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Two approaches to training phonemic manipulation

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TWO APPROACHES TO TRAINING PHONEMIC MANIPULATION

by

Rollanda E. O'Connor

A dissertation submitted in partial fulfillment of the requirements for the degree of

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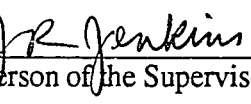
Approved by 
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Abstract

Two Approaches to Training Phonemic Manipulation

by Rollanda E. O'Connor

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Educators are passionately concerned about children who fail traditional types of reading instruction, thus the research in phonemic awareness is pursued with fervor and commitment. Correlational studies revealed strong relationships among phonemic skills and reading, but questions of instructional accessibility, facilitative qualities among phonemic manipulations and the comparative effects of trained and "naturally" developing skills on reading will only be understood through intervention research. This study contrasts the effects of training low-skilled kindergarten children in two types of phonemic manipulation: (1) auditory blending and segmenting, and (2) global training encompassing activities in rhyming, segmenting, blending, identifying the first sound, sound-to-word matching, alliteration, and deletion. Both treatments included training in letter-sound correspondences. Two control conditions were also introduced: (3) letter-sound correspondences only, and (4) no treatment.

354 children attending regular kindergarten programs were tested on phonemic manipulation skills, then 99 low-skilled children were randomly assigned to one of the four conditions and instructed in small groups, twice weekly for 15 minutes each session over ten weeks. Following instruction, treatment effects were tested on the acquisition of phonemic manipulation skills, on a reading analog task, and spelling.

Posttest measures demonstrated large changes in skill level among initially low-skilled children in the two phonemic treatments, however, I found no differences in phonemic skills and reading between the two types of phonemic training. Children in both phonemic treatments performed higher than other low-skilled children on phonemic tasks, and higher than the no-treatment control in reading and spelling. They also scored comparably to children who began the study with high phonemic skills. The children taught only to blend and segment were able to pick off the first sound and to substitute and delete phonemes on the Lindamood Auditory Conceptualization Test as well as children in the group taught to perform these manipulations. Only short term effects (end of the training period) were assessed in this study.

The results suggest that prereading children initially low in phonemic skills can be taught phonemic manipulations, that instruction in blending and segmenting generalizes to other kinds of phonemic manipulation, and that training may transfer to initial attempts to read and spell.

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I wish to thank the children, teachers, and administrators of the school district which supported this research, and Rhonda Parker and Deborah Prante who conducted the lessons and provided insight into the learning of the children.

My advisor, Joe Jenkins, developed a forum for the ongoing consideration of topics and experiments in reading and research which stimulated thinking and encouraged learning among all of his graduate students. I am particularly grateful for being included in this community, with its atmosphere of willing assistance and mutual respect. Two years of discussion and two earlier experiments shaped this study, guided by the thinking, advice, questions, and help of Joe Jenkins, and colleagues Tim Slocum and Norma Leicester. Their continuing curiosity and warm support, and that of my friends Joan Ronk and WG, added fun and energy to the work.

Thanks, especially, to my husband Dan for interpreting the change and uncertainty in our lives as adventure, to my sons Rod and Kit for their flexibility and independence, and to my sister Carole, who still dreams.

CHAPTER 1

Introduction

Most children pass through the reading doorway during the first grade. Timing is as important as the passage, because if the door opens late, the child misses months or years of the facilitation reading provides nearly all academic and cognitive endeavors. Sadder still, for children who read poorly at the end of first grade, the door will likely remain closed (Juel, 1988).

Phonemic awareness -- access to the phonology of language which allows reflection and conscious manipulation of the sounds that make up words -- may be the key that has locked the door against children who have difficulty acquiring early reading skills (Stanovich, 1986; Stanovich, Cunningham and Cramer, 1984; Tunmer, Herriman & Nesdale, 1988). Liberman and Shankweiler (1985) suggested that reading *relies* on knowledge of the phonetic structure of spoken and written words, particularly that words can be segmented into phonemes and that letters represent phonemes rather than syllables or whole words. Perhaps the ability to manipulate spoken language by assembling sounds into words, breaking words into sounds, deleting or substituting sounds to make rhymes or recognizing sound-based similarities in words helps children to make sense of our alphabetic system.

The purpose of this review is to sift through findings from current studies in phonemic awareness to locate areas of convergence and controversy, and to suggest how controversies among findings might be resolved.

The relationship between phonemic awareness and reading

Significant correlations among reading and phonemic measures peaked the interest of the reading research community (Calfee, Lindamood, & Lindamood, 1973; Liberman & Shankweiler, 1978; Rosner & Simon 1971; Rozin & Gleitman, 1977; Vellutino, 1979) with possibilities for increasing scientific understanding of the reading process and

decreasing reading failure. Phonemic awareness was reported to predict reading success beyond intelligence, letter sounds or socioeconomic status (MacLean, Bryant, & Bradley, 1988; Share, Jorm, MacLean, and Matthews, 1984; Zifcak, 1981). A stable predictor, phonemic awareness predicts reading when measured at four, five, or six years of age (Bradley & Bryant, 1985; MacLean, Bryant, & Bradley, 1988; Stanovich, Cunningham, & Cramer, 1984), and maintains high correlations with reading when measured at eight, nine, or ten (Morais, Cluytens, & Alegria, 1984; Rosner, 1972; Vellutino & Scanlon, 1987). The correlational evidence that follows identifies strengths and limitations of documented relationships among phonemic skills and reading.

In a study of over 600 public school children, Calfee, Lindamood, and Lindamood (1973) tested the ability of kindergarten through twelfth grade subjects to manipulate phonemes on the Lindamood Auditory Conceptualization (LAC) Test. Subjects were rated above or below average in reading by their teachers, and those above average performed near the test ceiling by the middle of the first grade, however, below average fourth graders still had not mastered the easiest task of constructing a sequence of colored blocks to represent a given string of two-to-three phonemes. The test remained significantly and substantially related to reading and spelling performance through high school. Multiple regression with the total Lindamood score forced ahead of other variables found significant correlations with the Wide Range Achievement Test (WRAT, combined reading and spelling) at every grade level, ranging from .62 to .77. IQ or other abilities were not entered into the regression, however, so the unique variance that Lindamood scores contribute to reading or spelling was undetermined.

Rosner and Simon (1971) tried to isolate that unique variance by entering IQ prior to phonemic scores in their analyses. They developed a test of seven types of auditory deletion, progressing through a proposed hierarchical sequence (omission of syllables from words, to omissions of initial and final consonants, to medial syllables and consonants)

which discriminated among grade levels of children in kindergarten through sixth grade. Few children (nine out of fifty kindergarteners) were at the test floor, but many fifth and sixth graders reached the test ceiling. Correlations by grade level between Rosner's Auditory Analysis Test and the language composite score from the Stanford Achievement Test ranged from .53 to .84. After controlling for IQ (from the Otis Lennon Mental Abilities Test), correlations still ranged from .40 to .69 for all except sixth grade (R = .10; sixth grade also reported the highest correlation of any grade between language scores and IQ, R = .86, perhaps accounting for the lower additive factor in the partial correlation).

The Lindamood and Rosner tests of Calfee, et al. (1973) and Rosner and Simon (1971) treated phonemic awareness as a unitary construct typified by a range of subskills, although the task demands of the two tests (counting colored blocks on the Lindamood, deleting sounds on the Rosner) are quite different. Neither test examined whether some subskills were more significantly related to reading than others.

Zifcak (1981) designed a study to fine-tune that relationship by correlating three very different measures of phonemic awareness -- invented spelling (based on Read, 1975), phonemic segmentation (tapping the number of phonemes or syllables), and phonemic analysis (Rosner's Test of Auditory Analysis Skills, 1972) -- with early reading progress as measured on first grade reading scores from the WRAT. He tested all 49 first grade children in a northeastern public school and excluded children who could not recite and recognize alphabet letters, because this knowledge was required for the invented spelling task. Zifcak entered measures of intelligence, socioeconomic status, and age first in multiple regression to control for these factors, and then assessed the relationships among reading and the three phonologic measures. He found that, within the normal range, intelligence did not affect the child's level of phonemic awareness or the relationship between phonological awareness and reading, nor did age (within the twelve month span of 6.0 to 7.0) or socioeconomic status (within his selected community and school).

Correlations among phonemic tests and reading ranged from .54 to .78, and when combined with intelligence, sex, socioeconomic status and age, two of the phonemic variables (segmentation and invented spelling) accounted for .80 of the variance in reading scores. Zifcak's finding contrasts with Rosner's (1974) earlier work; after entering the phoneme tapping score into the regression, Rosner's test accounted for *no* unique variance in reading ability. Zifcak did not report complete results of the multiple regression, and the variables entered in reverse order might lead to different conclusions. Perhaps test overlap between the segmentation measure and Rosner's test washed out unique variance, or perhaps Rosner's choice of a language composite score was too global and inflated his earlier correlations (Bowey and Patel, 1988, took up the language issue some years later). Zifcak also omitted children who did not recognize all of the alphabet letters (seven of the original 49), which could have altered relationships among variables, making patterns reported here more typical of "good readers" than of an overall sample of first graders.

Zifcak's sample was small (49 subjects) and limited (representing a single school). Share, Jorm, MacLean and Matthews (1984) set out to discover how much variance in reading achievement can be accounted for by phonemic awareness in a larger, real world sample, and whether other better, or equally good, predictors could be found. They conducted a large-scale longitudinal study (543 children followed through kindergarten and first grade) that assessed 39 variables in kindergarten, including phonological awareness (segmentation into onset-rime and individual phonemes), oral language, motor skills, personality factors, and teacher predictions of children's success (IQ was not a specific variable) and correlated them with decoding, sight word reading, and comprehension in kindergarten and first grade. When all of the variables were correlated with kindergarten and grade 1 reading achievement (a composite of sight and nonsense word reading, spelling, and the Neale Analysis of Reading Ability), the highest simple correlations were obtained from segmentation (.66 in kindergarten and .62 in first grade) and letter name

knowledge (.68 in kindergarten and .58 in first grade). Share, et al. used multiple regression to assemble a short list of five variables that accounted for nearly 60% of the variance in first grade reading achievement (segmentation, letter names, letter copying, sentence memory, and sex). Intercorrelations among these variables and the other 34 were not reported (a potential confound in multiple regression). For the purpose of predicting reading, their set of five simple measures may be useful, but their techniques were limited to assessing one-way contributions. Perhaps combinations of reading scores and other variables could also predict phonemic awareness (or sex?).

Bowey & Patel (1988) used the same technique (multiple regression) with the same goal (accounting for the variance in reading ability), but came up with startlingly different results. They argued that careful selection of oral language measures (the Peabody Picture Vocabulary Test [PPVT] and sentence repetition) would subsume metalinguistic variance (phonological awareness and syntax) on reading measures. Their study reported *no* unique variance on first graders' reading scores accounted for by metalinguistic skills beyond oral language abilities. Their regression is complicated, though, by entering the two pairs of language measures and metalinguistic measures as single factors. All of their measures intercorrelated, and although their argument hinges on independent contributions, we are not given those data in a table or in text to demonstrate the direct contribution of each measure. It is possible that the tests entered as pairs confounded the analysis, e.g., Is sentence repetition a better language measure than syntactic awareness (entered here as a metalinguistic, rather than a language, skill)? The high intercorrelations among the four measures suggest this problem might be serious. Their measure for decoding provides a second complication. The argument for the importance of phonemic awareness, specifically segmentation and blending, is that such skills are necessary for decoding novel words. The decoding test selected here (the word identification subtest of the Woodcock Tests of Reading Mastery) does not necessarily require decoding, e.g., the subtest

includes irregular words which are more likely to be read as as sight words than decoded. Perhaps the pseudoword subtest of the Woodcock, which must be decoded for an accurate score, would have been a better measure of decoding ability. Their hypothesis remains interesting, but, as they conclude "it is not possible to test specific metalinguistic contribution hypotheses within a correlational methodology. Rather, we must rely on training studies to evaluate such hypotheses." (p. 380)

Bryant, MacLean, Bradley, and Crossland (1990) contradicted the conclusions of Bowey and Patel (1988) by finding that rhyme and alliteration made a direct and independent contribution to predicting reading and spelling even after differences in vocabulary (measured by the British version of the same vocabulary measure used by Bowey and Patel) are held constant. The opposing points of view cannot be attributed to different measures of phonemic awareness, since both used Bradley and Bryant's (1978) categorization task, or different measures of vocabulary (PPVT and BPVT), or different numbers of subjects (60 vs. 66). Bryant, et al. included younger children, however, with a range of four through six years. They suggest "Sensitivity to rhyme and alliteration are developmental precursors of phoneme detection, which, in turn, plays a considerable role in learning to read. Sensitivity to rhyme also makes a direct contribution to reading, probably by helping children to group words with common spelling patterns." (p.437) If rhyme and alliteration are precursors to other kinds of phonemic awareness, they might be expected to account for more significant variance among the somewhat younger subjects in Bryant, et al.'s work.

This body of research only demonstrates the *possibility* of a strong relationship between phonemic awareness and reading; it admits to other controlling influences (intelligence, age, socioeconomic level, sex), and speculates that not all phonemic measures are equally predictive. To understand how phonemic measures might predict reading

achievement, researchers turned to the study of the normal development of phonemic awareness in children.

The normal developmental trajectory of phonemic awareness

Is there a normal developmental track for phonemic awareness? A few of the correlational studies (Calfee, Lindamood, & Lindamood, 1973; Rosner & Simon, 1971) indicate a developmental progression of skills on particular tests, but these studies measured skills at only one point. Perhaps the best descriptions of normal phonemic development derive from correlational studies with a longitudinal element.

In the primary grades

Perfetti, Beck, Bell, and Hughes (1987) measured the progress of 82 first grade children in two different reading curricula at four points over the course of the school year to track the development of reading, phonemic analysis, and synthesis. Synthesis (blending) predicted reading well at the beginning of the first grade, but as the children increased in their ability to perform the task, its strength as a predictor declined. By the end of first grade, as in Rosner and Simon (1971) and Lenchner, Gerber, and Routh (1990), deletion was a more powerful predictor of word reading. This change over the course of the year could account for some of the divergent results among the correlational studies which measure skills only once. The altering relationships among phonemic tasks and reading during the first year of reading instruction led Perfetti, et al. to conclude that phonemic knowledge and reading develop in mutual support. More evidence for mutual facilitation is provided by Morais, Bertelson, Cary, and Alegria (1986), who reported that phonemic skills did not develop normally in samples of illiterate adults. It seems probable that reading (and possibly spelling) influences more difficult phonemic skills, such as deletion or substitution of phonemes within syllables, however Perfetti, et al. advise that, since many reading programs already stress the code acquisition lessons that assist

development of phonemic awareness, specific teaching of phonemic skills may not be helpful for improving reading.

Nonetheless, Juel, Griffeth, and Gough (1986) found that decoding instruction was ineffective unless children already had some level of phonemic awareness or very quickly acquired it, even though the reading programs of their subjects included synthetic phonics instruction. In a later work, Juel (1988) tested 54 children from first through fourth grades to document patterns of growth in various reading and reading-related skills for individuals and subgroups. Her alarming finding was that children who were poor readers in first grade were likely to remain poor readers all through the elementary school years (probability = .88). Tracing back to the beginning of their schooling, she reported that the children who became poor readers entered first grade with very poor phonemic awareness skills (The poor readers' mean score was 4.2 on the Roper/Schneider (1984), compared to 21.7 for children who learned to read normally.). The longitudinal design of the research enabled Juel to chart the development of phonemic skills among these children. Her tests indicated that phonemic blending was prerequisite to learning to read (Perfetti, et al., 1987, concluded that synthesis was an important preskill only for children in reading programs unlikely to teach it), while deletion appeared to develop alongside reading (accounting for its higher predictive power at the end of first grade). Good readers approached the ceiling of the phonemic tests by the end of first grade, however, poor readers did not approach a similar level until the end of third grade, supporting Calfee, et al.'s (1973) finding. If phonemic skills are necessary for normal reading growth, third grade would seem far too late to acquire them, because most reading curricula decrease decoding emphasis markedly by the end of second grade.

Awareness in preschool children

These studies documented growth in phonemic awareness during the early grades, but when does it first begin to appear? Fox and Routh (1975) tested samples of children

from age three through age seven on segmenting tasks (sentences into words, words into syllables, syllables into phonemes), and age emerged as a factor in the ability to segment phonemes. Their subjects by age three were able to break up sentences to words, and by age five could break words into syllables *errorlessly*. First grade children in Zifcak's (1981) sample also segmented words into syllables more readily than syllables into phonemes, though far from errorlessly. Few of Fox and Routh's subjects were able to segment prior to age four, but most of the subjects over four years old could manage some form of free segmentation ("say a little bit"). The work is interesting for its insight into task demands. Studies that report that children are unable to segment prior to reading (Ehri, 1989; Perfetti, et al., 1973) may have been using wording or requiring responses that were too complex for young children. By accepting evidence that syllables can be subdivided (any segment of a word that was smaller than the stimulus was accepted as evidence), Fox and Routh isolated the *issue* of speech segmentation. Content, Kolinsky, Morais, and Bertelson (1986) further explored segmentation task difficulty with four-year-olds and concurred that free segmentation, coupled with corrective feedback, was well within the capacity of young, preliterate children. Their corroboration is important because Fox and Routh used subjects with an average IQ of 117 from professional families, and the high IQ/socioeconomic levels of the subjects may have influenced their early abilities.

Bradley and Bryant (1985) followed 400 preschool children for three years in a study which asked two questions: (1) whether young children are able to recognize phonological segments before they learn to read; and (2) whether their skill at doing so affects their progress in learning to read. Their tasks were based on a test reported in their (1978) study comparing ten-year-old poor readers with six-year-old normal readers matched for reading ability. Children classified words by rhyme or alliteration to detect the "odd word" out of sets of three or four words. Poor readers performed significantly below their younger matches on these tasks, even though they were matched for overall reading

ability, leading Bradley and Bryant to suggest that "There is no possible way in which a child could understand and use the alphabetic principle with any degree of success without being able to isolate and manipulate . . . phonological segments." (p. 6) Their longitudinal correlations among rhyme, alliteration, reading, and spelling indicated that young children who become normal readers were able to perform some of these discriminations by the age of four, interesting because they claimed that rhyme and alliteration involved explicit, conscious understanding of the phonological segments in words. The children improved in rhyme and alliteration over the next three years as they learned to read. This research also included a training portion, which will be reviewed alongside other intervention research.

These studies report developmental sequences for normally developing children, most of whom will develop phonemic awareness somewhere along the way. What light do they shed on children who start out low in phonemic awareness and do not learn to read? Perfetti, et al. (1987) and Ehri (1989) suggest that phonemic awareness develops with experience in reading. How are these children to gain that reading experience? Tunmer, Herriman, and Nesdale (1988) insist that children cannot read nonsense words (a strong test of decoding ability) without also being able to segment words auditorily. Without manipulating phonemic ability, we cannot determine the direct effect of phonemic awareness on reading acquisition.

One construct or loosely related skills?

After the first flush of excitement, researchers began to investigate and bound the construct of phonemic awareness. Tunmer, Herriman, and Nesdale (1988) argued that specific phonemic skills are all facets of a single metalinguistic metacognitive sound manipulation ability. Stanovich, Cunningham, and Cramer (1984) agree, citing high correlations among nine of their ten measured phonemic skills (rhyming was the exception). Yopp (1988), also through examining intercorrelations in kindergarten, but adding factor analysis, defined two factors that seemed to make up the larger construct:

simple awareness (requiring one step, such as blending or segmenting) and complex awareness (requiring two or more manipulations, such as deletion or substitution). Rhyming did not load highly onto either of the factors. Lundberg, Frost, and Petersen (1988), explaining the low effects for rhyme compared to higher effects for phoneme segmentation suggested that rhyming may be less dependent on training for development. Bryant, et al.'s (1990) suggestion that rhyme is an early precursor to more complex phonemic awareness could also account for its ceasing to predict reading significantly into the school years. These hypotheses were developed through correlations among measures of kindergarten and beginning first grade subjects, however, none of these hypotheses can be advanced much farther without manipulating ability in specific phonemic skills.

Lenchner, Gerber, and Routh's (1990) evidence contradicts Stanovich, et al. (1984) and Yopp (1988) by comparing the performance of 38 third and fourth grade children, 19 disabled and 19 normal readers, on six measures of phonological awareness. Intercorrelations among tasks varied from nonsignificant to .76, suggesting "that the tasks may not be measuring the same underlying processes and therefore may not all be valid measures of the same unitary construct." (p. 243) They correlated all scores with reading achievement and found that deletion was related to reading performance beyond the early stages of instruction (supporting Rosner and Simon, 1971), continuing to correlate highly with reading into the fourth grade even though good readers were at ceiling for this task. They suggested that "perhaps there is a threshold level of phonemic awareness necessary for decoding, beyond which further skill is superfluous." (p.244)

McCutchen, Kabrich, Dibble, and Crain-Thoreson (1991) provide additional evidence for phonemic awareness representing several different constructs. They measured phonemic awareness and word reading in a sample of 24 first and second grade children and found lower correlations among the phonemic skills (Rosner's Auditory Analysis and Bradley and Bryant's Oddity) than reported in other studies. They suggested that after

children begin to read, the construct of phonemic awareness breaks down, so that the strong relationship between global phonemic awareness and reading typically found in kindergarten children is replaced by individual relationships between specific phonemic skills and types of word reading (e.g., phoneme deletion maintains a significant correlation with regular words, while oddity correlates more highly with irregular words). To determine the causal direction of these relationships and test their strength under changing conditions will require intervention studies that manipulate specific phonemic (or word type) skills and measure associated changes in the paired ability.

Intervention studies give a closer look at relationships among skills. Marsh and Mineo (1977) in a training study with preschool children suggested that blending may involve more than one generalization, and might even consist of separate generalizations for each specific sound. Treiman and Baron (1983), too, reported phoneme-specific effects in training prereading kindergarten subjects in segmenting and blending. The children applied auditory skills taught during training to learning the same syllables taught alongside print, however, they did not apply blending or segmenting to novel syllables. The phoneme-specific effect of training may also have been due to the short term nature of the training (four days), or related to the degree to which subjects learned the taught skills. In another training study with prereaders, Slocum (1991) found a similar effect for blending, although the generalization to novel sounds on a segmenting test was high. Ball and Blachman (1991) did not assess blending, but, like Slocum, found generalization from segmentation training to novel items. If phonemic awareness is not a single construct, and phoneme specific effects operate at the level of individual skills, then a hierarchy among phonemic manipulations involves far more complexity than most researchers have assumed.

Training studies

Correlation studies leave us with divergent results which could be attributed to several factors: subjects across a wide age span (Stanovich, 1986, suggests that the

importance of phonemic manipulation skills may vary with age, being relatively more important in the primary grades), a huge range of tasks (and tasks can be made easier or more difficult by selection of sounds, wording, examples, length), conflicting methods of analysis (data entered with and without covariates, stepwise regression vs. forced entry of variables, combined vs. individual factors), and hazy descriptions of the tested phonemic manipulations. Amid the divergence, correlations provide no direct evidence for the directionality of the relationship among phonemic skills and reading. Sorting out these discrepancies will take experimental intervention.

The theoretical advantage of intervention over correlation is direct manipulation of factors believed to be causal. The changing relationships among phonemic skills and reading during the course of beginning reading instruction can be documented by training non-blenders to blend, and non-segmenters to segment, while carefully monitoring reading ability as skills increase. Other questions particularly crucial for children at risk of reading failure can *only* be answered through experiments -- fundamentally: (1) whether these skills can be efficiently taught to children who have not yet acquired them, and, if so, (2) to whom, (3) under what conditions, and (4) with what effect on reading. These questions are at the heart of virtually all of the intervention studies.

Training packages for lower performing children

Rosner (1974) used training tasks derived from the Rosner Auditory Analysis Test (Rosner & Simon, 1971) to teach four-year-old children in an inner-city preschool to segment words and syllables at various levels over the course of a school year. His question was whether lower socioeconomic children, considered at risk of reading failure, could improve in segmentation with training, and whether such training could close the gap in reading readiness (as assessed through segmentation ability) between these children and middle class, suburban children. Two control groups were tested in the fall for comparison: children in an inner-city kindergarten (similar to the preschool children, except

one year older), and children in a suburban kindergarten (representing a higher socioeconomic group). Most of the preschool children in his training program learned to segment sentences into words and words into syllables; few children managed in a year of training to segment at the phoneme level. The activities represented a sequential hierarchy of skills based on Rosner's task analysis of necessary prerequisites for phonemic segmentation, all activities were conducted to mastery, and many children simply did not progress very far in the program. Overall, the trained preschool children gained phonemic skill from pre to posttest, and ended the year (May) at a level similar to where kindergarten inner-city subjects scored in the fall. Rosner concluded that preschool children could be taught to segment. Although training raised the level of segmentation skill commensurate with untrained inner-city children at the *beginning* of kindergarten (children about four months older), this level was still significantly below the suburban kindergarten control group. Whether the few months' gain in segmentation would affect reading is unknown.

The effect of such training on reading was the primary concern of Wallach & Wallach (1976), who designed a tutorial program for children from low socioeconomic families and field tested it with 40 beginning first grade children and a few second grade children (who had failed in regular first grade reading instruction) from two inner-city public schools. Children for the experimental treatment were randomly selected from all children who would have been tutored if resources were available (based on group administered Metropolitan Readiness Tests). They received daily half hour lessons from trained non-professional adults in addition to regular reading instruction in their classrooms. The authors stated their philosophy, "if we are correct about the significance of knowing letter-sound relationships, then it is essential to create arrangements that will bring about such knowledge in all children and to do so sufficiently early in the game that they can make use of it in learning to read." (p. 60) All tasks were conducted to mastery, and included shapes and sounds of letters, alliteration with the first sounds of words,

school-like tasks (choose the word from two pictures that starts like the target sound, letter tracing and drawing, matching letters embedded in pictures), sound/letter matching games, and direct decoding practice which emphasized auditory and visual segmentation and blending. The effects of phonemic awareness per se were not evaluated, but large and significant differences were noted for sentence reading and standardized reading tests favoring the experimental treatment. The results of the tutoring program provide strong support for early intervention, but whether increased reading ability was due to increased levels of phonemic awareness, an additional half hour of reading instruction, increased attention from an adult, or other factors is impossible to isolate.

Williams (1979) created a tutoring program (*ABD's of Reading*) specifically for children in special education programs that began with analysis (segmentation) and synthesis (blending) of two and three-phoneme real and nonsense words using square visual markers as cues. She then trained children in the sound/symbol relationships for the nine sounds used in initial sessions, and added those letters to the manipulated squares, so that training progressed from phonemic manipulation to actual decoding instruction. Subjects in the study were 63 seven to twelve-year-old reading disabled children who had already failed traditional attempts at reading instruction, selected by the author from a larger pool as the children "most likely to profit from the program." (p.189) The teachers were those recommended as "competent and cooperative." Other children from classrooms of non-selected teachers acted as a control group, though Williams freely admits "This was not a proper control group." (p. 189) The trained children improved on posttests on all subtests, "except some of those on which scores for both groups had been very high on the pretests (syllable analysis and blending and the two easiest phoneme analysis tasks -- identifying initial and identifying final phonemes)." Thus, the study did not assess the benefits of training the auditory segmentation and blending which are the focus of most other phonemic awareness research.

Training specific skills

The early packages did not assess the effects of teaching specific phoneme manipulation skills. Several aspects of phonemic awareness have been trained in clinical settings. These studies varied in size, scope and tasks, but all involved individual training with defined tasks and included some type of control subjects.

Fox and Routh (1976), taking advantage of their earlier work in segmentation with young children, investigated the effects of blending training on early reading assessed through number of trials to criterion on a reading analog task. As before, their subjects were at the upper end of the socioeconomic scale, and had average IQ's of 112. They randomly assigned 20 four-year-old children to blending training, and another 20 to no training, then both groups were taught to match sounds to Gibson letterlike forms (analog to learning letter/sound correspondences). The reading analog task required subjects to blend the letter-like forms into 6 two-phoneme nonsense syllables. They found no main effect for blending training, but on a segmenting test following treatment discovered that about half of the children in each group could segment syllables into phonemes and half could not. They assumed the children were segmenters or non-segmenters prior to treatment. Analyzing their data as a two by two factorial (training by segmenting ability), they found that only children who could segment profited from the blending training. "Children who were proficient at segmenting made use of phonic blend training to reduce the number of trails necessary to learn a second word list consisting of new words made up of reshuffled but familiar letter-sound combinations, as compared to the performance of children who did not receive phonic blend training." (p.74) Three issues cloud this conclusion: (1) Segmenting ability was assessed following blend training. It is possible that among the blenders, segmenting ability was altered by training. (2) Means on descriptive variables are given for the overall study, but not for the subdivided groups. Specifically, no close look at the segmenters is provided. Were they different from non-

segmenters on other abilities? Perhaps another variable such as age or IQ could as easily account for the difference. (3) Blend training was quite limited, lasting one session with exposure to only five words. Possibly more prolonged training on a wider range of words would have been effective with non-segmenters.

Fox and Routh (1984) addressed the first two issues in a subsequent study. 31 kindergarteners who could not segment prior to treatment were randomly assigned to one of three groups: segmenting training, segmenting plus blending training, or no training. Training occurred in groups of five children, four days per week, for five weeks on consonant-vowel-consonant real words. Pictures were used to represent the training words, and both treatments stressed onset-rime segmenting and/or blending. At the close of the study, they measured segmenting performance, blending performance, and trials to criterion on a reading analog task of Gibson letterlike symbols (combined into six words). As well as comparison among treatments and a non-segmenting control, Fox and Routh compared performance to a group of children who could segment at the start. They found that children trained in blending plus segmenting performed like the natural, untrained segmenters on the reading analog task. Children trained only to segment showed higher skill than controls on a segmenting test, but performed no better than controls on the reading task. Segmenting training alone was insufficient for children to "read" the letterlike forms. Fox and Routh again conclude that it takes blending and segmenting skill to decode, but their results reopen the question about natural segmenters in this study and their previous work. The natural segmenters may also differ on other cognitive skills relevant to reading. No pretest in blending was administered; that natural segmenters performed so high on blending (assessed at the end of the study along with the reading analog task) suggests they may also have been proficient at other phonemic skills not tapped by these tests. The untrained, natural segmenters performed substantially higher on the blending test than did the children trained in blending plus segmenting following five

weeks of work. Unfortunately they did not conduct a treatment for blending alone; the longer duration of training in the 1984 experiment would have provided a test for the effect of more intensive blending training, unresolved by their 1976 research. Whether the reading analog task, used as the transfer measure in Fox and Routh's work, mirrored early reading acquisition is debatable. They assumed the task required matching sounds to novel symbols and *blending* them into words. Because each trial was limited to learning three words, however, children could have learned them as paired associates rather than *decoded* words.

