Low SES	Woodcock Word read Read reg.real + nonwords Spelling 5 words	Phonemic awareness/ segmenting. Letter/sound correspondences (Elkonin) Training-11 weeks	Experimental group not significantly higher on total Woodcock reading but higher on <i>regular</i> real and nonwords and spelling.

Table 3.2 continued ...

Study	Sample	Measures	Intervention	Results
Bradley and Bryant (1983)	N = 65 Study 2 (4 groups) Age-5.5 years Low phonemic awareness	Reading, Schonell and Neale. Spelling, Schonell	Phonemic awareness (sound categorization) versus phonemic awareness + alphabet knowledge Training - 2 years	No significant difference between 2 groups on reading but significant difference on spelling.
Castle, Riach and Nicholson (1994)	Two studies N = 30 (2 groups) N = 51 (3 groups) Age-5 years Whole language class	phonemic awareness WRAT spelling experimental spelling	Phonemic awareness and sound/letter associations versus language and reading activities. Training- 10 weeks, 15 weeks.	Significant gains in non- word reading and spelling and phonemic awareness for phonemic awareness group.

Table 3.2 continued ...

Study	Sample	Measures	Intervention	Results
McGuinness,McGuinness and Donohue (1995)* * This study will be included in more detail below.	N = 42 (3 groups) 1 st . Grade	Woodcock word identification and word attack	Lindamood ADD program in Montessori and traditional class Training- 8 months	Significant gains on both tests compared to initial performance, larger gains for word attack

* The Ball and Blachman(1991) study has been included in this section rather than in the section including encoding/decoding because: “ During the training children did not have the opportunity to produce (i.e., spell or read) whole words using only letter tiles” (p.56). In all other respects it is closer to the studies cited in section 3.2.3. Similarly, the Blachman et al. (1994) study has been included in this section because: “Selected children were exposed to a small pool of real words. The children in each group who had not mastered letter sounds continued to use blank letter tiles throughout the intervention” (p.8).

From the previous section, 3.2.1, citing training studies in phonemic awareness, it can be deduced that although phonemic awareness is a necessary prerequisite, it is not sufficient for early, successful decoding. Training in phonemic awareness must be connected to knowledge of the alphabetic principle and phoneme/grapheme correspondences (Ball & Blachman, 1988; Bradley & Bryant, 1983; Byrne & Fielding-Barnsley, 1989; Ehri & Wilce, 1985; Tunmer, Herriman & Nesdale, 1988). Nevertheless, some children require an even more explicit connection to be made to the act of reading before they are able to use phonemic awareness and alphabet knowledge effectively (Hatcher, Hulme and Ellis, 1994). This topic will be explored in section 3.2.3.

It has been suggested by Lewkowicz (1980) that using letters to teach phonetic segmentation confuses prereaders and impedes their progress. Elkonin (1973) also suggests that “It is essential that experiences with the sound aspect of language *precede* the learning of alphabetic characters as symbols for sound” (p.559). Hohn and Ehri (1983), however, disputed this proposition and trained two groups, one with letter names and one with only letter markers. The group trained with letter names

produced superior acquisition of segmentation skills and superior results during decoding training suggesting that the children who were taught letter names and phonemic awareness simultaneously were not confused by the combination.

The training study by McGuinness et al. (1995) is of interest to the design of the proposed study as it incorporated multi-sensory teaching in its design. Multi-sensory teaching includes strategies using sight, touch and hearing. A full explanation of these strategies will follow in section 3.2.2.1. This study utilised the Auditory Discrimination in Depth (ADD) Lindamood & Lindamood (1975) method plus some Montessori strategies for the teaching of the graphemes. The ADD program is designed to be taught on a one-on-one basis but these researchers were successful in training teachers to administer the program in a classroom setting.

The first part of the McGuinness et al. (1995) study was intended to develop a predictive reading battery. It was found that the best predictor of reading was the Lindamood Auditory Conceptualisation Test (LAC) “.....which predicted forward in time suggesting that causal effects of prior phonological awareness contribute to more rapid acquisition of the alphabet principle- *if*, that is, it is correctly taught” (p.851). This test was then used to measure the outcomes of two training methods. It is these training methods which are of interest for the proposed study.

The McGuinness et al. (1995) study compared three groups of children, two groups who were taught phonology and phoneme/grapheme correspondences (ADD), and one, whole-language plus prior phonics instruction. One experimental group of 16 children came from a Montessori class and ranged in age from 5.11 years to 7.9 years. The other experimental group of 15 children and the control group of 14

children came from a local private school. Age ranges were similar to those in the Montessori group.

The two experimental group teachers were trained in the ADD program. Details of this program are set out in section 3.2.2.1. In short, the ADD program involves discovery of the alphabetic principle by using kinaesthetic, place of articulation, and visual/ mirror feedback strategies. The ADD program follows the philosophy of Elkonin (1973) and Leukowicz (1980), who both argued that phonology should be introduced prior to letter knowledge. The ADD program is driven by phonology, in the first instance, and not by letter names. Only when the children are secure in their knowledge of phonology are the letter names introduced. Another important factor in this study was the fact that the teachers were asked to tell the children the reasons for using the ADD methods. The teaching methods were made explicit to the children by telling them how the sounds they make when they produce speech are connected to the letters of the alphabet, which in turn are used to write down speech.

The Montessori classroom teacher used the Montessori sandpaper letters with the relevant pictures of the ADD mouth positions pasted on the back. The children were encouraged to trace the letters, say the sound aloud, and check this with their mouth posture. (More specific information on the Montessori method is given in section 3.2.2.1.1). The second experimental group teacher was using a modified whole language approach plus the ADD program. The control group was being taught in a whole language classroom which had some prior instruction in phonics and letter/sound instruction.

The results for the training intervention for the three groups on the Woodcock Word Identification and Word Attack were: Group 1, an age-equivalent gain of 11 months on Word Attack and 19 months on Word Identification; Group 2, 14 months and 28 months respectively; Control group, no significant gains. While these results point to a significant difference between the two experimental groups, a further analysis showed this not to be the case. When posttest minus pretest scores were used as the basis of the analysis, both experimental groups differed significantly from the control group but not from each other (Tukey test). “This seems like clear evidence that training in English phonology and the systematic mapping of phonemes to graphemes is superior to the whole-language-plus phonics approach used in the control classroom” (p.849). This finding will be taken into account in the design of the proposed study. Two groups of phonemically aware children will be compared using both a whole-language approach and an encoding/decoding approach.

An interesting finding in the McGuinness et al. (1995) study was that all three groups improved on the LAC test of phonological awareness. “The fact that the control group continued to improve on the LAC test but failed to increase in reading standard scores shows that phonological processing improves by learning to read, but that phonological processing alone is not *sufficient* cause for reading success” (p.848).

McGuinness et al. (1995) have made some modifications to the ADD program and still achieved equal success to their prior studies. These modifications have included dropping collective names for groups of sounds, e.g., “lip poppers” for bilabial plosives. A modified Lindamood approach, following these constraints, will be applied in the proposed study. The Montessori method utilising sandpaper letters will also be incorporated in the proposed study.

3.2.2.1 Methods of Alphabet Instruction

“Familiarity of the letters of the alphabet and awareness of the speech sounds, or phonemes, to which they correspond, are strong predictors of the ease or difficulty with which a child learns to read” (Adams, 1990, p.7). Share, Jorm, Maclean and Matthews (1984) also found that the strongest predictors of reading in kindergarten included familiarity with the alphabetic code.

It is a well established fact that a secure knowledge of the alphabet is indispensable for accurate decoding (Chall, 1967; Bond & Dykstra, 1967). Gough and Hillinger (1980) described our written language as a cipher and the alphabetic principle as its key. Consequently it is imperative that children become familiar with the alphabet in the most effective and efficient manner. There are several questions to be raised on this issue: When to begin instruction? How many letters to introduce before reading instruction proper begins? In what order to introduce the letters? Whether to teach letter names or letter sounds?

The first of these questions, when to begin alphabet instruction, is in part imposed by the education system. As most children enter the state education system, in Australia, at the average age of five, instruction begins at about this time. Other schools, also in Australia, do vary in their methodologies. The two schools which take completely opposing views to each other, and to the state system, are the Montessori schools and the Steiner schools. The Montessori schools begin alphabet instruction in the preschool years whereas the Steiner schools wait until the children are approximately seven years of age. These two methods are discussed in more detail in the next section, “Multi-sensory approaches to alphabet instruction.”

The second question concerns how many letters to teach before reading instruction begins? Adams (1990) presents an overview of eight teaching programs used in the U.S.A., some of which are also used in Australia. These programs vary from introducing as few as 7 letters to as many as 20 in the first half of first grade (p.241). Once a productive group of letters has been thoroughly learned, a mixture of vowels and consonants, it is then possible to construct a battery of words to begin instruction in decoding. One can then introduce more letters later to expand the potential number of words. It is the understanding of the fundamental nature of the alphabetic system which is important.

In what order are letters introduced? Most programs begin with the letters which can be introduced in isolation with the least distortion, e.g. /f/, /m/, /l/, and /s/. (Adams, 1990). Linguistically they are referred to as “continuants”, these four letters are examples of sounds that can be “held” or “continued”. Most programs also introduce the single sound consonants first, that is they do not introduce the letter /c/ which has more than one sound. Short vowel sounds are usually introduced before long vowel sounds. The long sound vowel introduces various complex rules, e.g., word final /e/. It is easier to introduce a simple CVC (Consonant, Vowel, Consonant) word initially than a longer word with complex rules.

Contrary to the suggestions put forward by Adams (1990) is the idea proposed by R.Treiman (personal communication, March, 19, 1997). Treiman suggests that it is preferable to introduce the letters which begin with their name first e.g., b, p, t, and v as opposed to those which begin with a vowel sound e.g., f, l, m, and s. The preliterate children in Treiman’s study found it easier to select words which began with the letter name followed by a vowel than those which began with a vowel

followed by the letter name. The most difficult words to match by their beginning sound were those which did not contain the letter's sound in their name e.g., h, r. and w.

Are letter names or letter sounds taught? Adams (1990) suggests that both letter names and letter sounds need to be taught but that they should not be introduced simultaneously. Either the letter names should be thoroughly overlearned before the sounds are introduced or vice-versa. As the important link is that between the printed letter and its corresponding sound it seems more sensible to teach a priori the sound of the letter rather than its name first (Adams, 1990). However, Ehri and Chun (1996) suggest that if children come to school knowing the names of the letters as a result of viewing such programs as Sesame Street, then teachers would be wise to build on this knowledge to teach letter sound relations.

