

## **Chapter 10**

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## **Chapter 10**

### **Conclusions and Recommendations For Future Research**

Some people possess the ability to climb mountains unaided, but it is much easier and less dangerous to utilise a guide, ropes, crampons, and such like. The same reasoning applies to the task of ‘reading’. Some children will discover the alphabetic principle by themselves but, more importantly, some will fall by the wayside if they are not given the guidance and the keys to crack the alphabetic code.

This chapter presents the results and implications of this study in the following areas: conclusions, educational implications, limitations of the study and recommendations for future research.

#### 10.1 Conclusions

The results of Study 1 confirm that children who are given training in phonemic awareness, alphabet knowledge and letter/sound correspondences show superior decoding and segmenting abilities to those that do not receive this training. The results of Study 2 and Follow-Up studies, confirm that the addition of explicit instruction in encoding/decoding, in addition to those aforementioned skills, equips children with the ability to decode novel real and pseudowords.

As stated at the outset of this study, the ultimate motive for efficient decoding is the ability to comprehend what is read. The present study cannot claim, directly, to have influenced comprehension scores as it was not feasible to test the children at the time when they were able to comprehend texts. However, other studies which have

used similar training techniques, have shown that these decoding skills are transferred to superior outcomes on measures of reading comprehension (Bradley & Bryant, 1985; Cunningham, 1990; Hatcher, Hulme & Ellis, 1994; Iverson & Tunmer, 1993; Pflaum, Walberg, Karegianes, & Rasher, 1980; Tunmer & Nesdale, 1985).

## 10.2 Educational Implications of the Study

Enormous amounts of money are invested into remedial reading programs but very little is spent on prevention of reading failure programs (Pikulski, 1994). Even though this statement refers to the American teaching system the same may be said of the Australian system. At present huge amounts of monies have been allocated to remedial reading in the high schools of New South Wales. It seems that the Parents and Citizens Associations (PCA) are more aware of the problems associated with reading failure than the government. The PCA suggested that funding should be directed to better reading instruction in primary schools. This same association made the point that, once children have failed it is very difficult to overcome the stigma of failure. Efforts to *remediate* reading problems beyond third grade are largely unsuccessful (Juel, 1988), whereas reading failure is *preventable* for all but a very small percentage of children (Pikulski). Juel found a .88 probability that a child in the bottom quarter on a standardised reading comprehension test at the end of first grade will still be a poor reader at the end of fourth grade.

An important note of caution has also been made by Wagner, Torgesen and Rashotte (1994). These researchers have noted the remarkable consistency in individual differences in phonological processing abilities. This finding has led to a recommendation for early screening of phonological processing abilities to identify

children who are at risk for reading failure (Jerger, 1996). However, this 'stability' effect (Torgesen, Wagner, & Rashotte, 1994) may make it difficult to remediate these children as also noted by Byrne (forthcoming). Felton and Pepper (1995) suggest that screening tests (listed in their 1995 article) could be administered to children in kindergarten and all those who perform poorly could be given phonological awareness instruction (also listed in their 1995 article). They also recommend that this instruction should take place in an environment rich in literature, as does Blachman (in press).

Evidence abounds testifying to the fact that, special remedial programs, special teachers, and segregated instructional programs cannot match the effects of high quality classroom instruction (Allington, 1994). This is certainly true, but in reality is quality classroom instruction being provided? If the illiteracy rates represent between 20%-25% of the high school population, as indicated by recent research carried out by the Australian Centre for Educational Research (1997), then obviously something is lacking. What or who is at fault? Is it the teachers, the trainers of the teachers or some environmental cause eg., too much television viewing?

One area which has been studied, as being a possible cause, is that of 'teacher education.' As Blachman (in press) has pointed out, even though researchers have established what practices are necessary for the acquisition of reading, how are teachers to gain the knowledge needed to implement these practices. In a study conducted in America it was found that experienced teachers of reading had very limited knowledge of written and spoken language structure (Moats, 1994). Current minimum requirements in teacher education range from no coursework in reading instruction to an average of 12 course hours. Although 73% of teachers attributed

learning difficulties to inadequate reading skills, only 22% attributed the core deficit to linguistic processing (Moats). Reading difficulties were attributed to problems with “information processing,” “memory,” “attention,” and “faulty learning strategies.” As a result of these findings, Moats conducted training sessions on linguistic concepts with a group of 89 enthusiastic teachers of reading. Many of the teachers indicated that they should have been taught these principles before they started to teach, and 91% reported that this course should be a prerequisite for all teachers of reading. The recommendations for teachers, as a result of Moat’s study, include a knowledge of: phonemic awareness, the speech sound system, and how our orthography represents spoken English. As a result of her studies on how print may represent speech in novice readers, R. Treiman (personal communication, March, 19, 1996), also recommends that teachers need training in linguistics and language structure.