Torneus (1984) sought transfer from trained phonemic skills to real reading by training first grade children in Sweden in metaphonological skills over eight 20-minute sessions. Although the training did affect levels of phonological skills (blending and segmenting), it did not affect reading or spelling significantly from the control children, except for the spelling improvement of a subset of eight children initially low in phonemic awareness. The argument that her training was too short in duration to affect the acquisition of skills in school would seem refuted by the initially lower skilled subjects' reaping the measurable benefit. Because IQ was not assessed, it is uncertain whether these children were only low in metaphonological skills, or were cognitively low as well. Torneus' work may be flawed by ceiling effects (her treatment included children initially high on her measures), but she raises the important issue of how much phonemic awareness is enough. It was only for the children initially low in the taught skills that improvement in spelling ability was noted, and the levels of phonemic manipulation for these children were raised in only eight sessions.

Lie (1991) tried to pin down the effects of phonemic manipulation training along two dimensions: differential benefits for children with differing levels of cognitive ability, and the type of phonemic emphasis with the greatest short and long-term effects. He trained first grade children in Norway daily under two different segmentation treatments

and a control condition providing concept development without emphasis on phonemes, and followed their reading progress through first and second grades. His phonemic treatments contrasted segmentation as it is sometimes taught in basal reading or phonics programs (*positional* segmentation where children isolate the first, last or middle phoneme in a word), with a more experimental approach (*sequential* segmentation where children say all of a word's phonemes in order). Both experimental groups included a metacognitive component similar to Cunningham's (1990) conceptual training: discussion of the function of language, structure of language (words), structure of words (sounds), and the notion that sounds can be heard and isolated from the words in which they are embedded. Articulation, the child's own pronunciation, and the generalizability of the technique for analyzing words drawn from alliterative stories was stressed in both experimental groups, e.g., children were encouraged to come up with words to analyze in addition to a provided list.

Results were analyzed with pretests of auditory linguistic ability as a covariate in a 3 (group) x 3 (IQ blocks) x 2 (time of posttesting: 1st or 2nd grade) factorial design. The only significant main effect for first grade reading favored the sequential group over the control. An interaction between group and ability suggested that children with lower IQ's benefited even more from sequential sound training than middle or high IQ groups. When children were tested again in second grade, mean reading scores were higher for sequentially-trained children, however, the difference was no longer significant. Spelling scores significantly favored the experimental groups at both grade levels. Lie concludes "There is now a convergence of research evidence for the view that a systematic training program in word analysis has a facilitative effect on reading and spelling acquisition (Bradley & Bryant, 1983; Lundberg, et al., 1988; Torneus, 1984; Wallach & Wallach, 1976; Williams, 1980)." (p. 247) Perhaps more importantly, his study suggests that

phonemic training is particularly beneficial for lower performing children, the very children who are least likely to develop phonemic awareness on their own.

Training packages for normally-achieving children

Bradley and Bryant conducted a training study (reported in 1983) as one component of their large correlational study described above (1985). 65 four-year-old children initially low in rhyme and alliteration were selected out of the larger sample and randomly assigned to one of four conditions. During 40 individual sessions spaced over two years, half of the children received training in auditory categorization (rhyme and alliteration). Thirteen of these children also received sound/symbol training in the last 20 sessions, along with sound categorization. In the two control conditions, half received conceptual categorization, and half received no treatment. The performance of the four groups on reading, spelling and math achievement was compared in first and second grades. Children trained in the two sound categorization treatments performed better in reading and spelling than either control group in first and second grade, however the only *significant* difference over the control groups was for the group trained in both sound categorization and letter sounds. The only difference between the two sound categorization groups was a significant advantage in spelling for children who also received sound/symbol instruction. All results were controlled for intelligence and letter recognition.

Bradley and Bryant (1983; 1985) point out certain advantages for intervention research over correlational study. In the correlation component of the research (with a sample of 368 children), sound categorization prior to school entry was shown to be a good predictor of later reading and spelling achievement, but altering the level of phonemic awareness through intervention changed the pattern of correlations for the trained children. Including trained children in the correlational part of Bradley and Bryant's (1985) research probably weakened the strength of the correlations among the overall sample. Correlations show relationships as they exist at the moment skills are sampled, but they cannot reflect

the malleability of alteration, and education relies on malleability of skills and abilities. The correlational research depicts relationships among phonemic skills and reading, but researchers concerned about reading failure want to know the effect of increasing the level of one skill area or another. Sound categorization alone produced improvement (3-4 months gain in reading, which was not significant), and adding plastic letters to spell the words used during the second half of the sessions increased the effect still more (a significant improvement). Training of this type suggests further areas for intervention, e.g., what effect might 40 training sessions in sound/symbol and spelling with plastic letters have on reading and spelling?

Lundberg, Frost, and Petersen (1988) trained 200 prereading six-year-old children (lower middle class and working class) in Denmark with daily 15-20 minute lessons for eight months, and then followed their reading progress through first and second grades. The research was designed to assess "whether an improvement in metaphonological skills has a positive effect on reading and spelling acquisition . . .The practical implication of a causal link of this kind would be that early training in phonological awareness skills should lead to improvement in reading." (p. 265) Training included (month 1) listening games of verbal and nonverbal sounds, rhyming games, segmentation of sentences, (month 2) clapping to syllables in children's names and other words, marching to syllables, then to plastic markers for syllables, blending (a Troll speaks in fragments of the gifts he intends to give the children), (month 3) phonemes in the initial position, (month 5) phonemes within words, from vowel-consonant to more complex words. Throughout the training, many levels were going on simultaneously because earlier games were continued when new tactics were introduced. The enjoyment of the children was kept in mind: pictures, motor activities, dancing, singing, and noncompetitive social activities, many designed for the whole group of 15-20 children.

Several measures of metaphonological ability were administered, including rhyming, segmentation of sentences and syllables, syllable synthesis (he-li-cop-tor), deletion of an initial phoneme, and phoneme segmentation and blending. The results of these tests indicated substantial treatment effects in metaphonological skills over untreated control subjects, most dramatically at the phoneme level, however, no effect on letter knowledge or language comprehension. Vellutino (1979) suggested that the role of segmentation in reading was to provide an advantage in learning letter sounds, but clearly that advantage was not apparent here. The tests were readministered in first grade with no loss of skill. The effects on reading and spelling at the end of first grade were only marginal ($p = .10$), but became significant in grade 2. Stepwise multiple regression with reading performance in grade 2 as the dependent measure selected only two independent variables as significant predictors: 1st step: combined performance on the three phonemic tasks at posttest (R = .58); 2nd step: language comprehension increased the R to .60. For spelling in grade 2, only phonemic skills entered the equation, for an R of .61. Lundberg, et al. conclude that "phonological awareness can be developed before reading ability and independently of it, and . . . this phonological awareness facilitates subsequent reading acquisition." (p. 282)

Cunningham's (1990) training of kindergarten and first grade children was more structured and less gamelike than in Lundberg, et al. (1988). Small groups of children in two different experimental conditions met twice weekly for twelve weeks to learn analysis and blending of syllables and phonemes based on Williams' (1980) *ABD's of Reading*. Unlike Williams program, Cunningham's training stopped short of teaching the letters used in phonemic manipulation. Cunningham's two conditions differed on the conceptual framework behind the teaching formats. One treatment introduced phonemic manipulation skills in isolation (skill and drill), while the other scaffolded the lessons by stating the goals and purposes, reviewing and relating the current work to previous activities and to reading,

and modeling skills in meaningful contexts (conceptual instruction). Children in the control condition listened to stories and discussed them with a teacher for a comparable amount of time.

Both experimental conditions achieved higher skill levels than the control on tests of phonemic manipulation (deletion, oddity, and discrimination) and reading on the Metropolitan Achievement Test (MAT) in kindergarten and first grade. Overall, results were not significantly different between the two experimental conditions on the phonemic tests, but the type of instruction did affect reading achievement in the first grade, where conceptual training yielded significantly higher reading scores than the skill and drill condition. At the kindergarten level, the pattern was reversed (but differences were not significant). Perhaps the type of instruction interacted with the reading experience or cognitive level of the children (IQ tests were not reported), or perhaps the relatively higher level of performance of the first graders (many first grade children reached the test ceiling on the phonemic measures) allowed them to attend more to the conceptual features of the training. Torneus (1984) suggested that children who started lowest in phonemic skills would benefit the most from training, and Cunningham's study, limited by lack of room to grow at the first grade level, neither supports nor refutes that claim. Another consideration is the difference in test requirements for the two different levels of the MAT. It is possible that the kindergarten level test only sampled very basic reading and prereading skills (favoring the skill and drill condition), where a wider range of reading was sampled at the first grade level (favoring conceptual training).

Cunningham reports declining correlations among her phonemic measures (oddity, discrimination, and deletion) between the pre and posttests. Although she did not discuss the implications of the decline, her correlation tables allow some speculation. Slocum (1991) raised the possibility that if phonemic awareness represents a concept larger than a series of trainable phonemic skills, then trained specific phonemic manipulations might not

bring about the same increases in reading predicted by naturally occurring phonemic abilities. Training in Cunningham's study brought about small gains on the MAT, however the correlations among phonemic skills and reading after training were different from those reported prior to training. Training in phonemic manipulation apparently weakened the predictive power of the skills in question. At both grade levels, the predictive power of phonemic skills among the control condition increased, while correlations among phonemic skills and reading decreased for the experimental groups.

The multiple regressions performed on the phonemic skills and reading scores allow another look at these relationships. For both kindergarten and first grade subjects, MAT pretests were forced first into the regression, with MAT posttests as the dependent variable. At the kindergarten level, the only phonemic variable that influenced posttests significantly was phoneme discrimination (as measured on the LAC test). Perhaps discrimination was the only skill within easy enough reach of kindergarten subjects to display the necessary range of scores for prediction. By first grade, phoneme discrimination accounted for no unique variance beyond the MAT pretest, however oddity did. A similar hierarchical regression performed on pretest reading scores in the control group might have revealed patterns for the predictive power of naturally occurring skills.

Ball & Blachman (1991) were struck by the stronger effects on reading reported by intervention studies that included letter/sound correspondence training (Bradley & Bryant, 1983; Rozin & Gleitman, 1977; Wallach & Wallach, 1976; Williams, 1980). They trained kindergarten children for seven weeks in segmentation and letter sounds (excluding children with PPVT scores more than 1.5 standard deviations below the mean) in groups of five for 20 minutes, 4 times per week. Their control conditions filled an omission in Bradley and Bryant's (1983) work by providing a test of letter sound training without segmentation (a language activities group), as well as a no training control. In addition to standard kindergarten instruction, the experimental treatment included: (1) Say-it-and-

move-it activities, which represented phonemes by moving a disk from the top half to the bottom half of a card (a segmentation task). After the third week, letter tiles were included twice a week (no more than two letters per session) to make explicit the connection between the auditory sounds and their visual representations; (2) Sound categorization (as in Bradley & Bryant, 1983) and DISTAR's spell-by-sounds; and (3) Letter-sound training. The language activities group listened to stories, categorized words semantically and received the same letter-sound training as the experimental group. The no treatment control received only the standard kindergarten program.

As expected, children trained to segment scored higher than either control on the segmenting posttest (phoneme counting), and they performed better on both mastery and novel items. This test of generalization from segmentation training to new word lists is important because it bears on the issue of phoneme-specific generalizations, suggesting that segmentation is not prone to a phoneme specific effect (see Treiman & Baron, 1983). Children trained in letter-sound correspondence (the experimental and letter-sound groups) performed better than the untreated control group on a test of letter sounds, but had no advantage over untrained controls on letter names. Children in the experimental group read significantly more regular words than either control group. Ball and Blachman's results support Bradley and Bryant's conclusion that training which includes phonemic manipulation and letter-sound correspondence increases reading achievement. Because of differences between the two studies (individual vs. group training; seven weeks vs. two years) Ball and Blachman's research would have been strengthened by another look at the independent contribution of phonemic awareness training without letter sounds.

Training specific phonemic skills to lower performing children

The question of "trainability" is subtly altered in studies which use lower functioning subjects, or children at risk of reading failure. These are the children we might expect to have special difficulty acquiring phonemic manipulations skills, also the children

excluded from much research on the effect of phonemic training on reading skills (Ball & Blachman, 1991; Cunningham, 1990; Vellutino, 1979; Vellutino and Scanlon, 1987).

Slocum (1991), working with a population similar to Rosner's (1974), trained 47 children in a Head Start preschool to blend and segment three-phoneme real words into onset-rime. A cross-over design allowed him to assess facilitation among skills by examining trials to criterion to learn one phonemic skill (blending or segmenting) and then trials to criterion on the same skill for a separate group of subjects who had already received some other phonemic manipulation training. All of the children were preliterate, and the average PPVT score was one standard deviation below the mean. Nevertheless, virtually all of his subjects were brought to criterion on blending and/or segmenting. The largest facilitation effect was for the children who learned to segment following a control condition that trained (without requiring mastery) word manipulation within sentences. This finding supports the ordering of tasks in Rosner's segmentation program which begins with word manipulation prior to segmentation of phonemes in syllables, however, the facilitation effect was found after only two weeks of daily exposure to word manipulation, suggesting that *mastery* of word manipulation prior to segmentation may not be essential, and Rosner's eight months of this kind of training for some of his subjects was probably excessive.

The primary question asked by O'Connor, Jenkins, Slocum and Leicester (in press) was whether young children (four, five, and six-year-olds) with learning handicaps could be taught phonemic skills using tasks commonly found in other phonemic awareness research. 48 prekindergarten children with developmental delays (mean IQ of 71) were randomly assigned to one of four treatments (rhyming, blending, segmenting, or a no treatment control) and received instruction in small groups for seven weeks in one phonemic skill area. Tests of phonemic skills at the end of treatment revealed significant effects for trained tasks in all treatments, but no transfer of trained skills to other phonemic

areas. Although training effects were not uniform (a few subjects in each treatment made little or no progress), the authors concluded that young children with learning handicaps could be taught phonemic skills. Effects on reading were not assessed.

Taylor, Frye, Short, and Shearer (1990) intervened with first grade students at risk of failing to learn to read by providing extra instruction for 15-20 minutes daily, October through April, in a program (*Early Intervention in Reading*) that used high-quality picture books, stressed phonemic awareness, phonic and contextual analysis, repeated reading, writing, and drawing task items for blending, segmenting, and spelling from the picture books. Teachers were randomly assigned to experimental or control conditions, then 31 low performing children were selected from experimental classes, and a comparable 28 children from the control classes. 30 average students from the experimental teachers' classes provided norms for comparison. 50% of the experimental subjects were reading at grade level in May, compared with 22% of the control subjects. The program effects, however, cannot be isolated to phonemic awareness, when they might just as well be attributable to repeated readings, a few extra minutes of daily reading instruction a day, or exposure to engaging books.

Experimental design and subject selection

The case for early intervention in phonemic manipulation is poignantly demonstrated by the number of children who fail in first grade reading instruction. Several studies demonstrated that preschool children can learn phonemic manipulations to varying degrees of success (Fox & Routh, 1984; O'Connor, et al., in press; Rosner, 1974; Slocum, 1991), but the effects need to be measured in immediate success on training activities and short and long term effects on reading. Reading analog tasks give some indication about how a child might approach initial reading instruction, but later measures of real reading are the more natural reading outcomes, and could also validate the degree of usefulness of reading analogs as transfer measures for prereaders. The need to assess

intervention in terms of academic success: beginning reading and long range reading (end of first and second grade) would suggest kindergarten as an appropriate age for intervention. For normally-achieving children, increasing levels of phonemic awareness in kindergarten or first grade seems to increase reading levels. We do not know the comparable effects for increasing phonemic manipulation in young children at risk for reading failure.

Statement of the Problem

Reading is critically important in almost all academic endeavors, yet nearly one-third of children in first grade experience difficulty learning to read. Researchers have identified skills which predict reading success or failure for young children, specifically letter knowledge and phonemic awareness -- the ability to perceive a spoken word as a sequence of individual sounds (Lewkowicz, 1980). Phonemic abilities (such as rhyming, blending, or segmenting speech sounds) may assist children to acquire the alphabetic principle, making print seem a reasonable and ordered way to represent speech. Reading researchers and educators hope that the effort expended investigating phonemic awareness will lead to better methods for preventing and remediating reading difficulties.

Despite their hopes and decades of research, the contribution of specific phonemic skills to reading remains elusive. Fox and Routh (1976; 1984) suggested that it takes more than a single well-developed phonemic skill to affect reading. They concluded in their 1976 study that blending training was ineffective unless the children could already segment (prior to blending training). In their 1984 study, they taught some children to segment and others to segment and blend, however, only the children with both blending and segmenting training performed significantly better than untrained children on a reading analog task. A lingering question from these studies concerns the abilities of the "natural segmenters" -- the children who could segment prior to training. The term "natural segmenters" suggests that segmenting is the phonemic skill that distinguishes these

children. Perhaps natural segmenting ability is a proxy for a more inclusive, broader ability that includes segmenting and other phonemic abilities as well. Evidence in support of this hypothesis comes from Fox and Routh's 1984 study, where a group of "natural segmenters" could also blend with greater accuracy than the children who had been taught to blend and segment during the treatment.

Blending and segmenting have been the most investigated of the phonemic skills, but "phonemic awareness" may be a much larger construct than the combination of these two skills, and it may be this larger construct that facilitates reading. Slocum (1991) reported the surprising finding that his control condition (a variety of word manipulations within sentences and phrases) had a greater facilitating effect on learning to segment than either blending or segmenting had on each other. Slocum's hodgepodge sampling of word manipulations may be more closely linked with the larger construct than any isolated skill. Perhaps it is the *idea, or awareness* that the speech stream can be subdivided in many different ways, over mastery of any specific phonemic skills, that is critical here.

Phonemic awareness represents a complex and multi-faceted set of competencies. We do not yet know how extensive this set is, or which elements must be learned before a facilitating effect on early reading will be observed. This study investigates the concept of phonemic awareness by contrasting the effects of training in blending and segmenting (the most researched phonemic skills) with a more global kind of training which includes experiences in many of the skills selected to represent phonemic awareness in other research. If training in phonemic manipulation can facilitate reading acquisition, then it is essential to investigate the type of training which is most effective.

The rationale behind the two models of training.

The first treatment includes training in auditory blending and segmenting. Combining these two skills is supported by a large research base (Bradley and Bryant, 1983; Cunningham, 1990; Fox and Routh, 1984; Wallach & Wallach, 1976; Williams,

1979), perhaps because of the logical relationship of blending and segmenting to task analyses of decoding and spelling (Ehri & Wilce, 1987; Lewkowicz, 1980). Findings from Ball and Blachman (1991) and Cunningham (1990) suggest that teaching these skills to normally-achieving kindergarten children increases end-of-kindergarten reading achievement. We do not know, however, the effect this kind of training may have on reading for children who begin the study with lower levels of phonemic skill than their peers (children in the previous studies were not screened for entering phonemic ability), or for lower performing children who begin training with less developed oral language (children who score more than one standard deviation below their peers are typically excluded from training).

The research base for phonemic training rests largely on the superior reading achievement of children who begin kindergarten and first grade with higher levels of phonemic skill than their peers. Fox and Routh (1984) found that while training in blending and segmenting yielded better reading results than training in either skill alone, the trained children were still not as adept as children who acquired the same skills naturally. This finding is disturbing because the high correlations among phonemic skills and reading were obtained from children who were not specifically trained in phonemic skills. The high intercorrelations among phonemic skills in kindergarten and first grade (Stanovich, et al., 1984; Yopp, 1988) suggest that the construct "phonemic awareness" may be a set of many different, yet related abilities.

The second treatment introduces many phonemic manipulations, encompassing phonemic tasks described in research over the past two decades. The treatment is designed to teach a more global compilation of phonemic abilities comprised of activities in rhyming, segmenting, blending, identifying the first sound, sound-to-word matching, alliteration, and deletion focused on sentences, words, and phonemes within words. This treatment contrasts with the first in the number of skills introduced, the emphasis on exposure

(practice vs. mastery learning), much less time devoted to blending and segmenting, and its attempt to replicate the "naturally occurring" strain of phonemic awareness. Testing the effect of this kind of instruction on the acquisition of various phonemic manipulation skills and on a reading analog task and spelling will help to clarify the scope of phonemic abilities required to facilitate reading.

Objectives

This study contrasts the effects two types of phonemic manipulation training in kindergarten with two control conditions. The dependent measures include receptive vocabulary, letter knowledge, various phonemic tasks, a "learning to read" analog task, and a spelling task.

The first objective is to compare the effects of the two types of phonemic manipulation training. The effects may bear strongly on our understanding of the nature of phonemic awareness and the components of the construct. Two questions derive from this objective.

Research Question 1. Does one type of training produce higher levels of phonemic skill than the other?

Research Question 2. Does one training condition facilitate reading more readily than the other?

The next objectives consider the contribution of phonemic training to reading outcomes by contrasting phonemic training (Groups 1 and 2) with the two control conditions:

Research Question 3. Do children trained in phonemic manipulation require fewer trials to criterion on a Reading Analog task than untrained children?

Research Question 4. Do phonemic treatments contribute to reading ability over and above letter/sound training?

The last objective of the study is to compare the effects of trained phonemic skill levels with naturally developing abilities. Because the predictions of reading achievement based on phonemic awareness were derived from naturally developing phonemic skill, it may be important to develop training approaches which approximate the natural development of these skills. The research question deriving from this objective is:

Research Question 5. Does either phonemic treatment bring children to the level of phonemic manipulation skill evidenced by peers who have "natural" (untrained) phonemic abilities?

This research selects only children who begin the study below the level of their peers on phonemic manipulation tasks (blending and segmenting), and assesses the effects of two different types of phonemic manipulation training and letter-sound training alone on phonemic manipulation skills, rate of reading acquisition (a reading analog task), and spelling.

CHAPTER 2

Method

Subjects

The subject pool included nearly all of the children (354 out of 362 potential subjects) enrolled in kindergarten in a mid-sized school district in an agricultural region. 30-40% of students in each school qualified for free or reduced lunch, the majority of children were Caucasian, and approximately 10% of the children spoke English as a second language.

Procedure for subject selection

Nine of the ten kindergarten teachers in this district attended a presentation on the proposed research, and all of the teachers agreed, pending parent approval, to initial testing of the children. After securing parent permission, we tested all of the available kindergarten children during the first two weeks of December. Eight teachers agreed to continue participation in the treatment phase of the research, dropping our sample to 268 children.

Children low in phonemic manipulation skills. The pretests included measures of syllable and phoneme blending and analysis, rhyme production, syllable deletion, timed letter identification, finger succession, and word identification (see Measures in this chapter). I selected children for the experimental groups based on pretest scores for the two phonemic subtests: blending and segmenting single-syllable words from and into onset-rime (c--at). Children who scored more than 30% correct on either subtest were eliminated, leaving 121 children in the experimental subject pool. Looking at the *combined* scores for the two phonemic tests, none of the selected subjects scored higher than 6 (20% of the maximum combined score of 30). From this sample, I excluded 2 children whose parents did not give permission for treatment and 6 non-English-speaking children whose scores were 0 on all pretest measures (dropping the pool to 113).

Within each teacher's case load, I blocked children into categories for Hispanic and Caucasian students, and then assigned subjects from each block randomly to one of the four conditions to reduce potential teacher and ethnic bias in the results; thus each teacher had children participating in each of the four conditions. Seven of the children in the two treatments and seven in the two control conditions had minimal understanding of English (scores more than 2.5 standard deviations below the mean on the Peabody Picture Vocabulary Test). Because we conducted all of the instruction in English, I excluded the primarily Spanish-speaking children (standard scores below 62 on receptive vocabulary on the PPVT) from this analysis. None of the Caucasian subjects had standard scores below 62 (15 of the Caucasian subjects, however, had scores between 1 and 2.5 standard deviations below the mean, the range of scores commonly found in kindergarten children with developmental language delays). During the five months of this study, 10 children in the low-skilled groups moved, and one broke his arm (keeping him home for the last three weeks of treatment). From the 28-29 children per group in January, 20-24 children per group were available in April with complete sets of pre to posttest scores.

The naturally-skilled control group. I also wanted to track the growth of phonemic skills as they developed naturally for kindergarten children who were initially high in phonemic manipulation skills in December, and to use children naturally adept in phonemic manipulation as an additional comparison group in the analysis. Children who scored above 15 (50%) on the combined phonemic measures were categorized as "high-skilled" children. From this group of 54, I eliminated 14 children who could read one or more of the target words from the Reading Analog test, and randomly selected 28 of the nonreaders across all four schools and eight classes to serve as a highly skilled control group. Two of these children moved prior to posttesting.

Children in the middle range, who fell between the extremes on the phonemic tests, were not considered further, except for descriptive purposes and to suggest differences among children initially classified as high, mid or low-skilled.

Measures

Assessing oral vocabulary

The Peabody Picture Vocabulary Test - Revised (PPVT) (Dunn & Dunn, 1981) is an individually administered, norm-referenced measure of receptive vocabulary in English designed for subjects 2.5 years old through adult. The examiner shows the child four pictures and asks him/her to select the picture that best represents a word read by the examiner. Most subjects began testing around item 40, except for Hispanic students, who began with the first item. The examiner writes the number of the picture selected by the child, then turns to the next item, providing no feedback except for general encouragement. Testing continues until the child misses six of eight consecutive items. The test is not timed, and took 6-10 minutes to administer.

The test was normed and standardized for school-age subjects on a sample of over 4000 subjects, ages 2.5 through 18, representing a range of geographic, ethnic and economic circumstances. Reliabilities for standard scores for single-age groups range from .79 to .89, with a median of .79. Standard quotient scores are reported here (raw scores standardized for age in years and months at the time of testing), with a mean of 100 and standard deviation of 15.

Assessing factors associated with beginning reading acquisition

I constructed pre- and posttest tasks based on those commonly used in studies of phonemic awareness and kindergarten prediction of reading skill in first grade (Ball & Blachman, 1991; Berninger, 1986; Cunningham, 1990; Fox & Routh, 1984; O'Connor, et al., in press; Perfetti, et al., 1987; Rosner & Simon, 1971). Each task included three unscored practice items with feedback, and an opportunity for the child to repeat the correct

response. Following each testing item, the examiner wrote the child's response and then provided the correct response for the child. This method of administration encouraged some children to learn the task during the administration of the test. Descriptions of the tasks follow, and test protocols are attached as Appendix A.

The first three tests are based on Rosner's (1979) task analysis of phonemic awareness, which suggests that blending and segmenting syllables are similar tasks to blending and segmenting phonemes, though at an easier level (see also Rosner & Simon, 1971; Rozin & Gleitman, 1977; Slocum, 1991; Wallach & Wallach, 1976; Williams, 1979).

1) *Blend syllables into words.* "Foot (pause) ball. What word is that?" Items included five 2-syllable words and five 3-syllable words. One point was awarded for each correctly blended pair of syllables, or 1-2 points per word (Maximum score 15).

2) *Segment words into syllables.* "Recess. Say the parts in recess." Items included six 2-syllable, three 3-syllable and one 4-syllable word. Scoring was 1 point for each correctly segmented part of a word, or 1-3 points per word (Maximum score 15).

3) *Syllable deletion (Modified Rosner)* was based on Berninger's (1986) modification of the Rosner Test of Auditory Analysis (Rosner, 1979), which she expanded to 10 items for the kindergarten level. She validated the kindergarten level of the test and found scores below six to be associated with below-average reading in first grade. The examiner says to the child: "Baseball. Now say it again, but don't say base." During the practice items, the children's hands were used to demonstrate the two syllables in the word and the concept of saying a word without one of its syllables. Hands were only used to correct errors during the administration (maximum score 10).

4) *Finger succession* (Berninger & Rutberg, 1991; Denckla, 1973; Wolff, Gunnoe & Cohen, 1983) was selected because it had the highest inter-rater reliability (over .90) and test-retest reliability (.7) of the tests for soft neurological signs in the studies cited above.

The examiner demonstrated touching each fingertip to the thumb of one hand, starting with the little finger and touching each in sequence, saying "Watch what I do." The examiner repeated the sequence three times, and then invited the child to do it with her. When the child could do the task correctly (usually one to three sequences), he or she touched all fingers to the thumb in sequence four times. Examiners recorded the duration in seconds for the child to complete four sequences. If the child made a sequence error, the child repeated that sequence. If the child could not complete the task, or attempted the task repeatedly with many errors of sequence, examiners recorded a maximum of 40 seconds (yielding a range of 12-40 seconds in our sample).

5) *Rapid letter naming.* Timed and untimed letter naming correlates highly with beginning reading in countless studies (e.g., Berninger, 1986; Juel, 1988; Vellutino, 1977). The extra element of timing the letter naming makes this task a stronger predictor of reading performance (Levy & Stewart, 1991; Wolff, 1991). Examiners showed the children a card with all of the letters of the alphabet presented in large, upper-case type in random order, repeating for a total of 60 letters. The children named as many letters as they could in one minute. Correct letter names and letter sounds (though only a few children said sounds) were considered correct responses, and children began again at the beginning if they finished before a minute had elapsed. Although examiners also recorded errors, the number of correct responses in one minute is reported here (Range 0-72 correct responses per minute).

6) *Word identification.* I included a short test of reading because (1) children who can read without assistance in December of kindergarten are probably different from their peers in other abilities, (2) reading ability prior to treatment could affect the outcomes in substantial ways, due to the probably reciprocal nature of reading and phonemic awareness, and (3) the words selected for this test would be used as a reading outcome measure following the treatment phase. No unscored examples were provided for this

task. I typed the five decodable words (AM, AT, SAM, MAT, SAT) separately in block capitals on cards, and showed them, one at a time, to children who scored 15 or more letters correct on the Rapid letter naming test, recording the number of words read correctly (maximum score 5).

Assessing phonemic manipulation

7) *Rhyme production.* Rhyme was included because it may be a precursor to later-developing phonemic skills (Maclean, Bryant & Bradley, 1988; Stanovich, et al., 1984). Following an explanation and examples, the examiner said, "Say a word that rhymes with make." Correct responses included real or nonsense words (maximum score 5), and incorrect responses were followed by the examiner modeling a correct alternative.

