The 24 preschool children examined in the study (mean age 3 years, 11 months) were learning to read English as a second language. They were given phonemic awareness training and were taught simple letter–sound correspondences in small groups, daily for 20 min for a duration of 6 weeks. A control group of children was taught through dialogic reading, for the same duration, in which stories were read to them in an interactive way. The results showed that the phonemic awareness training and simple phonics instruction produced significantly higher phonemic awareness scores compared with the scores of the control group. The performance of the children in the training group on tests of word reading both in lists and connected texts was better when compared with that of children in the comparison group. The phonological training benefited children no matter whether they entered the study with high levels of phonemic awareness or low levels of phonemic awareness.

If you ask parents what is the best thing to do to help preschool children learn to read, they are likely to say, “Read books to them.” Yet many researchers nowadays would say that the best thing a parent can do is teach prereading skills such as alphabet knowledge and phonemic awareness, along with some simple phonics skills. A great deal of research is now showing that children on the verge of starting school who lack these skills have considerable difficulties lying ahead of them when they start to learn to read.

Many children start school knowing few if any letters of the alphabet and with little conscious awareness that spoken words are made up of phonemes (i.e., phonemic awareness). They also lack the ability to show even very simple understanding of the alphabetic principle, such as the ability to apply letter–sound correspondences. The prognosis for children who are behind in letter knowledge and phonemic awareness is not good. They are at risk of not learning to read. They are also at risk for emotional and behavioral difficulties, especially if they are from low socioeconomic and minority backgrounds (Levy & Chard, 2001; Nicholson, 2004).

In contrast, many children, particularly those from middle-socioeconomic homes, start school with good prereading skills. They know most of the letters of the alphabet, have some phonemic awareness, and some basic decoding ability. What this means is that, from the first
day of school, while some children immediately face a steep learning curve, others have a much easier time. It is not at all easy to quickly close this gap in prereading knowledge. The letters of the alphabet are abstract identities and take a lot of time to learn. It is also difficult to teach children to become consciously aware that a spoken word consists of a series of phonemes. It can be argued that if all children started school with good prereading skills, then there would be a much more level playing field in terms of benefiting from reading instruction. Children who are poorly equipped to begin the task of learning to read will struggle, and most of them will still not be reading even after a year of school (Nicholson, 1999a).

In New Zealand, between 20% and 25% of children have a hard time in learning to read (Kerslake, 2001). A possible reason is the large discrepancy in prereading skills among children when they first start school. This discrepancy was found in a New Zealand longitudinal study of the reading and writing progress of 112 school beginners over a 5-year period (Nicholson, 2003). The children were from low-income and middle-income home backgrounds. The middle-income children made much better progress in reading than did the low-income children, who as a group remained below average for their age throughout the study.

What was noticeable from the outset of this study was that even in the first months of school there were huge gaps in prereading skills between children from these two social backgrounds. For example, out of 88 children in the study from low-income homes, there were 41 (47%) who started school knowing fewer than 5 letters of the alphabet, and only 14 (16%) who knew between 22 and 26 letters. In contrast, out of 23 children from middle-income homes, there were none who knew fewer than 5 letters, and 14 (61%) who knew between 22 and 26 letters (Fig. 38.1).

There were also large differences in phonemic awareness of these children. In the low-income group, 28 (32%) did not score any points on a phonemic awareness test, whereas in the middle-income group only 1 (4%) failed to get a score (Fig. 38.2). In a test of invented spelling, which reflects the ability to relate phonemes to letters, 46 (60%) of the low-income group did not score at all whereas in the middle-income group all the children scored at least some points (Fig. 38.3).

**Alphabet Knowledge At School Entry**

*Alphabet knowledge for low- and high-SES groups*

![Graph showing percentage of children in low and high SES groups at school entry](image)

**FIG. 38.1.** Percentage of distribution of alphabet scores (maximum score = 26) for the low- and high-socioeconomic (SES) groups at the start of their first year of school.
Phonemic Awareness At School Entry

Phonemic awareness scores for low- and high-SES groups

FIG. 38.2. Percentage of distribution of phonemic awareness scores (maximum score = 42) for the low- and high-SES children at the start of their first year of school.

Invented Spelling At School Entry

Invented spelling point scores for low- and high-SES groups

FIG. 38.3. Percentage of distribution of invented spelling point scores (maximum score = 72) for the low- and high-SES children at the start of their first year of school.
These differences in prereading skills at children's entry to school seem to lead to Matthew effects in which children who are well prepared for reading instruction move ahead quickly, whereas those who are not so well prepared fall behind and stay behind (Juel, 1994; Stanovich, 1986).