However as Stuart (1995) warns, even when teachers are aware of the necessity of instruction in phonemic awareness, the children may fail to incorporate this knowledge into their spontaneous reading strategies. Somehow, although well meaning, the teachers are failing to make the connections explicit. The present study, plus recent studies by Beck and Juel (1995) and Foorman (1995), have indicated that some children will not make these deductions for themselves and that they must be shown the connections and given practice to combine their skills. It has also been noted, that for some children an extended period of instruction in phonemic awareness may be required, for them to reach the same levels of skill as the majority of children (Lovett, Warren-Chaplin, Ransby, & Borden, 1990; Byrne, forthcoming).

The most popular methods of literacy training in Australian universities are holistic, language oriented, child-centred, and those based on meaningful activities

(van Kraayenoord, 1994). Emphasis is placed on a holistic approach to language learning that does not focus instruction on component skills or delays introduction of literacy uses until subskills have been mastered. Communication of meaning is the main goal (Moats, 1994, p.219).

Counter to the observations made by Moats (1994), the results of the present study have provided evidence for the usefulness of prereading instruction in phonemic awareness, alphabet knowledge, and encoding/decoding. Prereading programs which include these skills are an effective means of preventing reading failure (Bradley & Bryant, 1985., Byrne & Fielding-Barnsley, 1991., Lundberg, Frost & Peterson, 1988., Maclean, Bryant, & Bradley, 1987).

However, for those children who fail to gain an understanding of the alphabetic principle during their first year of reading instruction, it may be wise to resort to an “early intervention” program, such as Reading Recovery (RR) (Clay, 1985) or, in preference a modified version of RR which includes instruction in phonemic awareness (Iverson & Tunmer, 1993). Clay refers to RR as being a *preventative* early intervention program designed to accelerate the progress of young readers who have *failed* to profit from 12 months of formal reading instruction. There appears to be a contradiction in terms in this statement. RR is better described as *solution* to the problem of early reading failure. Researchers have questioned the effectiveness of Clay’s techniques which were developed in New Zealand schools, in Australian Schools. Center, Wheldall, Freeman, Outhred and Mcnaught (1995) conducted a study to evaluate the effectiveness of RR versus normal resource support in 10 schools in New South Wales. Their findings indicated that in the short term, 15 weeks, the RR group were superior to the control group, at 30 weeks the RR group

scored superior results on only one of eight tests and by 12 months after discontinuation of RR about 35% of students had benefited directly from the program. The RR programme does not provide systematic instruction in phonemic awareness which could help to explain the poor maintenance of the short term gains made by the children in the programme. Support for this explanation is reinforced by the study conducted by Freebody and Byrne (1988);

*... word specific associations may serve a student adequately up to about second grade, but that failure to acquire and use efficient decoding skills will begin to take a toll on reading comprehension by grade 3. In contrast, Phonicians \* may be hindered in comprehension performance in the early years, but begin to improve comparatively as they progress through school (p.441).*

\* Phonicians/ good nonsense-word but poor irregular-word readers.

Early intervention programs are more effective if they include phonological training. A modified reading recovery program which included more systematic phonological training proved to be 37 per cent more effective than one which included limited amounts of unsystematic phonological awareness training (Iversen & Tunmer, 1993). However, the need for any of these costly interventions could be reduced if effective prereading programs, including instruction in phonemic awareness and letter/sound correspondences, were implemented in all schools.

Several early intervention programs have been evaluated by Pilkulski (1994). It was found that the most successful programs, Winston-Salem and Boulder Projects,

included phonemic awareness instruction and attention to word patterns similar to those strategies used by Cunningham (1991).

The strategies used in the present study have also been shown to be beneficial for children with language impairments. A study by Korkman and Peltomaa (1993) in Finland, supported the notion of teaching phonemic awareness and grapheme-phoneme conversions to children with language impairments. Small groups of children ( $n = 2$  to 5) were trained for one 45 minute session per week for one year before the commencement of kindergarten. (Children begin school at 7 years of age in Finland). On the posttreatment assessments, performed 2 years after the pretreatment assessment, the experimental group was significantly superior to the control group on three of four measures of reading and spelling. This study demonstrates that training in P.A. and Alphabet knowledge may alleviate the problems faced by children with language impairments. As the authors point out, the earlier the intervention or special education starts, the better are the prospects of avoiding cumulative, negative reading and spelling problems (Korkman & Peltomaa).