8) *Blend onset-rime.* Although one study reported this type of blending to be too easy for kindergarten children (Bentin & Leshem, 1991), most find blending in kindergarten to be a good predictor of later reading ability (Lundberg, Olafsson & Wall, 1980; Perfetti, et al., 1987; Shankweiler & Liberman, 1989; Uhry, 1992; Yopp, 1992). The examiner said, "M (pause) -ake. What word is that?" The first two items were 2-phoneme words presented as separate phonemes (u--p); the remaining eight items were 3-phoneme words presented in onset-rime format (maximum score 10).

9) *Segment onset-rime.* The examiner said, "Make. Tell me two sounds in make." I scored one point (up to two points per item) for each correctly segmented portion of the word, so that two points were possible for either "m-ake" or "ma-ke", or one point for isolation of any of the three phonemes. To avoid penalizing children with advanced skills, I also awarded two points (the most allowable for one word) for complete segmentation, "m-a-ke" (maximum score 20).

I included tasks (8) and (9), above, in both experimental groups; but only taught tasks (1), (2), and (7) in the global treatment. None of the actual testing items were used in training.

Posttests

Mastery. I assessed *mastery* of trained items through a ten-item mastery test for the two training conditions, using actual words and tasks taught across both experimental treatments. The items reflected blending and segmenting of three-phoneme words (blend "s-a-t", segment "cat").

Pre to posttest measures. Children repeated the rhyme production, onset-rime blending, onset-rime segmenting, rapid letter naming and modified Rosner in the posttest battery.

Three-phoneme tasks. I expected, due to training, maturation, and kindergarten experiences, that children might improve in phonemic manipulation skill over the months between pre and posttest phases, so the posttest included two tests of more difficult phonemic tasks, blending and segmenting 3-phoneme, single-syllable words, both developed in an earlier study (O'Connor, et al., in press). The Blending test consisted of five items, with one point for each correctly blended word. Scoring on the Segmenting test was variable, with one point awarded for each correctly segmented phoneme (1-3 points per word, for a maximum of 15 points).

First sound. Identifying the first sound could reasonably be considered the first stage in segmentation, although our earlier work suggests that children taught to segment will not necessarily be able to pick out the first sound by itself. The examiner said, "Tell me the first sound in pill." Items were scored correct if the child provided *only* the first sound (/p/ was correct; /pi/ was not), for a maximum of 10 points.

Sound repetition. During the treatment phase, some of the children appeared to have difficulty remembering the sounds of phonemes presented singly, in order to blend them. Other studies have also implicated short-term memory and memory for phonemes in reading difficulties (Levy & Stewart, 1991; Snowling, 1987; Vellutino, 1977; 1991). The first three items in this 12-item test presented a single phoneme, which the child repeated

after a 2-second delay. The next four items presented two phonemes, separated by a 1-second pause. The child waited one second (cued by the examiner) before repeating the two sounds. The next four items had 3 phonemes, and the last item four phonemes, each separated by 1-second pauses and a 1-second response delay.

Transfer tests

The Lindamood Auditory Conceptualization Test (LAC). The LAC (Lindamood & Lindamood, 1979) measures the ability to discriminate one speech sound from another, and to perceive and compare the number and order of sounds within spoken patterns. Scorer reliability with a sample of 52 children was .96, and predictive validity (correlations with reading and spelling portions of the Wide Range Achievement Test) with a sample of 660 children, ages 5 to 18, ranged from .66 to .81 (the kindergarten correlation was .75).

In the first part of the test, the examiner says a pattern of sounds (/s/ /s/ /m/), and the child uses colored blocks to mimic the pattern said by the examiner. During the second part, the examiner shows a block pattern to a child, and says what the pattern represents, then asks the child to change the pattern to fit a new nonsense word (two blocks, one red/one green: "This says uz. Show me zu." The child is expected to reverse the order of the blocks.). The tasks, stimuli, and responses of the LAC are not taught in either experimental treatment.

Reading Analog Task. To help us gauge the degree of transfer that treated children might demonstrate in initial reading instruction, we conducted a Reading Analog test following training in phonemic manipulation. Analog tasks have been used in other studies (Fox & Routh, 1976, 1984; Torgesen, Morgan, & Davis, 1992; Vellutino & Scanlon, 1987), but unlike this reading analog, they used non-letter symbols. The Reading Analog task, described below, is a *learning test*; that is, the important factor is not whether the child already knows a skill, but how quickly that child will *learn* a new skill. The examiner taught four letter-sound correspondences, and counted how many exposures the child

needed to learn to read five short, decodable real words containing only those four letters. Regardless of the method of reading instruction in kindergarten and first grade, the ability to use systematic correspondences must be acquired in order to achieve independence in reading. Therefore, how readily a child makes use of these correspondences between sounds and letters following explicit instruction in the process of segmenting and blending is a critical issue (Yopp, 1988).

The task has two parts:

1. Pretraining in four letter-sound associations (Groups 1, 2, and 3 were trained in these correspondences as part of their treatment). During the test, I presented the letter-sound combinations in random order, showing the child letters printed on cards in block capitals, and asking, "What sound?", continuing until the child learned the associations (2 consecutive errorless trials). I selected the letters *A, M, S, T* because (1) they are taught early in the kindergarten year, thus all children had received some training through the regular kindergarten program, (2) they are very different from each other in letter shape and associated sound, thus are easy for young children to discriminate among, (3) they can be assembled and reassembled in many different combinations, the critical concept underlying beginning reading. I also counted the trials required to teach the letters, but do not use those data in this analysis.

2. The word Reading Analog task follows the letter-sound training. I combined the letters above into five words (*AM, AT, MAT, SAT, SAM*), and typed them singly onto index cards. The examiners taught the children to read the words using a say-the-sound/blend-the-sounds approach. First, the examiner told the child, "We'll take turns reading these words. You'll read them, then I'll read them, then you'll read them. Do you know this word?" The cards were shuffled after each trial. During the child's turn, each error was recorded. During the examiner's turn, she blended the sounds, then repeated the whole word (e.g., "This is *Aaaaat.* At."). The turns continued for a maximum of 25 trials

(125 words), or until the child read all five words correctly (in which case all the remaining words were scored as correct). The score was the number of words read correctly out of 125 opportunities.

Spelling. Following the Reading Analog task, the examiner put the four letter cards on the table and asked the child to spell each of the five words from the reading task ("We can use these letters to spell the words we just read. How do you think you would spell at?"). The child had one opportunity to arrange the letters on the table for each word, and the child's spelling was recorded. If the child did not attempt the task, the examiner modeled spelling one word: "I can spell *mas*. Let's see." She arranged the three letters while the child watched, and said the sounds: "/m/ /a/ /s/. Mas." Each word was scored on a variable scale, based on measures of invented spelling cited in Tangel and Blachman (1992), as follows:

1) 2 points for a letter used in the correct position in the word (beginning, middle or end)

2) 1 point for each letter the child used which is in the word anywhere

3) 1 point deducted for each letter used by the child which is not part of the target word

I awarded 4 points maximum for *AT* or *AM* spelled correctly; 6 points maximum for *SAT, MAT,* or *SAM,* yielding a total of 26 points.

Procedures

Training in test administration

Prior to beginning the pretests, I trained two examiners (one certified teacher and one teacher assistant experienced in individual testing) in a two-hour session to administer and mark the tests. They practiced giving the tests to each other, watched me give the tests to children participating in the study, and then gave tests while I watched and scored concurrently on a separate protocol. After each of the first few tests, we discussed the

administration of tasks and compared scores, until both of the protocols were in complete agreement (two rehearsals for one tester, five for the other). For the next three days, and twice thereafter, I concurrently scored one test with each of the other testers.

Pretests

We administered most of the pretests individually during the first two weeks of December, conducting make-up tests during the third week. During the last two weeks of December, I divided children into low, middle and high-skilled groups, based on their pretests of phoneme manipulation (blending and segmenting onset-rime), and randomly assigned children in the low-skilled group to one of the four experimental conditions.

To gain an estimate of receptive vocabulary, we administered the Peabody Picture Vocabulary Test - Revised (PPVT) to all of the children selected for treatment during the first two weeks of January. We administered the PPVT to children in middle and high-skilled groups during February, March and April, scoring each test according to the child's age at the time of administration.

Teacher training and fidelity of treatment

I hired two certified teachers to conduct most of the training in the two phonemic conditions, but also taught some of the lessons myself, covering for illness, prior commitments, and make-up sessions on days when the kindergarten teachers scheduled field trips or other activities during regularly scheduled lesson times. The teachers learned routine formats for the two conditions during two, 2-hour sessions in late December and early January. We scheduled additional training sessions every Tuesday morning during the treatment phase to practice new formats for the week, and to discuss teaching and management issues. I observed at least one lesson from each condition taught by each teacher weekly (except for two weeks when I was teaching all lessons). During the observations, I noted the points in the lessons where children responded well or poorly, management issues (resulting in changing locations for instruction, or ways of getting

children to and from class) and content accuracy (Was each activity in the lesson presented as it was scripted? With two exceptions, when groups were cut short due to class parties, accuracy was 90-100% on all observed lessons). At the close of most teaching days, we met to discuss the responses of the groups to training, and the progress of individual children.

Design of the Four Experimental Conditions

This experiment compares phonemic manipulation and reading outcomes for four groups of kindergarten children initially low in phonemic manipulation skills and reading ability:

Two conditions of phonemic awareness training *plus* letter-sound correspondence:

Group 1) children trained to blend and segment phonemes in auditory tasks (Blend/segment)

Although segmenting and blending are the phonemic skills most prevalent in the literature, the effects of this kind of training for kindergarten children at risk of reading failure have not been investigated.

Group 2) children trained to attempt many different auditory phonemic manipulations (Global)

The highest correlations between phonemic awareness and reading have been found for phonemic skills that develop naturally. This treatment attempted to develop phonemic skills in more natural contexts than the first condition, e.g., it included a wide range of manipulations at the sentence, word and phoneme level, taught through group games.

Two control conditions:

Group 3) training in letter-sound correspondences (Letter/sound)

This condition controlled for the influence of extra practice in letter-sound correspondences, by providing the same amount of letter-sound training and the same letters as in the two experimental treatments. They began their training in the fifth week of

the treatment phase (timed to coincide with the letter-sound instruction in the treatments) and continued for six sessions, in groups of two-three children.

Group 4) no training aside from regular kindergarten curricula (Untreated)

This condition assessed the phonemic development of low-skilled children who do not receive any specific intervention. The untreated control did not receive letter-sound instruction, except for that which occurred as part of normal kindergarten instruction, and in the first phase of the Reading Analog Test.

The two experimental treatments (Groups 1 and 2)

Sessions

We conducted sessions for the two experimental treatments in groups of three-to-five children for fifteen minutes, twice weekly, for ten weeks. Although the locations for training were the same for both experimental treatments within one school, locations differed by school, depending upon available space. In one school, both experimental treatments were conducted in the regular kindergarten classrooms as one of several concurrent learning stations. In another school, children were taken into conference rooms for instruction. In the remaining two schools, sessions were conducted in hallways near the kindergarten classrooms.

Prior to intervening, I talked with teachers about where and when to schedule the small group instruction, what the children would be missing (in most cases, teachers scheduled either story reading or calendar activities during the phonemic training), and how best to motivate children to attend and participate. The kindergarten teachers did not want us to use tangible reinforcers, however, using picture boards (e.g., large displays to illustrate the meaning of words to be blended during the lesson), puppets (B-ob B-ear and L-ucy L-ion, who only understand words delivered in segments) and frequent responding in both training conditions seemed sufficient to keep most of the children interested in the activities.

Training activities in both treatments used the same core of 13 phonemes and 71 two- and three-phoneme words developed in an earlier study (O'Connor, et al., in press). During the last five weeks of training, we introduced eight letter-sound correspondences at the rate of one new letter per session (A, S, T and M from the Reading Analog, plus P, O, K, and L). Scripts for the 20 lessons are attached as Appendix B.

Group 1: Blend/segment. Blending and segmenting training began with stretched blending (SSSSaaaaaammmmmm) and onset-rime formats (weeks 1-3), then proceeded to totally separated phonemes. During the early weeks of training, blending activities included picture cues, which were used as error corrections in later weeks. A large poster board displayed pictures representing five to seven words (e.g., sail, lake, cat); first, children named the pictures, and then they pointed to the picture that represented sssaaailll. We prompted segmenting activities with a two-square and three-square laminated form the children touched while saying the phonemes:

To segment into onset-rime, the child touched the first square and said /s/, then the second square /ail/.

Group 2: Global. I designed the global treatment to combine many different types and examples of phonemic manipulations. If phonemic awareness is a single generalization, then presenting a wide a range of activities and examples should help to bring that generalization about. The first sessions consisted of word (in sentences) and syllable (in words) manipulation, and progressed to phoneme manipulation in the second week. Examples of word and syllable manipulations include:

1) The (pause) cat (pause) sat (pause) down. Let's say it fast: [The cat sat down.]

2) The boy ran. Let's say it slowly. [The (pause) boy (pause) ran.]

3) The girl ran. Say it without /ran/. [The girl]

4) The *boy* ran. Say *dog* instead of *boy*. [The dog ran]

5) Downhill. Say the parts in downhill. [down, hill]

6) Susie. Let's clap Susie's name [children clap twice for the syllables]

By the third week, each session included a focus "word of the day" (e.g. *sat*), and the teacher guided children through several distinct manipulations with the target word. Following are activities conducted on target words.

1) Today's secret word is /s/ - /a/ - /t/. What word is that? [sat]

2) Let's rhyme with sat. Cat, Rat, Mat. Who can rhyme with sat? [children respond]

3) Sat, pill, cat. Which word doesn't rhyme? [pill]

4) Sat. What's the first sound [last sound] in sat? [s]

5) Sat. Say all the sounds in sat.

Variation: Let's clap [count] the sounds in sat. [clap once for each phoneme]

6) Sat. Say it without the /s/. [at]

Table 1

Training Activities in each Group, by Lesson Number

Lesson	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Isolated sounds practice	B	B																		
Blend words to sentences	2	2	2																	
Segment sentences	2	2	2																	
Clap syllables	2	2	2				2						2					2		
Blend stretched sounds	1	1	1																	
Blend syllables		2	2																	
Blend onset-rime			B	B	B	B														
Blend 3 phonemes							B	B	B	B	B	B		B		B		B		B
Say the word slowly	1	1								1		1				1				
Segment into onset-rime		1	1	1	B	B	2													
Segment 3 phonemes							1	B	B	B	B	B		B		B		B		B
First sound				2	2	2	2	2	2	2		2		2		2		2		2
Last sound									2	2						2		2		2
Sound-to-word matching					2	2	2	2	2	2			2			2		2		2
Delete First sound												2		2		2				2
Count the phonemes														2		2		2		2
Rhyme recognition	2	2	2	2	2	2	2	2	2											
Rhyme production				2	2	2	2	2	2	2		2		2		2		2	2	2
Tongue Twisters											2	2	2	2	2	2	2	2		
Letter/Sound								S		T	P	A	K	I	H	L	N	M		
Blend It -- Game											B				1				1	
Say the Sounds -- Game													B				1		1	
First Sound -- Game															2					
Rhyme It -- Game																	2			
Starts Like-- Game																			2	

Note: Activities are indicated with a "1" if taught during that lesson only to Group 1, "2" if taught during that lesson only in Group 2, or "B" if taught to both treatments in that lesson.

I created five picture/card games which we used during the last weeks of training to provide extra practice and motivation on specific manipulations. For example, in the Say the Sounds Game, the teacher said: "Today were going to play Say the Sounds. I'll show you how: You'll take a card, and say what's in the picture. Then you'll say all the sounds. If you can say some of the sounds, you get the card. If you can't say all the sounds, I'll show you how. Let's try it." The children take turns and play for about 10 minutes.

The blending and segmenting games were used in both groups, however, three additional games targeted skills taught only in the global treatment (See lessons 15, 17, 19 in Appendix B).

Posttests

We administered posttests individually in three sessions during late March and April to all of the children in the four experimental conditions, and to the children selected as initially high in phonemic manipulation skills. Each session lasted between ten and twenty minutes. The first session included the tests of rhyme, syllable deletion (Modified Rosner), rapid letter naming, and onset-rime blending and segmenting from the pretest battery, with additional tests of 3-phoneme blending and segmenting, identifying the first sound, and sound repetition. For children in the two treatments, we also administered a short mastery test of blending and segmenting items used during training. The Lindamood Auditory Conceptualization Test was administered in the second session, and the Reading Analog and spelling tests in the third. Each round of testing (e.g., all of the phonemic tests) was conducted within a two-week testing window to diminish developmental effects.

CHAPTER 3

Results

Alpha levels of significance

This study includes a wide array of measures administered in pre-and posttest phases, and although each test is analyzed discretely from the others, analyses include either a post-hoc comparison of all groups (using Tukey's Test of honestly significant difference) or two planned contrasts: (1) phonemic training groups contrasted with training in letter-to-sound alone, and (2) phonemic training groups contrasted with the naturally high performing children. Although the planned contrasts are more powerful than the post hoc comparisons, the conservative Tukey method decreases the likelihood of Type 1 errors (the possibility that the sheer number of tests could yield significant differences by chance), by maintaining a joint alpha level based on the number of groups being compared, thus controlling the experiment-wise error rate. All tests are conducted at the .05 level of significance.

Pretests

Selection of subjects for the experiment required two levels of pretest analysis, first, to validate selection of children to represent high, middle and low-skilled children on the phonemic manipulation variables; and second, to verify that random assignment of low-skilled children to treatments accomplished its purpose of minimizing pretreatment differences among groups. Reading skill probably influences phonemic manipulation skill (Ehri & Wilce, 1987; Perfetti, et al. 1987), therefore, children who could read any of the words from the Reading Analog test were eliminated from these classifications. Approximately 10% of the children in the kindergarten classes spoke English as a second language (ESL). Children with very low receptive English vocabulary (more than 2.5 standard deviations below the mean on the PPVT) were also eliminated from this analysis.

Selecting a standard score of 62 as a cut-off point did not exclude any children for whom English was the primary language.

Comparisons of low, middle and high skilled groups

I assigned children to low, middle or high-skilled groups based on their scores on phonemic manipulation pretests. Children in the low-skilled group became the subject pool for assignment to the four experimental conditions, children in the middle group received no further consideration in this study, and children in the high group were tested again at the end of the study to provide a measure of the natural, untrained progress of children who entered kindergarten with highly developed phonemic manipulation skills.

Chi-square analysis of the categorical variables found no significant difference among the groups of children selected to represent low, middle and high phonemic manipulation on Gender, χ^2 (2, N = 201) = 0.003, ns., however, the groups did differ in the number of children who spoke English as a second language (ESL), χ^2 (2, N = 201) = 21.353, $p < .001$. More children were classified ESL in the low-skilled group than in the middle or high-skilled group.

Analysis of variance on pretest scores found differences among low, middle and high-skilled groups on all of the pretest measures (only children who completed posttests are included in these analyses). Each significant difference was followed by Tukey's test of honestly significant difference to determine where the differences lie. Table 2 displays the means and standard deviations for the three classifications of children (low, middle and high phonemic manipulation skills) on the pretest variables.

Table 2

Pretest Means and Standard Deviations for Low, Middle, and High-skilled Groups

	Low		Middle		High			
n	88		78		35			
Gender	m	f	m	f	m	f	χ^2	p
	47	41	40	38	16	19	0.003	0.99
ESL (n)	15		7		2		21.353	0.001
Measures	Mean (SD)		Mean (SD)		Mean (SD)		F(2,198)	p
Age	5.8	(0.3)	5.8	(0.3)	6.1	(0.4)	14.334	.000
PPVT	90.2	(13.4)	97.9	(14.1)	102.4	(14.2)	12.217	.000
Rapid letter naming	7.0	(8.3)	11.9	(11.4)	15.5	(10.8)	10.489	.000
Finger succession	24.2	(6.9)	21.2	(6.3)	18.9	(4.8)	10.195	.000
Blend syllables	9.3	(5.0)	12.4	(3.7)	13.7	(1.4)	18.895	.000
Segment syllables	9.2	(4.6)	10.8	(3.9)	12.1	(2.8)	7.081	.001
Rhyme	1.4	(1.9)	2.2	(2.0)	3.4	(1.6)	13.599	.000
Blend onset-rime	1.2	(1.4)	3.6	(2.6)	6.1	(2.2)	76.277	.000
Segment onset-rime	0.8	(1.4)	4.8	(3.8)	12.6	(3.2)	214.93	.000
Modified Rosner	4.8	(3.3)	6.6	(3.0)	8.3	(1.6)	20.300	.000

Age [$F(2, 198) = 14.334$, $p < .01$] discriminated highly-skilled children from those with low and middle-range skills, but not the low from the middle children. The apparent advantage of age for the highly-skilled children in these schools could be interpreted as support for studies which subject phonemic skills to developmental readiness and maturation, however, most single-grade studies do not assess the effect of age on phonemic abilities, and the few that have, found no differences in age between skilled and unskilled children in the same grade (Bentin & Leshem, 1991; Zifcak, 1984). Perhaps the relatively larger sample in this research allowed real age differences to be apparent, or the sample population in this research may have been unusual. Either way, it will be important to examine the effect age may have on posttest results, which are considered later.

The pattern of differences on several pretests found children in the low-skilled group significantly lower than either of the other groups, however, the middle and high groups were comparable. The PPVT [$F(2, 198) = 12.217$, $p < .05$], Rapid letter naming [$F(2, 198) = 10.489$, $p < .05$], Finger Succession [$F(2, 198) = 10.195$, $p < .05$], and Blending syllables [$F(2, 198) = 18.895$, $p < .05$] all differentiated the high from the low skilled children, without differentiating high and middle groups.

Segmenting syllables [$F(2, 198) = 7.081$, $p < .05$] discriminated high-skilled children all three groups from each other. The tests of phoneme manipulation -- Rhyme [$F(2, 198) = 13.599$, $p < .05$], Blending onset-rime [$F(2, 198) = 76.277$, $p < .05$], and Segmenting onset-rime [$F(2, 198) = 214.934$, $p < .05$] -- also differentiated the three groups from each other. I expected these differences, however, since the latter two test scores derived the three classifications of high, middle and low phonemic manipulation skills. The Modified Rosner [$F(2, 198) = 20.300$, $p < .05$] also discriminated each group from the others.

Comparisons of pretest scores for the four experimental conditions

After randomly assigning the children who were low in phonemic manipulation skills to one of four experimental conditions, pretests were reanalyed for differences among the four groups (only children who completed posttests are included in these analyses). Neither χ^2 on classification variables [Gender, χ^2 (3, N = 88) = 0.032, ns.; ESL (3, N = 88) = 0.685, ns.], nor ANOVA revealed differences among the groups on any of the pretest measures: Age [F(3,84) = 1.769, ns.], PPVT [F(3,84) = 0.718, ns.], Rapid letter naming [F(3,84) = 0.045, ns.], Finger Succession [F(3,84) = 0.130, ns.], Blending syllables [F(3,84) = 1.821, ns.], Segmenting syllables [F(3,84) = 1.319, ns.], Rosner [F(3,84) = 0.788, ns.], Rhyme [F(3,84) = 0.546, ns.], Blending onset-rime [F(3,84) = 0.589, ns.], and Segmenting onset-rime [F(3,84) = 0.423, ns.]. Means and standard deviations on pretests by group assignment are displayed in Table 3.

Table 3

Pretest Means and Standard Deviations for Experimental Groups

	Group 1 Blend/Seg + Letter sounds n = 21		Group 2 Global + Letter/sounds n = 24		Group 3 Letter/sounds only n = 23		Group 4 No treatment n = 20	
Gender	m	f	m	f	m	f	m	f
	10	11	13	11	12	11	10	10
ESL (n)	4		4		3		4	
Measures	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Age	5.7	(0.2)	5.9	(0.3)	5.8	(0.3)	5.8	(0.3)
PPVT	89.7	(14.4)	89.0	(15.4)	93.0	(11.7)	89.0	(12.3)
Rapid letter naming	7.1	(9.2)	7.0	(8.3)	7.5	(8.3)	6.6	(8.1)
Finger succession	23.8	(6.3)	23.7	(6.6)	24.8	(7.7)	24.4	(7.2)
Blend syllables (15)	11.1	(5.4)	9.3	(5.1)	7.5	(5.2)	9.6	(4.1)
Segment syllables (15)	10.4	(4.1)	10.0	(4.2)	8.5	(4.9)	8.1	(5.0)
Modified Rosner (10)	4.6	(3.2)	4.5	(3.2)	4.3	(3.7)	5.6	(3.1)
Rhyme (5)	1.9	(2.1)	1.4	(1.9)	1.2	(1.9)	1.3	(1.8)
Blend onset-rime (10)	1.5	(1.5)	1.0	(1.3)	1.1	(1.3)	1.2	(1.3)
Segment onset-rime (20)	0.9	(0.9)	1.0	(1.8)	0.8	(1.4)	0.6	(1.3)

Note: Numbers in parentheses following the test names indicate maximum possible scores.

Posttests

Following ten weeks of treatment, all children in the experimental groups and in the highly-skilled group were tested again, using some of the pretest measures (Blending onset-rime, Segmenting into onset-rime, Rhyming, Rapid letter naming, and the Modified Rosner). In addition to pretest to posttest measures, we administered tests of more difficult phoneme manipulation tasks (Blending three phonemes, Segmenting into three phonemes), a test of short-term memory for phonemes (Sound Repetition), and tests of near transfer (the Lindamood Auditory Conceptualization Test: LAC) and far transfer of phonemic manipulation skills (the Reading Analog and Spelling tests). All of the items in the posttests were novel items, not used during any of the training tasks. Means and standard deviations for the posttest measures are displayed in Table 4.

Table 4

Posttest Means and Standard Deviations for Experimental Groups

	Group 1 Blend/Seg + Letter/sounds n = 21		Group 2 Global + Letter/sounds n = 24		Group 3 Letter/sounds n = 23		Group 4 No treatment n = 20	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Sound repetition (12)	10.0	(2.0)	9.8	(2.3)	9.0	(2.0)	8.7	(1.6)
Rapid letter naming	23.2	(17.1)	21.8	(15.5)	23.0	(14.6)	20.0	(14.5)
Modified Rosner (10)	7.7	(2.4)	7.3	(2.0)	6.5	(2.8)	6.5	(2.5)
Rhyme Production (5)	2.9	(2.2)	3.4	(2.2)	2.0	(2.2)	1.9	(2.1)
First sound (10)	7.3	(3.0)	7.4	(2.9)	5.9	(3.6)	3.5	(2.9)
Segment onset-rime (20)	15.1	(6.3)	13.0	(4.9)	5.2	(6.0)	3.9	(4.1)
Segment 3 phonemes (15)	11.1	(5.2)	9.9	(4.3)	1.0	(2.6)	1.0	(3.2)
Blend onset-rime (10)	7.0	(2.7)	6.6	(2.7)	2.6	(2.5)	2.0	(1.7)
Blend 3 phonemes (5)	3.7	(1.5)	3.8	(1.4)	0.4	(0.8)	0.3	(0.7)
Lindamood (LAC)	29.1	(11.7)	31.3	(10.5)	12.0	(9.6)	15.8	(10.4)
Reading analog (125)	97.1	(29.4)	85.6	(37.3)	65.1	(40.6)	40.4	(33.6)
Spelling (26)	16.0	(6.7)	17.7	(5.5)	12.4	(7.7)	10.6	(5.9)

Note: Numbers in parentheses following the test names indicate maximum possible scores.

Analysis of variance, with group as the between subjects factor, was conducted on all posttest measures, and significant differences were analyzed through follow-up comparisons using Tukey's HSD.

Pretest to posttest measures

Figures 1 through 5 display pretest to posttest changes for the experimental groups (1-4) and the high-skilled children (Group 5) on the 5 measures given twice.

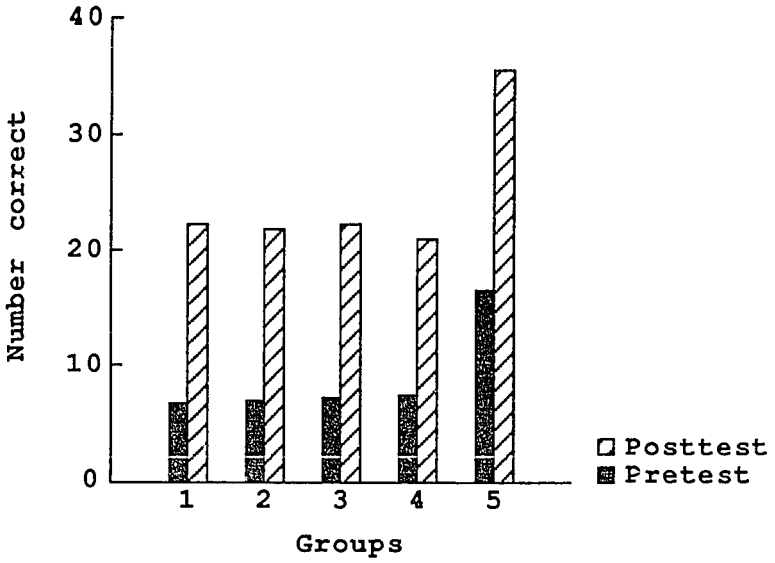

Figure 1. Rapid Letter Naming

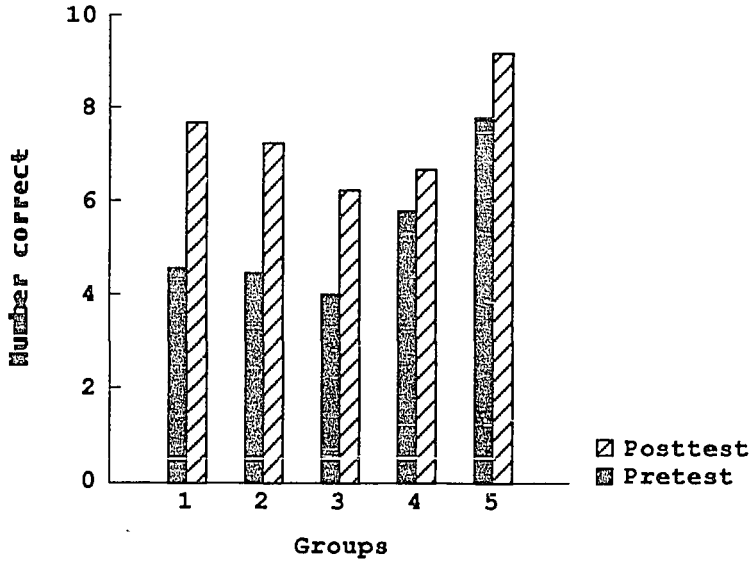

Figure 2. Modified Rosner

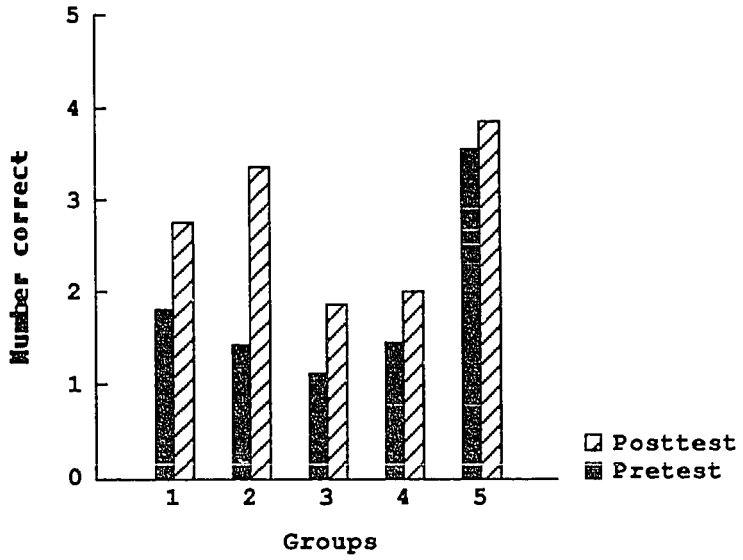

Figure 3. Rhyme Production

Rapid letter naming, the Modified Rosner and Rhyme production. No posttest differences among the four groups were discovered for the ability to name letters rapidly [F(3,84) = 0.031, ns.], or to delete syllables from words on the Modified Rosner [F(3,84) = 1.363, ns.]. Although the global training group scored higher on the test of rhyming than any other of the low skilled groups, this difference was not significant [F(3,84) = 2.362, ns.].