**HOW DO WE KNOW THAT PRESCHOOL CHILDREN WITH GOOD PREREADING SKILLS HAVE A GOOD PROGNOSIS FOR LEARNING TO READ?**

Most researchers will agree that if you had to recommend two skills that will help children most when they start school, it would be knowing the alphabet and having phonemic awareness. With these two skills, preschoolers are able to begin to learn the correspondences between letters and sounds necessary to decode and spell words. Researchers have known for many years that knowledge of the alphabet is a strong predictor of learning to read (Bond & Dykstra, 1967). Children typically learn the names of letters before they learn their sounds (McBride-Chang, 1999; Treiman, 1994). Children use the names of letters as a bridge to learning their sounds for example, using the name ‘bee’ for the letter b to infer the phoneme /b/ (Treiman, 1994; also see Treiman, this volume). In this way, they begin working out the letter–sound relationships needed to learn to read.

Phonemic awareness is awareness that spoken words can be deconstructed into their constituent phonemes. Phonemic awareness is not all or nothing (Nicholson, 1999a, 2000); a child can have a little bit of phonemic awareness if he or she is able to break a word into its onset and rime or tell that the first sound in “fish” is /f/. The child who has complete awareness can segment spoken words into all their phonemes (e.g., f-i-sh).

There is a great deal of correlational evidence to suggest that children with high levels of phonological awareness before starting school have a very good prognosis for later success in reading (e.g., Bradley and Bryant, 1983; Byrne and Fielding-Barnsley, 1991a, 1991b, 1993, 1995; Helfgott, 1976; Juel, 1994; Lundberg, Frost & Petersen, 1988; Lundberg, Olofsson & Wall, 1980; MacLean, Bryant & Bradley, 1987; Nicholson, 2003; Roper, 1984; Share, Jorm, MacLean, & Matthews, 1984; Stanovich, Cunningham, & Cramer, 1984; Tunmer, Herriman & Nedsdale, 1988). In support of the long-term importance of phonemic awareness in learning to read, Nicholson (2003) reported that although the correlation between alphabet knowledge and phonemic awareness was very high in the first year of school, the best predictor of reading progress in the second year of school was phonemic awareness alone. This is because most children after a year of school have learned the letters of the alphabet, but even at the end of their second year of school many have still not acquired high levels of phonemic awareness.

The report of the National Reading Panel (2000) in the United States, based on a meta-analysis of training studies in the teaching of phonemic awareness, found that preschool children in particular were likely to benefit from phonological awareness instruction. The report found that the preschoolers benefited more than kindergartners and first- and second-grade children from training in phonological awareness.

Although preschool children have much to gain from phonological awareness instruction, McCutcheon, Abbott, Green, and Beretvas (2002), have reported that preschool teachers are not very knowledgeable about phonological awareness and require training in this area. They instructed a group of 23 kindergarten and first-grade teachers. These teachers and a control group of 20 teachers were followed for a year. The study found that children in the experimental group made greater gains in reading and writing than did children in the control group.
THE ARGUMENT AGAINST TEACHING PREREADING SKILLS

On the other hand, there is the argument that preschools should not teach prereading skills, but should instead focus their efforts on reading to children. Coles (2000) has argued that knowing the names and sounds of the letters of the alphabet and having phonemic awareness is not so much a cause of reading success but a marker of family support. Children with high levels of phonemic awareness come from homes in which there are many books, in which there is a rich language environment, and in which they encounter many experiences with written language through having books read to them. Phonemic awareness, then, may be a result of a home environment rich in literacy ‘cultural capital’. If this is the case, then it can be argued that the best way to help children learn to read is provide a literate environment at home and at school by reading books to children and surrounding them with print. Moustafa (1997) writes that “Reading to children helps children learn to read” (p. 72) and that “the primary literacy education task of preschool and the early school years is not teaching children letter-sound correspondences but reading to them” (p. 79). She cites in support of her argument studies that have found positive relationships between being read to at home and learning to read (Heath, 1982; Wells, 1985). Mason (1992) also reviewed several studies that also supported the relation between reading books to preschool children and learning to read.

On the other hand, Scarborough and Dobrich (1994) reviewed research on this topic over a 30-year time period and found only a small correlation ($r = .28$) between reading aloud to preschool children and whether or not they learned to read. Nicholson (1997) asked 57 children from low-income homes (mean age of 7 years) to estimate how many books they had at home. The correlation between reading and the number of books they had at home was low, $r = .22$, whereas the correlation between reading and their level of phonemic awareness scores was higher, $r = .55$. The correlation between reading and their invented spelling scores was even higher, $r = .68$.