It will be crucial in the proposed study that the children learn six letters of the alphabet. The dependent variables, a forced choice reading task and reading/spelling novel words, depend on the children being secure in their knowledge of these six letters. In prior studies it has been difficult to separate the effects of phonemic awareness, alphabet knowledge and decoding/encoding instruction because some children have not mastered the letter knowledge component. "Although it is possible that similar phonological performance accounted for similar reading performance, it is more likely that limited letter-sound correspondences required for the reading analog depressed potential advantages that were due to greater letter knowledge for the highly skilled children" (O'Connor, Jenkins & Slocum, 1995, p.209). Alphabet instruction consisted of showing the children eight letters and asking them to give the sound for

each. In the proposed study it is intended to use multi-sensory methods to ensure that the children are secure in the knowledge of six letter-sound correspondences.

3.2.2.1.1 Multi-sensory approaches to alphabet instruction.

In this section, research on the most effective methods of teaching the alphabet will be reviewed. The Montessori, Lindamood and Orton-Gillingham methods will be the three main methods reviewed, all three methods employing some form of multi-sensory approach.

The multi-sensory approach allows children the opportunity to develop mental representations in all sensory modes. Early philosophers, including Plato and Aristotle, noted the importance of mental imagery. Plato linked imagery to memory, while Aristotle felt that images provided substance for thought (Daniels-McGhee & Davis, 1994). Paivio's (1971) "dual-coding theory" proposed two mental coding systems, one visual and one verbal. This proposal is consistent with brain hemispheric specialisation research that ties verbal processes to the left hemisphere and visual-spatial processes to the right hemisphere. Paivio proposed that learning would be more efficient when both visual and verbal systems were involved. Piaget has included mental imagery in his theories and models. In Piaget's conception of developmental stages, during the sensorimotor and preoperational phases, images are the primary form of mental representation involved in thinking. Piaget suggests that images go beyond their role as copies of what we see, hear, or feel; they are symbols that participate in the construction of knowledge, the construction of mental schemata (Piaget & Inhelder, 1969).

3.2.2.1.1.1 The Montessori Sensorial Approach.

“The beginning of the development of the intellect is brought about by the intelligence working in a concentrated way on the impressions given by the senses” (Homfray & Child, 1983, p.60). The use of the three modalities (visual, auditory and kinaesthetic) may improve memory, perhaps by the establishment of multiple memory traces (Hulme, 1987).

The Montessori method utilises the three senses; sight, touch and hearing, when introducing the alphabet. The letters of the alphabet are outlined in sandpaper on individual cards. The child is shown how to trace the shape of the letter with two fingers following the same direction in which the letter is normally written. The children are also encouraged to repeat the phonetic sound of the letter as they are tracing it.

The Montessori method also advocates learning to spell words by using movable alphabet letters. “As the child uses the movable alphabet, he is acquiring a familiarity with the letters that is a preparation for reading and writing as well as spelling. Familiarity with the letters is obviously necessary before reading and writing are possible” (Homfray & Child, 1983, p.83).

Montessori suggests that preschool children, four to five year-olds, are highly sensitive to learning new concepts about language and in particular reading. Montessori advocates suggest that acquiring these concepts is more difficult for children at six years of age. These concepts are in stark contrast to those put forward by Steiner, the originator of a widely used philosophy of reading; “The memory ought to be left alone up to the time of the change of teeth...Unless there is an all-round

development of the physical body, the memory will be impaired in some way...An undue development of the memory will injure the child for the whole of life” (Steiner, 1981, 182-183).

However the Steiner method does advocate the use of kinaesthetic senses. “The letter sounds are all taught through eurhythm. That is, children move on sound ‘gestures’, enacting the inner quality of the sounds in whole body movement, as directed by the eurhythmist’s movements. Children copy these movements in rhythm with relevant verse or poetry. Teachers considered that because children ‘live’ the various sounds, a sound sensitivity is created which facilitates later work on phonics” (Manassen, 1993, 128-129). In conclusion, while the Steiner methodology does advocate a multi-sensorial approach to alphabet instruction, it suggests that this is best left until the child is approximately seven years of age.

The main focus of the Montessori method when teaching the letters of the alphabet is “tracing” the letters. There has been some controversy on the efficacy of using this method. Beech, Pedley and Barlow (1994) have studied the importance of tracing letters in order to learn letter-sound connections. Their results indicated that the kinaesthetic experience of tracing around letters on a computer screen did not appear to confer any extra value in teaching letter-sound connections, in terms of improvement on a letter-sound test (Beech et al. 1994). It could be argued that the kinaesthetic methods which they used were not akin to those which have shown beneficial results in the work of Hulme (1987) or the sandpaper letters used in the Montessori method. The kinaesthetic method used by Beech et al. (1994) was for the child to trace the outline of the letter on a computer touch screen with a pen. This cannot really be compared with the tactile experience of feeling sandpaper letters with

the tips of the fingers or feeling plastic letter shapes which have been used in studies by Bradley (1988) and Bradley & Bryant (1983).

3.2.2.1.1.2 The Orton-Gillingham Approach.

The Orton-Gillingham approach is similar to that proposed by Montessori. The basis for their training depends on the simultaneous association of visual, auditory and kinaesthetic fields; ie., tracing and sounding the visually presented word and maintaining consistent direction by following the letters with fingers during the sound synthesis of syllables and words. Orton was mainly interested in remediating reading disorders but his methods have also been used widely with beginning readers. Henry (1990) has developed a set of tutorial exercises which are based on the Orton-Gillingham approach. She advocates that each part of the tutorial should include visual, auditory and kinaesthetic reinforcement. The visual element is described as seeing a letter or letter combinations. The auditory element refers to hearing letter and letter combination sounds either individually, within syllables, or within words. The kinaesthetic-tactile element refers to both hand-arm movements and lip, tongue and throat movements. The Orton-Gillingham approach also alerts teachers to the possibility that children may have a preferential modality and that exercises should be tailored to suit the child's individual needs.

The proposed study will incorporate the teaching of a set of graphemes which will utilise a combination of strategies as used by Montessori, Steiner, Orton and Gillingham, and advocated by Adams and Hulme.

3.2.2.1.1.3 The Lindamood Method.

The teaching of the alphabet, or graphemes, is only part of the total Lindamood method. The ADD (Auditory Discrimination in Depth) programme first introduces the concept of phonological awareness. Once the foundation of phonological awareness is in place then the orthography is introduced. Particular reference is made to the articulatory actions that produce each phoneme, similar to the methods used in the Orton-Gillingham approach. “The program is designed to establish awareness of specific auditory, visual, and kinesthetic relations among articulated phoneme contrasts” (Calfee, Lindamood & Lindamood, 1972, p.298). Students learn to use sensory information from the eyes, ears, and mouth to identify, classify, and label phonemes. For example, the bilabial plosives /p/ and /b/ are called “lip poppers” because of the articulatory processes involved. In contrast, the alveolar stops /t/ and /d/ called “tip-tappers.” This process adds an extra dimension to the learning process in that the learner now has a label for each group of phonemes. Once the process of phonological awareness is mastered the student is then introduced to the letter symbols, or graphemes, associated with the phonemes. The letters are presented on separate manipulative tiles which emphasise the tactile sensory approach.

Studies evaluating the Lindamood approach have shown positive results for both young (6-7 year olds) and older (18+ year olds) disabled readers (Truch, 1994). In this study a group of children (n=281) were instructed with the Lindamood ADD program. Sixty percent of the sample were from the age-group 6-12 and the remaining forty percent were 13 and above. An informal sound-to-symbol test developed at the Lindamood-Bell clinic (SS Test), in which 32 phonemes are tested, was used to measure “phonics” connections. On this sound/symbol test 88% of the

students obtained a score of 30/32 or greater. The 6-12 age group also made impressive gains on the Woodcock Word Attack sub-test which is a measure of decoding ability. Grade equivalent gains of 2 years were made by 30% of the sample, 2-4 years gain by 33% and 4 years or more by 37% of the sample (p.73). These results are indeed impressive but care needs to be taken when interpreting these results as there was no control group used in the study. As each student was given 80 hours of individual tuition it could be argued that this was the controlling factor rather than the ADD programme itself.

A study conducted by Calfee et. al (1973) showed a substantial correlation between scores on the Wide Range Achievement Test (WRAT) and the Lindamood Auditory Conceptualisation Test (LAC). The WRAT measures combined reading and spelling scores. “The results suggested that the ability to manipulate the phonetic components of the spoken language has an important bearing on the development of reading skill” (p.293). More than 50% of the total variance in reading ability could be predicted from the student’s ability to perform the acoustic segmentation task. A large sample of 660 students, from kindergarten to twelfth grade, was recruited for this study. An interesting bi-modal distribution was evident with one third to one -half of the students in the upper bracket with scores of 43/60 or higher and the rest with scores between 20-35. “Those students in the upper bracket have a high probability of scoring (.85) of reading at or above grade level; those scoring below 43 points are most likely (.71) to perform below grade level” (p.297).

The implications of Lindamood studies for the proposed study are explained in part by the writings of Fletcher (1992) who stresses the importance of the “motor memory schema” within which the complex acts of speech, or phoneme perception,

and production occur. McBride-Chang (1995) also stresses the importance of speech perception for phonological awareness and suggests that linguists and reading researchers should combine in cross-disciplinary research. Fletcher describes motor memory schema as a development which requires experiences with discriminated sensory and motor attributes. A vocal schema in which the auditory, oral-motor, and visual attributes of speech sounds are processed in parallel as they enter the person's perceptual field. The attributes are linked together to define phonemes as articulatory gestures which are associated with speech, and by repetition are stored in a motor memory bank as stable phonetic precepts. The proposed study will incorporate the teaching of phonemic awareness with alphabet instruction which will follow those concepts put forward by Fletcher and implemented in the Lindamood-Bell ADD program and the Orton-Gillingham approach.

3.2.2.1.1.4 Mnemonics as an aid to alphabet instruction.

The proposed study will also utilise pictorial mnemonics to assist in teaching letter-sound associations. Mnemonics are used as a device to assist the memory. In this context, pictures which begin with the relevant letter sound, e.g., a picture of a snake is transformed into the letter /s/. Examples used by Ehri, Deffner and Wilce (1984) in their research were; an /f/ was represented by the stem of a flower, a /w/ by a pair of wings and /l/ by a lamp. The highlighted shapes of the letters were actually included in the pictures which began with the relevant letter sound. Ehri et al. also trialed the use of disassociated pictures in their study. Disassociated pictures are those which are not incorporated with the shape of the letter, e.g., incorporated /v/ is presented as a /v/ shaped vase whereas the disassociated picture represents a round

vase. The implementation of integrated pictures as opposed to the disassociated - picture group indicates that the integrated style of picture produces superior results. At posttest the integrated picture group made much greater gains than the disassociated picture training group, $F(1,9) = 13.05, p < .01$.