Blending and Segmenting onset-rime. ANOVA on these posttests were significant: Blending onset-rime [F(3,84) = 26.795, p < .05], and Segmenting syllables into onset-rime [F(3,84) = 23.147, p < .05], with differences favoring the two groups receiving phonemic manipulation training over the two control conditions. The two phonemic treatments did not differ. Figures 4 and 5 display the differences among the experimental conditions, and the attainment for the high-skilled children.

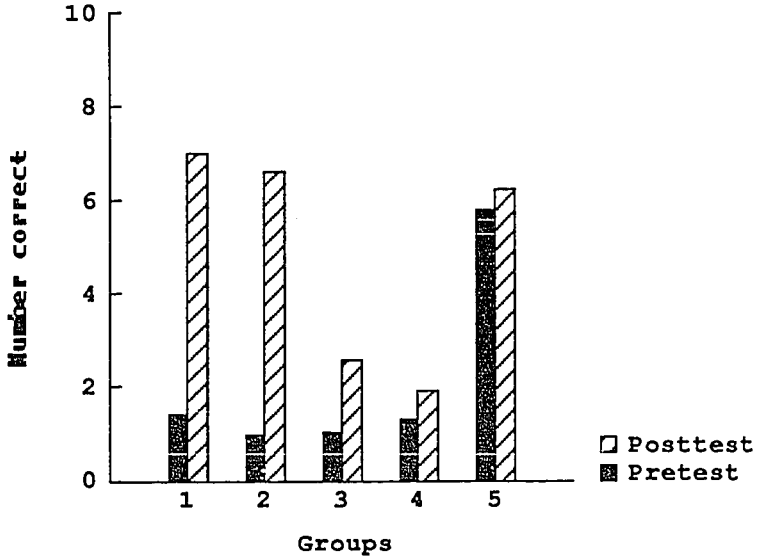

Figure 4. Blend Onset-rime

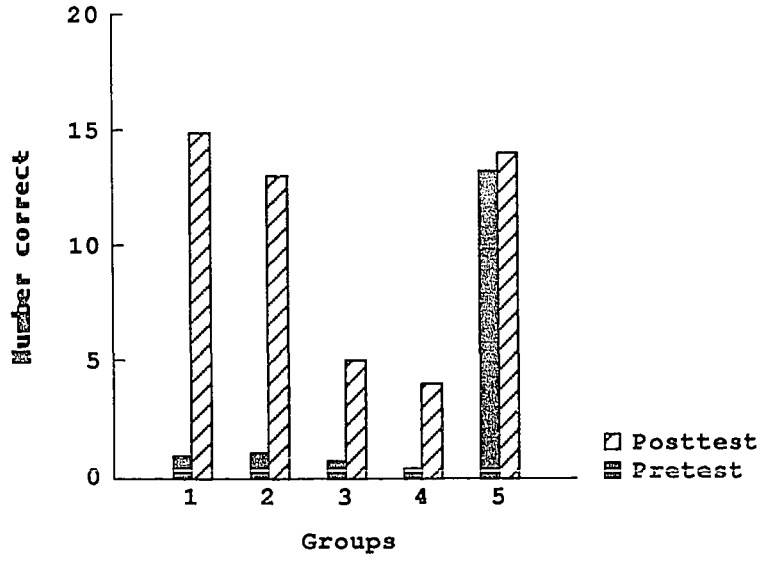

Figure 5. Segment Onset-rime

Other posttests

Sound repetition and Identifying the first sound. No posttest differences among the groups were discovered for the ability to repeat sounds [F(3,84) = 1.366, ns.], however, ANOVA comparing groups on the test of identifying the first sound in words was significant [F(3,84) = 7.003, p< .05], and follow up tests revealed that both phonemic manipulation groups (1 and 2) scored significantly higher than the untreated control (Group 4), but not higher than the group receiving letter/sound training alone (Group 3). Figures 6 and 7 display mean scores for the five groups on these tasks.

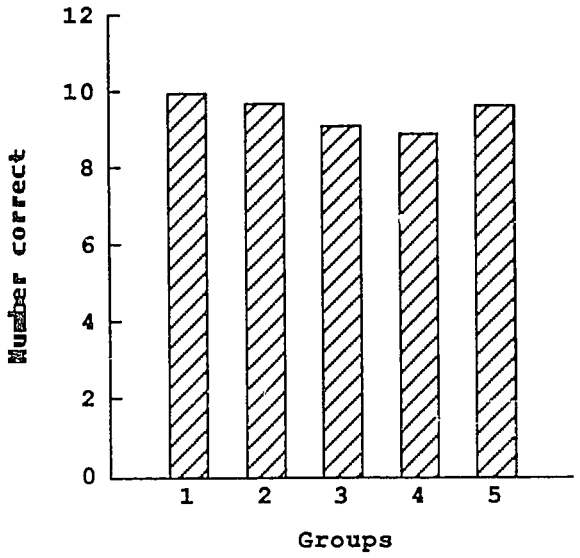

Figure 6. Sound Repetition

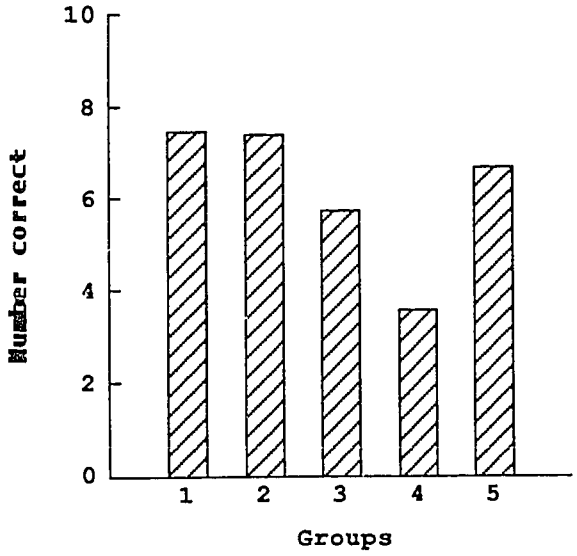

Figure 7. First Sound

Concurrently with this experiment, the routine kindergarten program included practice in identifying the first sound of spoken words. Perhaps the letter/sound correspondence component for Groups 1, 2, and 3 offered sufficient extra experience in the sounds of individual letters to take better advantage of this whole class teaching in first sound training when it occurred in the classroom.

Measures of more difficult phonemic manipulation tasks. ANOVA on posttest measures of three-phoneme manipulation were significant: Blend three phonemes [$F(3,84) = 63.731$, $p < .05$], and Segment syllables into three phonemes [$F(3,84) = 41.181$, $p < .05$], again with differences favoring Groups 1 and 2 over the two control conditions (Groups 3 and 4). On these tests, follow up comparisons revealed no differences between the two types of phonemic training, and no advantage for children who received letter/sound instruction over children in the untreated experimental group. These findings suggest that letter/sound training alone is insufficient to improved the blending and

segmenting skills of initially low-skilled children. Figures 8 and 9 show group differences for Blending and Segmenting 3 phoneme words.

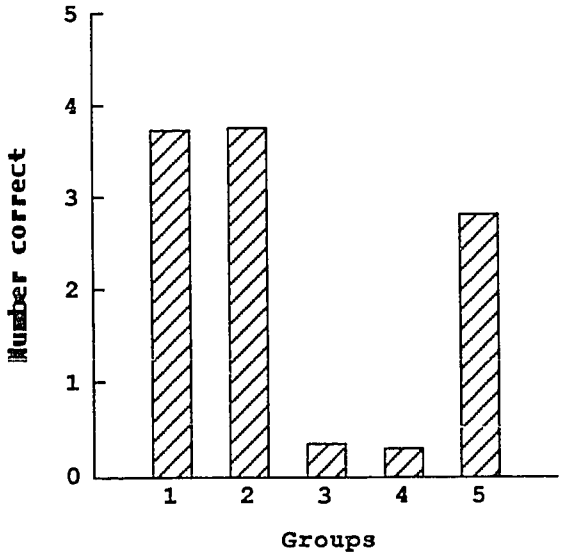

Figure 8. Blend 3 Phonemes

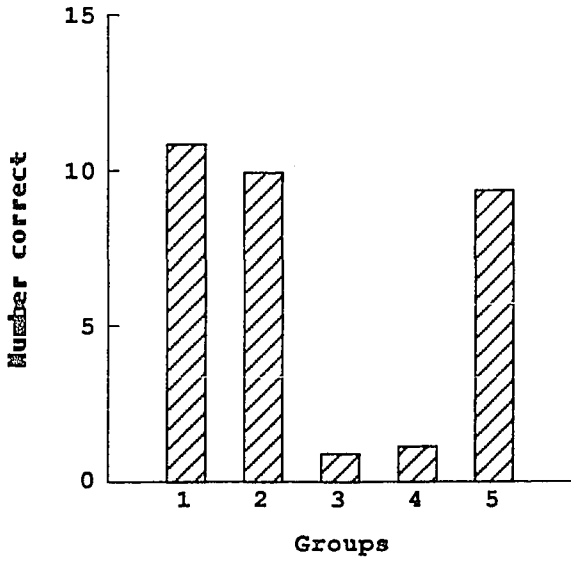

Figure 9: Segment into 3 phonemes

Transfer to other phonemic skills. On the Lindamood Test of Auditory Conceptualization, a test of transfer from trained phonemic tasks to other phonemic tasks in different formats, significant differences were found between groups [$F(3,84) = 19.292$, $p < .05$]. The two trained groups scored significantly higher than the two groups who did not receive phonemic training, and no difference was found between the two types of phonemic training, or between children in the letter/sound and the untreated controls.

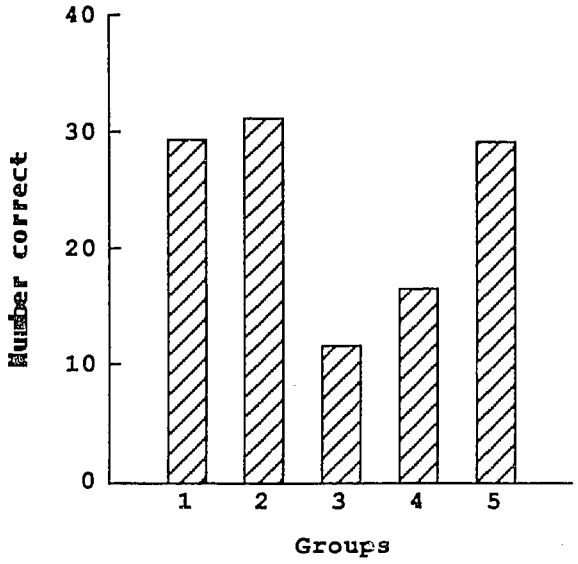

Figure 10. Lindamood Auditory Conceptualization Test

Transfer to Reading. ANOVA of Reading Analog scores was significant [$F(3,84) = 9.848$, $p < .05$], and Group 1 (blend/segment plus letter/sound) read significantly more words than either of the control conditions (Groups 3 and 4). Group 2 (global plus letter/sound) scored higher than the untreated control (Group 4), but not differently from children receiving only letter/sound training (Group 3). Letter/sound training produced no advantage over untreated children (Group 4) on this learning-to-read task.

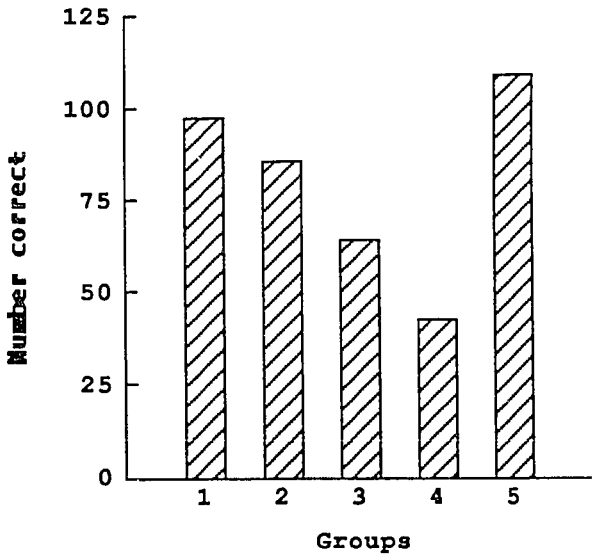

Figure 11. Reading Analog

Transfer to Spelling. The hint of an advantage for Group 1, suggested by the Reading Analog results, did not maintain in spelling. ANOVA revealed significant differences among the low skilled groups on spelling [$F(3,84) = 5.062$, $p < .05$], however, Group 1 did not perform significantly better than any other group on the spelling task (Group 1 vs Group 4: $p = .07$). Children receiving global phonemic manipulation training (Group 2) used significantly more correct letters than children in either control (Groups 3 and 4).

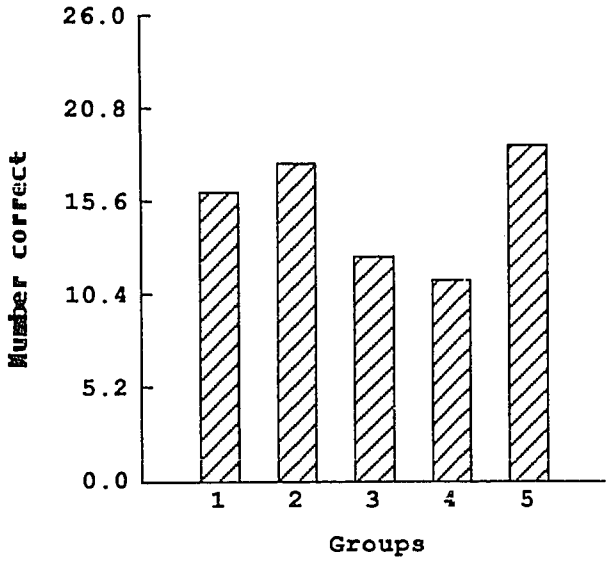

Figure 12. Spelling

Considering the research support for the facilitating effect of segmentation training on spelling (Ehri, 1989; Griffeth, 1991; Davidson & Jenkins, 1992; Treiman & Baron, 1983), this result is quite surprising. If segmentation alone facilitates spelling performance, then Groups 1 and 2 should have an advantage over Groups 3 and 4 (which they did not); that Group 2 was the only experimental group to show significantly greater facility in spelling suggests that segmentation alone may not be the key skill accounting for the facilitation observed in other research. Also, however, the nature, timing, and scoring of spelling tasks could bring about differing results.

Ehri (1989) and Griffeth (1991) consider the relationship between spelling and segmentation *after* the onset of formal reading instruction (first grade and beyond). Both researchers suggest a reciprocal relationship among segmentation, spelling and reading; it could be that segmentation's influence on spelling is mediated by letter knowledge, and all

of our experimental groups were far below their higher-skilled peers in letter naming. Once children begin to read, the complexity of the interrelationships will surely increase.

Davidson and Jenkins (1992), like this study, used prereading kindergarten children, some of whom would be similar to the subjects here. Their spelling measure was a learning-to-spell task, where young children were given models of correct spelling interspersed with learning trials. Although I scored the spelling in the current study to increase the sensitivity of the measure to growth in approximations toward correct spelling (each word was scored for correctness of individual letters and letter position within words), it still may not have been as sensitive as the repeated trials task used by Davidson and Jenkins.

Testing specific hypotheses of this research:

Groups 1 versus 2: The two experimental treatments

The first hypothesis anticipated that children should become more adept at blending and segmenting in the first experimental treatment, however, the wider range of phonemic activities in the second (global) treatment would be more effective in facilitating transfer on tasks requiring "phonemic awareness" as studied in naturally-skilled children (e.g., the Lindamood Auditory Conceptualization Test, the Reading Analog and Spelling tasks). I conducted multivariate analysis of variance (MANOVA) on all posttest variables, including the mastery tests[1] with a weighted contrast between the first and second groups to test for differences.

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[1] *Mastery Tests.* The posttests consisted entirely of novel items, nevertheless, it was also important to obtain a measure of task learning using words practiced during training, to determine whether one treatment appeared more effective than the other in teaching the targeted items. The two mastery tests, one for blending and one for

Neither the overall multivariate statistic (Wilks' Lambda = 0.751; F(14, 31) = 0.853, p = ns.), nor specific univariate tests revealed any statistical differences between the two treatments on posttest measures. Table 4 displays means and standard deviations of posttest scores for the two treatments.

This lack of significant differences is of theoretical importance because our earlier research (O'Connor, et al., in press) suggested that children with poor phonemic skills, although likely to learn taught phonemic manipulations, were unlikely to generalize to other, untaught phonemic tasks. In the current study, however, children taught only to blend and segment could select the first sound and produce rhymes as well as children who received specific training on these tasks. Moreover, children in the global treatment who spent a relatively short time each session on blending and segmenting were able to perform these tasks as well as children who spent their entire session on blending and segmenting activities. Children in the global treatment, despite learning many different manipulations,

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segmenting, each consisted of five items drawn from the training activities for both experimental treatments. Univariate tests between treatments on the mastery tests revealed no differences between the groups' ability to blend or segment trained words. Means and standard deviations are displayed below.

Table 5: Mastery of Trained Items

Tests:	Blending (5 total)		Segmenting (15 total)	
Group:	Mean	(SD)	Mean	(SD)
1: Blending/Segmenting	4.55	(1.15)	11.1	(5.12)
2: Global Tasks	4.13	(1.51)	10.92	(3.61)

displayed no advantage over children taught only to blend and segment in transfering their skills to the Lindamood (LAC) test, which presents new phonemic tasks in new formats. The implications for the lack of differences between treatments 1 and 2 are discussed later.

Planned contrasts on posttest measures

Two sets of contrasts test the other major hypotheses of this research. Each test began with a multivariate analysis of variance of all posttest measures, followed by orthogonally weighted group contrasts to highlight the comparison of interest.

(1) *Contrast between the two experimental treatments and the letter/sound training control.* It is possible that significant differences between groups could be attributed to the portion of the training devoted to letter/sound correspondences, which is known to be associated with later reading skill. By contrasting posttest measures of children who received only letter/sound training with those who received a comparable amount of letter/sound training plus phonemic manipulation training, we can estimate the unique contribution of phonemic training to phonemic skills, reading and spelling.

The overall multivariate test was significant [Wilks' Lambda = 0.394; $F(12,93) = 12.039$, $p < .05$)], however, four of the univariate tests revealed no advantage for phonemic training over training in letter/sound correspondences alone: Rapid letter naming [$F(1, 104) = 0.002$, ns.], Sound repetition [$F(1, 104) = 3.020$, ns.], the Modified Rosner [$F(1, 104) = 4.627$, ns.], and Identifying the first sound [$F(1, 104) = 4.437$, ns.], although the last three tests approached significance ($p < .10$).

The tests of phonemic manipulation skills revealed significant differences favoring the two phonemic treatments: Rhyming [$F(1, 104) = 6.087$, $p < .05$], Blending onset-rime [$F(1, 104) = 44.490$, $p < .05$], Blending three phonemes [$F(1, 104) = 101.192$, $p < .05$], Segmenting into onset-rime [$F(1, 104) = 41.027$, $p < .05$], and Segmenting into three phonemes [$F(1, 104) = 78.088$, $p < .05$].

Children in the phonemic treatments also scored significantly higher on the LAC test [$F(1, 104) = 37.845$, $p < .05$], Spelling [$F(1, 104) = 7.246$, $p < .05$], and the Reading Analog Task [$F(1, 104) = 9.471$, $p < .05$], suggesting that the improved performance of the treated children over untreated children in reading, spelling, and generalized phonemic skills cannot be attributed to the letter/sound training component. Perhaps the combination of letter/sound and phonemic manipulation training brought about improved reading and spelling; unfortunately, I did not test the effect of phonemic training alone.

(2) *Contrast between the two experimental treatments and the highly-skilled children.* Several studies have suggested that phonemic manipulation training can improve phonemic manipulation skills, but these studies also show a considerable gap between children who began the training significantly below higher-skilled children, and their standing relative to higher-skilled children after training. Although their skills improve, they simply do not catch up. This contrast compares children initially low in phonemic skills who received ten weeks of training with their higher-skilled peers.

The multivariate contrast conducted on all posttest measures was significant [Wilks' Lambda = 0.700; $F(12, 93) = 2.980$, $p < .05$], however, univariate tests reveal mixed directions for the differences. A significant difference on the test of Blending three phonemes [$F(1, 104) = 8.327$, $p < .05$] favored children in the treatments over children who were initially highly skilled; however, tests of syllable deletion (Rosner [$F(1, 104) = 9.611$, $p < .05$], Rapid letter naming [$F(1, 104) = 11.991$, $p < .05$], and reading (Reading Analog [$F(1, 104) = 4.840$, $p =$ ns.]) favored the highly-skilled children. No other significant differences were found on the univariate tests [Blending onset-rime ($F(1, 104) = 8.712$, $p =$ ns.]; Segmenting into two sounds [$F(1, 104) = 0.010$, $p =$ ns.]; Segmenting into three phonemes [$F(1, 104) = 1.010$, $p =$ ns.]; First sound [$F(1, 104) = 0.400$, $p =$ ns.]; Sound repetition [$F(1, 104) = 0.392$, $p =$ ns.]; Rhyme [$F(1, 104) = 2.606$, $p =$ ns.];

Lindamood [F(1, 104) = 0.061, p = ns.]; and Spelling [F(1, 104) = 0.816, p = ns.]. Means and standard deviations are displayed in Table 6.

Table 6

Contrast Experimental Treatments with High-Skilled Children: Posttest Means and Standard Deviations

	Experimental Treatments n = 45		High-skilled Children n = 26			
	Mean	(SD)	Mean	(SD)	F	p
Sound repetition (12)	9.8	(2.2)	10.5	(1.3)	2.039	.160
Rapid letter naming	22.5	(16.1)	36.3	(14.4)	11.991	.001
Modified Rosner (10)	7.5	(2.2)	9.2	(0.8)	9.661	.002
Rhyme Production (5)	3.2	(2.2)	3.9	(1.4)	2.095	.151
First sound (10)	7.4	(2.9)	6.8	(2.7)	0.789	.376
Segment onset-rime (20)	14.0	(5.6)	14.2	(4.8)	.000	.994
Segment 3 phonemes (15)	9.5	(4.6)	9.5	(4.6)	1.265	.263
Blend onset-rime (10)	6.8	(2.5)	6.3	(2.5)	0.889	.348
Blend 3 phonemes (5)	3.7	(1.4)	2.8	(1.6)	8.327	.005
Lindamood (LAC)	30.3	(11.0)	29.2	(13.8)	0.104	.747
Reading analog (125)	90.8	(34.1)	109.6	(15.4)	4.840	.030
Spelling (26)	16.9	(6.0)	18.7	(6.1)	1.344	.249

Note: Numbers in parentheses following the test names indicate maximum possible scores.

The treatments appear to have brought the initially low-skilled children as high as the highly skilled children in the measured phonemic manipulation skills. Among the low-skilled children, training in phonemic awareness tended to improve reading performance,

however, the training did not increase reading skills to the level of the initially high-skilled children. Some of the initial differences among the low and high skilled children were unaffected by training (Rapid letter naming, Modified Rosner, PPVT, Age), and these differences may also affect how the children approach reading in the first grade.

The effect of pretest differences

Recall that children in the experimental groups scored significantly lower than the highly-skilled children on the PPVT, and also were significantly younger than the highly-skilled children. Two procedures explored the effect of those differences: (1) repeating the contrast between children in the treatments and the highly skilled children, covarying posttest scores by age and PPVT score, and (2) conducting multiple regression to determine the contribution of specific variables (e.g., age and PPVT score) to the Reading Analog score.

Analysis of covariance contrasting children in the two treatments with the highly skilled children

Covarying scores for age and PPVT changed the overall multivariate test to an insignificant level [Wilks' Lambda = 0.832; $F(12,94) = 1.583$, p = ns.], eliminating the significant differences on Rapid letter naming, the Modified Rosner, and reading. Only one significant univariate difference remained, on the blending of three phonemes (also significant prior to covarying scores), which favored children in the phonemic treatments [$F(1, 101) = 11.037$, $p < .05$]. Covarying scores to take pre-existing differences into account is a reasonable procedure (Ferguson & Takane, 1989), however, this research is intended to explore possibilities for the practical application and potential outcomes of phonemic manipulation training with children initially low in these skills. If the differences in age and PPVT between high and low-skilled groups in our sample are reliable, then we must respect the differences we are likely to find among children, even if they affect the outcomes of training activities. Leveling pretest differences, although statistically

interesting, thwarts the intent of this research. We cannot change the age of children, and, over the course of a few months in kindergarten, we probably cannot appreciably change their outcome on the PPVT, however, the current findings suggest that we can change skill in manipulating phonemes, even among younger, less verbally able children. Thus, the contrast which did *not* covary scores for pretest differences is the more practical interpretation of results.

Multiple regression

If, however, particular attributes of subjects, such as age or PPVT, limit the outcomes of phonemic manipulation training, there can be little future in continuing experiments such as this one. Multiple regression can assist in the exploration of possible inhibiting effects of variables which represent pre-existing conditions.

114 subjects performed the Reading Analog Task, 88 in experimental conditions and 26 highly skilled children. Although it is tempting to explore all potentially affecting variables through regression analysis, several problems can skew interpretation of regression results. First, entering 17 variables (pretest and posttest variables with age and PPVT) for 116 subjects would produce unreliable predictions. Stevens (1986) recommends a ratio of about 15 subjects per predictor to control for shrinkage in the multiple correlation when applied to other samples. Second, the high intercorrelations among some of the predictors (e.g., paired pretests and posttests) reduce their value in predicting unique variance (multicollinearity). Rather than squander power and reliability, I selected the variables of greatest interest and conducted regression in a fixed order and stepwise design.

Selecting fixed order variables. Two variables represented relatively stable preconditions beyond the control of this research or short-term classroom instruction: age and PPVT score. These variables are of practical importance because they differentiated the low-skilled from high-skilled subjects in this study, and of theoretical importance because

other researchers disagree about their relationship to phonemic skills and reading. Several studies implicate vocabulary as a strong indicator of both reading scores and phonemic awareness. For example, Bowey and Patel (1988) found a correlation of .48 between PPVT and phonemic categorization in a sample of 60 first grade children. When they constructed an equation to predict reading scores and began with scores from the PPVT and a measure of sentence repetition, 41% of the variance in reading was accounted for by just these two measures, and the addition of phonemic awareness to predicting reading was not significant. Using a sample of 118 first graders, Tunmer, Herriman and Nesdale (1988) found a correlation of only .13 between the PPVT and their phonemic awareness measure, suggesting relatively independent abilities. Since the PPVT also correlates highly with IQ (Tunmer, Herriman & Nesdale, 1988; Vellutino, 1977), accounting for significant remaining variance in reading after PPVT has been entered would ensure that differences on the next step are independent of differences in vocabulary, and perhaps of IQ.

The same arguments can be applied to age. This variable differentiated the low and high-skilled subjects prior to treatments, and most phonemic skills have been shown to be subject to developmental effects (across grades), although these studies rarely attempt to alter the phonemic abilities of children. Because of the differences between low and high-skilled children and the theoretical controversies surrounding age and vocabulary, these variables were entered on the first two steps as fixed variables.

For regression to be interpretable, predictor variables should be maximally correlated with the dependent variable (reading) and minimally correlated with each other. Table 7 displays the intercorrelations among all variables.