Anderson and Matthews (1996) conducted a study of the emergent literacy development of 15 preschoolers from low-income homes over a 1-year period. Storybook reading was emphasized in class, and children took storybooks home at least once each week. At the end of the year only one of the 15 children showed any awareness of written language.

In a training study designed to simulate the experience of being read to, Gibbs and Nicholson (1999) used a “talking book” procedure with 5-year-old school beginners in a small mining town in New Zealand. In the first term of school the sample of 64 children was assigned either to a talking book, in which they listened to stories read to them on audiotape, every day for 5 weeks, or to a control group who looked at the same books but did not get the talking book audio support. The results showed that the talking book group was significantly better than the control group when asked to read the books they had listened to. However, when given new books that they had not heard before, there was no difference in reading between the experimental and control groups. These results indicated that the talking book children had memorized the stories they had listened to, but had not acquired any reading skills as a result of listening to stories being read to them.

It could be objected that talking books at school are not the same as being read a story by the teacher or a parent. Yet there have been several recent studies of the effects of reading storybooks to preschool children showing that children benefit in terms of learning new vocabulary but do not benefit in terms of learning to read words (Arnold & Whitehurst, 1994; Whitehurst et al., 1994a, 1994b).

Nevertheless, the case is not closed about the effects of coming from a literate home environment. Burgess, Hecht, and Lonigan (2002) conducted a 1-year study of 115 preschool children’s literacy progress. A survey of the parents of these children, which asked them questions about
when they first started reading to their children, how often they read themselves, and so on, showed differences in home literacy practices. The researchers found that these differences predicted growth in reading related skills such as phonological awareness. They concluded that the home literacy environment plays a large part in assisting children’s emerging literacy skills. They argued that previous studies did not use measures that were sensitive to changes in literacy knowledge (e.g., alphabet knowledge, measures of phonological sensitivity, ability to identify high-frequency words, and so on), and this might explain the small correlations found by other researchers between home literacy environments and reading.

A COMPARISON STUDY OF THE TEACHING OF PHONEMIC AWARENESS AND READING BOOKS TO PRESCHOOL CHILDREN

To explore this issue further, we carried out a training study to compare the effects of teaching reading directly with the effects of reading books to children. The treatment group was given training in phonemic awareness and simple phonics. The comparison group was read a number of children’s stories that included lots of discussion and interaction.

The study was carried out in a child-care center in Singapore. The language of instruction was English. The school curriculum was taught in English, but the children also spent a portion of the morning learning to read in Mandarin and write Chinese script. All children were from middle-socioeconomic backgrounds. None of the children was a native speaker of English. There is strong willingness to learn English among Singapore children because it is an official language of Singapore.

There were 24 children in the study, 13 girls and 11 boys. Their ages ranged from 3 years 6 months to 4 years 5 months, with a mean age of 3 years and 11 months. They were assessed for prereading skills as well as verbal and nonverbal ability. The children were assessed for receptive language in English. The pretest standard scores were below average for their age but the posttest scores of both groups were within the normal range. There was no statistical difference in receptive language between the two groups at pretest and posttest.

The children were placed in matched pairs according to their verbal and nonverbal ability, alphabet knowledge, and phonological sensitivity. They were then assigned randomly to an experimental and a control group. The 12 children in each group were divided into two further subgroups of 6 according to whether their scores on the phonological sensitivity tests were high or low. An analysis of variance showed no statistical differences between the groups for any of the pretest measures, except that children with high phonological sensitivity had significantly higher phonemic scores than the children with low phonological sensitivity. Also, the high phonological ability children were a few months older than the low phonological ability children.

This was a pretest–posttest design with an experimental group and a control group. There were 24 children, with 12 in each of the main groups, and 6 in each subgroup. The children were taught in pairs rather than individually or as a whole group.