Another point made by Korkman and Peltomaa supports the early training procedures used in the present study. They claim that, as the intervention takes place much in the form of play and games, then there is no reason why children who start school at a younger age than 7 years could not receive preschool training. However, the point made by Blachman (in press) that, phonological awareness training may not be the highest priority for these language impaired children, must be taken into account.

Bowey (1996) reinforces the findings of the present study and suggests that it is not necessary to teach each individual letter-sound correspondence before



introducing reading. Bowey suggests teaching: the basic consonant, vowel, and diagraph correspondences, the detection of the phonological overlap in spoken words, a clear understanding of the alphabetic principle and strategies that focus on the entire word. These skills will then transfer to to the discovery of additional letter-sounds and higher order correspondences.

### 10.3 Limitations of the Study

A number of important issues relating to program implementation and to the instruments used in this study have emerged. These will now be discussed.

#### 10.3.1 Treatment

It could be suggested that this study was limited in respect of the restricted number and length of words that the children learned to read. The writer does not claim to have taught the children how to read fluently. The claim is that children are able to decode monosyllabic words made up of up to six letters, including clusters. Similar strategies using a limited corpus of words have been trialed by Feitelson (1988) and Ehri and Chun (1996). Feitelson advocated moving preliterate children into text reading with very little letter-sound knowledge rather than waiting until most letters had been learned. Ehri and Chun taught their preliterate children only six letter-sound associations which were then used to assist the children in learning words beginning with those sounds. The advantage of this approach is that children are assisted to understand the alphabetic system at the outset. This understanding grows as more letter-sound knowledge accrues and the danger of compensatory strategies is avoided.

It was noted that there was little evidence of children using analogies to read novel words in this study. Even though an ideal situation existed for the children to utilise analogy they showed no inclination to profit by it. For example, when a child used plastic letters to form the word ‘pam’ and was then asked to form the pseudo word ‘tam’ they took all the letters away and started the new word from scratch. This is another example of the need to make teaching more explicit. Had the children been alerted to the fact that ‘pam’ and ‘tam’ had the same rime, they may well have utilised this knowledge when attempting to decode.

One limitation in the spelling component of the present study was that it was limited to regular words. This could be confusing for a child when confronted with irregular words. The irregularity of English spelling is illustrated by Gelb (1952, p.224) with an example of eleven different spellings for the long i sound (me, fee, sea, field, conceive, machine, key, quay, people, subpoena, Caesar). Even if a child does construct an interpretation of how the alphabetic symbols relate to the spoken language, this is not going to help him/her decipher irregularly spelt words. However if we look at the word ‘night’ as an example of an irregular word, there are clues as to its pronunciation in the letters *n*, *i* and *t* so the task of deciphering is not totally obscure (Stuart & Coltheart, 1988). As Adams(1990) points out “English is fundamentally alphabetic. With obvious exceptions, the letter sequences of its written words mimic the phonemic sequences of its spoken words. The majority of the irregularities are owed to the vowels” (p.219). Stuart and Coltheart (1988) have also reported that children with high prereading phonological awareness scores show superior results for reading both regular words, via the sublexical route and irregular

words, via the lexical route. Nevertheless the children in the present study would have benefited from some explanation about the irregularities of the English language.

As with most experimental studies, the present study was conducted with small groups of children and on a one-to-one basis. It would have been easier to generalise the findings to a regular classroom had this not been the case. However, the first part of the study which was conducted at preschool has been partially replicated in a more natural setting (Byrne & Fielding-Barnsley, 1995). The phonemic awareness component was taught to larger groups of approximately 20 children by regular preschool teachers. This group did show gains in phonemic awareness even though the gains made were not as impressive as those made by the children in the original experiment. In the original experiment the children were taught in groups of 4-6 by a trained primary teacher (Byrne & Fielding-Barnsley, 1991a). It appears that individual instruction, or small group instruction, is preferable for an understanding of phonemic awareness.

The Shared Book Reading component of the present study may have shown more significant results if it had been implemented in the home. The reason for excluding shared book reading in the home was that it was necessary to monitor the total exposure to the shared books.