Table 7

Pearson Correlation Matrix of all Variables: Groups 1-5, Experimental Groups plus High-skilled Children (N = 114)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Age	1.0																			
2. PPVT	.08	1.0																		
Pretests																				
3. Blend syllables	.13	.34	1.0																	
4. Segment syllables	.28	.25	.43	1.0																
5. Rhyme production	.16	.44	.35	.32	1.0															
6. Modified Rosner	.12	.39	.43	.47	.43	1.0														
7. Rapid letter naming	.23	.46	.26	.21	.33	.43	1.0													
8. Blend onset-rime	.31	.36	.36	.22	.41	.44	.35	1.0												
9. Segment onset-rime	.39	.38	.38	.30	.41	.39	.40	.73	1.0											
Posttests																				
10. Blend onset-rime	.18	.21	.24	.31	.31	.25	.30	.25	.28	1.0										
11. Blend 3 phonemes	.14	.13	.28	.25	.28	.20	.17	.16	.24	.85	1.0									
12. Segment onset-rime	.12	.25	.23	.42	.34	.29	.22	.27	.33	.78	.75	1.0								
13. Segment 3 phonemes	.07	.14	.24	.32	.29	.20	.18	.20	.29	.79	.81	.86	1.0							
14. First sound	.11	.17	.16	.37	.16	.26	.13	.05	.18	.56	.54	.62	.54	1.0						
15. Sound repetition	.10	.21	.24	.34	.39	.38	.25	.19	.30	.53	.44	.59	.53	.53	1.0					
16. Modified Rosner	.21	.29	.41	.49	.40	.68	.36	.39	.39	.38	.37	.52	.39	.34	.43	1.0				
17. Rapid letter naming	.15	.55	.28	.26	.30	.41	.80	.37	.37	.39	.24	.32	.23	.26	.34	.35	1.0			
18. Rhyme production	.14	.42	.38	.39	.66	.36	.26	.32	.31	.36	.32	.40	.36	.24	.42	.38	.28	1.0		
19. LAC	.11	.28	.28	.30	.44	.34	.27	.26	.26	.59	.65	.68	.66	.36	.54	.42	.32	.54	1.0	
20. Reading analog	.26	.38	.35	.46	.34	.38	.42	.31	.43	.64	.58	.64	.59	.56	.61	.43	.50	.43	.52	1.0
21. Spelling	.21	.37	.36	.34	.33	.37	.43	.22	.30	.61	.53	.57	.51	.52	.48	.34	.52	.45	.52	.72

All of the pre-to-post measures (e.g., rhyme pretest to rhyme posttest) correlate moderately or higher, and in all cases the posttest correlated more highly than the pretest with the Reading Analog measure. To minimize intercorrelations among predictors where measures were repeated, the posttest was selected (posttests of rhyme, rapid letter naming, blending and segmenting onset-rime). Other tests of theoretical interest include the Modified Rosner (Rosner, 1979), which has been shown to be a good predictor of first grade reading when administered in kindergarten (Berninger, 1987), Sound repetition, which taps short term memory for phonemes, and First sound, which may be a step toward total segmentation, a skill possibly beyond some non-readers (Ehri & Wilce,1987; Juel, 1988). Following Bradley, Bryant and MacLean's (1987) argument, rhyme production is included because it also may be a predecessor of other, more difficult, phonemic skills. Keeping in mind that the intent of selecting a limited number of variables as predictors is to minimize redundancy while maximizing the multiple correlation, the following variables were entered into the regression to predict scores on the Reading Analog test: Age and PPVT, in fixed order on the first and second step; followed by stepwise selection among posttests of blending and segmenting onset-rime, Rapid letter naming, the Modified Rosner, and Rhyme production, Sound repetition and First sound (with a criterion of .015 to enter and remove variables stepwise).

Table 8 displays the contributions of the forced and stepwise-selected measures to scores on the Reading Analog task. The combination of age and PPVT accounted for 20% of the variance on the Reading Analog, however, a skill amenable to training (i.e., Blending onset-rime) accounted for an additional 30% of the variance. An additional 10% of the variance on the Reading Analog is accounted for by adding posttests of rapid letter naming and sound repetition to the prediction. No other variables accounted for significant portions of the variance. If one views reading as the desired outcome of phonemic

manipulation training, neither age (within the range of kindergarteners) nor PPVT (up to 2.5 standard deviations below the mean) appear to seriously limit the outcome of training.

Table 8

Portioning the Variance on the Reading Analog Test for Children in Low and High Skilled Groups

Enter	Variables	R	Change in R^2	Total R^2
Step 1	Age	.234	.055	.055
Step 2	PPVT	.452	.149	.204
Step 3	Blend onset-rime	.711	.301	.505
Step 4	Sound repetition	.765	.080	.585
Step 5	Rapid letter naming	.777	.019	.604

Among children initially low in phonemic skills, the contributions of age and PPVT to the Reading Analog test were even less. Combined, age and PPVT only accounted for 11% of the variance on the Reading Analog, while the largest portion was due to skill in blending onset-rime. Table 9 below displays the semipartial correlations and unique variance contributed by each variable.

Table 9

Portioning the Variance on the Reading Analog Test for Children in Experimental Groups

Enter	Variables	R	Change in R^2	Total R^2
Step 1	Age	.108	.012	.012
Step 2	PPVT	.322	.098	.110
Step 3	Blend onset-rime	.682	.355	.465
Step 4	Sound repetition	.730	.069	.534

One of the posttests measured children's ability to repeat one, two or three sounds after a 1 or 2 second delay. Sound repetition was not measured at pretest, but it merits

further study because of its predictive power for the lower-skilled children. Although no significant differences among the four experimental conditions were apparent following the treatment phase, inspection of the means suggests that children in the treatments may have some advantage over untreated children in this ability. Scores on this variable suggest that short-term memory for letter sounds may have some bearing on children's ability to learn to read words, and also that this ability might be helped along by training in phonemic manipulation.

Accounting for variance among children in the treatments. Following the same regression pattern as in the other samples, I entered age and PPVT on the first and second steps to examine the contributions of the remaining variables (See Table 10). Blending onset-rime accounted for 26% of the variance after partialling out age and vocabulary scores, an additional 10% of the variance was accounted for by Sound repetition scores, and Rapid letter naming another 5%, suggesting that it is not pre-existing conditions that affect treatment outcomes (within the confines of our sample, where children were at least five years old and functioning no lower than 2.5 SD's below the mean in receptive language); rather, student skill in phonemic manipulations, particularly blending onset-rime, affect the number of trials it will take to teach new, decodable words.

Table 10

Portioning the Variance on the Reading Analog Task for Children in the Two Treatments

Enter	Variables	R	Change in R^2	Total R^2
Step 1	Age	.202	.041	.041
Step 2	PPVT	.366	.093	.134
Step 3	Blend onset-rime	.627	.259	.393
Step 4	Sound repetition	.702	.100	.493
Step 5	Rapid letter naming	.738	.052	.545

CHAPTER 4

Discussion

This experiment compared phonemic, reading, and spelling outcomes for four groups of kindergarten children initially low in phonemic manipulation and reading ability: children who received (1) blending and segmenting plus letter-to-sound training; (2) global phonemic tasks, including blending and segmenting, plus other tasks such as rhyming, counting phonemes, selecting the first or last sound, etc., and letter-to-sound training; (3) letter-to-sound training only; and (4) no treatment. Secondary analyses compared children in phonemic treatments with children who received only letter-sound training, and with children who were already skilled in phonemic manipulation at the time of the pretests. All of the children attended kindergarten in the same school district in programs which emphasized naming letters and sounds, and each teacher's case load included children in all four experimental conditions.

Differences between low-skilled and high-skilled children in kindergarten

The criteria to select the children for the experimental groups (no more than 30% correct on the phoneme blending and segmenting tests) forced differences in phonemic manipulation skills between the children in the low and high-skilled groups, however, variables other than those used for selection also distinguished the low-skilled children from their higher-skilled peers.

Age. When skills are measured at different times of the year (beginning and end of the same grade) or across grades, differences in skill level are usually found favoring the older children. Bowey and Francis (1991) found that a four month age difference between two samples (comparable to the age difference in this study) was associated with higher phonemic analysis levels, but their younger group was in kindergarten, and the slightly older group in the first grade. One might expect differences in instructional history to have

as great an impact on phonemic abilities across grades as age might have. Within one grade, however, most studies either do not find age differences between skill levels (Bentin and Leshem, 1991; Bowey & Patel, 1988), or do not record ages for subdivisions of skill-level (Cunningham, 1990; Perfetti, et al., 1987). Unlike other reported findings, the low-skilled children in this research were significantly younger than their higher-achieving peers. Perhaps this finding is unusual, but whether or not the finding is reliable, age did not inhibit our ability to teach specific phonemic manipulations to the younger children.

When growth in age appears to support increasing phonemic development, why not simply leave well enough alone, and expect children to discover phonemic manipulation on their own, given sufficient time to mature? Studies that support the growth of phonemic development over time without specific intervention were conducted with normally progressing subjects. Children with learning disabilities, however, are usually far below their peers in phonemic manipulation skill, not only in kindergarten, but throughout the first several years of school. Felton and Wood (1992) reported nonword reading discrepancies (related to poor facility in blending known letter sounds) in poor readers through the fifth grade when they were matched with good first grade readers on overall reading levels. Without specific intervention, poor readers are unlikely to get better at manipulating phonemes. They appear less able to take advantage of the reciprocal interplay of increasing reading and phonemic skill that assists good readers to grow dynamically in real and nonword reading throughout the first and second grades. In the current study, children in the untreated control group did not improve very much on phonemic tasks, despite the five months that elapsed between pre and posttesting phases.

PPVT. Studies of good and poor readers often (Stanovich, 1988; Vellutino, 1977) but not always (Tunmer, Herriman & Nesdale, 1988) find differences between groups on vocabulary measures. Differences are potentially important because of the high correlations among vocabulary, IQ and other learning measures that suggest possible limitations in

expectations for learning various skills. The children in this study tended to display the same kinds of differences (lower language and letter naming scores) as those in studies comparing reading disabled children with normally reading peers (Felton and Wood, 1992; Mann, 1984; Stanovich, 1988).

Although the low and high-skilled children differed on PPVT scores, this difference did not appear to affect the low-skilled children's ability to learn phonemic manipulations, or to transfer learned skills to other tasks. They began kindergarten qualitatively different from higher-skilled peers; following the treatment phase, some of these differences decreased. This study, however, cannot assess whether the short-term effects of training will sustain through the first grade, where reading differences typically emerge (Juel, 1988).

Opportunities for learning

Training is only one possible vehicle for assimilating new learning. The children had at least three opportunities for learning the targeted phonemic tasks: (1) learning during the training activities; (2) learning during routine kindergarten activities; and (3) learning during the tests.

Learning during the training activities

I had supposed in the genesis of this research that differences in training activities would lead to different levels of phonemic skill and transfer among tasks. Perhaps the differences in training were not substantial enough to yield different outcomes.

Letter/sound differences. Letters were introduced in the same order for each of the two phonemic training conditions, however, one difference distinguishes the introduction of letters in the two training conditions: (Group 1) in the blend/segment condition, the letter was introduced with its sound and one word provided by the teacher ("This letter is S. It says /sssss/. Sssnake starts with S."); (Group 2) in the global condition, the same procedure was followed, then the children were asked to think of and provide examples of

more words that started like the new letter. Thus, in the global condition, children were encouraged to perform tasks previously performed with sounds, but with the addition of the letter cue (e.g., sound-to-word matching; first sound isolation).

Blending/segmenting differences. The tasks for blending and segmenting were the same in the two conditions, and the words used in both treatments were confined to the same list of 13 phonemes, however, children in Group 1 received more practice blending and segmenting, using more words each lesson, than Group 2. Group 1 concentrated on these two skills for most of the 15 minute treatment; Group 2 performed blending and segmenting for only about 4 minutes each session.

Both groups spent a few minutes during the first two sessions saying sounds in isolation. Group 2 also devoted a portion of the first two weeks blending and segmenting words within sentences and syllables within words, tasks thought to be readiness activities for blending and segmenting phonemes (Rosner & Simon, 1971). Because these activities mirror the task structure of blending and segmenting, they may assist in making the task understandable and accessible to young children (Slocum, 1991). While Group 2 was introduced to blending and segmenting through word and syllable-level analogs, Group 1 bridged the concepts through "stretched" blending and segmenting (SSSaaammm)[2].

Other global activities. As Table 1 demonstrates, the global treatment included many kinds of phonemic manipulation absent in the blend/segment treatment (e.g., identify the first and last sounds in words, sound-to-word matching, delete the first sound, phoneme counting, alliteration and rhyming activities). Some of these tasks were also

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[2] O'Connor, et al. (in press) found children with developmental delays easily learned stretched blending even though they continued to have difficulty blending separated sounds.

practiced in game formats in the last few lessons.[3] It is likely that few children in the global treatment mastered all tasks, and if the level of mastery was very low in these global activities, it could be that children learned only to blend and segment (like Group 1) in the global treatment. Unfortunately, not all tasks were tested following treatment; I cannot determine the degree of group competency, but only ensure the degree of exposure to various tasks.

The differences between training activities seem substantial, and yet the two treatment groups performed similarly on the two tasks taught in both conditions (blending and segmenting), on tasks taught in the global treatment but not in Group 1 (e.g., first sound and rhyme), and on tasks taught during neither condition (e.g., the Lindamood Auditory Conceptualization Test). If both treatments had outperformed both controls in these tasks, it would lend support to the argument that by teaching blending and segmenting, other phonemic abilities are facilitated. This facilitation appears to have occurred on transfer to the LAC, (where children performed phoneme level analysis untouched in either treatment), but not for transfer to rhyme or first sound[4].

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[3] During the last few weeks of training, children played phonemic picture games in both treatments to give more individual practice in specific skills. Each game required children to draw a card, and then do one of the following: (1) blend the phonemes in a word represented by a picture (not seen by the child until after blending the sounds), (2) segment the phonemes in the pictured word, (3) say the first sound in the pictured word, (4) rhyme with the picture, or (5) tell if the picture starts like a targeted letter. Group 1 played only the first two games, repeating each game during two later lessons. Group 2 had a new game every other lesson.

[4] For identifying the first sound, although both treatments were more successful than the untreated control, neither treatment performed significantly above the performance of children who received letter/sound training alone.

Learning during routine kindergarten instruction

It was possible that blending, segmenting, global or letter-sound components in the treatments would alter the likelihood that children would learn other phonemic skills in the regular kindergarten program. The kindergarten program regularly included activities to help children identify the first sound in words and to rhyme[5] (both introduced in the global treatment, but not in the blend/segment condition). Indications of possible facilitation are only tentative. All of the groups receiving letter-sound instruction (Groups 1, 2, and 3) performed better on these tasks than children in Group 4, indicating that letter-sound instruction may increase the likelihood that children will profit from kindergarten exposure to these skills. Moderate effect sizes favoring Groups 1 and 2 over Group 3 (.52 for First Sound and .54 for Rhyme) suggest that letter-sound instruction alone may be less effective than phonemic training *plus* letter-sound instruction in facilitating children's ability to profit from regular classroom instruction in First Sound and Rhyme.

Learning during the tests

All of the phonemic posttests, except the LAC, allowed an opportunity for learning new tasks during the test administration. Children had four examples with corrective feedback targeted toward task understanding prior to any scored items, and feedback during the administration of the test (either confirmation of a correct response or providing the correct answer) probably helped some children learn the skill during testing. For middle and higher-skilled children, this kind of learning eliminated them from consideration for treatment, because if they "caught on" with feedback on ten items, they probably scored too high on the test to qualify for treatment.

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[5] Teachers differed in their emphasis on rhyming in class. Some teachers read the stories without specific comment; others paused for children to supply the rhyme; one specifically pointed out the rhyme in the oversized book and showed the children the part of the printed word which was the same.

During the pretests, this kind of feedback was not helpful for the low-skilled children (For children in the untreated control, feedback on the posttests was apparently not helpful, either.). I had thought that the ten weeks of treatment could provide enough understanding about phoneme manipulations for some children to "learn" new tasks during test administration, however, if this kind of learning occurred, it did not occur differentially for the two phonemic treatments.

Overall, then, neither training condition (blend/segment or global) appeared to mediate these learning opportunities differentially.

Research Question 1. Does one type of training produce higher levels of phonemic manipulation than the other?

Although the direction of the means favored the blending/segmenting group on blending and segmenting tasks, and the global treatment on non-blending/segmenting phonemic manipulation tasks, no statistical differences were found between the two types of training in either mastery of manipulations on trained words, or on phonemic manipulation of novel items. More time spent on blending and segmenting instruction did not result in statistically higher scores on these tasks, nor did specific training on peripheral phonemic tasks (first sound and rhyme) assist in performance on these tasks. The two training procedures brought children to comparable levels of phonemic skill.

The transfer task selected to represent generalized phonemic awareness was the Lindamood Test of Auditory Conceptualization. The LAC has been used in several other studies (Berninger, Thalberg, DeBruyn & Smith, 1987; Cunningham, 1990; Calfee, Lindamood & Lindamood,1973) as a measure of the kind of phonemic awareness that correlates highly to reading. Because it contains new tasks and formats (moving colored blocks to represent the sounds in nonsense words) beyond the experience of either treatment in this study, success on the LAC was expected to demonstrate transfer of learned phonemic skills to phonemic tasks never before encountered. The intent of the global

treatment (Group 2) was to provide such a wide array of manipulations that children would generalize the skills into other phonemic areas, specifically the new phonemic tasks on the LAC, however, children in Group 1 (who learned only to blend and segment) transferred their narrower experience to the Lindamood as effectively as Group 2. It is possible that the LAC is flawed as a transfer measure, nevertheless, I found no evidence that either treatment was more effective than the other in improving the range of phonemic manipulation abilities assessed here.

Research Question 2. Does one training condition facilitate reading more readily than the other?

Although reading outcomes for the two phonemic treatments did not differ, the ordering of means (words read correctly) for the four conditions on the Reading Analog (97, 86, 65, and 40, respectively), combined with the posthoc comparison among groups, suggested a hint of an advantage for the blend/segment condition. Group 1 did not read significantly more words than Group 2, however, Group 1 read significantly more words than *either* of the control conditions, while Group 2 outperformed only Group 4.

I cannot conclude that blending and segmenting were the only phonemic skills that contributed to the reading outcomes, because the treatments were comparable on other phonemic skills, even though only blending and segmenting were taught to Group 1. Although the global treatment was designed to encourage a broader, more encompassing ability to do many different kinds of phonemic manipulation, there is no evidence that the global treatment achieved the generalized skill I had hoped to induce. The phonemic training in these treatments appears to facilitate learning to read on the kinds of simple words addressed on the Reading Analog, however, the two treatments did not differ from each other on this reading outcome.

Research Question 3. Do children trained in phonemic manipulation require fewer trials to criterion on a Reading Analog task than untrained children?

The posthoc group comparison following the analysis of variance suggests that phonemic training assisted performance on the Reading Analog test. Partitioning the variance on the Reading Analog tests suggests why this might be so. One phonemic skill -- blending onset-rime -- accounted for 26% of the unique variance on the reading task, and the trained children performed far above untrained children on the blending tests. This finding supports the suggestions of Perfetti, et al. (1987) and Wagner and Torgesen (1987) that in the very beginning stages of learning to read, blending may be one of the best predictors of success.

Research Question 4. Do phonemic treatments contribute to reading ability over and above letter/sound training?

The planned contrast between the combined Groups 1 and 2, and Group 3 indicated that children in the phonemic groups read significantly more words than children who received only letter-sound training. Other studies have found the combination of phonemic and letter-sound training to yield the strongest effects on reading (Ball & Blachman, 1991; Bradley & Bryant, 1983), however, since I did not test the effects of phonemic training alone, these results only support the advantage of phonemic manipulation plus letter-sound training over letter-sound training alone.

Research Question 5. Does either phonemic treatment bring children to the level of phonemic manipulation skill evidenced by children with "natural" (untrained) phonemic awareness?

To suppose that phonemic manipulation training might promote an improved trajectory in reading for lower-skilled children, we would first need to show that training improves phonemic skill (as was demonstrated by Ball and Blachman, 1991, and

Cunningham, 1990), and next show that the improved skill levels approximate those of higher-skilled, untrained peers (which rarely occurs, e.g., Fox & Routh, 1984; Rosner, 1974). Both phonemic treatments satisfied those two criteria by bringing low-skilled children to the level of naturally-skilled children on the tested phonemic tasks (blending and segmenting onset-rime, blending and segmenting three phonemes, identifying the first sound, rhyming).

Nevertheless, isolated, specific phonemic manipulations mean very little unless one can demonstrate that the skills taught transferred in important ways to other skills. I used the Lindamood Auditory Conceptualization Test as a test of transfer to more broadly defined phonemic awareness. Calfee, et al. (1973) found strong correlations (.62-.77) between scores on the LAC and reading performance at every grade level from kindergarten through grade 12, and over 50% of the variance in total reading scores could be accounted for by the LAC. In interpreting the findings of Calfee, et al., it is important to remember that they did not use other phonemic variables in their prediction, nor did they alter the phonemic manipulation skills of their subjects. The treated children in my study had scores on the LAC comparable to high-skilled children, however, whether the scores of trained children will have as strong a relationship to real reading has yet to be seen. In contrast to Calfee, et al.'s findings, the LAC did *not* account for significant portions of the variance on the Reading Analog task among my low-skilled children; the variance that the LAC might have commanded was subsumed by more specific measures of phonemic manipulation, particularly blending onset-rime[6].

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[6] When LAC scores were forced first into a regression equation to predict Reading Analog scores in my study, they accounted for 26% of the variance, and blending onset-rime accounted for an additional 17% beyond LAC scores. When blending was selected first, LAC scores did not account for significant additional portions of variance on the Reading Analog.

Other issues pertinent to intervention in phonemic manipulation

While the results of this study, overall, are encouraging, issues about the feasibility and effectiveness of these intervention procedures, and accounting for the variance in reading performance deserve consideration.

Feasibility of training

To be feasible, training in phonemic manipulation should take advantage of natural structures, that is, should fit easily into existing kindergarten routines, and be able to be managed by regular teachers (or assistants).

Decisions made throughout this study attempted to emulate real world conditions wherever possible. I conducted sessions (1) twice weekly to accommodate the common kindergarten practice of all day, every-other-day programs; (2) in small groups of three to five children, because small groups are a more common instructional practice than individual instruction; and (3) heterogeneously regarding gender, vocabulary level and ethnicity (most groups included one or more children who spoke English as a second language). The three teachers delivering the lessons represented different levels of experience (a trained kindergarten teacher with ten years experience, a veteran teacher without kindergarten experience, and a substitute teacher with limited experience). The procedures developed in this research should readily mesh with current kindergarten practice.

Effectiveness of training

Statistical analysis found no differences between the training conditions on mastery of taught skills, however, examination of scatterplots of scores by group for the two mastery tests suggests some interesting trends.

Blending Mastery. On the taught blending items, only one child in the blend/segment condition (Group 1) failed to blend at least 80% of the items correctly,

however, four children in the global treatment failed to master the trained items. Figure 13 shows each child's score in each group on the blending mastery test.

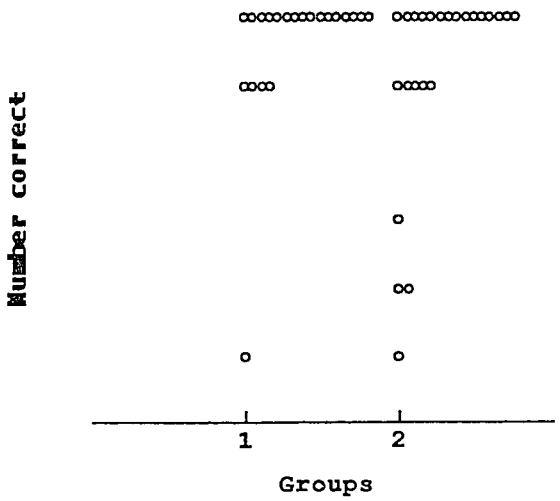

Figure 13. Blending Mastery Test

Segmenting Mastery. Four children in Group 1 and six children in Group 2 segmented fewer than 50% of the taught words into three separate phonemes. The child in Group 1 who did not learn to blend also did not learn to segment, however the other three children in Group 1 who had difficulty with segmenting were able to blend 80-100% of the words correctly. In the global treatment, three of the four children who had difficulty blending also had difficulty segmenting; the fourth child had difficulty blending but not with segmenting. The other three children in Group 2 who had difficulty segmenting blended 80-100% of the trained words. Figure 14 shows scores of individual children on the segmenting mastery items.

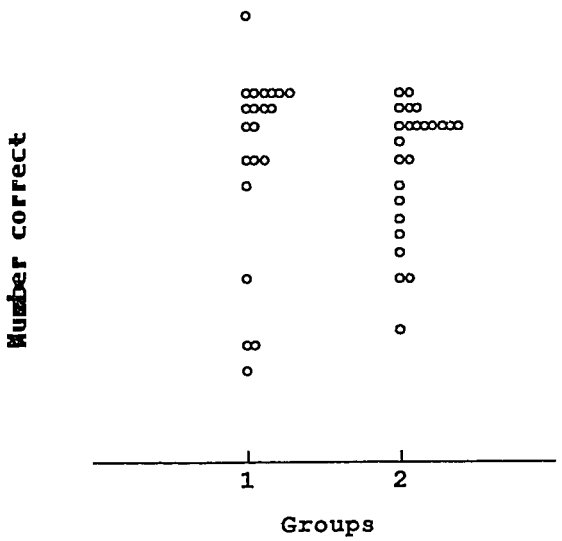

Figure 14. Segmenting Mastery Test

In terms of our teaching failure rates, it appears that the blend/segment condition brought more children to a high level of mastery in blending and segmenting than did the global treatment. This difference is not surprising, since Group 1 spent proportionally more training time on these tasks, and we do not know what other tasks the global treatment might have mastered. The First sound and Rhyme production tasks (taught in the global treatment but not the blend/segment treatment) do not answer this question because the tests used entirely novel items. I can only infer that the global treatment would have done at least as well on trained words as they did on tests of novel words.

Generalization from trained words to novel items. With one exception, children who performed poorly on the mastery tests also did poorly on novel items which tested the same skill. Importantly, none of the children who did well on mastery tests were in the bottom third on the tests of novel items of 3-phoneme blending and segmenting. All

children able to perform the tasks in training were able to generalize to some extent. Figures 15 and 16 display individual scores on these tests.

Blending novel items. The child in Group 1 who was unable to blend on the mastery test is the same child unable to blend new words. The four low children in Group 2 on the blending mastery test are the same four at the bottom of the scatterplot of blending novel words. Some of the children blended fewer new words than trained words, but the drops were undramatic.

Segmenting novel items. The same pattern of generalization occurred with segmenting. All of the children who segmented at least two-thirds of the training items correctly segmented new words at a similar level. Combining groups, the four children at the bottom of the mastery test of segmenting are the same four at the bottom of the segmenting posttest. This pattern of maintaining performance from mastery to generalization contradicts our earlier finding (O'Connor, et al., in press) that children initially low in phonemic skills tend to learn trained items, but generalize the skill to untrained items at a far lower level of competence, if at all.

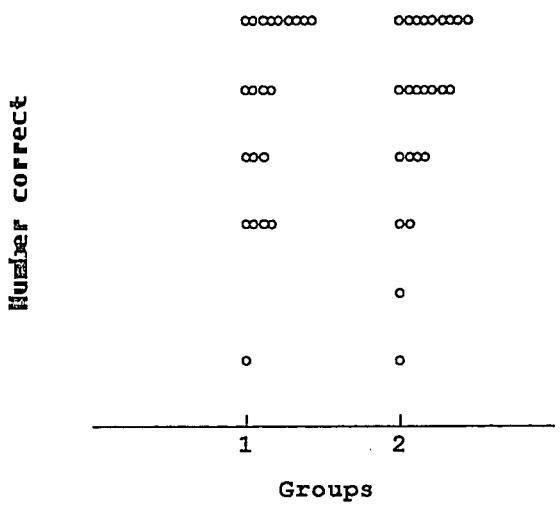

Figure 15. Blend novel 3-phoneme words.

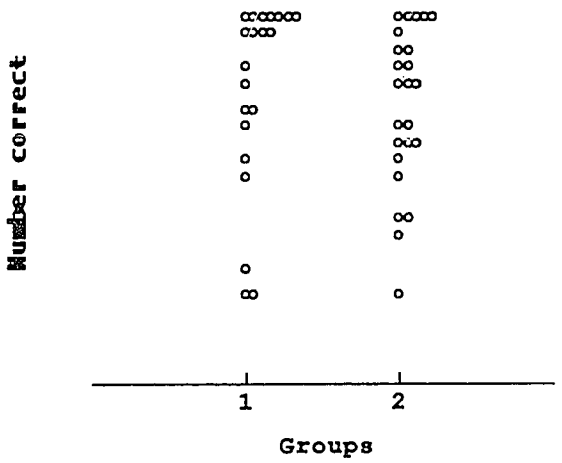

Figure 16. Segment novel words into 3-phonemes

Transfer to reading. Of the eight children who scored lowest on the Reading Analog task (33% of the words or fewer), five were children who failed to master the blending training tasks. Two of the remaining three mastered the trained tasks but showed poor generalization to novel items; the eighth child demonstrated some generalization on blending and segmenting tasks (60%), but still performed poorly on the reading task. This child also spoke English as a second language.

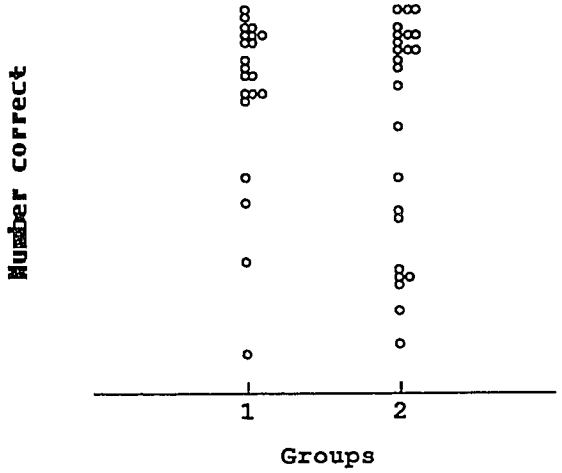

Figure 17. Reading Analog

Accounting for the variance in reading performance

The relative importance of specific phonemic manipulations in the reading process was explored through stepwise regression to estimate the contributions of the phonemic variables to the Reading Analog scores. The semipartial correlations for each sample (low and high-skilled combined, low-skilled only, and trained children only) converge on the importance of blending onset-rime, which accounted for more variance (about 42% without forcing other variables ahead) than any other pre or posttest variable, however, high intercorrelations among the phonemic variables, and among sound repetition (memory for phonemes) and the phonemic variables, muddies attempts to isolate specific abilities.

Although multiple regression analyses of the Reading Analog measure suggest a relatively independent contribution for blending onset-rime, other skills may mediate learning to blend. For example, stepwise multiple regression on *blending* ability, using the PPVT score and all posttest variables (except reading, spelling, and the LAC), selects

the only posttest variable accounting for significant amounts of variance (61%), whereas the same procedure using segmenting as the dependent variable selects blending on the first step (59% of the variance), followed by the Rosner, and first sound (a segmenting task), for a total of 73% of the variance. Where blending accounts for more variance in reading, segmenting accounts for the majority of the variance in blending, and because neither treatment taught blending alone (or segmenting), it may be misleading to isolate skill in blending from the other phonemic experiences of the children in the treatments.[7]

Conclusions

This research contributes to an understanding of differences among children with comparatively low or high abilities in manipulating phonemes in kindergarten, by exploring initial differences among groups, and the character of the phonemic skill training necessary to bring about improved generalized phonemic skills, reading, and spelling for the low-skilled children. Perhaps, as suggested in training studies using average to above average kindergarten and first grade children, blending and segmenting, combined with letter-sound training, are the most important prereading skills children need to acquire. Training in blending and segmenting by themselves rarely encourages the level or range of phonemic abilities demonstrated by children who are naturally good at these tasks (the children responsible for the large correlations among phonemic tasks, reading, and spelling), however, in this training study we are beginning to see large changes in skill level among initially low-skilled children.