Other studies using disassociated pictures similar to those used by Ehri et al. (1984) have not shown promising results (Marsh and Desberg 1978). Coleman and Morris (1978) used a complex association of letter sound and picture, e.g., a camel eating an ice cream, the hump forming the letter /m/ and the camel saying /mmmm/. This could be confusing even though it uses a similar integrated format as Ehri et al. used, Coleman and Morris (1978) failed to gain superior results for their experimental group trained with integrated mnemonics. However Ehri et al. did note that there were some problems in their study which will be noted in the design of the proposed study. The main problem was that the pictures seemed to capture the learners' attention at the expense of the letters. Ehri et al. pointed to the fact that having the subjects draw the pictures may have been responsible. They suggested that future studies may determine whether the drawing activities might be eliminated without reducing the effectiveness of integrated pictures in learning. The proposed study will incorporate drawings illustrated by the writer to investigate this problem. The proposed study will also focus on another question proposed by Ehri et al., "...to verify that prereaders taught letter-sound relations with integrated picture mnemonics can then use this knowledge effectively to begin reading words" (Ehri et al. 1984, p.892-893).

3.2.3 Phonemic Awareness, Alphabet, plus Decoding/Encoding Instruction

One technique that shows considerable promise is encoding, or deductive spelling, that is, figuring out the spellings of regularly spelled (“short vowel”) words from their sounds. Once a child has mastered segmentation and memorised some sound-letter correspondence, he or she has all the skills necessary for this task, provided he or she is allowed to use some kind of preformed letters rather than writing (Lewkowicz, 1980, p.697).

Goswami and Bryant (1990), see the integration of spelling knowledge into the reading process as a move from independancy of the two processes to an interdependency. They see this as a true stage in literacy development because it represents a qualitative change in the relationship between reading and spelling knowledge.

Table 3.3 presents a summary of instructional methods which include a decoding/encoding component as proposed by Lewkowicz, (1980). The research reviewed demonstrates different strategies, including one-on-one, small group and whole class decoding/encoding instruction. There are also learning disabled and language delayed children involved in respective programs. It was considered that programs which are effective for these children would also be effective for the cross section sample in the proposed study. Several studies have incorporated a method of instruction which emulated that of Elkonin (1973). This method of instruction will be elaborated on in section 3.2.3.1, as the proposed study will also use a modified form of Elkonin’s strategies.

Table 3.3 Studies Using Combinations of Phonemic Awareness, Alphabet Knowledge and Encoding/Decoding Instruction.

Study	Sample	Measures	Intervention	Results
Blachman (1987)	N = whole classes Grades 1-3	Reading. Iowa Test of Basic Skills	Code-Emphasis (Elkonin) phonemic awareness, alphabet knowledge and encoding/decoding.	Six to seven months above national norms.
Bradley (1988)	N=60 (4x15) Age/Training 6 years Follow up 9 years	Reading. Neale and Schonell Spelling. Schonell	Phonemic awareness and visual orthographic (alphabet knowledge and encoding/decoding) Training-4 months	Group 1 (combined treatments), made most improvement over single treatment groups.
* Bryant and Bradley (1985) * Study included in more detail in next section	N=65 (4 groups) Age 6 years	Reading. Neale and Schonell Spelling. Schonell	Phonemic awareness, alphabet knowledge, and encoding/decoding. Training-2 years	Group 2 (combined treatments), 23 months ahead of no treatment G4

Table 3.3 continued ...

Study	Sample	Measures	Intervention	Results
Cunningham (1990)	N=42 (4 groups) Age 5 years 11 months	Phonemic awareness Reading, Metropolitan RAT and Otis-Lennon School Ability Test.	Phonemic awareness, segmenting and blending explicit to reading. <i>No letter/sound relationship.</i> Training-10 weeks	Metalevel /explicit training group significantly better on measures of reading than skill and drill group.
* Ehri and Wilce (1987) * Study included in more detail in next section.	N=24 (2 groups) Age 5 years 7 months	Non-word spelling Word learning Segmenting	Experimental, encoding/decoding. Control, letter/sound matching Training-approx.5 weeks.	Significantly superior results for Experimental group (see next section)
Hatcher, Hulme and Ellis (1994)	N =128 (4 groups) Age 7 years Reading disabled	Reading—non-word, accuracy and comprehension. Spelling	Phonemic Awareness + Reading = P/A + R(Clay, 1985), P/A alone, R alone Training-20 weeks	P/A + R group significantly more progress on all measures, maintained after 9 months.

Table 3.3 continued ...

Study	Sample	Measures	Intervention	Results
Hohn and Ehri (1983)	N = 24 (3 groups). Age 5 years 6 months.	Segmentation Decoding	Segmentation with and without alphabet letters. Decoding training. Training-to criterion.	Superior results for segmentation with letters group on segmenting and decoding.
Korkman and Peltomaa (1993)	N=46 (2 groups) Language impaired Age 6 years 1 month (Norway, children still at preschool).	Mechanical reading. Reading comprehension. Spelling. (Ekebom, Kivela & Harkonen)	Phonemic awareness, grapheme-phoneme conversion, encoding/decoding. Reading to group. Training-one year.	Posttest at 2 years after treatment showed significant gains for experimental group on three of four measures of reading and spelling.

Table 3.3 continued ...

Study	Sample	Measures	Intervention	Results
O'Connor, Slocum, & Jenkins(1995)	N = (3 groups) 67 (low-skilled, 25 high-skilled, control. Kindergarten. Low phonological awareness.	Lindamood Auditory Conceptualisation Test (LAC) Segmenting/blending Reading analog/learning trials.	Blending/segmenting (Elkonin). Letter-sound correspondences. Training-10 weeks.	Treated groups to levels of high-skill group on segmenting/blending, LAC and reading analog. Treated groups /no difference from each other.
O'Connor and Jenkins (1995)	N = 20 (2 groups). Developmentally delayed. Kindergarten.	Woodcock Reading Mastery, Words and Non-Words. Spelling (words from curriculum).	Segmenting, letter knowledge, spelling. Training- 4 weeks (20x10 minutes).	No improvement in blending/segmenting over control. Significant improvement on spelling and reading real words but not Woodcock non-words.

Table 3.3 continued ...

Study	Sample	Measures	Intervention	Results
*Uhry and Shepherd (1993) * Study included in more detail in next section.	N = 22 (2 groups). Whole language class. 1 st grade.	Woodcock Reading. Gray oral reading. Comprehension. Spelling. Segmenting/blending.	Letter/sound. Segmenting/spelling. Computer games. Training- 6.5 months.	Significant gains over controls in reading real and non-words, oral reading, segmenting and spelling but not in silent comprehension.
Williams (1980)	N = 51 + (36 in comparison group). Age-7-12 years. Learning disabled. (2 studies)	Phoneme analysis/blending. Letter/sound correspondences. Decoding.	ABDs of Reading Program Analysis, Blending, Decoding. (Elkonin) Letter/phoneme correspondences. Twenty-six weeks intervention.	Experimental group significantly ahead of control on reading novel real and non-words.

The results of the cited studies indicate that the inclusion of an encoding element produces superior results in standardised measures of reading. Of particular importance are the studies which show the maintenance of these results at posttests (Hatcher et al. 1994; Korkman & Peltomaa, 1993).

The following definitions of *decoding* and *encoding* will make the subsequent discussion more intelligible. Henry (1993) defines decoding as “..the skills and knowledge by which the reader translates printed words into speech, or how a reader pronounces a word in either silent or oral reading” (p.105).

Encoding is referred to by most researchers as “spelling” or the representation of phonemes with letters (Uhry and Shepherd, 1993). The main difference between encoding and decoding (blending) is that encoding requires a form of segmentation. Lewkowicz (1980) likens the act of segmenting as taking the whole apart and then putting those parts back together again. She suggest that encoding is easier than decoding and that it may facilitate mastery of decoding. She explains her theory thus;

This kind of spelling (as opposed to spelling a difficult word like pneumonia) puts no strain on the memory other than remembering sound-letter correspondences. Once the child has put the first letter in place, he or she can forget about it and move on to the next sound-letter correspondence, though he or she might need to begin his or her segmentation over again. In decoding, on the other hand, though it is to a certain extent a mirror image of the encoding task, it is necessary in performing the blending operation to remember the correct order of all the sounds already derived while simultaneously deriving new ones by applying letter-sound correspondences rules (Lewkowicz, 1980, p.698).

The spelling of a word requires complete letter-sound relationships to be made. “The integration of spelling knowledge into the reading process is a developmental milestone in the acquisition of literacy” (Foorman, 1995).

In the following study by Ehri and Wilce (1987) encoding is referred to as spelling. The writer regards these two terms, encoding and spelling, as being interchangeable. Spelling/encoding is initially more dependent on phonological skills than reading (Funnell & Stuart, 1995). Research by Perin (1983) supports this claim with results from her study in which she compared good readers/poor spellers, good readers/spellers and poor readers/spellers. The poor spellers, irrespective of their reading ability, had more difficulty compared to good spellers operating on the phonemic level of speech. Perin (1983) suggests that awareness of phonemes may be important at the very beginning in the acquisition of spelling but later in the acquisition of reading. Support for this theory is provided by Bryant and Bradley (1980) who suggest that very young readers/spellers rely on a direct, visual route for reading and an indirect, phonological route for spelling. Read (1986) also suggests that in the early stages of spelling, children rely primarily on their pronunciation of words when trying to work out how words should be spelled. Perin suggests that further studies of phonemic awareness will be more informative if spelling ability as well as reading skill is taken into account. The relationship between phonemic awareness and spelling will be taken into account and utilised in the proposed study, in which the main teaching focus is on developing phonological skills.

There have been few studies which actually link learning to spell and beginning reading skill. However there has been one notable study by Ehri and Wilce

(1987). In their study, Ehri and Wilce trained 12 children with a mean age of 5 years 7 months to segment and spell real words and non-words. The words were constructed out of 10 sound-letter pairs: 6 consonants and 4 vowels. Seven lists comprising 147 words of different lengths were taught. A matched control group was taught to match letters to isolated sounds. The trained group was provided with sets of letter tiles, which they used to spell the words. Each word was pronounced, the subjects repeated it and then placed the letters in a frame to spell the word. As the subjects positioned each letter, they pronounced each sound. At posttest, both groups were given several learning trials to read a set of 12 new words. The results on this posttest confirmed the value of training in spelling for word reading skill, with the trained subjects outperforming the control subjects. On the spelling production, posttest results were even more impressive for the trained group. The trained group spelled an average of 9/12 non-words correctly whereas the untrained group spelled 3.4/12 non-words correctly. Also of interest was the superior performance of the trained group on spelling non-words which contained clusters. “The difference favouring trained over untrained subjects was much greater on the CC (consonant cluster) units than on the singleton consonant units” (p.58). Trained subjects made errors on a mean of 33% of CCs compared to an error rate of 72% for the untrained group. This trend was also evident in Uhry and Shepherd’s (1993) study which will be cited in this section. Isolated letter sound training, which the untrained group received, improved their spelling of individual sounds in words but it was not sufficient for improving the spelling of complete words. “Spellers also need practice in how to break pronunciations into constituent units for representation with letters,

especially units containing consonant blends” (p.58). Consonant clusters will be incorporated into the training and transfer stages of the proposed study.