### 10.3.2 Instruments

The measure of Reading Attitude did not show acceptable validity in the present study. Some of the questions tended to be ambiguous and generated answers which were not related to reading books. eg. "How do you feel about going to a

bookshop?” generated answers such as; “It makes me feel sad because Mum won’t buy me a book.” or “ It makes me feel sad because I get tired feet.”

#### 10.4 Recommendations for Future Research.

Further work is needed to establish the long-term effects of teaching beginning readers a small set of words. It would be valuable to ascertain whether learning a set of simple words generated to the learning of, longer more difficult words.

As noted in the results of the present study, there were two children who failed to establish phonemic awareness during the preschool phase of instruction. Similar problems have been noted by Hatcher, Hulme and Ellis, 1995; and Hulme and Snowling, 1992. In future research it would be wise to ensure that all children gained insights into the skills being taught. One way to assist children, in respect of phonemic awareness, could be to introduce more accessible units of speech, eg., rhyme, syllables, onset and rime etc., before the phoneme. Some combinations of these more accessible units of speech have been used by Brady et. al. (1994); Bradley and Bryant,(1983); McClure, Ferreira, and Bisanz, (1996) and Walton, (1995). It has been found that sensitivity to onset and rime units is easier than comparable tasks requiring phonemic sensitivity (Bowey & Hansen, 1994; Coltheart & Leahy, 1992; Treiman, Goswami & Buck, 1990). This could be particularly relevant for those children who find phonemic sensitivity tasks difficult to master. Such children have been identified by Byrne & Fielding-Barnsley (1996) in their studies of children at risk of reading failure due to an hereditary factor. However, other studies have failed to show significant correlations between onset-rime segmentation scores and reading or spelling ability (Duncan, Seymour & Hill, 1996; Nation & Hulme, in press).

A recent study has demonstrated that phonological awareness is a heterogeneous ability rather than a homogenous ability (Treiman & Zukowski, 1996). These researchers have shown that phonological awareness develops along a continuum, beginning with an awareness of the word, syllable, onset/rime and finally the phoneme. In previous research, the linguistic status of a unit has been confounded with its size. For example a syllable may be easier to detect than an onset because it is composed of more phonemes. However, as a result of Treiman & Zukowski's research, it was noted that even though the length of the shared unit is important it is not the only factor. The linguistic status of the unit also matters. The finding that phonological awareness is composed of different linguistic levels has important implications for reading instruction. The easier units; syllables, onsets and rimes, could be introduced to children prior to the introduction of reading or writing. The phoneme may be introduced simultaneously with the informal learning of the alphabetic writing system (Treiman & Zukowski). These findings also help to clarify the debate on whether phonological awareness is a precursor of literacy, a by-product of literacy, or both. The answer to this question could be that it is dependent on the linguistic level of the phonological awareness being measured.

Several researchers have developed strategies which build upon a sound foundation of phonemic awareness, alphabet knowledge and encoding/decoding which could be incorporated into the reading curriculum at a later stage. Of note is the work carried out by Henry (1993, 1994), who advocates the use of the morphemic structure of words to further develop primary children's reading skill. Morphemes are the smallest meaningful parts of words. An understanding of the morphemic structure of words facilitates both reading and spelling. However, children who display poor

morphological skills also show deficits in phonological awareness (Fowler & Liberman, 1995). The morpheme, being in itself meaningful as opposed to the phoneme, makes it a more salient unit of speech. This fact may help some children who have had difficulty establishing phonemic awareness. As with the present study, it was noted by Fowler and Liberman that morphological awareness must be made explicit, especially for those poor readers who may not notice derivational patterns spontaneously through their reading. It is also important that decoding instruction, utilising the morpheme, is extended beyond the early grades of schooling (Henry, 1994).

The findings of Bentin and Leshem (1993), will be cited to complete this thesis as they encapsulate the results of the present studies. Bentin and Leshem worked with 508 kindergarten children in Israel. These researchers looked at the reciprocal influence of reading acquisition and phonemic awareness. They found that learning to read was the most important factor that accounted for improvement of phonemic segmentation skills during the first year of schooling. *However*, on the other hand, they found that by improving phonemic skills in kindergarten they facilitated reading acquisition in children *at risk* for developing reading disorders. They suggested that, for most children, exposure to the alphabet automatically triggers phonemic awareness *but* the emergence of phonemic awareness requires a previously developed sensitivity to phonology, which in some children may be absent. They suggested that, if phonological skills are absent, they may be developed in preschoolers by explicit training, thereby preventing failure in reading acquisition.

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