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[7] A cleaner approach would randomly assign low-skilled subjects to groups that teach only one phonemic manipulation, test for generalization and transfer, and then teach another skill, adding manipulations gradually and assessing the effect of each introduction. Problems with this approach include isolating the effect of training from classroom experiences, and developmental maturation over the time it might take to teach a series of skills in isolation.

By establishing conditions where one group learned only to blend and segment, and the other to perform all sorts of manipulations on words, I believed differences in phonemic skill levels and reading would emerge. There is only limited evidence that children inferred a more global facility with phonemes in the blend/segment condition. The children in Group 1 were taught only to blend and segment, yet they were able to pick off the first sound and to substitute and delete phonemes on the Lindamood Auditory Conceptualization Test as well as Group 2. The scores on the LAC reveal something about the degree of generalized phonemic awareness. To achieve a score as high as 28, children had to move beyond the task of representing series of sounds with colored blocks, and into representing the changes in words with blocks, showing the locations and kinds of changes (e.g., The examiner shows red-green-red. "If this says pip, show me pop." The child changes the green block for another color.). The mean scores of Groups 1 and 2 are over this threshold, suggesting that many children in both groups gained some skill in phoneme deletion and substitution, tasks Bruce (1964), Ehri and Wilce (1987), and Brady (1992) have suggested typically develop after children begin to read[8].

I set out, in this experiment, to test whether global phonemic abilities (which I assumed were more like the skills of "naturally able" children) would produce better transfer to reading than highly specific training (blending and segmenting). In this experiment it did not, but a critical flaw mars my attempt to test this issue: to conclude that more generalized phonemic awareness transfers more effectively to reading and spelling, I would first have to demonstrate that one group had a wider range of phonemic abilities than the other.

The teaching in the treatments was designed to induce different outcomes. The activities in the Blend/segment treatment were confined to those two skills; the activities in

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[8] The standard deviation of 11 on the LAC for Group 1 also shows that many children did not reach this level of manipulation skill.

the Global treatment were structured to teach the general case by presenting a wide range of instances of that broader concept of phonemic manipulation (i.e., given a word, the student will manipulate it in every conceivable way, by blending the phonemes, by rhyming, by isolating phonemes, counting them, deleting them, and segmenting the word into all its phonemes). I have no evidence that I achieved the difference in direct treatment outcomes that I wanted to test.

Limitations to this research

All research designs include decisions which affect outcomes, and for this research, the sensitivity of measures and content of instruction (two contrasting types of phonemic training from a limitless pool of possibilities) certainly frames the interpretation.

Sound repetition.

The role of short-term memory for phonemes deserves more study. Although it emerged during regression analysis as a potentially important contributor to reading outcomes, it was not tested prior to treatment. The high correlations among memory for phonemes and other manipulations (Table 7) suggest that it could be a contributing (and limiting) factor in the training of phonemic skills. Of the trained children who did poorly on blending and segmenting posttests, all but one performed below the mean on sound repetition. It is also possible, since the means were somewhat higher in the training conditions, that phonemic training improves memory for phonemes. Future versions of this task should expand the number of items with two, three, and four phonemes.

Automaticity

The treatments in this research highlighted phonemic manipulation, however, other factors also contribute to reading. Among the measured variables, significant portions of variance in reading scores was accounted for by rapid letter naming, which began (at pretest) significantly higher for higher-skilled children, and ended with an even larger gap among the groups. Studies have suggested that letter naming among kindergarteners may

be a proxy for the kind of automaticity of lower level skills that is necessary for beginning decoding, and eventually for reading comprehension (Stanovich, 1988; Wolff, 1991). To the extent this may be true, we need to investigate ways to bring lower-skilled children to higher levels of automaticity in letter naming (or letter-to-sound naming) prior to the onset of reading instruction. The phonemic training we provided, even with a portion of the time devoted to letter-sound training, was insufficient to close the rapid letter naming gap between high and low-skilled children.

The Reading Analog task.

The degree to which the Reading Analog task is a good proxy for learning to read has not been assessed. One can observe the strategies young children use for spelling. They select letters, arrange them, rearrange them, sometimes tentatively, sometimes confidently, even if incorrect. Reading, however, is more private. The examiners modeled blending the sounds during their turns, but the children did not necessarily use the blending strategy. Some children overtly blended the sounds into words, using the examiner's model to good advantage, others stared for a second or two and then responded correctly or incorrectly; I could not identify the strategy the child used to come up with the response. Other children said words randomly which were completely unlike the printed words, or said the same word in response to every card (*mat* was popular). Some children seemed to use a first sound strategy, although as the *only* strategy it was not very useful, since two of the target words started with "A" and two with "S." The problem of strategy selection will continue with assessment of real reading in first grade: encouraging a blending strategy does not ensure a child will use it, and if blending is not the strategy the first grade teachers prefer, will high ability in blending sounds from an onset-rime presentation be of much use? Reading effects, in this study, are more suggestive than real.

Instruction.

Researchers must continue to study methods and content for the most effective ways to increase phonemic skills for low-skilled kindergarten children. Most children learned the items in the lessons, but the degree of generalization to novel words could be improved in both treatments. Continuing instruction individually with children who fail to generalize from the current version of activities could lead to more effective formats and techniques, which could then be incorporated into group instruction to lower failure rates.

What do we know now?

Educators are passionately concerned about children who fail traditional types of reading instruction, thus the research in phonemic awareness is pursued with fervor and commitment. Correlational studies revealed strong relationships between various phonemic skills and reading, but questions of instructional accessibility, the relative difficulty of specific phonemic tasks, facilitative qualities among phonemic manipulations and the comparative effects of trained and "naturally" developing skills on reading will only be understood through intervention research. For normally-achieving children, increasing levels of phonemic awareness in kindergarten or first grade seems to increase reading levels. This study suggests it may do the same for low-skilled children, however, only short term effects (end of the training period) were assessed for this project. Stanovich has called developments in our understanding of the contribution of phonemic awareness to reading one of the scientific success stories of the last decade (1991). This research begins to explore that contribution with the children most desperately in need of scientific breakthroughs: the children who may have real and sustained difficulty learning to read. The results of this study suggest that prereading children initially low in phonemic skills can be taught phonemic manipulations, that instruction in blending and segmenting generalizes to other kinds of phonemic manipulation, and that training may transfer to initial attempts to read and spell.

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APPENDIX A

Pretests and Posttests

Phonemic Awareness Pretests

Child's name_____ Teacher_____ School_____
Treatment_____Tester_____Date_____

Each task includes three practice items with corrective feedback (child repeats correct response). Feedback on test items will be either "Yes, that's right" or the correct answer (scored as an error). See Test Procedures.

A). **Rhyme production.** "Say a word that rhymes with *make*."
(to correct: "I can rhyme with make. Lake; shake. Say a word that rhymes with make.")
Ex: *mat, key*

1. land_____ 3. bun_____ 5. mouse_____
2. toy_____ 4. wing_____

B) **Blend syllables into words.** "I'm going to say some sounds. If you put the sounds together, they make a word. Foot (pause) ball. What word is that? (to correct: "Foot--ball. Football. What word is foot--ball?")
Ex: dog--house; bas--ket--ball.

1. dump--truck_____ 6. No--vem--ber_____
2. pa--per_____ 7. te--ddy--bear_____
3. cow--boy_____ 8. te--le--phone_____
4. se--ven_____ 9. di--no--saur_____
5. teach--er_____ 10. won--der--ful_____

C) **Segment words into syllables.** "This time I'll say a word, and you'll tell me the parts in the word. My turn. *Recess*. I'll say the parts in recess. Re--cess. Say the parts in recess." (To correct: "The parts in recess are re--cess. Say the parts in recess.")
Ex: *apple, telephone.*

1. winter_____ 6. Superman_____(2)
2. robin_____ 7. basketball_____(2)
3. baseball_____ 8. potato_____(2)
4. pencil_____ 9. hopping_____(1)
5. scissors_____ 10. kindergarten_____(3)

D) **Modified Rosner.**

Say *dumptruck*	again, without *dump*	
Say *dollhouse*	again, without *house*	
Say:	Now say it again, but don't say:	Child's Response:
1. baseball	base	
2. cowboy	cow	
3. sunshine	sun	
4. paper	pa	
5. cucumber	cu	
6. picnic	nic	
7. morning	ing	
8. seesaw	saw	
9. bunny	ny	
10. farmer	er	

E) **Blend two sounds into a word.** "I am going to say some sounds. If you put the sounds together, they make a word. *M (pause) -ake.* What word is that?" (to correct: "I'll put these sounds together: M--ake. Make. Your turn. Put the sounds together into a word: M--ake. What word is that?")

Ex: *s--ign; c--at*

1. i--f_____
2. o--n_____
3. f--an_____
4. n--ice_____
5. m--om_____
6. b--ig_____
7. f--it_____
8. d--ad_____
9. b--ed_____
10. m--uff_____

F) **Segment words into onset-rime.** "This time I will say a word, and you tell me two sounds in the word. My turn. I can say the sounds in *Mike.* M--ike. Your turn. Say the sounds in Mike." (to correct: "I'll say the sounds in Mike. M--ike. Say the sounds in Mike.")

Ex: *shop*; *cat*

1. up_____
2. mom_____
3. gum_____
4. dog_____
5. mob_____
6. food_____
7. cut_____
8. mud_____
9. shed_____
10. fall_____

G) **Rapid Letter Naming Time: 1 minute Number correct:_____**

L	**Y**	**J**	**A**	**S**	**N**	**R**	**W**	**V**	**I**
D	**B**	**Z**	**T**	**G**	**P**	**H**	**O**	**U**	**H**
Q	**M**	**K**	**E**	**F**	**C**	**P**	**Z**	**E**	**C**
I	**M**	**J**	**R**	**Q**	**N**	**A**	**W**	**V**	**L**
X	**B**	**F**	**K**	**O**	**D**	**G**	**S**	**Y**	**T**

H) **Finger Succession.** Please hold your hands up just like I am. [Hold both hands out of peripheral vision. Demonstrate with the right hand, unless you know child is left handed.] First, watch what I do. [Touch each finger with thumb in succession, always starting from the little finger; repeat cycle two time.] Now do it along with me. Now try it on your own. [Practice until child gets the idea. Note if more than 3 sequences are needed.] When I say go, touch your fingers together just like I did. Keep doing it until I tell you to stop. Ready? Go! [stop after 5 successions]

Time in seconds_____

I) **Word identification**. These are words you will learn next year in first grade. Tell me if you know any of them already: [show cards for *AM, AT, SAT, MAT, SAM*]

Phonemic Awareness Posttests

Child's name_____ Teacher_____ School_____
Treatment_____Tester_____Date_____

Each task includes three practice items with corrective feedback (child repeats correct response). Feedback on test items will be either "Yes, that's right" or the correct answer (scored as an error). See Test Procedures.

A) **Blend two sounds into a word.** "I am going to say some sounds. If you put the sounds together, they make a word. *M (pause) -ake.* What word is that?" (to correct: "I'll put these sounds together: M--ake. Make. Your turn. Put the sounds together into a word: M--ake. What word is that?")

Ex: *s--ign; c--at*

1. i--f_____
2. o--n_____
3. f--an_____
4. n--ice_____
5. m--om_____
6. b--ig_____
7. f--it_____
8. d--ad_____
9. b--ed_____
10. m--uff_____

11. p--ee--k_____
12. sh-o--p_____
13. d--u--ck_____
14. s--o--ck_____
15. c--a--b_____

B) **Segment words into onset-rime.** "This time I will say a word, and you tell me two sounds in the word. My turn. I can say the sounds in *Mike.* M--ike. Your turn. Say the sounds in Mike." (to correct: "I'll say the sounds in Mike. M--ike. Say the sounds in Mike.")

Ex: *shop; cat*

1. up_____
2. mom_____
3. gum_____
4. dog_____
5. mob_____
6. food_____
7. cut_____
8. mud_____
9. shed_____
10. fall_____

Say **all** the sounds in:

11. fit_____
12. map_____
13. feet_____
14. sock_____
15. bit_____

C) First Sound. Practice: Tell me the first sound in: **sign, nail, cat**

1. pill_____
2. log_____
3. shop_____
4. can_____
5. dad_____
6. hope_____
7. mop_____
8. ball_____
9. tip _____
10. ox_____

Name_____ Sch_____ Date_____

Repeat the Sounds:

(2 sec pause)	(1 sec pause)	(1 sec pause)
1. /a/_____	5. m -- a_____	9. m -- a -- ss_____
2. /m/_____	6. t -- ee_____	10. t -- a -- t_____
3. /t/_____	7. a -- k_____	11. p -- ee -- k_____
4.p--i_____	8. k-a-f-_____	12. p -- a -- s -- t_____

E) **Modified Rosner.**

Training words:		
Say *dumptruck*	again, without *dump*	
Say *dollhouse*	again, without *house*	
Say:	Now say it again, but don't say:	Child's Response:
1. baseball	base	
2. cowboy	cow	
3. sunshine	sun	
4. paper	pa	
5. cucumber	cu	
6. picnic	nic	
7. morning	ing	
8. seesaw	saw	
9. bunny	ny	
10. farmer	er	

F) **Rapid Letter Naming Time: 1 minute Number correct:_____**

L	**Y**	**J**	**A**	**S**	**N**	**R**	**W**	**V**	**I**
D	**B**	**Z**	**T**	**G**	**P**	**H**	**O**	**U**	**H**
Q	**M**	**K**	**E**	**F**	**C**	**P**	**Z**	**E**	**C**
I	**M**	**J**	**R**	**Q**	**N**	**A**	**W**	**V**	**L**
X	**B**	**F**	**K**	**O**	**D**	**G**	**S**	**Y**	**T**

G). **Rhyme production.** "Say a word that rhymes with *make*."
(to correct: "I can rhyme with make. Lake; shake. Say a word that rhymes with make.")
Ex: *mat, key*

1. land_____ 3. bun_____ 5. mouse_____
2. toy_____ 4. wing_____

APPENDIX B

Lessons for the Blend/Segment and Global Treatments

Lesson 1:

Blending/Segmenting

1. **Group Rules** for our Special Work:
   a. Listen to the teacher and to each other.
   b. In this group, we are learning new ways to play with words. We accept everybody's tries.

2. Today we're going to play some sound games. First, we'll say some sounds. These aren't real words, but you can hear these sounds in words you know.
   Here's a sound: /aaaaa/ [as in cat]. When I hold up my finger, you'll say what I say:
   /aaaaa/ [hold up one finger, as children say *aaaaa*. Tell them to stop when you put your finger down.]
   /shshshshsh/ [hold up one finger, as children say *shshshsh].*
   /eeeeeeeeee/ (as in he) . [hold up one finger, as children say *eeeeeeeeee*]
   /nnnnnnnnnn/ [hold up one finger, as children say *nnnnnnnnnn]*
   /sssssssssss/ /iiiiiiiiiiiii/

3. We didn't say real words. Only sounds. **--But--** If we put sounds together, we can make words.

   [Show children the **picture board**, Lesson 1] I'll say the sounds in these words. Let's see if you can hear the word these sounds make:
   knnnnnnnneeeeeeeeeee. What word is that? *[knee]* Can you find the picture? Listen again. knnnnnneeeeeeeeeee. What word is that? [to an individual child:] Show me the picture of a knnnnnnnneeeeeeee.
   nnnnoooossse. What word is that? *[nose]* Can you find the picture? Listen again. nnnnooooossse. What word is that? [to an individual child:] Show me the picture of a nnnnoooossse.
   shshshshshsheeeeeeeeeee. What word is that? *[she]* Can you find the picture? Listen again. shshshshshsheeeeeeeeeee. Find the picture.
   shshshshshshiiiiiiiip. What word is that? *[ship]* Can you find the picture? Listen again. shshshshshshiiiiiiiip. Find the picture.
   h (pause) eeeeeeeeeee. What word is that? *[he]* Can you find the picture? Listen again. hhhhhhhhhheeeeeeeeeee. What word is that?
   lllllllllllaaaaaaaake k (pause) -eeeeeeeeeeey.
   sssssssaaaaaaaaaaillllllllll. h (pause) iiiiiiiiiiillllllllll.

4. [Put the pictures down]. I'll say some sounds. If you put them together, you'll make a word.
   shshshshsheeeee. What word is that? [*she]*
   nnnnnnnnooooooooooose What word is that? *[nose]*
   shshshshiiiiiiiiiiip
   h (pause) iiiiiiiiiillllllllll
   sssssssaaaaaaaaaail.
   nnnnnnnneeeeeeeeee h (pause) eeeeeeeeeee.
   lllllllllllllaaaaaaaaaaaake. k (pause) eeeeeeeeeeeeee.

5. [Put the pictures up again.] Let's **say the sounds** in these words.

[point to the picture of the knee]. What is this? *[knee]*. Yes, it's a knee. I can say the sounds in knee. /knnnnnnnnneeeeeeeee/ Say the sounds in knee. *[nnnnnnneeeeeeeee]* Yes!

[**point to** the key, sail, ship, hill, lake, she, he, nose]

What is it? [children says word] **Say the sounds** in [word]. [Repeat the sounds in the word until group does it independently.]

[Call on individual children to say the sounds in each picture, one word each]

6. Let's play a **guessing game**. Raise your hand if you know the word I'm saying: [individual turns. Call on 2 children]

nnnnnnnnnnoooooooooossssssse.	shshshsheeeeeeeeeeeee.
h (pause) eeeeeeeeee.	lllllllllllaaaaaaaaake.
sssssssssssaaaaaaaaaail.	h (pause) iiiiiiiiiilllllllll
k (pause) eeeeeeeeey.	knnnnnnnnnneeeeeeee.

WOW!! You're good at sound games. Thursday we'll play again.

We're going back to class now. [Tell them what they did well: They listened, worked hard, were polite to each other....whatever]

It's important that we go back *very quietly, so let's tiptoe....*

Global

1. **Group Rules** for our Special Work:
   a. Listen to the teacher and to each other.
   b. In this group, we are learning new ways to play with words. We accept everybody's tries.

2. Today we're going to play some sound games. First, we'll **say some sounds**. These aren't real words, but you can hear these sounds in words you know.
   Here's a sound: /aaaaa/ [as in cat]. When I hold up my finger, you'll say what I say:
   /aaaaa/ [hold up one finger, as children say *aaaaa*. Tell them to stop when you put your finger down.]
   /shshshshsh/ [hold up one finger, as children say *shshshsh]*.
   /eeeeeeeeee/ (as in he) . [hold up one finger, as children say *eeeeeeeeee*]
   /nnnnnnnnn/ [hold up one finger, as children say *nnnnnnnnn]*
   /sssssssssss/ */iiiiiiiiiiiii/*

3. Now we'll play with words.
   Let's play: **Say it fast**. I'll show you how to do it. Listen to this:
   The cat sat down.
   Here's how to say it fast: The cat sat down.
   Listen again: The cat sat down. Say it fast.
   [The cat sat down.]
   Yes!! Try this one:
   Elephants fly. Say it fast: *[elephants fly.]*
   Turtles can sing.
   My dog growls.
   This shirt is dirty.
   You're good at saying it fast!!

4. Now we'll play: Say it **slllooowww**. I'll show you how. Listen to this:
   Superman flies. Here's how to say it slow: Superman flies.
   Say it slowly: [*Superman flies.]*
   Say these slowly: The dog barks. *[The dog barks.]*
   My bird sings. *[My bird sings.]*
   The children run home.*[The children run home.]*
   Great!!

5. Here's a new game: **Clap the parts**! Here's how we play it. I'll say a name, and we'll all clap the parts. My name is ----------. I can clap my name: [clap for each syllable]
Do it with me. My name is ----------. [Now say it in parts and clap parts with the children] This time clap my name by yourselves. Ready? [Say your name in parts while the children clap]
Let's do your names. [Go around the group, eliciting each name and guiding the clapping, then have children clap the name by themselves as you say the parts]

6. Okay!! Now let's say some words that **rhyme**. Rhyming words sound the same at the end, and I'll help you listen for the words that rhyme. Do you know Twinkle, Twinkle? Say it [or sing it] with me if you know it: **Twinkle, Twinkle**, little star, How I wonder what you are. Up above the world so high, like a diamond in the sky. Twinkle, Twinkle, little star, How I wonder what you are.
[Say or sing it twice, emphasizing the rhymes the second time.] Did you hear some of the words that rhymed? Twinkle, Twinkle, little **star,** How I wonder what you **are**.
What rhymes with are? [*star*] Yes, are and star rhyme. They sound the same at the end.
Up above the world so **high,** like a diamond in the **sky--** What rhymes with high? Yes!! High and sky rhyme.

7. [**if time permits**: **Guess what word** I'm trying to say: h (pause) igh.
   st (pause) ar.
   sk (pause) y.

WOW!! You're good at sound games. Thursday we'll play again.
We're going back to class now. [Tell them what they did well: They listened, worked hard, were polite to each other....whatever]
It's important that we go back *very quietly, so let's tiptoe....*

Lesson 2:

Blending/Segmenting

1. Today we're going to play some sound games. First, we'll say some sounds. These aren't real words, but you can hear these sounds in words you know.
   Here's a sound: /aaaaa/ [as in cake]. When I hold up my finger, you'll say what I say:
   /aaaaa/ [hold up one finger, as children say *aaaaa*. Tell them to stop when you put your finger down.]
   /IIIIIIIII/ [as in I] [hold up one finger, as children say *IIIIIIIII].*
   /IIIIIIIIIIII/

/k/ [Don't try to hold stop sounds, and, as possible, try to avoid adding vowels]
/h/ /p/

2. We didn't say real words. Only sounds. **--But--** If we put sounds together, we can make words.
[Show children the **picture board,** Lesson 2] I'll say the sounds in these words. Let's see if you can hear the word these sounds make:
nnnnoooossse. What word is that? *[nose]* Can you find the picture? Listen again. nnnnoooossse. What word is that? [to an individual child:] Show me the picture of a nnnnoooossse.
h (pause) aaaaat What word is that? *[hat]* Can you find the picture? Listen again. h (pause) aaaaat. Find the picture.
sssssiiiiit. What word is that? [*sit]* Who can find the picture?
p (pause) aaaack. What word is that? [*pack]* Who can find the picture?
h (pause) eeeeeeeeeee. What word is that? *[he]* Can you find the picture? Listen again. hhhhhhhhhheeeeeeeeeee. What word is that?
lllllllllllaaaaaaaaake h (pause) iiiiiiiiiiiiiiiiiiiii.

3 [Put the pictures down]. I'll **say some sounds.** If you put them together, you'll make a word.
h (pause) eeee What word is that? [*he]*
nnnnnnnnooooooooooose What word is that? *[nose]*
p (pause) aaaaaack.
h (pause) iiiiiiiiiiiiiiiiiii
ssssssiiiiiiit. h (pause) aaaaat. lllllllllllllaaaaaaaaaaaake.

4. [Put the **pictures up** again.] Let's say the sounds in these words.
[point to the picture of the pack]. What is this? *[pack].* Yes, it's a pack. I can say the sounds in pack. /p--aaaaaack/ Say the sounds in pack. [*p--aaaaaaaaack]* Yes!
[point to the hill, lake, he, nose, sit, hat]
What is it? [children says word] Say the sounds in [word]. [Repeat the sounds in the word until group does it independently.]
[Call on individual children to say the sounds in each picture, one word each]

5. Let's play a **guessing game.** Raise your hand if you know the word I'm saying:
[individual turns. Call on 2 children]
nnnnnnnnnnooooooooooosssssssse. h (pause) aaaaat.
h (pause) eeeeeeeeeee. lllllllllllaaaaaaaaake.
ssssiiiiiiiiit h (pause) iiiiiiiiiiiiiiiiii
p (pause) aaack.

6. Here's a new way to say parts in words: **Magic Squares!!** Here's how they work:
[show the two-rectangle form]
When I want to say **--nose--** in 2 parts, I touch the squares like this:
n-- [touch the first box] ose [touch the next box]. Repeat two times. Who can say the parts in --nose-- with the magic squares? [give individual turns to 2 kids]
When I want to say **--hat--** in 2 parts, I touch the squares like this:
h-- [touch the first box] at [touch the next box]. Repeat two times. Who can say the parts in --hat-- with the magic squares? [give individual turns to 2 kids]
When I want to say **--pack--** in 2 parts, I touch the squares like this:

p-- [touch the first box] ack [touch the next box]. Repeat two times. Who can say the parts in --pack-- with the magic squares? [give individual turns to 2 kids]

WOW!! You're good at sound games. [Thursday] we'll play again.
We're going back to class now. [Tell them what they did well: They listened, worked hard, were polite to each other....whatever]
It's important that we go back *very quietly, so let's tiptoe....*

Global

1. Today we're going to play some sound games. First, we'll **say some sounds**. These aren't real words, but you can hear these sounds in words you know. Here's a sound: /aaaaa/ [as in cake]. When I hold up my finger, you'll say what I say:
/aaaaa/ [hold up one finger, as children say *aaaaa*. Tell them to stop when you put your finger down.]
/IIIIIIIII/ [as in I] [hold up one finger, as children say *IIIIIIIII*].
/lllllllllllll/
/k/ [Don't try to hold stop sounds, and, as possible, try to avoid adding vowels]
/h/
/p/

2. Now we'll play with words.
Let's play: **Say it fast**. Remember how to do it? Listen to this:
The turtle is slow.
Here's how to say it fast: The turtle is slow.
The turtle is slow. Say it fast. [*The turtle is slow.]*
Yes!! Try this one:
Elephants sneeze. Say it fast: [*Elephants sneeze.]*
My dog chews.
We play sound games.
You're good at saying it fast!!

3. Now we'll play: Say it **<u>sllllooowww</u>**. I'll show you how. Listen to this:
Spiderman climbs. Here's how to say it slow: Spiderman climbs.
Say it slowly: [*Spiderman climbs.]*
Say these slowly: We say rhymes. *[We say rhymes.]*
My bird flies. *[My bird flies.]*
Great!!

4 Remember **Clap the parts?** Here's how we play it. I'll say a word, and we'll all clap the parts. [Start with children's names. Clap for each syllable]
Clap these words: puppy under Dog [clap only once]
going race [clap only once] medicine[3] mommy

5. Okay!! Now let's say some words that **rhyme**. Rhyming words sound the same at the end, and I'll help you listen for the words that rhyme. Do you know Humpty, Dumpty? Say it with me if you know it: **Humpty, Dumpty** sat on a **wall**. **Humpty, Dumpty** had a great **fall**. All the king's horses and all the king's **men**, Couldn't put Humpty together **again.**

[Say or sing it twice, emphasizing the rhymes.] Did you hear some of the words that rhymed? **Humpty, Dumpty** -- What rhymes with Humpty? [*Dumpty*] Yes, Humpty and Dumpty rhyme. They sound the same at the end.

Humpty, Dumpty sat on a **wall. Humpty, Dumpty** had a great **fall**-- What rhymes with wall? Yes!! Fall and wall rhyme.

All the king's horses and all the king's **men**, Couldn't put Humpty together **again.** What rhymes with men? Yes!! Again rhymes with men.

6. [**if time permits: Guess what word** I'm trying to say:
   el -- e -- phant
   h (pause) igh. *[high]*
   straw -- ber -- y
   s (pause) it.
   t (pause) urtle.
   l (pause) ate.
   p (pause) illow.

WOW!! You're good at sound games. Thursday we'll play again.

We're going back to class now. [Tell them what they did well: They listened, worked hard, were polite to each other....whatever]

It's important that we go back *very quietly, so let's tiptoe....*

Lesson 3:

Blending/Segmenting

1. Today we're going to play some sound games. Let's put sounds together to make words.

[Show children the **picture board**, Lesson 3] I'll **say the sounds** in these words. Let's see if you can hear the word these sounds make:

s (pause) ign. What word is that? *[sign]* [Repeat sounds if kids had difficulty.] Can you find the picture? Listen again. [to an individual child:] Show me the picture of a s (pause) ign.

h (pause) at What word is that? *[hat]* Can you find the picture? Listen again. h (pause) at . Find the picture.

s (pause) ail. What word is that? [*sail]* Who can find the picture?

c (pause) at What word is that? [*cat]* Who can find the picture?

sh (pause) ake. [*shake]*

kn (pause) ee. [*knee]*

t (pause) ie. [*tie]*

2 [Put the **pictures down**]. I'll **say some sounds**. If you put them together, you'll make a word.

h (pause) e What word is that? [*he]*

nnnnnnnnooooooooooose What word is that? *[nose]*

h (pause) at.

lllllllllllllaaaaaaaaaaaake.

kn (pause) ee. t (pause) ie.

s (pause) ail. c (pause) at

3 [Put the pictures up again.] Let's say the **sounds** in these words.

[point to the picture of the cat]. What is this? *[cat]*. Yes, it's a cat. I can say the sounds in cat: c -- at. Say the sounds in cat. [*c -- at]* [Tell children the sounds and repeat if necessary] Yes!

[point to the knee, sign, hat, sail, shake, tie]
What is it? [children says word] Say the sounds in [word]. [Repeat the sounds in the word until group does it independently.]

[Call on individual children to say the sounds in each picture, one word each]

4. Let's play a **guessing game**. Raise your hand if you know the word I'm saying: [individual turns. Call on 2 children]

nnnnnnnnnnoooooooooossssssse.	h (pause) aaaaat.
h (pause) e.	sh -- ake.
s -- it	h (pause) iiiiiiiiiillllllll
p (pause) ack.	t -- ie
s -- ign	s -- ail

5. Here's a new way to say parts in words: **Magic Squares!!** Here's how they work: [show the two-rectangle form]
When I want to say **--sail--** in 2 parts, I touch the squares like this:
s-- [touch the first box] **ail** [touch the next box]. Repeat two times. Who can say the parts in --sail-- with the magic squares? [give individual turns to 2 kids]
When I want to say **--hat--** in 2 parts, I touch the squares like this:
h-- [touch the first box] at [touch the next box]. Repeat two times. Who can say the parts in --hat-- with the magic squares? [give individual turns to 2 kids]
Let's try some more words with the Magic Squares: knee, shake, cat, sign, tie, shake.

WOW!! You're good at sound games. [Thursday] we'll play again.
We're going back to class now. [Tell them what they did well: They listened, worked hard, were polite to each other....whatever]
It's important that we go back *very quietly, so let's tiptoe...*

Global

1. Today we're going to play some sound games. Let's play: **Say it fast**. Remember how to do it? Listen to this:
I ride my bike.
Say it fast. [*I ride my bike.]* [Repeat and model if neceesary]
Yes!! Try this one:
Ice cream tastes great.. Say it fast: [*Ice cream tastes great!]*
My dog snores.
You're good at saying it fast!!