Unfortunately the Ehri and Wilce (1987) study failed to include any measure of phonemic awareness. If some children in the study were deficient in phonemic awareness skills, it could help explain why the mean performance of trained subjects on the final word reading trial was comparatively low, at a mean of 5.5/12 words correct. It could also explain why the children in their study tended to use what Ehri and Wilce term, “phonetic-cue” strategy rather than “cipher” reading. “Cipher reading develops when children learn the alphabet, acquire phonemic-segmentation skill, internalize the orthographic rules of English, and thus understand how spellings systematically correspond to pronunciations” (p.3). The less mature phonetic cue strategy is when printed words are associated with spoken forms through partial processing of letter cues. In the proposed study the children will be trained in phonemic awareness prior to instruction in spelling/encoding which should enhance performance both in the more mature cipher reading and, in turn, novel word reading.

Uhry and Shepherd (1993) explored the effects of segmentation/spelling instruction within the context of a whole language program which incorporated invented spelling. The study examined the effects of spelling instruction on the acquisition of the cipher strategy. The hypothesis, also proposed by O’Connor et.al. (1995), was that segmentation training would provide an advantage in blending even though blending was not taught directly.

Uhry and Shepherd (1993) used similar letter blocks representing phonemes to those used by Bryant and Bradley (1985) and Ehri and Wilce (1987). They also used computer keys and computer games to reinforce segmentation training. The

experimental group was taught segmentation / spelling skills using the phonetically regular weekly word list from the classroom. Each child was given a set of blocks which were colour coded, for consonant and vowel sounds, a similar technique to that described by Elkonin (1973). The children listened to a word said aloud by the instructor, echoed the whole word, and then said each separate phoneme aloud whilst representing it with a wooden block. The whole word was then repeated by the child. At a later stage the colour coded blocks had stick-on letters attached to them. Following the segmentation training the children played computer games which followed the steps in the initial training phase; listen to a word, say it aloud, spell it aloud, write and read it on the computer. Additional games involving analysis of spoken words were also played. The control group spent an equivalent amount of time with the instructor but no explicit training in segmenting sounds from words was given.

The results of the Uhry and Shepherd (1993) intervention showed superior results for the trained group on several measures of reading, unlike the Bryant and Bradley (1985) study which only measured oral reading. The measures used by Uhry and Shepherd were nonsense word reading, timed word reading, and timed oral passage reading. The trained group also made significant gains in segmenting and spelling, which suggests a causal role for the training.

As with the Ehri and Wilce (1987) study, the trained group were superior in spelling CCVC words. Uhry and Shepherd (1993) make a case for the possibility that segmenting one consonant from another in a cluster could make an important contribution to phonological awareness.

One of the shortcomings noted by Uhry and Shepherd (1993) in their study was that it was difficult to ascertain whether there was a causal relationship from blending to reading or whether reading influenced blending. Ehri (1987) makes a case for increased exposure to print/reading improving performance on phonological skills and consequently, blending. In the proposed study it will be possible to separate the influence of training in phonemic awareness and spelling from the effects of prior reading. The children in the proposed study will have had no experience of reading prior to training.

Another less significant problem was one which was also apparent in the Ehri and Wilce (1987) study, where the numbers of subjects were too small for a persuasive statistical analysis. Each group, in the Uhry and Shepherd (1993) study, consisted of 11 children, only one more than in the Ehri and Wilce study. The proposed study will plan to have at least twice this number in each group.

The claims which Uhry and Shepherd (1993) made for the superiority of their trained subject in using a cipher strategy compared to Ehri and Wilce (1987) trained group could be partially explained by the age difference in the two groups. The children in Uhry and Shepherd's group were one year older than those in the Ehri and Wilce study. The more mature cipher strategy may have been used in preference to the less mature phonetic cue strategy due to additional exposure to print in the additional year. Whereas the Ehri and Wilce study trained 5 year olds for a period of only one month, the Uhry and Shepherd study involved first grade children (6.5yrs) for almost a whole school year.

As with the Ehri and Wilce (1987) study, the Uhry and Shepherd (1993) study makes no reference to levels of phonemic awareness in the control and experimental

children at pre and posttesting. One study which combined pre and post measures and instruction in phonemic awareness, plus instruction in spelling, was that of Bryant and Bradley (1985).

The Bryant and Bradley (1985) study included a pretest for phonemic awareness. This test involved the child spotting the “odd one out” in a group of four words for five year olds and a group of three words for four year olds. An example of the alliteration test for four-year olds was, spot the odd one out in bus, bun, rug and for five-year olds bud, bun, bus, rug. This distinction is important for the proposed study which will consist of mainly four year old children. The children in the Bryant and Bradley study were tested on their knowledge of initial, medial and final sounds in words. The initial sound at five years (alliteration) was the strongest predictor of success in reading and writing. This finding was contrary to the findings for the four year olds where detection of initial sounds was weaker than that for medial or final sounds. Both medial and final sound detection involved a form of rhyme which could help to explain this anomaly. This finding was also explained by the fact that the children were being taught alliteration when they started kindergarten class. In a later study, the strong effects of alliteration were also demonstrated. “When alliteration was entered last after rhyme and joint rhyme/alliteration, it accounted for 71% of the variance in spelling, 76% in the Schonell test, and 74% in the France reading test” (Bryant, Maclean, Bradley, & Crossland, 1990, p.433).

As the proposed study will incorporate training in alliteration and final sounds, it will replicate the kindergarten class group in the Bryant and Bradley (1985) study. Only the detection of initial and final sounds will be tested for in the proposed study.

The Bryant and Bradley (1985) study involved 65 children comprising four groups; one group received training in sound categorisation only, one in sound categorization and in constructing words with plastic letters, one in conceptual categorisation and one group which received no training at all. The study covered a period of two years with forty individual training sessions. The average age of the children at the beginning of the study was 6.1 years.

The instruction in sound categorisation involved the children selecting words on the basis of common sounds using pictures of familiar objects. This method will be used in the proposed study. During the second half of the study the children in Group 2 were introduced to the plastic alphabet letters. As the children were now in their second year at school it was not necessary to teach them the letter/sound associations. The children were shown the relevant picture for the learned sound and then invited to select the letters that they needed to make the word.

The results showed a clear advantage for both the trained groups over the untrained groups, demonstrating that sound categorisation has a positive effect on learning to read and write. The comparison between the two trained groups, categorisation alone versus categorization plus training with plastic alphabet letters, showed a distinct advantage for the second group in both reading and, particularly, spelling.

It is not possible to separate the effects of the type of sound categorisation in the Bryant and Bradley (1985) study, that is, the difference between alliteration, medial sound, final sound, and rhyme. However a connection has been reported by Bryant et.al. (1990) for rhyme making a direct contribution to reading, but a weaker one to spelling, and that this is independent of the children's sensitivity to phonemes.

In the proposed study, only two categorisations will be used, alliteration and final sounds. This will in effect narrow the treatment effects and also serve to make the instruction easier.

Bryant and Bradley (1985) raise the question as to whether their training would be as effective if it were not delivered on a one to one basis as it was in their study. The proposed study will attempt to answer this question by teaching the children in small groups of four to five. The training studies of Ehri and Wilce (1987) and Uhry and Shepherd (1993) also taught on an individual basis. Cunningham (1990) taught her children in small groups of 4-5 but her instruction focussed only on phonemic awareness and did not include letter-sound correspondences or decoding/encoding instruction. By teaching in small groups in the proposed study it will also be possible to accommodate a bigger sample of children in each condition.

The advantages of teaching an integrated programme, including phonological awareness and a visual orthographic strategy, can best be summed up by Bradley (1988), "The children who were taught to connect the two strategies seemed to grasp the alphabetic principle more quickly, and made early gains in reading and understanding text" (p.16). The visual orthographic strategy used by Bradley involved the children having practice with written words. Bradley suggests that it is important for children to understand the connection between the visual orthographic strategy and the phonological strategy especially in the context of success at spelling. "Phoneme segmentation training can be accomplished most effectively through the use of a spelling task in which students are taught to analyse and spell the sounds detected in pronunciations" (Hohn & Ehri, 1983, p.760). Vandervelden and Siegel (1995) also found that phonological recoding in spelling facilitated the development of sequential

segmentation, “which was found to be strongly related not only to spelling recoding ($r = .97$), but also to recognition recoding (speech-to-print matching) and to partial accuracy in pseudoword reading” (p.873).

Not only is it important to include instruction in phonemic awareness and other skills required for reading i.e., alphabet knowledge and encoding/decoding, but according to Hatcher et. al., (1994) these skills must be taught simultaneously and not in isolation. It has also been noted that a lack of integration among subskills of reading was a characteristic of poor readers (Guthrie, 1973). The study by Korkman and Peltomaa (1993) examined the effects of a preschool program which included fully integrated instruction in phonemic awareness, alphabet knowledge, encoding/decoding and reading books to language impaired children. They concluded that “Early training, even overlearning, of phonemic awareness and basic grapheme-phoneme conversions may provide an effective complement to formal reading and spelling instruction of children showing signs of reading and spelling problems at school” (Korkman & Peltomaa, p.286).

Even though the present study is not aimed directly at language impaired children it is proposed to use a similar, fully integrated format to that used by Korkman and Peltomaa, (1993).

3.2.3.1 Methods of Decoding/Encoding Instruction.

The main focus of this section will be on those methods implemented by Elkonin (1973), and amended by Lindamood and Lindamood (1969). Many of the studies cited have used this method with beneficial results, including Blachman (1987), Ehri and Wilce (1987), Uhry and Shepherd (1993), and Williams (1980). The

Lindamood and Lindamood (1969) method is also closely related to that proposed by Elkonin in that the assumption is made that spelling is easier than reading. The same assumption is also made by Montessori (1966) and Spalding (1962), who both make the claim that during the process of spelling, most children will “naturally” and spontaneously begin to read, without need for extensive training in reading. This claim may be over simplistic and slightly ambitious and is not supported by rigorous research.