The design of the study was as follows:

<table>
<thead>
<tr>
<th>Phonological Sensitivity</th>
<th>Experimental Group</th>
<th>Control Group</th>
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<tbody>
<tr>
<td>High</td>
<td>( N = 6 )</td>
<td>( N = 6 )</td>
</tr>
<tr>
<td>Low</td>
<td>( N = 6 )</td>
<td>( N = 6 )</td>
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</table>
A timed letter-naming test was used to assess knowledge of letter names as it has been found to be an even stronger predictor of reading performance than untimed letter naming. The Rapid Letter Naming Test (O'Connor, Jenkins, & Slocum, 1995) was used, in which the child named up to 60 letters as rapidly as possible in 1 min. Phonological sensitivity was assessed with a composite test that was sensitive to emerging phonological skills. The assessment tasks included nursery rhyme knowledge (MacLean et al., 1987), rhyme detection and initial- and final-phoneme detection (Byrne & Fielding-Barnsley 1991a). More complex phoneme awareness was assessed with the Gough–Kastler–Roper (GKR) test of phonemic awareness (Nicholson, 1999b, 2005; Roper, 1984).

A standardized test was used to assess receptive vocabulary (Peabody Picture Vocabulary Test—revised; Dunn & Dunn, 1981). Raven’s Progressive Matrices (Raven, Court, & Raven, 1990) were used to assess nonverbal ability.

Word reading was assessed with the Burt Word Reading Test (Gilmore, Croft, & Reid, 1981). It has a test–retest reliability of 0.97. Pseudoword reading was assessed with the Bryant Test of Basic Decoding Skills (Bryant, 1975). Because the children were very young, a simple measure of text reading, which used easy-to-decode CVC words, was developed, so as to provide a sensitive indicator of children’s emergent reading skills. Three sentences were selected from the popular children’s book, *Hop on Pop: The Simplest Seuss for Youngest Use* (Seuss, 1963). The children scored a point for each word correctly read. The maximum possible score for each sentence read correctly was 4, and for the entire text reading exercise, 12.

The experimental group received 30 sessions of phonemic awareness, letter–sound, and simple phonics training, with daily sessions lasting 20 mins, 5 days a week, spread over 6 weeks. Two children were taught at a time in a room in the child-care center. The 30 sessions covered all 26 letter sounds of the alphabet, and the short sounds of the vowels /æ/, /e/, /i/, /o/, and /u/.

The skills taught in the 30 sessions included naming of letter sounds, the identification of initial and final phonemes, as well as blending and segmenting. Letter–sound correspondences were emphasized in each lesson. Sandpaper letters were used to familiarize the children with the shapes of the letters (Montessori, 1964).

The identification of the initial and final phonemes was taught by use of posters that had many illustrations of animals and objects beginning or ending with the same phoneme, from a teaching package called Sound Foundations (Byrne & Fielding-Barnsley, 1991b, 1993).

Other activities included the two-picture activity, in which the child had to decide whether the pictures started with the same phoneme, the yes–no activity (Wallach and Wallach, 1976), in which the child had to answer if the picture started with a certain phoneme, and the odd-one-out activity (Bradley & Bryant, 1983), in which the child had to decide which of three pictures did not start or end with the same sound. Children were taught to break words into onsets and rime (e.g., m–at). Where the phoneme was difficult to pronounce, a repetition technique was used (e.g., b–b–b–b–bear), as mentioned in Lewkowicz (1980).

The Elkonin technique (Elkonin, 1973) of using a square to represent a phoneme was used, albeit with the children using letters without first resorting to tokens. The Fun Fit (Nutshell, Products, 1993) alphabet cards were used to facilitate segmenting and blending of letter sounds.

The control group received an alternative training session equal in duration to that of the experimental group. The control group instruction was intended to provide children with the possibility of learning to read by being read to (Moustafa, 1997). Children were taught in pairs. The teaching approach used the technique of interactive reading, in which an adult reads stories and uses open-ended questions to encourage the child’s participation (Whitehurst, undated). A total of 12 books were read to the children during those 30 sessions. Some books were read over two sessions, and there were also repeated readings of some books, as chosen by the children.
Results

The results were based on scores from 22 children, after one of the matched pairs was dropped because one of the pair had been receiving reading instruction at home and could already read.

For the initial-phoneme detection task (IPDT) and the final-phoneme detection task (FPDT) the experimental group made significantly greater gains from pretest to posttest than did the control group (see Figs. 38.4 and 38.5).

For the GKR phonemic awareness measure, there was an advantage for the experimental group. The experimental subgroup with good phonological pretest scores had a mean posttest score of 10.00 (SD = 5.98). The experimental subgroup with low phonological pretest scores had a mean posttest score of 2.83 (SD = 1.33). The control group did not score at all on this measure.