2. Now we'll play: Say it **sllllooowww**. Listen to this:
Horses run Say it **slowly**: [Give signals] [*Horses run.]*
Say these slowly: Hop on Pop.
Children eat pudding.
Great!!

3 Remember **Clap the parts?** Clap these words:
soccer lizard snow rhinocerous

4. Okay!! Now let's say some words that **rhyme.** Do you know **Jack and Jill**? Say it with me if you know it:

Jack and **Jill** went up the **hill**
To fetch a pail of water
Jack fell **down** and broke his **crown** and Jill came tumbling after.

[Say or sing it twice, emphasizing the rhymes.] Did you hear some of the words that rhymed? Jack and **Jill** went up the **hill**-- What rhymes with Jill? *[hill]* Yes, Jill and hill rhyme. They both have **-ill** at the end. Jill, hill. Do you hear the --ill at the end of those words?

Jack fell down and broke his crown-- What rhymes with down? *[crown]* Yes!! Crown and down rhyme.

5. Today we're going to look at some **pictures** of words. See these pictures? Let's name them first.

Here's a key. Say the word: [*key*]

Yes, and here's a lake [*Lake*], he, she, knee, nose, ship, hill, sail.

I'll say the words in little pieces, and you'll try to put the pieces into a word. Listen to this:

kn -- ee. What word is that? *[knee]* [Repeat if necessary. Cues lots of cues, if needed]. Can you find the picture? Listen again. kn --ee. What word is that? [to an individual child:] Show me the picture of a kn --ee.

n --ose. What word is that? *[nose]* Can you find the picture? Listen again. [to an individual child:] Show me the picture of a n -- ose.

sh -- e. What word is that? *[she]* Can you find the picture? Listen again. sh -- e. Find the picture.

sh --ip. What word is that? *[ship]* Can you find the picture? Listen again. h (pause) e. What word is that? *[he]* Can you find the picture? Listen again.

h -- e. What word is that?
l -- ake
k (pause) -ey.
s --ail.
h (pause) ill.

WOW!! You're good at sound games. Thursday we'll play again.

Lesson 4:

Blending/Segmenting

1. Today we're going to play some sound games. Let's put sounds together to make words.

[Show children the **picture board**, Lesson 4] First, let's name the pictures: [touch each picture as you name it] Here's a hat. What's that? [*a hat*]. [Repeat for: sit, say, sail, eat, ship, cat, knee, nose]

2. 'll **say the sounds** in these words. Let's see if you can hear the word these sounds make:

ea (pause) t. What word is that? *[eat]* [If kids don't repond, say: Eat. Listen again: ea -- t. What word is that?] Can you find the picture? [to an individual child:] Show me the picture of ea (pause) t.

sh (pause) ip What word is that? *[ship*] Can you find the picture? Listen again. sh (pause) ip . Find the picture.

s (pause) ail. What word is that? [*sail]* Who can find the picture?

c (pause) at What word is that? [*cat]* Who can find the picture?

s (pause) ay. [*say]*

kn (pause) ee. [*knee]*

s(pause) it. [*sit]* n -- ose. [*nose]* h -- at [*hat]*

3 [Put the pictures down]. I'll **say some sounds**. If you put them together, you'll make a word.

ea -- t. What word is that? ea -- t [*eat]* /If no response, say: Eat. Listen again: Ea -- t. what word is that?]

h (pause) at What word is that? h -- at. [*hat]]*

h (pause) at.

kn (pause) ee. sh -- ip

c -- at s (pause) ail.

4 [Put the pictures up again.] Let's **say the sounds** in these words.

[point to the picture of the cat]. What is this? *[cat]*. Yes, it's a cat. I can say the sounds in cat: c -- at. Say the sounds in cat. [*c -- at]* [Tell children the sounds and repeat if necessary] Yes!

[point to the knee, hat, sail, nose, say, ship, eat]

What is it? [children says word] Say the sounds in [word]. [Repeat the sounds in the word until group does it independently.]

[Call on individual children to say the sounds in each picture, one word each]

5. Let's play a **guessing game**. Raise your hand if you know the word I'm saying: [individual turns. Call on 2 children]

n--ose.	h (pause) at.	c -- at
h (pause) e.	sh -- ake.	s -- ay
s -- it	h (pause) ill	sh -- ip
p (pause) ack.	t -- ie	
s -- ign	s -- ail	

6. Now we'll use the **Magic Squares!!**

[show the two-rectangle form]

We're going to say **--sail--** in 2 parts. First, touch the squares like this:

s-- [touch the first box] **ail** [touch the next box]. Repeat two times. Who can say the parts in --sail-- with the magic squares? [Call on a child]

[Go through today's words; give one individual turn to each child]

WOW!! You're good at sound games. [_____] we'll play again.
It's important that we go back *very quietly, so let's tiptoe....*

Global

1. Today we have a **secret word.** I'll say it in parts. If you can put the parts together, you can guess the secret word. Here it is: **c -- at. What word is that?** [*cat]* [If children don't say cat, Tell them: Cat. Listen again: c -- at. What word? [*cat]*] Yes, cat. Here's a picutre of a cat.

2. Who can **rhyme** with cat? [Call on a student. Praise correct answers. If child is wrong say: Rhyming words sound the same at the end. Cat has "at" at the end, so what other words have 'at' at the end? Let's see: mat, fat, cat. Who can rhyme with cat? [Children can use your words, or make up one of their own.]

3. Cat is the secret word today. What's the **first sound** in cat? [*c*] [If no response, or wrong response, say: Cat starts with /c/. What's the first sound in cat? [c]

4. Yes! Cat starts like /c/. Say that sound. *[c]* **What else starts with /c/?** [If no response, say:] /c/ -- /c/ What starts like cat? /c/ cardboard, catalog, candy cane. Who can say a word that starts like /c/?

5. [Bring out your magic squares] Let's **say two sounds in cat:** [touch the first box] /c/ -- [touch the second box] --at. Do it with me. [You touch the squares as children say the sounds with you] c -- at. Who can say the sounds in cat? [call on 2 children]

6.. Okay!! Now let's say some words that **rhyme. Do you know Sing a Song of Sixpence?**

Sing it with me if you know it:

Sing a song of sixpence, a pocket full of rye
Four and twenty blackbirds, baked in a pie.
When the pie was opened, the birds began to sing.
Now wasn't that a dainty dish to set before the king?

[Sing it twice, emphasizing the rhymes.] Did you hear some of the words that rhymed?

Sing a song of sixpence, a pocket full of **rye**
Four and twenty blackbirds, baked in a **pie.**

What rhymes with rye? Yes, **pie and rye** rhyme. They sound the same at the end.

When the pie was opened, the birds began to **sing.**
Now wasn't that a dainty dish to set before the **king?**
What rhymes with king? Yes!! sing and king rhyme.

Let's sing it one more time (emphasize rhyme, call on 2 more children to rhyme with rye and sing)

7. Now let's look at some **pictures.** [show board from lesson #2]
   First, we'll **name the pictures.** Here's a nose. What's that? [touch the nose again] [*nose*]
   Here's a hat [touch it]. What's that? [*hat*] Yes, the hat.
   [Repeat for: sit, pack, he, lake, hill]
   Now I'll **say these words in parts.** Listen and guess what word I'm saying:
   l -- ake. What word is that? [*lake*] If no response, say: I'm saying lake in a funny way. Put these sounds together: l -- ake. What word is that? [*lake*]
   [Repeat for h -- at, p -- ack, n -- ose, h -- ill, s -- it, h -- e]

That was fun to play with you today!! I'll be back on _____ and we'll play again.

Lesson 5:

Blending/Segmenting

1. **Blend**: Let's put sounds together to make words.
[Show children the **picture board**, Lesson 5] First, let's name the pictures: [touch each picture as you name it] Here's a ski. What's that? [*a ski]*. [Repeat for: sit, sail, kiss, shake, lake, pack, sky]

2. I'll say the sounds in these words. Let's see if you can hear the word these sounds make:
k -- iss What word is that? *[kiss]* [If kids don't repond, say: kiss. Listen again: k -- iss. What word is that?] Can you find the picture? [to an individual child:] Show me the picture of k -- iss.
s -- it. What word is that? *[sit*] Can you find the picture? Listen again. s -- it Find the picture.
s (pause) ail. What word is that? [*sail]* Who can find the picture?
sk -- i What word is that? [*ski]* Who can find the picture?
sh -- ake. [*Shake*]
l -- ake. [*lake*] s(pause) it. [*sit]*
sk -- y. [*sky*] p -- ack [*pack*]

3. [Put the pictures down]. I'll say some sounds. If you put them together, you'll make a word.
s -- it. What word is that? s -- it. [*sit*] /If no response, say: sit. Listen again: S-- it. what word is that?]
s (pause) ail.
sk -- i
sk -- y p -- ack
l -- ake sh -- ake
k -- iss

4 [Put the pictures up again.] Let's use the **Magic Squares** to **say the sounds** in these words. [show the two-rectangle form]
The first square stands for the frist sound. Just listen. [slide across squares while saying **sail.]**
We're going to say **--sail--** in 2 parts. **S**-- [touch the first box] **ail** [touch the next box]. **Repeat two times**. Who can say the parts in --sail-- with the magic squares? [Call on a child]
Today, I have magic squares for each of you. When you get yours, touch the small box. [pass out squares] Put your finger on the small box. That box stands for the /s/ in **sail**. [*s*] Yes, /s/. Say /s/ and touch the first box.
Now we'll do two sounds in sail. Watch me [touch each box and say s -- ail] Do it with me. [Children touch and say s --ail]
[***Don't worry too much about mistakes on this part today; just encourage children to try it out.]

[Go through today's words using the magic squares]: Let's do the sounds in **kiss.** Touch the first box. k -- iss. Do it with me. k -- iss. Yes, do the sounds in kis. K -- iss.

Say the sounds in sit...[repeat for ski, sky, shake, lake, pack]

I like those Magic Squares. We'll play with them again next time. When I call on you, tell me the sounds, and you can go back to class. [Give each child one turn, and help him/her touch the squares is needed: shake, kiss, sit, pack, lake, ski]

Global

1. Today we have a **secret word.** I'll say it in parts. If you can put the parts together, you can guess the secret word. Here it is: **p -- ack. What word is that?** [*pack]* [If children don't say pack, Tell them: Pack. Listen again: p -- ack. What word? [*pack]*] Yes, pack.

2. Who can **rhyme** with pack? [Call on a student. Praise correct answers. If child is wrong say: Rhyming words sound the same at the end. Pack has "ack" at the end. What other words have 'ack' at the end? Let's see: mack, back, sack. Who can rhyme with pack? [Children can use your words, or make up one of their own.]

3. Pack is the secret word today. What's the **first sound** in pack? [*p*] [If no response, or wrong response, say: Pack starts with /p/. What's the first sound in pack? [*p*]

4. Yes! Pack starts like /p/. Say that sound. *[p]* **What else starts with /p/?** [If no response, say:] /p/ -- /p/ What starts like pack? /p/ Peter, pie, pickle. Who can say a word that starts with /p/?

5. [Bring out your **magic squares**] Let's say two sounds in pack [touch the first box] /p/ -- [touch the second box] --ack. Do it with me. [You touch the squares as children say the sounds with you] p -- ack. Who can say the sounds in pack? [call on 2 children]

6.. Okay!! Now let's say some words that **rhyme.** Do you know **October**, from Chicken Soup with Rice?

Say it with me if you know it:

In October I'll be host
To witches, goblins and a ghost
I'll seve them chicken soup on toast.
Whoopy once, whoopy twice, whoopy chicken soup with rice.

[Sing it twice, emphasizing the rhymes.] Did you hear some of the words that rhymed?

In October I'll be <u>host</u>
To witches, goblins and a <u>ghost</u>

What rhymes with host? Yes, **host and ghost** rhyme. They sound the same at the end.

I'll serve them chicken soup on <u>toast.</u>

What else rhymes with ghost? [*toast]* Can you think of other words that rhyme with ghost and toast?

Whoopy once, whoopy twice, whoopy chicken soup with rice.

What rhymes with <u>twice</u>? Yes!! **rice and twice** rhyme.

Let's sing it one more time (emphasize rhyme, call on 2 more children to pick out rhyming words)

7. Now let's **look at some pictures.** [show board from lesson #3]
   First, we'll name the pictures. Here's a cat. What's that? [touch the cat again] [*cat]*
   Here's a sail[touch it]. What's that? [*sail* Yes, sail.
   [Repeat for: shake, knee, tie, sign]
   Now I'll say these words in parts. Listen and guess what word I'm saying:
   s--ign. What word is that? [*sign]* If no response, say: I'm saying lake in a funny way. Put these sounds together: s -- ign. What word is that? [*sign*]
   [Repeat for kn -- ee, sh -- ake, c -- at, s -- sail, h -- at, t -- ie]

If time, add: (a) Repeat each word above, asking: **What's the first sound?**
(b) **Use Magic Squares** to segment each word.

That was fun to play with you today!! I'll be back on _____ and we'll play again.
We're going back to class now. [Tell them what they did well: They listened, worked hard, were polite to each other....whatever]
It's important that we go back *very quietly, so let's tiptoe....*

Lesson 6:

Blending/Segmenting

1. Let's put sounds together to make words.

[Show children the **picture board**, Lesson 6] First, let's **name the pictures**: [touch each picture as you name it] Here's a hat. What's that? [*a hat*]. [Repeat for: cat, pack, she, lick, nose, ship, eat, knee]

2. I'll **say the sounds** in these words. Let's see if you can hear the word these sounds make:
   ea (pause) t. What word is that? *[eat]* [If kids don't repond, say: Eat. Listen again: ea -- t. What word is that?] Can you find the picture? [to an individual child:] Show me the picture of ea (pause) t.
   sh (pause) ip What word is that? *[ship*] Can you find the picture? Listen again. sh (pause) ip . Find the picture.
   c (pause) at What word is that? [*cat]* Who can find the picture?
   kn (pause) ee. [*knee]*
   n -- ose. [*nose*]
   h -- at [*hat]*
   p -- ack sh -- e l -- ick

3 [Put the pictures down]. I'll say some sounds. If you put them together, you'll make a word.
   ea -- t. What word is that? ea -- t [*eat]* /If no response, say: Eat. Listen again: Ea -- t. what word is that?]
   h (pause) at What word is that? h -- at. [*hat]*
   kn (pause) ee.
   sh -- ip c -- at
   sh -- e p -- ack
   l -- ick n -- ose

4. Let's use the **Magic Squares** to say the sounds in these words. [show the two-rectangle form]

The first square stands for the first sound. Just listen. [slide across squares while saying **ship.**]

We're going to say **--ship--** in 2 parts. **Sh**-- [touch the first box] **ip** [touch the next box]. **Repeat two times.** Who can say the parts in --ship-- with the magic squares? [Call on a child]

I'll give each of you magic squares. When you get yours, touch the small box. [pass out squares] Put your finger on the small box. That box stands for **/sh/.** Say /sh/ and touch the first box.

Now we'll do 2 sounds in ship. Watch me [touch each box and say sh -- ip] Do it with me. [Children touch and say sh -- ip]

[Go through today's words using the magic squares]: Let's do the sounds in **cat.** Touch the first box. c -- at. Do it with me. c -- at. Yes, do the sounds in cat.. c -- at.

Say the sounds in she..[repeat for lick, nose, eat, hat, knee, pack]

I like those Magic Squares. We'll play with them again next time. When I call on you, tell me the sounds, and you can go back to class. [Give each child one turn, and help him/her touch the squares is needed:lick, nose, eat, hat, knee, pack

Global

1. Today we have a **secret word.** I'll say it in parts. If you can put the parts together, you can guess the secret word. Here it is: **sh -- ake. What word is that?** [*shake]* [If children don't say shake, Tell them: Shake. Listen again: sh -- ake. What word? [*shake]*]
   Yes, shake.

2. Who can **rhyme** with shake? [Call on a student. Praise correct answers. If child is wrong say: Rhyming words sound the same at the end. Shake has "ake" at the end. What other words have 'ake' at the end? Let's see: make, sake, bake--. Who can rhyme with shake? [Children can use your words, or make up one of their own.]

3. Shake is the secret word today. What's the **first sound** in shake? [*sh*] [If no response, or wrong response, say: Shake starts with /sh/. What's the first sound in shake? [*sh*]

4. Yes! Shake starts like /sh/. Say that sound. *[sh]* **What else starts with /sh/**? [If no response, say:] /sh/ -- /sh/ What starts like sh--ake? /sh/ ship, shout, she. Who can say a word that starts with /sh/?

5. [Bring out your magic squares] Let's **say two sounds in shake** [touch the first box] /sh/ -- [touch the second box] --ake. Do it with me. [You touch the squares as children say the sounds with you] sh -- ake. Who can say the sounds in shake? [call on 2 children]

6.. Okay!! Now let's say some words that **rhyme.** Listen to this poem called:

The Lizard
The lizard is a timid thing
That cannot dance, or fly, or sing;
He hunts for bugs beneath the floor
And longs to be a dinosaur.

Repeat poem, emphasizing rhymes.
Did you hear some of the words that rhymed?

The lizard is a timid thing
That cannot dance, or fly, or sing;

[Repeat: The lizard is a timid **thing**
That cannot dance, or fly, or -- [children say *sing*] What rhymes with thing?
Yes! **Thing and sing** rhyme.

He hunts for bugs beneath the floor
And longs to be a dinosaur.

[Repeat: He hunts for bugs beneath the *floor*
And longs to be a ----- [children say *dinosaur.*] What rhymes with floor? [*dinosaur]*

Yes! Floor, dinosaur. These wortds rhyme.
Let's say it one more time (emphasize rhyme, pausing before the rhyming couplet for kids to say rhyming words)

7. Now let's **look at some pictures.** [show board from lesson #1]
First, we'll name the pictures. Here's a key. What's that? [touch the key again] [*key*]
Here's a [Repeat for: lake, he, she, knee, nose, ship, hill, sail]
(a) Repeat each word above, asking: **What's the first sound**?
(b) Use Magic Squares to segment each word, if time.
That was fun to play with you today!! I'll be back on _____ and we'll play again.
We're going back to class now. [Tell them what they did well: They listened, worked hard, were polite to each other....whatever]

Lesson 7:

Blending/Segmenting

1. Let's put sounds together to make words.
[Show children the **picture board**, Lesson 7] First, let's **name the pictures**: [touch each picture as you name it] Here's a cat.....[ski, he, sit, lake, sail, she sky]

2. I'll **say the sounds** in these words. Let's see if you can hear the word these sounds make:
sk -- y. What word is that? *[sky]* [If kids don't repond, say: Sky. Listen again: sk -- y. What word is that?] Can you find the picture? [to an individual child:] Show me the picture of sk -- y..
c (pause) at What word is that? [*cat]* Who can find the picture?

sh -- e	sk -- i
h -- e	s -- it
l -- ake	s -- ail

3 [Put the pictures down]. I'll say some sounds. If you put them together, you'll make a word.
s -- ail. What word is that? s -- ail [*sail* /If no response, say: Sail. Listen again: S -- ail. what word is that?]

c -- at	sh -- e

sk -- y sk -- i
h -- e s -- it

4. Let's use the **Magic Squares** to **say the sounds** in these words. [show the two-rectangle form]
Just listen. [slide across squares while saying **c--at.**]
We're going to say **--cat--** in 2 parts. **c**-- [touch the first box] **at** [touch the next box]. **Repeat two times.** Who can say the parts in --cat-- with the magic squares? [Call on a child]
I'll give each of you magic squares. When you get yours, touch the small box. [pass out squares] Put your finger on the small box. Watch me [touch each box and say c -- at] Do it with me. [Children touch and say c -- at]
[Go through today's words using the magic squares]: Let's do the sounds in **he.** Touch the first box. h -- e. Do it with me. h --e. Yes, do the sounds in he h-- e.
Say the sounds in she..[repeat for ski, sky, lake, sail, sit]

I like those Magic Squares. We'll play with them again next time. When I call on you, tell me the sounds, and you can go back to class. [Give each child one turn, and help him/her touch the squares is needed: ski, sky, lake, sail, sit, cat.

Global

1. Today we have a **secret word.** I'll say it in parts. If you can put the parts together, you can guess the secret word. Here it is: **s -- ail. What word is that?** [*sail]* [If children don't say sail, Tell them: Sail. Listen again: s -- ail. What word? [*sail]*] Yes, sail.

2. Who can **rhyme** with sail? [Call on a student. Praise correct answers. If child is wrong say: Rhyming words sound the same at the end. Sail has "ail" at the end. What other words have 'ail' at the end? Let's see: mail, pail. Who can rhyme with sail? [Children can use your words, or make up one of their own.]

3. Sail is the secret word today. What's the **first sound** in sail? *[s]* [If no response, or wrong response, say: Sail starts with /s/. What's the first sound in sail? [*s*]

4. Yes! Sail starts like /s/. Say that sound. *[s]* **What else starts with** /s/? [If no response, say:] /s/ -- /s/ What starts like sail? /s/ Silly, salt, Snickers. Who can say a word that starts with /s/?

5. [Bring out your **magic squares]** Let's say two sounds in sail [touch the first box] /s/ -- [touch the second box] --ail. Do it with me. [You touch the squares as children say the sounds with you] s -- ail. Who can say the sounds in sail? [call on 2 children]

6.. Okay!! Now let's say some words that **rhyme.** Listen to this poem called:

The Lion
The lion has a golden mane
And under it, a clever brain.
He lies around and idly roars
And lets the lioness do his chores.

Repeat poem, emphasizing rhymes.
Did you hear some of the words that rhymed?

The lion has a golden mane
And under it, a clever brain.

[Repeat: The lion has a golden mane
And under it, a clever -- [children say *brain*] What rhymes with mane?
Yes! **Brain and mane** rhyme.

He lies around and idly roars
And lets the lioness do his chores.

[Repeat: He lies around and idly roars
And lets the lioness do his ----- [children say *chores*] What rhymes with roars? [chores] **Yes! Chores and roars.** These wortds rhyme.

Let's say it one more time (emphasize rhyme, pausing before the rhyming couplet for kids to say rhyming words)

7. Now let's **look at some pictures.** [show board from lesson #4]
First, we'll name the pictures. Here's a ship. What's that? [touch the ship again] [*ship*]
Here's [Repeat for: eat, knee, cat, say, sit, nose, hat, sail]
Now **I'll say these words in parts.** Listen and guess what word I'm saying: sh -- ip. What word is that? [*ship]* If no response, say: I'm saying ship in a funny way. Put these sounds together: sh -- ip. What word is that? [*ship*]
[Repeat for s -- ail, n -- ose, s -- ay, kn -- ee, ea -- t, c -- at, s -- it, h -- at]

8. Let's find the **first sound!** Think about how these words start: **sail. What's the first sound?**
Repeat for eat, ship, knee, cat, say, sit, nose, hat.

9. Let's **clap the parts!** Washington [Wash-ing-ton], elephant, turtle. Go around group clapping children's names.

That was fun to play with you today!! I'll be back on _____ and we'll play again.

Lesson 8:

Blending/Segmenting

1. Let's put sounds together to make words.

[Show children the **picture board**, Lesson 8] First, let's **name the pictures**: [touch each picture as you name it] Here's a sign.....[say, kick, pan, hill, nose, pack]

2. I'll say the sounds in these words. Let's see if you can hear the word these sounds make:
p -- ack. What word is that? *[pack]* [If kids don't repond, say: Pack. Listen again: p -- ack. What word is that?] Can you find the picture? [to an individual child:] Show me the picture of p -- ack..

s -- ay	
k -- ick	p -- an
h -- ill	n -- ose
s -- ign	

3 [Put the pictures down]. I'll say some sounds. If you put them together, you'll make a word.

k -- ick. What word is that? k -- ick [*kick* /If no response, say: Kick. Listen again: k -- ick. what word is that?]

s -- ign

n -- ose p -- an

s -- ay h -- ill

4. Today we also have a **letter of the day.** [Show children the S]
This is S. Here's the sound it makes: /sssssssss/ Do it with me: [*sssssssss*]
/SSSSSS/ is the first sound you hear in sssssign. Say /sssssss/ [*sssss*]

5. Let's use the **Magic Squares** to **say the sounds** in these words. [show the two-rectangle form]
Just listen. [slide across squares while saying **h--ill.**]
We're going to say **--hill--** in 2 parts. **h**-- [touch the first box] **ill** [touch the next box]. **Repeat two times.** Who can say the parts in --hill- with the magic squares? [Call on a child]
I'll give each of you magic squares. When you get yours, touch the small box. [pass out squares] Put your finger on the small box.
Now we'll do two sounds in hill. Watch me [touch each box and say h -- ill] Do it with me. [Children touch and say h -- ill]
[Go through today's words using the magic squares]: Let's do the sounds in .[repeat for kick, say, pan, nose, pack, sign]

I like those Magic Squares. We'll play with them again next time. When I call on you, tell me the sounds, and you can go back to class. [Give each child one turn, and help him/her touch the squares is needed: kick, say, pan, nose, pack, sign].

Global

1. Today we have a **secret word.** I'll say it in parts. If you can put the parts together, you can guess the secret word. Here it is: **s -- ign. What word is that?** [*sign]* [If children don't say Sign, Tell them: Sign. Listen again: **s -- ign**. What word? [*sign]*] Yes, Sign.

2. Who can **rhyme** with Sign? [Call on a student. Praise correct answers. If child is wrong say: Rhyming words sound the same at the end. Sign has "ign" at the end. What other words have 'ign' at the end? Let's see: mine, pine. Who can rhyme with Sign? [Children can use your words, or make up one of their own.]

3. Sign is the secret word today. What's the **first sound** in Sign? [*s*] [If no response, or wrong response, say: Sign starts with /s/. What's the first sound in Sign? [*s*]

4. Yes! Sign starts like /s/. Say that sound. *[s]* **What else starts with /s/?** [If no response, say:] /s/ -- /s/ What starts like Sign? /s/ Salad, sip, Seattle. Who can say a word that starts with /s/?

5. [Bring out your **magic squares**] Let's say two sounds in Sign [touch the first box] /s/ -- [touch the second box] --ign. Do it with me. [You touch the squares as children say the sounds with you] s -- ign. Who can say the sounds in Sign? [call on 2 children]

6.. Okay!! Now let's say some words that **rhyme.** Listen to this poem called The Canary. Do you know what a canary is? [A little bird that some people have as pets]:

The Canary
The song of canaries
Never varies
And when they're moulting
They're pretty revolting!

Repeat poem, emphasizing rhymes.
Did you hear some of the words that rhymed?

The song of canaries
Never varies

[Repeat: The song of canaries
Never -- [children say *varies*] What rhymes with canaries?
Yes! **Varies and canaries** rhyme.

And when they're moulting
They're pretty revolting!

[Repeat: And when they're moulting
They're pretty ---- [children say *revolting*] What rhymes with moulting?
[revolting] **Yes! Moulting, revolting.** These wortds rhyme.
Let's say it one more time (emphasize rhyme, pausing before the rhyming couplet for kids to say rhyming words)

7. Today we also have a **letter of the day.** [Show children the **S**]
This is S. Here's the sound it makes: /sssssssss/ Do it with me: [*sssssssss*]
/SSSSSS/ is the first sound you hear in sssssign. What's the first sound in sign? [*sssss*]
What else starts like /sssss/?

Now let's **look at some pictures.** [show board from lesson #5]
First, we'll name the pictures. Here's a lake. What's that? [touch the lake again] [*lake]*
Here's a [Repeat for: kiss, sit, ski, shake, sail, pack, sky]
Can you **find some pictures that start with /ssssss/?** [*sit, ski, sail, sky]*

8..**Do first sound and (If time) Magic Squares with above words.**
That was fun to play with you today!! I'll be back on _____ and we'll play again.
It's important that we go back *very quietly, so let's tiptoe....*

Lesson 9:

Blending/Segmenting

1. Today we're going to play some sound games. Let's put sounds together to make words.
[Show children the **picture board,** Lesson 9] First, let's name the pictures: [touch each picture as you name it] Here's a lake What's that? [*a lake*]. [Repeat for: sit, sail, eat, knee, cat, sit]
I'll say the sounds in these words. Let's see if you can hear the word these sounds make:

ea (pause) t. What word is that? *[eat]* [If kids don't repond, say: Eat. Listen again: ea -- t. What word is that?] Can you find the picture? [to an individual child:] Show me the picture of ea (pause) t.

s (pause) ail. What word is that? [*sail]* Who can find the picture?

c (pause) at What word is that? [*cat]* Who can find the picture?

kn (pause) ee. [*knee]*

s(pause) it. [*sit]*

2. [Put the pictures down]. I'll say some sounds. If you put them together, you'll make a word.

ea -- t. What word is that? ea -- t [*eat]* /If no response, say: Eat. Listen again: Ea -- t. what word is that?]

kn (pause) ee.	c -- at
s (pause) ail.	l -- ake

3. **[Hold up the letter "S"]** Remember this letter? What sound does it make? [*ss*]

Yes, /ss/. When you hear /s/ in words, it's usually this letter that you hear.

Let's use /s/ in the magic squares. **[Show children the set of 3 magic squares]** I'll say the sounds in **sail:**

[put the S in the first box] /s/ -- ai--- l.

/s/ --ai -- l Do it with me. [*s --ai-- l].*

Let's say all the parts in **Sit. [put S in the first box]. s -- i -- t.** Do it with me. [*s -- i -- t]*

Let's say all the parts in **sign.** [*s -- ig -- n*]

4. [Hold the Magic Squares; put down the s.] Let's say all the **sounds** in cat.

c -- a -- t. Say the sounds in cat. [*c -- at -- t]* [Tell children the sounds and repeat if necessary] Yes!

[Repeat for sail, nose, ship]

[Put magic squares down} Say **eat.** Let's do the sounds in eat. Ea - t. Do the sounds in Eat with me. Ea--t.

Do the sounds in knee. Kn -- ee.

5. Hold up the picture board. Call on individual children to say the sounds in each picture, one word each.

6. Let's play a **guessing game.** Raise your hand if you know the word I'm saying: [individual turns. Call on 1 child per word]

n--o--se.	h --a--t.	c -- a--t
h -- e.	sh -- a--ke.	s -- ay
s -- i--t	h--i--ll	sh -- i--p
p --a--ck.	t -- ie	
s -- i--gn	s -- ai--l	

6. Now we'll use the **Magic Squares!!**

[Pass out the three-rectangle forms, and guide children through practice on a few words.] [Collect forms]

It's important that we go back *very quietly, so let's tiptoe....*

Global

1. Ready for the **secret word**? I'll say it in parts. If you can put the parts together, you can guess the secret word. Here it is: **s -- it. What word is that?** [*sit]* [If children don't say pack, Tell them: Sit. Listen again: **s -- it.** What word? [*sit]*]
   Yes, Sit.