The main advantage of the Elkonin (1963) method is that it employs a concrete model. As well as being able to see the representation of speech sounds the child is also able to manipulate the blocks which represent the speech sounds. The Elkonin model involves presenting a picture representing a word above a series of connected squares. The child is taught to say the word slowly, pushing a disc into each square as each successive sound is articulated, each disc therefore representing a phoneme. The placement of the discs from left to right emphasises the relationship between the structure of the written word and the sequence of sounds in the spoken word. Initially the discs are unmarked and only later are they replaced with the appropriate letters. Elkonin stressed the importance of introducing first the sound analysis and second, the sound/letter categorisation.

Certain basic experiences with spoken words can enable the child to become acquainted with the structure of the sound form of the word; this facilitates the other sound related tasks usually required in learning to read. It is essential that these experiences with the sound aspect of language precede the learning of the alphabetic characters as symbols for sounds (p.559).

Even though Elkonin theorises very convincingly for his points of view, he has no specific data to support his views. Part of the rationale for Elkonin's theory comes from the complexity of the Russian language. The vowels have a direct bearing on the following and preceding consonants which can either be soft or hard, depending on the four vowels and their eight character markings. The children first use three colour coded counters to represent the vowel, the hard consonants and the soft consonants.

Research has shown that phonemic awareness and alphabet knowledge are both necessary for effective decoding but there do not appear to be any benefits for separating the instruction. In fact, Hatcher et al. (1994) made a case for teaching these skills simultaneously. The most important issue is, that however these skills are taught there should be an explicit connection made between these skills (Cunningham, 1990; Liberman & Shankweiler, 1985). The question may be raised as to the effect of age and ability on how best to introduce these skills. Williams (1980) followed the Elkonin rationale and introduced first the phoneme analysis followed by letter-sound correspondences. The children in the William's study were learning disabled, so this may be a case in point for breaking up the teaching segments into smaller units. However, Blachman (1987) also used the Elkonin Method with learning disabled children but she introduced the sound/symbol association prior to and during instruction. Ehri (1979) makes a case for teaching segmentation with letters and suggests that letters may act as mediators to help distinguish and conceptualise the separate sounds. Hohn and Ehri (1983) actually carried out a study to examine the effects of teaching alphabet letters in assisting prereaders acquire phonemic segmentation skills. They found that those children who were taught alphabet letters were superior to nonletter children at segmenting practised sounds. "The preferred

interpretation for the advantage of letters is that they provide learners with a mental symbol system for representing and thinking about specific phonemes” (p.752). The weight of research points to an advantage in teaching phonemic awareness and letter-sound correspondences simultaneously, therefore the proposed study will incorporate this method.

3.2.3.2 Summary

This review has covered instruction in phonemic awareness , alphabet knowledge, and decoding/encoding. However, as Hatcher, Hulme and Ellis (1995) state in their phonological linkage hypothesis “ in order to be effective in increasing reading skills, the training of phonological and reading skills need to be *integrated*”(p.154). The results of research strongly support this position (Hatcher et.al). “Working away at phonemic analysis without reference to reading and writing is of no help to poor readers” (p.154). This finding echoes that of Cunningham (1990) and Williams (1980), both of whom found an advantage for making the connection between phonemic awareness and reading explicit. The proposed study will take the phonological linkage hypothesis into account by including training in phonemic awareness, alphabet knowledge, decoding/encoding and *linking* these skills within a shared book reading programme.

3.3 Shared Book Reading

“The single most important activity for building the knowledge required for eventual success in reading is reading aloud to children. This is especially so during the preschool years” (Anderson, Hiebert, Scott, & Wilkerson, 1985,p.23).

While this statement may imply that reading aloud to children is the ‘be all’ and ‘end all’ of learning to read, the following review of recent research in this area will take a more critical approach and cite both the positive and less positive outcomes of reading aloud to children.

Research reviewed in this section will focus on the effects of book reading on literacy and language outcomes. The literacy measures examined will cover aspects such as concepts about print, phonemic awareness and decoding. The language measures examined will concentrate mainly on vocabulary growth. Intervention studies and implications for future research and the present study will also be reviewed. Lastly, a report on the negative aspects, or pitfalls, of shared book reading will be cited.

This review will report specifically on a method of reading to preschoolers entitled, shared book reading. Shared book reading, or dialogic reading as it is sometimes referred to, is an interactive book reading program for children at home and at school. "A major goal of shared book reading is to make children active participants in shared picture book reading rather than passive listeners to stories being read by adults" (Arnold & Whitehurst, 1994, p.104).

Shared book reading, as proposed by Whitehurst, Arnold, Epstein, Angell, Smith & Fischel (1994), features small group reading in the class room, e.g., four children to one adult, with a frequency of three to five times a week. It also involves the parents reading with the child.

3.3.1 Literacy Measure Outcomes Related to Shared Book Reading

“Reading to children is a way to introduce literacy” (Anderson, Hiebert, Scott & Wilkinson, 1985, p.22).

The positive effects of shared book reading have mainly been seen on language skills such as vocabulary growth, rather than on emerging literacy skills (Scarborough & Dobrich, 1994). However, the type or style of book which is selected for shared book reading will have a bearing on whether language or literacy skills are enhanced. The criteria for books which are recommended for vocabulary growth would be different to those selected for literacy growth. For example, it has been recommended that books which promote language growth should contain humour, novelty and vividness etc. (Berlyne, 1960; Robbins & Ehri, 1994), but for literacy abilities on the other hand, McCormick & Mason (1986) recommend their Little Book scheme which concentrates on short catchy phrases with lots of repetition.

McCormick & Mason support the use of their strategies by stating that

As children become better acquainted with printed forms of words and letters, by, for example, learning the alphabet, having books and signs read to them, and attempting to print letters, they pay closer attention to print. This gives them the opportunities to notice structural characteristics of print, for example, the same word can appear in different places and some letters have particular sounds that are repeated in words (p.92).

Snow and Ninio (1986) also suggest that

Books provide the opportunity for children to learn a good deal about the skills subsumed under literacy - recognising letters, distinguishing between print and other marks on the page, understanding that print represents spoken words, learning how to hold books, to turn pages, to start at the front, to wait for the ending, and myriad other skills that serve a first-grader well (Snow & Ninio, 1986, p. 118).

Snow and Ninio (1986) also make an important observation on the difficulties which children encounter if they have not been introduced to the world of books prior to formal reading instruction. This problem relates to children dealing with the decontextualised nature of language in books as opposed to more natural speech. They propose that experience in the fictional world of books may also provide valuable practice in the decontextualization skill necessary to read nonfictional autonomous texts as well (p. 136). In conclusion Snow & Ninio state

The most important difference between literate and face-to-face communication is not that the first is visual and the second auditory, but that different rules are in effect. Analysing the nature of the rules or contracts governing various sorts of communicative encounters and the contexts in which such rules can be learned by preschoolers may help us to analyse the difficulties children have in meeting the demands of literacy during their school years (p. 137).

A full account of the differences between oral and written language is given by Mason (1992) and includes; physical, situational, functional, form and structural differences. Mason suggests that if these five characteristics of language are

explained to children during shared book reading the children should be better prepared to read and understand written texts. The methods used could be to “reread favourite texts, point out physical characteristics of a text they are reading aloud, highlight situational differences, give reasons for listening to stories, talk about print and new words in text, and rephrase unfamiliar written text structures” (p.220).

Contrary to the findings of Scarborough & Dobrich (1994), shared book reading has shown greater gains for measures of literacy than for those of language (Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994). The literacy measures implemented by Whitehurst Epstein, Angell, et al. were “writing (e.g., the ability to print one’s first name), linguistic awareness (e.g., awareness of the phonemic segments of speech), and print concepts (e.g., naming letters), (p.542)”. These abilities are seen to be important for developing decoding and word comprehension.

In conclusion, “Reading activities seem to improve children’s reading, whereas just listening to stories does not, having the child actively participate with the print may be the essential ingredient” (Meyer, Wardrop, Stahl & Linn, 1994, p.82). The findings of the cited research warrants the inclusion of shared book reading in the proposed study, the purpose being to instil concepts of literacy awareness in beginning readers.

3.3.2 Vocabulary Development Outcomes Related to Shared Book Reading.

There are various ways in which children can increase their vocabularies, e.g., exposure to television and direct instruction in the classroom. However, as far as direct instruction is concerned, there is ample evidence cited by Robbins and Ehri (1994) that this does not account for much of the vocabulary growth demonstrated by

school children. On the other hand, these authors also cite evidence that an average amount of reading probably accounts for one third of a child's annual vocabulary growth and that regular, wide reading can result in substantial and permanent vocabulary growth. Hayes and Ahrens (1988) found that children's books contain 50% more rare words than prime-time television

Vocabulary development through shared book reading has been of particular interest to several researchers, e.g., Bus, van Ijzendoorn, and Pellegrini, (1995); Elley, (1989); Robbins & Ehri, (1994); Senechal, LeFevre, Hudson, and Lawson, (1996); Senechal, Thomas & Monker, (1995). Senechal (1993) documented a series of steps required by children to be successful at learning novel words encountered in stories:

The child must (a) encode and maintain a phonological representation of the novel word; (b) extract clues from the semantic, syntactic, and pictorial contexts to constrain memory search for potential meanings in the case of learning synonyms for known referents and to facilitate the inferential process in the case of novel referents; (c) select or construct a potentially appropriate meaning; (d) associate the inferred meaning with the phonological representation of the novel word; and (e) integrate and store the new knowledge with the existing knowledge base (p.218).

From this proposed list of complex requirements it is surprising that children ever learn any new vocabulary in the context of shared book reading. Nevertheless, the findings in general, show positive correlations between shared book reading and the development of vocabulary. Elley (1989) reports significant gains of 40% in vocabulary after reading a 10-minute story, three times with only a brief explanation

of word meanings. However, there are several additional factors that need to be taken into consideration for the potential benefits of shared book reading to occur. Firstly, it has been demonstrated by Elley and Whitehurst, Epstein, Angell, et al. (1994) that several readings of the same book are required for maximum learning of new words to occur. Secondly, it is important to discuss the meaning of new words as they appear in the shared books (Senechal, Thomas, & Monker, 1995), although Elley found that it was more important to have repetition of the same word within a story than to explain word meanings. Elley also pointed to the importance of surrounding text for the learning of new words. Thirdly, better results have been found when the reading of shared books takes place in the home, “.....from 12% - 18.5% of the variance in child language scores was accounted for by home literacy environment” (Payne, Whitehurst, & Angell, 1994, p.428). However, DeBarshye, Rodarmel, Daly, and Huntley (1992) reported no significant relation between the amount of exposure to reading in the home and preschoolers’ language abilities. These findings have been taken into account in the formulation of shared book reading in the present study. The present study will incorporate shared book reading into the preschool program but not into the home. It is considered that monitoring of the quantity and quality of shared book reading will be easier to monitor in this design.