For reading of words there was a significant difference between the two groups (see Fig. 38.6). In the experimental group, the high phonemic awareness subgroup mean was 4.60 (SD = 2.88) and the low phonemic awareness subgroup mean was 2.50 (SD = 1.52). In the control group, the high phonemic awareness subgroup mean was 0.40 (SD = 0.89) and the low phonemic awareness subgroup mean was 0.67 (SD = 1.21). Inspection of the individual word-reading scores (see Fig. 38.7) showed that all of the children in the experimental group were able to read at least one word on the Burt word test, whereas 8 out of 11 of the control children were unable to read any of the words. To explore the extent to which the training influenced ability to read regularly spelled words, the words on the Burt test that were successfully read by the children were analyzed according to whether they had regular spellings (e.g., up, sad) or irregular (e.g., of, to). The children’s individual scores revealed that 7 out of 11 children in the experimental group were able to read some regular words. Of the seven who did, the number of regular words constituted, for each child, at least half of the total number of words read. This suggested that the effects of the training extended to both regular and irregular words.
For reading of the three sentences from Dr. Seuss text there was also a significant difference favoring the experimental group (see Fig. 38.6). In the experimental group, the high phonemic awareness subgroup mean was 7.00 ($SD = 5.20$) and the low phonemic awareness subgroup mean was 3.00 ($SD = 4.69$). In the control group, the high phonemic awareness subgroup mean was 0.80 ($SD = 1.30$) and the low phonemic awareness subgroup mean was 1.00 ($SD = 1.55$).

The results for pseudoword reading, obtained with the Bryant test, showed an advantage for the experimental group (high ability $M = 3.00$, $SD = 4.64$; low ability $M = 0.50$, $SD = 1.23$). The control group did not score any points at all on this task.

**IMPLICATIONS OF THE STUDY**

The study outlined in this chapter showed that the combination of instruction in phonemic awareness, letter–sound correspondences, and simple phonics was more effective in terms of children’s acquiring elementary reading skills than the “interactive” technique of reading books to this particular group of preschool children.

Results suggested that phonemic awareness training combined with simple letter–sound (CVC) decoding instruction helped these preschoolers, who were second-language learners, to make a start in learning to read. The instruction helped both the children who started the training with high levels of phonological sensitivity as well as children with low levels of sensitivity.
CONCLUSION

Teaching phonemic awareness and initial reading skills to preschoolers gives them a protection factor in terms of learning to read (Nicholson, 2005). Children who start school well prepared in terms of knowing the alphabet, having phonemic awareness, and having some basic understanding of letter–sound correspondences, are more likely to succeed in reading. Although all children are likely to benefit from such instruction, children who are particularly at risk in terms of not acquiring these skills before starting school are those from minority and low-income backgrounds.

Results of the study just outlined, along with other research reviewed in this chapter, suggest that the teaching of prereading skills is certainly possible in preschool, which is where children have an opportunity to learn necessary reading-related skills that will enable them to hit the ground running when they start elementary school. The provision of such instruction at preschool is the best hope for many at-risk children who otherwise are likely to start school way behind other children who are better prepared, and will be unlikely to catch up. This is why there is a strong case for teaching phonemic awareness and other reading-related skills at the preschool level.

REFERENCES


Alphabets Instruction Helps Students Learn to Read

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Alphabets refers to the system of representing words and phonemes with letters and includes phonemic awareness, grapheme-phoneme correspondences, and spelling patterns. It also refers to the use of alphabetic knowledge to spell words and to read words by sight, by decoding, by analogy, and by prediction. Phonemic awareness (PA) instruction teaches students how to manipulate phonemes in spoken words, with letters sometimes used to support instruction. Systematic phonics instruction teaches the major grapheme-phoneme correspondences and their use to decode and spell words.

Findings of two meta-analyses revealed that both PA instruction and systematic phonics instruction helped children learn to read and spell more effectively than alternative forms of instruction. Both were especially effective for beginners at risk of reading failure. Phonics instruction exerted a greater impact in the early grades (kindergarten and first) when it was the method used to start children out than in the later grades (second through sixth) after children had made some progress in reading, presumably with another method. Findings support Chall (1967) in underscoring the importance of teaching alphabets early, especially in schools with large numbers of at-risk students who enter school with very little letter knowledge or phonemic awareness.

INTRODUCTION

One of the great mysteries to challenge researchers is how beginners learn to read and comprehend text rapidly with ease. A large part of the explanation lies in how they learn to read individual words. Explaining this is not simple. Skilled readers are able to look at thousands of words and immediately recognize their meanings without any effort by reading the words from memory. In addition, skilled readers can pronounce unfamiliar written words with ease, by transforming letters into sounds or by recognizing resemblances to words they already know how to read. Readers who are skilled at reading words can also generate plausible spellings of