The best predictors of vocabulary growth as a result of shared book reading have been shown to be vocabulary pretest performance, parental education, frequency of reading at home, and PPVT-R standard scores. Parental education accounted for 15% of the variance and frequency of reading at home another 9% of the variance in PPVT-R scores in a study by Senechal et al. (1995). These environmental predictors will be part of a family reading survey which will be administered to the families of

the children in the proposed study. The PPVT -R will also be administered at pre and posttest in the proposed study.

In one of Elley's earlier studies conducted with 380, 9-11-year-old South Pacific children, it was found that the best combination for the acquisition of vocabulary was three readings of the same book with a brief explanation of the target words. The children in this group made a mean gain of 33 percent (Elley, 1980; Elley & Mangubhai, 1983).

The importance of illustrations has also shown to be an important factor in learning new vocabulary (Elley, 1989). When the target word is illustrated it accounts for a large portion of the variance. In a study by Senechal et al. (1995) it was also found that pointing to the picture to identify the target word pictorially was influential in learning these words. Senechal et al. attribute this success to the fact that the children are responding verbally and using retrieval mechanisms when learning novel words. While this may be true, Whitehurst, Falco, Lonigan, Fischel, DeBarshye, Valdez-Menchaca and Caulfield (1988) argued that open-ended questions which resulted in more discussion were more conducive to vocabulary growth than just identifying words. Robbins & Ehri (1994) found no significant correlation for the influence of pictorial occurrences or the helpfulness of surrounding context.

Very little research has been carried out in respect of the best components of picture/story books but Elley (1989) found, albeit accidentally, that there were marked differences between the two books which he selected for his 1989 study. The two books were, *Rapscallion Jones* and the *White Crane*. Elley cites the "lack of involvement" in *The White Crane* as one distinguishing factor. The story was set in Japan, the characters were not easy for the children to identify with and there was little

humour or action. In contrast *Rapscallion Jones* contained novelty, humour, conflict, suspense, incongruity and vividness. These factors have been identified by Berlyne (1960) as important for children to derive new word meanings from context. Other researchers have also noted weaker results for stories with little humour, action or characters in the story which children are unable to identify with (Robbins & Ehri, 1994).

One of the reasons given for the success of acquiring new vocabulary from shared book reading is given by Murphy and Brown (1975). They showed that for 4-5 year-old children, memory is a function of the depth of their comprehension. They learn incidental information readily when processing is deep, but have difficulty with deliberate memorising tasks. Shared book reading could be said to meet the requirements of deep comprehension proposed by Murphy and Brown.

Dickinson & Smith (in press) compared the effects of three interactional patterns in story book reading on children's vocabulary growth. These three styles were co-construction consisting of a high amount of teacher and student talk during the reading, didactic-interactional with limited talk, and performance-oriented which involved little talk during the reading but more discussion before and after the story. Only the performance-oriented style was significantly related to children's growth measured 1 year later. On the basis of these findings the performance-oriented style has been selected for the proposed study.

The type of words which are most easily learned are nouns, whereas there is less improvement on adjectives and verbs. In one study it was reported that children improved 24% on nouns but only 6% on adjectives and verbs (Elley, 1989). Similar results were also noted by Robbins & Ehri (1994). There may be a connection

between the picturability, or concreteness, of nouns versus adjectives and verbs which could explain their superior performance. It may be worth noting which words, nouns or adjectives, contribute to higher scores on the PPVT-R in the proposed study.

There is some controversy regarding the influence of word knowledge before shared book reading commences. Some research cites higher increments for those children who start a programme of shared book reading with higher levels of verbal intelligence as measured by the PPVT (Robbins & Ehri, 1994; Senechal et al. 1995). Elley (1989) disputes these findings and found that low-scoring children gained as much as high-scoring children.

There is little research evidence showing any permanence of vocabulary growth related to shared book reading. In the Elley (1989) study posttests, with positive results, were conducted 7 days after the last reading; however this could not be referred to as a long-lasting effect (Elley). Other notable studies e.g., Robbins & Ehri (1994) have failed to incorporate delayed posttests which could have helped to demonstrate the long lasting effects of vocabulary development. The proposed study will incorporate a delayed posttest to test for long term effects of shared book reading. It should be feasible to conduct posttests 16 months after the introduction of shared book reading.

Tests of vocabulary growth have been measured in different formats, depending on the study. Both Elley (1989) and Robbins & Ehri (1994) used the words from the selected stories as their measure at pre and posttest. Senechal et al. (1995) used the PPVT-R as their measure. It would have been prudent if the researchers using the PPVT-R had checked for the inclusion of the test words in the books which they read to the children as this could account for differences from pre to

posttest scores. Yet knowing beforehand that certain words are included in the posttest may lead to “teaching to the test”. To overcome this problem in the proposed study, a check of words which appear both in the shared reading books and the PPVT-R will be carried out after posttesting.

The importance of testing both receptive and expressive vocabulary has been noted by some researchers, e.g., Payne et al. (1994), who used the PPVT-R to assess receptive vocabulary and the One Word test to assess expressive vocabulary.

Expressive vocabulary measures have been found to be better predictors of early reading by Byrne, Fielding-Barnsley, Ashley & Larsen (1997).

The age at which parents begin reading to their children also seems to be an important factor in vocabulary growth. “Parents who begin reading to their children at an earlier age have children with higher verbal standard age scores on the Stanford-Binet (1V) than children who are exposed to reading at a later age ($r = -.47$, $p < .001$)” (Lonigan, 1994, p. 316).

Scarborough & Dobrich (1994), in their paper on the efficacy of reading to preschoolers, question the relative contribution of shared book reading to vocabulary growth. “At age 24 months, neither utterance length nor PPVT performance was related to the reported frequency of shared reading ($r = .10$ and $.09$ respectively)” (p.270). Similar findings were also reported in the Scarborough & Dobrich (1994) review for children aged 4.5 years and 5-year-olds.

Payne et al. (1994) advise that we should pay more attention to aggregate measures rather than individual measures as the former are likely to be more sensitive than the individual measures of which they are composed. An example of a single

measure, cited by Scarborough and Dobrich (1994) was the frequency of reading in relation to a single measure of child language ability. In contrast, the Payne et al. study used composite measures of literacy environment and child language. This fact may help to explain the strength of the relationship between literacy environment and child language ability found in the Payne et al. study in which 12% -18.5% of the variance in child language scores was accounted for by home literacy environment. In similar studies cited by Scarborough & Dobrich the variance accounted for less than 10%.

Even though the findings of the effects of shared book reading on vocabulary growth are somewhat controversial, the proposed study *will* include shared book reading. Whether shared book reading influences vocabulary, or not, it will be important to add the results to this valuable research.

Finally, the advantages of increased vocabulary which may stem from shared book reading not only foster children's reading achievement but also predicts measures of more general aptitude e.g., problem solving in mathematics (Anderson & Freebody, 1981).

In summary of this section, the best combination for vocabulary growth during shared book reading is repeated reading of motivating books with ongoing discussion of novel words. Elley (1989) reports significant gains of 40% in vocabulary after reading a 10-minute story three times with only a brief explanation of word meanings. While this may be true, other researchers preface their findings with conditional terms such as;“frequent book readings make a significant, albeit modest, contribution to vocabulary development” (Senechal et al. 1995), and “Findings confirm that story

listening contributes modestly to young children's vocabulary growth" (Robbins & Ehri, 1994).

3.3.3 Intervention Studies

Intervention studies have fallen into two distinct categories, those that focus on certain aspects of literacy (McCormick & Mason, 1986), and those which aim to improve the quality of shared book reading (Lonigan, 1993; Whitehurst, Falco, Lonigan, Fischel, DeBarshye, Valdez-Mencahca & Caulfield, 1988; Whitehurst, Arnold, Epstein, Angell, Smith & Fischel, 1994).

Firstly the study by McCormick & Mason (1986). The main aim of this intervention was to "increase the preschool children's interest in and knowledge about print" (p.90). By promoting children's interactions with print they planned on emphasising the functions of print prior to the actual forms of print. The theory proposed by these researchers was that there appears to be a hierarchy of prereading concepts. Firstly, the child needs to understand that the printed word is meaningful and contains a message. Secondly, the sound characteristics of the language, and presumably how these sounds map onto the printed word, must be understood.

In an earlier study, Mason (1980) tested this theory by comparing the effects of emphasising the meanings of printed words to an emphasis on letter names and sounds. Tests given to both groups at the end of the school year showed that both were equal on letter names but the print meaning group had higher scores on word reading tasks, spelling, and printing than the letter names and sound group. However McCormick & Mason (1986) do not argue that that young children should never receive letter instruction, only that an understanding of the meaning of print should

precede more formal reading instruction. “ The model has suggested that children progress first through a context-dependent level of acquaintance with print before moving into the second level in which they begin to apply phonetic analysis” (McCormick & Mason, p.112). Other researchers have recommended simultaneous instruction in print awareness and learning letter sounds (Goldenberg, Reese & Gallimore, 1992, p.528). The proposed study will include simultaneous instruction in print awareness and learning letter sounds based on the findings of Goldenberg et al. These findings are discussed in more detail below.

The style of books selected by McCormick & Mason (1986) for their intervention study may help to explain their results. The books which they used are described as *Little Books for Early Readers* (Mason & McCormick, 1985). These books have a very simple story line (often a single sentence separated into short phrases, one phrase to a page) and simple line drawings. Even though the group which was taught the meanings of printed words was not given any direct instruction in letter names, it may have learned them incidentally. The children were taught how to read/recite the stories over several sessions. The authors themselves put forward the idea, earlier in their chapter, that “...by having books and signs read to them, gives them opportunities to notice structural characteristics of print, for example, the same word can appear in different places and some letters have particular sounds that are repeated in words” (McCormick & Mason, 1986, p.92).

However the beneficial results for shared book reading found by the authors point to the influential outcomes of work such as their own “...it has fostered kindergarten instruction in reading and parental support for reading before children start school” (McCormick & Mason ,1986, p.105).

Several studies have concentrated on remediating the low literacy levels found in some homes (Payne et al., 1994; Whitehurst, Arnold, Epstein, et al., 1994; Goldenberg, Reese & Gallimore, 1992; Valdez-Menchaca & Whitehurst, 1992; Whitehurst et al. 1988). Many of these researchers have concentrated on introducing shared book reading to the home and have usually included some form of instruction for the caregiver e.g., through videotape training in the case of Arnold et al. (1994) whereas Whitehurst, Arnold, Epstein, et al.(1994) saw the introduction of shared book reading in the preschool as an antidote to infrequent exposure to books in the home. The study by Whitehurst compared the results of children being part of shared book reading in the home with children who were read to both at home and at preschool. The final study by Whitehurst, Epstein, Angell, et al. (1994) added an extra component of phonemic awareness to shared book reading in the preschool.

It is worth noting the findings of the above studies in more detail. Whitehurst et al. (1988) developed an intervention program that was designed to raise young children's language ability by repeated reading of storybooks, feedback and appropriately scaffolded interactions. The program teaches adults specific techniques to use when reading picture books with their preschoolers. Rather than simply reading the text, the reader provides models of language, asks the child questions, provides the child with feedback, and elicits increasingly sophisticated descriptions from the child. Gradually the child becomes the teller of the story in their own words. (The acronym **CROWD** is used to help adult readers to remember the five steps in the shared book reading intervention strategy, C = completion, R= recall, O = open ended prompts , W = wh prompts and D = distancing prompts.) These strategies will be used by the writer and the preschool teachers in the proposed study.

The study by Arnold et al. (1994) of 64 children and their mothers was a replication of the earlier study by Whitehurst (1988). The major difference, in the later study was that instead of the mothers being taught on an expensive one-to-one basis they were trained with a much cheaper videotape package. The results supported the initial study, showing that shared book reading was successful in raising children's language skills and that the videotape training was just as effective and consequently more cost-effective in training these skills.

The intervention study, by Whitehurst, Epstein, Angell, et al. (1994) evaluated the addition of a classroom-based sound and letter awareness programme (Sound Foundations, Byrne & Fielding-Barnsley, 1991a) to their shared book reading programme. Children were either assigned to the intervention condition or the control group. The intervention group received shared book reading in the home and at preschool and the classroom-based sound and letter awareness programme. The control condition involved the regular classroom instruction which did not include either of the above conditions. Only the children who had been actively involved in the home reading component made significant gains in language. The other significant gain was the ability to identify the first letter and first sound of words, the focus of the Sound Foundations phonemic awareness programme which was included in this study. Unfortunately because of the design of this study it is impossible to assess the relative contribution of the shared book reading component versus the phonemic awareness component. "At some point, these two components of the curriculum need to be separated and analysed" (Whitehurst, G.J., Fischel, J.E., Epstein, J. & , 1994, p.553). The proposed study will include two treatment groups to address this issue.

Next, the intervention study by Whiteurst, Arnold, Epstein, et al. (1994) reported on the effects of a shared book reading programme with 73 children from low-income families who attended subsidised daycare centres in New York. Three groups were compared, one which received shared book reading both at home and at preschool, one which received shared book reading only in the home and a control group which spent an equivalent time in supervised play activities. The video training format, referred to earlier, was used to train the adult readers. After a six week intervention programme the children were posttested and a six month follow-up posttest was also implemented. Statistically significant effects were obtained at posttest and follow-up for measures of expressive vocabulary. "Children in the reading conditions gained approximately double the number of words between pretest and posttest as children in the control condition" (p.683). An important finding of this study was that the external validity was upheld in that significant effects were found when shared book reading occurred in small groups rather than one-to-one and when the reading was performed by preschool teachers. However it was noted that the interactions during shared book reading must diminish for any single child as the ratio of children to adults gets larger. These findings were influential in decisions made regarding the proposed study. The preferred treatments for the proposed study are teaching small groups within the preschool, involving the writer and preschool teachers.

Goldenberg, Reese and Gallimore (1994) also looked at ways of remediating the low literacy levels of children in the United States. Two groups (n=72) of Latino children were matched on language proficiency data with the Bilingual Syntax Measure (BSM). The BSM is highly predictive of end-of-year literacy scores

(Goldenberg, 1988). A comparison was made between the effectiveness of sending home photocopied storybooks and worksheets. The findings indicated that the parents of these children identified more closely with using the worksheets rather than the story books. The parents did not see reading and discussing stories as activities that actually teach children to read. However, they believed that the children were more likely to benefit from first learning letters and sounds and how they blend together to form words. As a result of this preference, the use of storybooks in the home was not related to literacy achievement whereas work sheet use in the home was strongly and positively related to achievement. The measures used to test literacy achievement were letter names and sounds, Concepts About Print (CAP), comprehension of a story read aloud, identification of rhymes and first syllables and reading phonetically regular words. The best predictor of literacy achievement in the classroom proved to be a combination of storybook reading and the simultaneous use of work books for instruction in learning letter names and sounds (Goldenberg, Reese, & Gallimore, 1992). The combination of story books and worksheets will be used in the proposed study. Also, some of the end-of-year measures will be used including, letter names and sounds, CAP, identification of first sound and reading phonetically regular words.

3.3.4 Other Predictors of Literacy Skills Related to Shared Book Reading

3.3.4.1 Age

The age at which shared book reading begins has been shown to be a good predictor of literacy skills. Only at the youngest age, i.e. 2 years, was shared book reading associated with children who became good readers in the research of

Scarborough, Dobrich and Hager (1991). The data summarised by Lonigan (1994) also suggests that

... parents who start reading to their children earlier have children who display a greater interest in reading. Children who were read to from an earlier age read more frequently, were more likely to initiate reading sessions, read more books during each reading episode, were more interested during reading episodes, enjoyed reading episodes more, and were less likely to lose interest during the middle of a reading episode (p.316).

It will be important to check on this relationship i.e., the age at onset of shared book reading and interest in reading in the proposed study. It is intended to include a family reading survey and a reading attitude questionnaire to ratify these correlations.

3.3.4.2 IQ and Education

The IQ and education levels of the primary caregiver of the child is also a reliable predictor of child language. Payne et al. (1994) found that these variables accounted for 11.6% of the variance in child language ability (p.10). This finding was explained by the likelihood that parent IQ and education were related to the nature of the interactions in which the caretaker engaged the child during shared book reading (Payne et al.). Since the measure of IQ in this study was based on vocabulary, the caregivers with more advanced vocabularies were likely to expose their children to more words during shared book reading, resulting in higher scores of child language

ability. Parental education levels will be monitored in the family reading survey in the proposed study.

In a study by Payne et al. (1994) it was found that both child and parent initiated reading were significant predictors of child language scores. Both the frequency of reading with child and the frequency with which child asks to be read to were significant. The language measures used were Canonical Test Score, PPVT-R and The One Word Test. An interesting finding was that the question, “frequency child looks at books by self”, did not predict child language scores. It may be that this question would predict a continued interest in reading rather than a measure of child language scores. Obviously when a preliterate child looks at, rather than reads a book, he/she is not going to be exposed to the language expressed in the book.

As both parent and child initiated shared book readings appear to be important predictors in promoting literacy acquisition, a measure of both will be included in the proposed study.

3.3.5 Cautionary Advice on the Findings of Shared Book Reading

Scarborough and Dobrich (1994) have made a major contribution with their review of empirical research spanning the last three decades. Although their findings advise caution in interpreting the quoted research, they do admit that “As is usually presumed, there does indeed appear to be a relation between parent-preschooler reading and growth in language and literacy abilities, although it is not as consistent or as strong as many would expect” (p. 293).

The interacting contributions of parental practices and children’s individual skills and attitudes to reading have not been well defined in the literature, “...the role

of parent-preschooler reading in promoting literacy acquisition may be more subtle and more complex or interactive than is usually thought” (p. 294). Lonigan (1994) applauded the contribution made by Scarborough and Dobrich (1994) and likened it to the cautionary fable by Hans Christian Anderson, *The Emperor’s New Clothes*. Scarborough and Dobrich having taken the role of the child in this fable who alerted the disillusioned masses to the fact that the emperor was not bedecked in glorious garments but was in fact wearing no clothes at all.

It is worth noting some of the findings of the Scarborough and Dobrich (1994) review for a more critical understanding of recent research, although Lonigan (1994) claims that “Scarborough & Dobrich have provided a more negative interpretation of the available literature than seems warranted.” (p.304).

In their review on the efficacy of reading to preschoolers, Scarborough and Dobrich (1994) looked at three variables related to shared book reading. These variables were the quantity of reading determined by age of onset and frequency thereafter, the quality and interaction during the reading, and the effects of intervention to increase the quantity and quality of shared book reading by parents and teachers. The outcome measures were grouped into short term literacy competencies, long term literacy gains, and oral language gains.

Scarborough and Dobrich (1994) conclude that the overall effect of reading to preschoolers can account for only about 8% of the variance in reading achievement in the early school years. Nevertheless, when compared to the influence of SES, given as 5% of variance in school achievement (White, 1982), the figure of 8% for the influence of shared book reading takes on a more significant role. Lonigan (1994) also questions the findings of Scarborough and Dobrich and suggests that shared

reading may have both direct and indirect effects that operate simultaneously to produce more beneficial results. He also questions the statistical methods employed and the small sample sizes of the cited studies.

A worthy comment on the efficacy of the effects of shared book reading has been made by Mason (1992), “The reason that story reading to children has not been conclusively connected to reading achievement is that beginning reading tests emphasise letter and word recognition whereas book reading to children may benefit listening skills immediately and reading comprehension skills later” (p.231). Longitudinal studies are needed to validate this hypothesis. The proposed study will incorporate a posttest 16 months after the introduction of shared book reading.

Whitehurst, Epstein, Angell, et al. (1994) also proposed that the benefits of shared book reading should be looked at on a broader continuum, in line with suggestions proposed by Mason (1992). “One significant impediment to interpreting the current research literature is that early literacy-related experiences and later literacy outcomes have been treated holistically. Multivariate problems often include complex relationships that do not resolve into single questions or answers” (Whitehurst, Epstein, Angell, et al. 1994).

Figure 3.3 illustrates one model of the relative importance of shared book reading and the sounds and letters that form the basis of the reading code. Individual differences in the frequency or form of preschool literacy activities are assumed to influence individual differences in preschoolers’ emergent literacy skills. Emergent literacy abilities, in turn, are assumed to influence individual differences in the components of early reading.

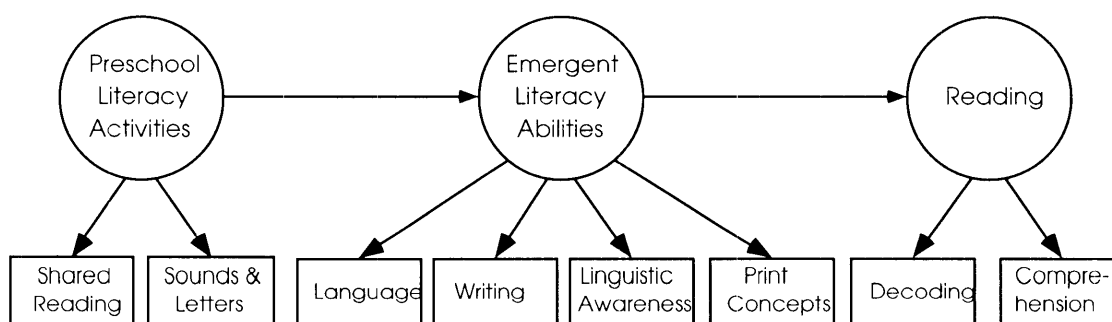


Figure 3.3 (Whitehurst, Epstein, Angell, et al. 1994, p.543).

If the claims for the advantages of shared book reading are to be believed researchers need to examine whether the influence is long lasting and if there is any effect on reading/decoding at a later stage. These aspects of shared book reading will be investigated in the proposed study.

Attention should be paid, by unwary teachers, to the possible pitfalls when implementing shared book reading into their reading programmes. This fact has been noted by Barbara Tizard (1991) in her report to Her Majesty's Inspectors (1991). Cited in Beard, 1995, p. 4. Tizard warns, from the findings of a three year study of 33 schools, that "simply introducing children to books in a happy atmosphere does not ensure that they will make a connection between meaning and print, or have an understanding of written language." Her Majesty's Inspectors also noted, in 1991, that exclusive real book approaches run the risk of giving too little attention to the systematic teaching of skills for tackling print. This study was carried out in 120 schools using shared book reading. (Department of Education and Science, 1991). Cited in Beard, 1995, p. 4.

Findings from a study conducted by Meyer, Wardrop, Stahl and Linn (1994) also point to some negative aspects on the over reliance of shared book reading in

reading programmes. They termed their major finding as the “displacement theory.” This term refers to teachers who read the most but spend the least amount of time teaching activities that are positively correlated with reading achievement. The results of this team’s findings revealed no relationship between kindergarten teachers’ reading and the children’s subsequent performance in first grade. Cunningham (1989) also supports the hypothesis that whilst reading is important for literacy development it should not replace activities that foster phonological awareness.

Scarborough and Dobrich (1994) support these arguments and state,

Although reading aloud by teachers has always been a common practice, teachers today have come to rely even more on this kind of activity as a means of literacy instruction, sometimes in lieu of more traditional lessons and exercises that emphasise skill learning rather than literature appreciation.....educators may have over emphasised shared reading and may have dissuaded from focussing more on other techniques that could be more effective in creating successful readers (p.295).

The broccoli effect is another interesting argument put forward by Scarborough & Dobrich (1994) for less merit being attributed to shared book reading. An interesting case is made for the child who does not enjoy being read to. Wells (1985) found that 11% of preschoolers, when asked how much they enjoyed being read to, replied “not at all” or “not much.” For these children it may be harmful to insist on shared book reading and could be compared to insisting that they eat their distasteful broccoli. “Will serving broccoli daily to a youngster who dislikes it make the child into a broccoli eater (or, better yet, into a broccoli lover) or will it serve to

solidify the child's negative attitude?" (Scarborough & Dobrich, 1994, p.295). The question must be raised whether it would be better to discontinue with shared book reading or whether one should look for new strategies to interest the child?

Consistently large and significant effects have been found when parents and/or teachers are provided with instructions to alter their behaviour during reading (Lonigan, 1994). However, the point made by Scarborough and Dobrich (1994), that literacy development does not depend crucially on shared reading in the preschool years, should help to allay the fears that some parents may have if they choose not to read to their children. There are always opportunities to develop other areas of literacy awareness e.g., playing rhyming games, playing I-spy or noticing environmental print.

In conclusion, Marilyn Adams (1990) makes the point that both "informal exercise and instruction with reading may be substantial and may be a significant factor in their development of critical prereading skills" (p. 77). Similarly, supporting this view Meyer et al.(1994) suggest that "Reading books to children should not supplant the instruction in reading that leads to phoneme awareness before children enter school" (p.83). Both formal and informal instruction will be part of the proposed study. Shared book reading will fulfil the more informal aspect and instruction in phonemic awareness and letter knowledge will fulfil the more formal aspect.

Even though the following statement refers to children of low-income parents it would seem to be in the best interests of *all* children. "Enhancing the quality of the environment for language development and preliteracy skills in child care programs is

a promising target for research and social policy that aim to improve the lives of children of low-income parents” (Whitehurst, Arnold, Epstein, et al. 1994a, p.681)

The reviewed research suggests that shared book reading during the preschool years enhances language and preliteracy skills, which in turn help children in learning to read when they begin school. There is substantial evidence that these language and preliteracy skills account for individual differences in learning to read (Adams, 1990).

3.4 Attitude to Reading

Reading attitude has been defined by Alexander and Filler (1976) as “a system of feelings related to reading which causes the learner to approach or avoid a reading situation” (p.1).

“Preschool attitudes and behaviours toward books and reading have been found to predict later literacy achievement” (Scarborough & Dobrich, 1994, p.290). Several researchers have recognised the importance of older children’s attitude toward reading and how attitude and achievement have been consistently linked (e.g., Purvis & Beach, 1972; McKenna, Kerr & Ellsworth, 1995; Walberg & Tsai, 1985). However, very little research has focussed on this important area of reading attitude (Scarborough, 1992). One of the reasons for this oversight may be that attitude to reading has been difficult to measure; most researchers have used parental or preschool teachers’ observations. Measures such as: how often a child asks to be read to, how often a child looks at books by him/herself, how much the child appears to enjoy being read to etc., are frequently used (Payne et al., 1994). Unless an accurate recording is made of these measures they could be quite meaningless.

The importance of positive experiences with reading at an early age are part of a reciprocal model put forward by Matthewson (1994). In this model, attitude is one of a set of factors influencing an individual's intention to read and in which the results of a given encounter are fed back to influence attitude. The factors which Matthewson sees as being most important are personal values, goals, and self-concepts. Other minor factors include cognitive and affective feedback from reading encounters. Attitude comprises feelings, action readiness, and beliefs (Matthewson).

Scarborough & Dobrich (1994) noted that the child's attitude to reading and the amount plus quality of parent-to-preschooler reading may be related. They made the point that a parent is more likely to read to their child if they respond favourably to story reading. Seven correlational studies were cited by Scarborough & Dobrich that gave reliable associations for each of the above predictors of developing literacy skills. More variance was explained by child interest variables (median $r = .37$) than by shared reading measures (median $r = .28$) (Scarborough & Dobrich, p.291).

Child-initiated shared reading or looking at books has been shown to be a better predictor of developing literacy skills than parent or teacher initiated book reading. "At age 3 and 3 1/2 and 4, the children who became poor readers reportedly engaged in solitary book activity only 2-3 times per week while the children who became good readers reportedly amused themselves with books daily" (Scarborough, 1992, p.4).

3.4.1 Measures of Attitude to Reading.

Although attitude has been seen to be an important factor in reading acquisition, there have been inherent problems in developing adequate tools for its

measurement. One reason given for this tendency by Athey (1985) was that the affective aspects of reading tend to be ill-defined and to involve variables which are difficult to conceptualise, measure and address instructionally. “The development of instruments to assess attitude has been one of the most problematic areas in psychometrics. The main problem has been the accurate definition of the word attitude and the inability to isolate attitudes as discrete behavioural attributes” (Summers, 1977, p. 138). Attitudes about reading exist within the individual and cannot be seen or observed in direct fashion. However, the presence of attitudes toward reading can be inferred from various behavioural samples (Summers).

The most common methods used for measurement of reading attitude are questionnaires with rating scales, classroom observations and interviews. Questionnaires and rating scales are the most popular method used by researchers (McKenna & Kear, 1990). Children respond orally or in writing to either questions or statements about reading. The main problem with questionnaires and rating scales is poor validity. For example, children’s responses may be influenced by a desire to impress, or to give the response they think is required, or there may be a misunderstanding of the aim of the questions, or some of the children may be uncooperative (McKenna & Kear).

Classroom observations are usually time consuming but could be used profitably in conjunction with other methods. The present study will use the questionnaire method plus a teacher observation. Reed (1979) suggested the use of nonreactive measures, such as recorded teacher observations following reading instruction and reading related activities. To counter the problem of the time taken for the teacher observation method, only one question will be asked in the proposed

study. The teacher will observe the children during shared book reading and then rate each child using the same format as the main questionnaire.

The interview method, whilst collecting more information, is also time consuming and difficult to analyse. Those which do incorporate quantitative analysis are often poorly documented in terms of desirable psychometric attributes, such as normative frames of reference and evidence of reliability and validity (McKenna & Kear, 1990). Interviews allow for more flexibility and help to determine if the child has any particular problems or preferences for certain reading materials. The interview method is best suited to a situation where reading attitude is linked to a remedial reading programme.

McKenna and Kear (1990) used a measure which utilised the questionnaire and rating scale. McKenna and Kear included several criteria when designing their instrument to measure reading attitude. These criteria were;

A large scale normative frame of reference, a set of items selected on the basis of desirable psychometric properties, empirically documented reliability and validity, application to all elementary students, a meaningful, attention getting, student friendly response format, suitability for brief group administration and lastly separate subscales for recreational and academic reading (p.627).

McKenna and Kear (1990) offer three major strengths for their instrument. These are that it is possible to make initial conjectures about the attitude of specific students, it provides a convenient group profile of a class and finally, most important

for the proposed study, that it serves as a means of monitoring the attitudinal impact of instructional materials, in this case shared book reading.

Reliability and validity data for the McKenna and Kear (1990) instrument were based on a national sample in the U.S. of over 18,000 children in Grades 1-6 (p.627).

These authors have more recently, in 1995, conducted a national survey using their instrument with 18,185 U.S. children in grades 1-6. Results supported a model of reading attitude in which social factors and expectations gradually shape attitudes over time. Walberg and Tsai (1985), in their national assessment study, support this model with their research which found that the strongest correlates of reading achievement were reading attitude, stimulus materials in the home environment and preschool attendance. Although attitude was less predictable than achievement, there were significant correlates for spare time reading and the home environment. The home environment was significant at $p < .01$ when entered first and last in a regression analysis (p.166).

As stated at the outset, attitude to reading and achievement have been consistently linked, accordingly it is vitally important that positive attitudes are developed in the early stages of reading. The research by McKenna, Kear & Ellsworth, (1995) noted that “the relationship between ability and attitude grows stronger over time. This finding implies a cumulative impact of undesirable experiences on the attitudes of poor readers” (p.953). It could be postulated that desirable as opposed to undesirable experiences could have a positive cumulative impact and accordingly these desirable experiences should begin as soon as possible in the child’s life.