2. Who can **rhyme** with Sit? [Call on a student. Praise correct answers. If child is wrong say: Rhyming words sound the same at the end. Sit has "it" at the end. What other words have 'it' at the end? Let's see: fit, mitt. Who can rhyme with Sit? [Children can use your words, or make up one of their own.]

3. Sit is the secret word today. What's the **first sound** in Sit? [*s*] [If no response, or wrong response, say: Sit starts with /s/. What's the first sound in Sit? [*s*]

4. Yes! Sit starts like /s/. Say that sound. *[s]* What else **starts with** /s/? [If no response, say:] /s/ -- /s/ What starts like Sit? /s/ Sock, sand. Who can say a word that starts with /s/?

5. What's the **last sound in sit**? Say it and listen for the last sound. Siiii**t. /t/ is the last sound. Say the last sound in sit.**

6. [Bring out the **set of 3 magic squares**] Let's say all the sounds in Sit [touch the first box] /s/ -- [touch the second box] --i-- [touch the last box --t--. /t/ is the last sound, so it goes in the last square. Do it with me. [You touch the squares as children say the sounds with you] s -- i -- t. Who can say all the sounds in Sit? [call on 2 children]

7. Let's look at this letter. [Show children the S] This is S. Here's the sound it makes: /sssssssss/ Do it with me: [*sssssssss*]
/SSSSSS/ is the first sound you hear in ssssssign. What's the first sound in sign? [*sssss*]
What's the first sound in **Sit?** /sssssss/
[Hold up the Magic Squares] /sssssss/ goes here. [Put s in the first square]
[Touch the s] /s/ [touch the middle square] --i-- [touch the last square [t]
Do it with me. [Touch the s] /s/ [touch the middle square] --i-- [touch the last square [t]
By yourselves [Touch the s] /s/ [touch the middle square] --*i*-- [touch the last square *[t]*

8. Okay!! Now let's say some words that **rhyme**. Listen to this poem:

The Cats of Kilkenny
There once were two cats of Kilkenny
Each thought there was one cat too many.
So they fought and they fit
And they scratched and they bit
Till, excepting their nails
And the tips of their tails
Instead of two cats, there weren't any!!

Repeat poem, emphasizing rhymes.
Did you hear some of the words that rhymed?
There once were two cats of **Kilkenny**
Each thought there was one cat too **many.**
[Repeat: There once were two cats of Kilkenny

Each thought there was one cat too -- [children say *many]* What rhymes with Kilkenny?

Yes! **Many, Kilkenny.** They rhyme.

So they fought and they **fit**
And they scratched and they **bit**

[Repeat: So they fought and they fit
And they scratched and they --- [children say *bit*] What rhymes with bit?
[fit] **Yes! Bit, fit.** These wortds rhyme.

Till, excepting their nails
And the tips of their tails

[Repeat: help children with the rhyme]

Let's say it one more time (emphasize rhyme, pausing before the rhyming couplet for kids to say rhyming words)

8. Now let's look at some pictures. [show board from lesson #6]
First, we'll name the pictures. [cat, pack, she, lick, nose, ship, eat, hat, knee]
Now I'll say these words in parts. Listen and guess what word I'm saying:
c -- a--t, p -- a--ck, sh -- e, l -- i--ck, kn -- ee, ea -- t, h -- a--t, sh -- i--p, n -- o--se

9. **If time: Do first sound and Magic Squares with above words.**

Lesson 10:

Blending/Segmenting Group

1. Let's put sounds together to make words.
[Show children the **picture board**, Lesson 10] First, let's name the pictures: [touch each picture as you name it] Here's a hat. What's that? [*a hat*]. [Repeat for: pat, he, knee, sail, ski, nose, snake]
I'll say the sounds in these words. Let's see if you can hear the word these sounds make:
s -- ai --l. What word is that? [*sail]* Who can find the picture?
kn-- ee. [*knee]*
Repeat for s--k--i, p--a--t, h--e, n--o--se, sn--a--ke, h--a--t.
[Put the pictures down]

2. Introduce B-ob, the hand puppet.
B-o-b, will you help? [BB]: I'--ll t-r-y.
h-a-t. [*hat]*
kn -- ee.
sh -- i--p c -- a--t
s -- ai--l. s--k--i
p --a--t

3. Remember this letter? [show S] What sound does it make? Yes, /s/.

4. Look at this letter. [Show children the T] This is T. Here's the sound it makes: /t/ Do it with me: [*t]*
/t/ is how Tom starts. Say /t/ [*t*]

Let's do the sounds in Tip.

[Hold up the 3 Magic Squares] /T/ goes here. [Put t in the first square]
[Touch the T] /t/ [touch the middle square] --i-- [touch the last square [p]
Do it with me. [Touch the t] /t/ [touch the middle square] --i-- [touch the last square [p]
By yourselves [Touch the t] [t/ [touch the middle square] --*i*-- [touch the last square *[p]*

5. Let's play a **guessing game.** Raise your hand if you know the word I'm saying: [individual turns. Call on 2 children]

n--o--se.	h --a--t.		c -- a--t	
h -- e.	sh -- a--ke.		s -- ay	s -- k -- i
s -- i--t		h -- i--ll	sh -- i--p	
p-- a--ck.		t -- ie	sn--a--ke	
s -- i--gn		s -- ai--l		

6. Let's say these words slowly: nose [nnnooossse], sail, lake, shy

7. Now we'll use the **Magic Squares!!**
   [show the 3-rectangle form]
   We're going to say **--sail--** in 3 parts. First, touch the squares like this:
   s-- [touch the first box] **ai--**[touch the next box]. **l.** [touch the last box. Repeat two times. Who can say all the parts in --sail-- with the magic squares? [Call on a child]
   [Touch the 1st box] What letter goes here? [s] [Use S in the first square on sail, ski, last square on nose]
   Use Magic Squares for all of today's words. [tip, tap, take, *s--k--i, p--a--t, h--e, n--o--se, sn--a--ke, h--a--t.]*

If time, [Put the pictures up again.] Let's say the **sounds** in these words.
[point to the picture of the hat]. What is this? *[hat].* Yes, it's a hat. I can say the sounds in hat: h -- a-- t. Say the sounds in hat. [*h -- a--t]* [Tell children the sounds and repeat if necessary] Yes!
[point to the knee, snake, ski, sail, nose, he, pat]
[Call on individual children to say the sounds in each picture, one word each]

WOW!! You're good at sound games. [_____] we'll play again.
It's important that we go back *very quietly, so let's tiptoe....*

Global

1. Today we have a secret word. I'll say it in parts. If you can put the parts together, you can guess the secret word. Here it is: **t -- a-- ke. What word is that?** [*take]* [If children don't say pack, Tell them: Take. Listen again: T--a--ke. What word? [Take/ Yes, Take.

2. Who can **rhyme** with Take? [Call on a student. Praise correct answers. If child is wrong say: Rhyming words sound the same at the end. Take has "ake" at the end. What other words have 'ake' at the end? Let's see: make, bake, snake. Who can rhyme with Take? [Children can use your words, or make up one of their own.]

3. Take is the secret word today. What's the **first sound** in Take? [*t*] [If no response, or wrong response, say: Take starts with /t/. What's the first sound in Take? [*t*]

4. Yes! Take starts like /t/. Say that sound. *[t]* What else starts with /t/? [If no response, say:] /t/ -- /t/ What starts like Take? /t/ Top, Tim, tie. Who can say a word that starts with /t/?

5. Look at this letter. [Show children the T] This is T. Here's the sound it makes: /t/ Do it with me: *[t]*
/t/ is the first sound you hear in Tom. What's the first sound in Tom? [*t*]
What's the first sound in **Tip?** /T/ Let's do the sounds in Tip.
[Hold up the 3 Magic Squares] /T/ goes here. [Put t in the first square]
[Touch the] /t/ [touch the middle square] --i-- [touch the last square [p]
Do it with me. [Touch the t] /t/ [touch the middle square] --i-- [touch the last square [p]
By yourselves [Touch the t] [t/ [touch the middle square] --*i*-- [touch the last square *[p]*

6. Let's say all the sounds in take [touch the first box] /t/ -- [touch the second box] --a-- [touch the last box] --ke. . Do it with me. [You touch the squares as children say the sounds with you] T -- a -- ke.. Who can say the sounds in take? [call on 2 children]

7. What's the **last sound in take**? [point to the last box] /k/

8.. Okay!! Now let's say some words that **rhyme.** Listen to this poem:

The Crocodile
How doth the little crocodile
Improve his shining tail
And pour the waters of the Nile
On every shining scale

Repeat poem, emphasizing rhymes.
Did you hear some of the words that rhymed?

How doth the little crocodile
Improve his shining tail
And pour the waters of the Nile
On every shining scale

[**Repeat twice**: How doth the little crocodile
Improve his shining tail
And pour the waters of the Nile
On every shining scale

Again: How doth the little crocodile
Improve his shining tail
And pour the waters of the -- [children say Nile]
On every shining-- [children say *scale*]
What rhymes with Nile? [*crocodile*] **Yes!** crocodile, **Nile.** These wortds rhyme.
What rhymes with tail? [*scale*]
Let's say it one more time (emphasize rhyme, pausing before the rhyming couplet for kids to say rhyming words)

9. Now let's **look at some pictures.** [show board from lesson #7]
First, we'll name the pictures. Here's a lake. What's that? [touch the lake again] *[lake]*

Here's a [Repeat for: sky, cat, he, ski, sit, sail, she]
Can you **find some pictures that start with [Show the letter s] /ssssss/?** *[sit, ski, sail, sky]*

10. Now B-ob will say these words in parts. Listen to B-ob and guess what word he's saying:
l -- a-- ke. What word is that? [*lake*] If no response, say: B-ob is saying lake in a funny way. Put these sounds together: l -- a-- ke. What word is that? [*lake*]
[Repeat for s--k--y, c--a--t, h--e, s--k--i, s--i--t, s--ai--l, sh--e]

11. **If time: Do first sound and Magic Squares with above words.**
That was fun to play with you today!! I'll be back on _____ and we'll play again. It's important that we go back *very quietly, so let's tiptoe..*

Lesson 11:

Blending/Segmenting

1. Today's perfect letter is p. [show the p]. P sounds like /p/. Say /p/ [*p*]. Here's some words that start with /p/. Pipe, pumpkin. Say pipe. [*pipe*] Could you feel your mouth say /p/? Say pumpkin. [*pumpkin*] Did you hear the /p/ sound?
2. What word is this: p - a - t n - a - p
p - i - n - i - p

3. Show Magic Squares (**don't pass them out today**)
Say all the sounds in pat: [hold P in the first square] p-a-t
Say all the sounds in nap: [hold P in the last square] n-a-p
Say all the sounds in pin: [hold P in the first square]
Say all the sounds in lip: [hold P in the last square]

4. Today were going to play "Blend It." I'll show you how: I'll draw a card, and say the sounds in the picture [show one of the pictures]. When it's your turn, you'll say the word the sounds make. If you do it right, you get the card. Let's try it. [Sue], you'll be first. I'll say the sounds in this picture [draw one, but don't let anyone see it but you], and you'll try to blend them. If you can say the name of the picture, you get the card. [T draws a cat. T says c - a - t. Sue, what word? [Repeat *once* if necessary] If Sue says "cat", show everyone the card and give it to Sue. The teacher draws a new picture for the next child to blend. Go around in a circle, and play for about 7-10 minutes.]

5. Let's look at some letters. Here's today's new letter. [show the p] What is it? [p] Yes, it's p. What sound does it make? */p/*

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? */ssss/*
And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make?

Global

1. Today's perfect letter is p. [show the p]. P sounds like /p/. Say /p/ [*p*]. Here's some words that start with /p/. Pipe, pumpkin. Say pipe. [*pipe*] Could you feel your

mouth say /p/? Say pumpkin. [*pumpkin*] Did you hear the /p/ sound? Think of words that start like /p/. [call on individuals **if they volunteer. To correct errors, rhyme with their word, but start with /p/.** Example: Child says "tank". Teacher says, "No, but pank starts with /p/. p -- ank. pank. Everybody, say pank. [*pank*]

2. Have you heard this tongue twister? Peter Piper picked a peck of pickled peppers. It's full of the letter p. Listen for the /p/: Peter Piper picked a peck of pickled peppers. Say it with me. [*Peter Piper picked a peck of pickled peppers.*] Did you hear the /p/? Let's say it again: Peter Piper picked a peck of pickled peppers. [*Peter Piper picked a peck of pickled peppers.*]

3. Today were going to play **"Blend It."** I'll show you how: I'll draw a card, and say the sounds in the picture [show one of the pictures]. When it's your turn, you'll say the word the sounds make. If you do it right, you get the card. Let's try it. [Sue], you'll be first. I'll say the sounds in this picture [draw one], and you'll try to blend them. If you can say the name of the picture, you get the card. [T draws a cat. T says c - a - t. Sue, what word? [Repeat *once* if necessary] If Sue says "cat", show everyone the card and give it to Sue. The teacher draws a new picture for the next child to blend. Go around in a circle, and play for about 7-10 minutes.]

4. Let's look at some letters. Here's today's new letter. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?
And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?/t/

Lesson 12:

Blending/Segmenting

[Note: Use hand puppet as appropriate]

1. Today's letter is a. [show the a]. A sounds like /a/. Say /a/ [*a*]. Here's some words that start with /a/. aaapple, aaaambulance. Say apple. [apple] Could you feel your mouth say /a/? Say *aa*mbulance. [*aa*mbulance] Did you hear the /a/ sound?

2. [only the teacher uses squares here] Let's use some letters to say the sounds in words. Here are some words with 2 sounds. [show 2 squares]. Ash. Say it: [*ash*]. [Put the a in the first square. Here's /a/. What goes here [touch next square] in ash? [*sh*] Yes! a -- sh. Say it with me: a -- sh. [touch each square, holding the a in the first square].

3. At. Say it: [At]. [Put the a in the first square. Here's /a/. What goes here [touch next square] in at? [*t*] Yes! a -- t. Say it with me: a -- t. [touch each square, holding the a in the first square].

4. An. Say it: [An]. [Put the a in the first square. Here's /a/. What goes here [touch next square] in An? [*n*] Yes! a -- n. Say it with me: a -- n. [touch each square, holding the a in the first square].

5. [only the teacher uses squares here] Sometimes /a/ goes in the middle of a word. [Show the 3 square form. Listen to this word: cat. Say it: [*cat*] Say all the sounds in cat. c -- a -- t. [touch each square]. c - aaaa -- t. What goes here? /a/ So we can put the /a/ here in the middle. [Touch each square: /c/ -- /aaa/ -- t] Do the sounds with me [touch each square, holding a in the middle. /c/ -- /aaa/ -- t]

6. Here's another word: pack. Say it: [*pack*] Say all the sounds in pack. p -- a -- ck. [touch each square]. p -- a -- ck. Where does the a go? /a/ [Put the a in the middle square]: P -- a -- ck]

7. Let's say words slowly: leap [llleeeap], sack, shin, sap

8. Who can say all the sounds in leap? [show the 3 Magic squares]

Demonstrate segmenting: leap, pack, sack, shin, tape, ship, sail, sap, hill. **Then Pass out the 3 Magic Squares and do** leap, pack, sack, shin, tape, ship, sail, sap, hill.

9. Now, raise your hand if you can guess what word I'm saying:

sh - i - n, s - ai -, l - ea - p, s - a - ck, t - a - pe, s - a - p, h - i - ll.

10. Let's look at some letters. Here's a letter. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make?

Global

[Note: Use hand puppet as appropriate]

1. Today's letter is a. [show the a]. A sounds like /a/. Say /a/ [*a*]. Here's some words that start with /a/. aaapple, aaaambulance. Say apple. [apple] Could you feel your mouth say /a/? Say *aa*mbulance. [*aa*mbulance] Did you hear the /a/ sound? Think of words that start like /a/. [call on individuals **if they volunteer. To correct errors, tell a word that starts with /a/.** Example: Child says "tank". Teacher says, "No, but at starts with /a/. a -- t. at. Everybody, say at. [*at*]

2. Here's a sentence with lots of /a/ words: Andrew and Alice asked if Annie's active animals were angry. It's full of the letter a. Listen for the /a/: Andrew and Alice asked if Annie's active animals were angry. Did you hear the /a/? Listen again: Andrew and Alice asked if Annie's active animals were angry. Which words started with /a/?

3. [only the teacher uses squares here] Let's use some letters to say the sounds in words. Here are some words with 2 sounds. [show **2** squares]. Ash. Say it: [*ash*]. What's the first sound in ash? [*a*] [Put the a in the first square. Here's /a/. What goes here [touch next square] in ash? [*sh*] Yes! a -- sh. Say it with me: a -- sh. [touch each square, holding the a in the first square].

4. At. Say it: [At]. [Put the a in the first square. Here's /a/. What goes here [touch next square] in at? [*t*] Yes! a -- t. Say it with me: a -- t. [touch each square, holding the a in the first square].

5. An. Say it: [An]. [Put the a in the first square. Here's /a/. What goes here [touch next square] in An? [*n*] Yes! a -- n. Say it with me: a -- n. [touch each square, holding the a in the first square].

6. [only the teacher uses squares here] Sometimes /a/ goes in the middle of a word. [Show the **3 square form**. Listen to this word: cat. Say it: [*cat*] Is /a/ the first sound in cat? [no]. What's the first sound? [c] So /c/ goes here. [touch the first square]. c - aaaat. What's the next sound in cat? /a/ So we can put the /a/ here in the middle. [Touch each square: /c/ -- /aaa/ -- t] Do the sounds with me [touch each square, holding a in the middle. /c/ -- /aaa/ -- t]

7. Here's another word: pack. Say it: [*pack*] What's the first sound in pack? [*p*]. Touch the first box. /p/ goes here. What's the next sound in pack? /a/ [Put the a in the middle square]: P -- a -- ck]

8. Raise your hand if you can guess our secret word of the day. Here it is: l -- ea -- p. What's the secret word?

9. What's the first sound in leap? [*ll*]

10. Let's say leap without the /lll/. What's left? --eap. [If kids have trouble, show the Magic squares: l -- ea -- p. Now don't say /l/. What's left?

11. Who can rhyme with leap? [If kids have trouble rhyming, use the 2 magic squares this way: Here's leap [touch the first square] ll --[touch the next square] --eap. This square says -eap. All we have to do to rhyme is change the first sound. Instead of /l/ [touch the first square] say mmmm. mmm--eap. Meap. Meap rhymes with leap. Now change the first sound again. [call on a child to give a new first sound] _____-- eap. [say the new word]

12. Say the first sound in leap: /l/. What else starts like leap? [call on volunteers] Lean Lizards like to leap!

13. Who can say all the sounds in leap? [show the 3 Magic squares]

14. Let's look at some letters. Here's a letter. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?
[If time, pass out the 3 Magic Squares to segment: leap, pack, sack, shin, tape, ship.]/t/

Lesson 13:

Blending/Segmenting

K Today's crazy letter is k. [show the k].
K sounds like /k/. Say /k/
Here's some words that start with /k/. **Key, kite.**
Say key. [key] Could you feel your mouth say /k/?
Say kite. [*kite*] Did you hear the /k/ sound?

P Who remembers this letter?. [show the p] What is it?
Yes, it's p. What sound does it make?

S And here's another letter. [show s] What is it?
Yes, it's s. What sound does it make? /ssss/

T And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

A What's this? [show a]. What sound?

K What's this? [show k] What sound?

Say the Sounds Game: Today were going to play "Say the Sounds." I'll show you how: You'll draw a card, and say what's in the picture. Then you'll say the sounds in the picture. If you do it right, you get the card. If you can't say all the sounds, I'll show you how, and the word goes back into the pile. Let's try it. [Sue], draw a card and look at the picture. What is it? Now say the sounds. If you can say all the sounds, you'll keep the card. [Sue draws a cat, says cat, then says c - a - t. She gets the card, and the turn goes to the next child. Go around in a circle, and play for about 10 minutes.

Review Letters: Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

S And here's another letter. [show s] What is it? What sound does it make? /ssss/

T And here's another letter. [show t] What is it? What sound does it make? /t/

A What's this? [show a]. What sound?

K What's this? [show k] What sound?
[Use letters as **flash cards**, and give lots of quick individual turns]

Global

K Today's crazy letter is k. [show the k].

K sounds like /k/. Say /k/
Here's some words that start with /k/. **Key, kite.**
Say key. [key] Could you feel your mouth say /k/?
Say kite. [*kite*] Did you hear the /k/ sound?
Think of words that start like /k/.
[call on individuals **if they volunteer. Accept words that start with a hard c (cat).**
To correct errors, rhyme with their word, but start with /k/.
Example: Child says "ship". Teacher says, "No, but kip starts with /k/. k -- ip. kip. Everybody, say kip. [kip]

K sentence: Here's a sentence with lots of k's.
Kenny wasn't kind in kindergarten; he kicked Kate in the kitchen. It's full of the letter k. Listen for the /k/ sound:
Kenny wasn't kind in kindergarten; he kicked Kate in the kitchen. Listen for words that start with K.
Kenny wasn't kind in kindergarten; he kicked Kate in the kitchen. Did you hear the /k/? Which words started with k?

Review letters. Let's look at some letters. Here's one. [show the **P**] What is it?
Yes, it's p. What sound does it make?
What starts with /p/?

And here's another letter. [show **S**] What is it?
Yes, it's s. What sound does it make?
What starts with /ssss/?

And here's another letter. [show **t**] What is it?
Yes, it's t. What sound does it make?
What starts with /t/?

And here's another letter. [show **a**] What is it?
Yes, it's a. What sound does it make?
What starts with /a/?
Repeat for eat, ship, knee, cat, say, sit, nose, hat.

Let's **clap the parts**! Mississippi, doorway, Halloween. Go around group clapping children's names.

Say the Sounds Game: Today were going to play "Say the Sounds." I'll show you how: You'll draw a card, and say what's in the picture. Then you'll say the sounds in the picture. If you do it right, you get the card. If you can't say all the sounds, I'll show you how, and the word goes back into the pile. Let's try it. [Sue], draw a card and look at the picture. What is it? Now say the sounds. If you can say all the sounds, you'll keep the card. [Sue draws a cat, says cat, then says c - a - t. She gets the card, and the turn goes to the next child. Go around in a circle, and play for about 10 minutes.

Review Letters: Who remembers this letter?. [show the **p**] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show **s**] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show **t**] What is it? [t] Yes, it's t. What sound does it make? /t/

What's this? [show **a**]. What sound?

What's this? [show **k**] What sound?

Lesson 14:

Blending/Segmenting

I: Today's letter is i. [show the i]. I sounds like /iii/. Say /iii/ Here's some words that start with /i/. It, inch.
Say Iiit.. Could you feel your mouth say /i/?
Say iinch. [*inch*] Did you hear the /i/ sound?

P Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

S And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

T And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

A What's this? [show a]. What sound?

K What's this? [show k] What sound?

2 Magic Squares: Let's use some letters to say the sounds in words. Here are some words with 2 sounds. [show 2 squares].

In. Say In: [In]. [*i*] [Put the i in the first square. Here's /i/. What goes here [touch next square] in in? [*n*] Yes! i - n. Say it with me: i - n. [touch each square, holding the i in the first square].

Ill Ill. Say ill: [ill]. [Put the i in the first square. Here's /i/. What goes here [touch next square] in ill? [*ll]* Yes! i - ll. Say it with me: i -- ll. [touch each square, holding the i in the first square].

3 Magic Squares: Sometimes /i/ goes in the middle of a word. [Show the 3 square form. Listen to this word: **kit**. Say it: [kit] [k] So /k/ goes here. [touch the first square]. k - iiii - t. So we can put the /i/ here in the middle. [Touch each square: /k/ /iii/ t] Do the sounds with me [touch each square, holding i in the middle. /k/ -- /iii/ -- t]

2 sounds: Some words don't have 3 different sounds. Say **eat.** Let's do the sounds in eat. Ea - t. There's only two. Do the sounds in Eat with me. [Touch just the first two squares] Ea-t. **Knee** only has two sounds. Do the sounds with me. Kn -- ee.
We said the sounds in **knee**. What are they? [*kn -- ee*].
Now say the sounds in neat. [demonstrate with squares] N - ea - t. How many sounds in neat?

Demonstrate segmenting and **practice** with group: pace, lean, pack, tip, sat, lake.

Pass out the **3 Magic Squares** to segment: pace, lean, pack, tip, sat, lake.

Blend drill: Raise your hand if you know this word:
l - ea - n c - a - t sh - i - p p - a - ck, l - a - ke
s - a - t p - a - ce, kn - ee - l k - i - te.

[Use letters as **flash cards**, and give lots of quick individual turns]

Global

I Today's letter is i. [show the i]. I sounds like /iii/.
Say /i/
Here's some words that start with /i/. It, inch.
Say iiit.. Could you feel your mouth say /i/?
Say iinch. Did you hear the /i/ sound?
Think of words that start like /i/. [call on individuals **if they volunteer. To correct errors, say a word that starts with i:** Example: Child says "eat". Teacher says, "No, but if starts with /i/. i -- f. if. Everybody, say if. [*if*]

I sentence Hear's a sentence with lots of /i/ words:

The iiimportant Iiindian was iiill with iiinjuries iiinside the iiigloo..
It's full of the letter i. Listen for the /i/:
The iiimportant Iiindian was iiil with iiinjuries iiinside the iiigloo..
Say iiimportant with me. [*iiimportant*] Did you hear the /i/? Let's say it again:
iiimportant [*iiimportant*] Yes, i sounds like /i/.

Review letters: Let's look at some letters.
P Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

S And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

T And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

A And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/ What starts with /a/?

K Here's one. [show K] What is it? What sound does it make? What starts with /k/?

2 squares: Let's use some letters to say the sounds in words. Here are some words with 2 sounds. [show 2 squares].

In. Say In. What's the **first sound** in In? [Put the **i** in the first square. Here's /i/. What goes here [touch next square] in in? [*n*] Yes! i - n. Say it with me: i - n. [touch each square, holding the i in the first square].

Ill Ill. Say ill: [ill]. [Put the i in the first square. Here's /i/. What goes here [touch next square] in ill? [*ll*] Yes! i - ll. Say it with me: i -- ll. [touch each square, holding the i in the first square].

It It. Say it. What goes here? [touch first square]. It. Say the sounds.

Now we'll do more words with 2 sounds:

Eat. Say **eat.** Say the sounds in eat. Ea - t. There's only two. Say the sounds in Eat with me. [Touch the squares] Ea--t. Knee only has two sounds. Do the sounds with me. Kn -- ee. Count the sounds: (hold up fingers)

We said the sounds in knee. What are they? [*kn -- ee*].

Show 3 squares: Now say the sounds in neat. N -- ea -- t. How many sounds in neat? Count them with me. (finger signal)

3 squares Sometimes /i/ goes in the middle of a word. [Show the 3 square form.

Kit: Listen to this word: **kit**. Say kit. Is /i/ the first sound in kit? What's the first sound? [k] So /k/ goes here. [touch the first square]. k - iiiit. [touch each square as you change sounds]

What's the middle sound in kit? /i/ So we can put the /i/ here in the middle. [Touch each square: /k/ -- /iii/ -- t]

Say the sounds with me [touch each square, holding i in the middle. /k/ -- /iii/ -- t]

Secret word Raise your hand if you can guess our secret word of the day. Ready for the secret word? Here it is: **p -- a -- ce.** What's the word? Yes, p - a - ce is pace.

1st sound: What's the first sound in pace?

Delete 1st sound: Let's say pace without the /p/. What's left? --ace. [If kids have trouble, show the Magic squares: p-a-ce. Now don't say /p/ [point to first square] What's left?

Rhyme with pace: Who can rhyme with pace? [If kids have trouble rhyming, use the magic squares this way: Here's pace [touch the first square] p --[touch the next squares] --ace. These squares say -ace. All we have to do to rhyme is change the first sound. Instead of /p/ [touch the first square] say mmmm. mmm--ace. Mace. Mace rhymes with pace. Now change the first sound again. [call on a child to give a new first sound] _____--ace. [say the new word]

Starts like pace: Say the first sound in pace: /p/. What else starts like pace? [call on volunteers] Peter Piper picked a peack of pickled peppers!

Say the sounds: Who can say all the sounds in p e? [show the 3 Magic squares]

Demonstrate segmenting with squares: lean, pack, tip, sat, lake.

[If time, pass out the **3 Magic Squares** to segment: lean, pack, tip, sat, lake]
[Use letters as **flash cards**, and give lots of quick individual turns]

Lesson 15:

Blending/Segmenting

I: Today's letter is i. [show the i]. I sounds like /iii/. Say /iii/ Here's some words that start with /i/. It, inch.
Say Iiit.. Could you feel your mouth say /i/?
Say iinch. [*inch*] Did you hear the /i/ sound?

P Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

S And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

T And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

A What's this? [show a]. What sound?

K What's this? [show k] What sound?

2 Magic Squares: Let's use some letters to say the sounds in words. Here are some words with 2 sounds. [show 2 squares].

In. Say In: [In]. [*i*] [Put the i in the first square. Here's /i/. What goes here [touch next square] in in? [*n*] Yes! i - n. Say it with me: i - n. [touch each square, holding the i in the first square].

Ill Ill. Say ill: [ill]. [Put the i in the first square. Here's /i/. What goes here [touch next square] in ill? [*ll*] Yes! i - ll. Say it with me: i -- ll. [touch each square, holding the i in the first square].

3 Magic Squares: Sometimes /i/ goes in the middle of a word. [Show the 3 square form. Listen to this word: kit. Say it: [kit] [k] So /k/ goes here. [touch the first square]. k - iiii - t. So we can put the /i/ here in the middle. [Touch each square: /k/ /iii/ t] Do the sounds with me [touch each square, holding i in the middle. /k/ -- /iii/ -- t]

2 sounds: Some words don't have 3 different sounds. Say **eat.** Let's do the sounds in eat. Ea - t. There's only two. Do the sounds in Eat with me. [Touch just the first two squares] Ea-t. **Knee** only has two sounds. Do the sounds with me. Kn -- ee.

We said the sounds in **knee**. What are they? [*kn -- ee*].
Now say the sounds in neat. [demonstrate with squares] N - ea - t. How many sounds in neat?

Demonstrate segmenting and **practice** with group: pace, lean, pack, tip, sat, lake.

Pass out the **3 Magic Squares** to segment: pace, lean, pack, tip, sat, lake.

Blend drill: Raise your hand if you know this word:
l - ea - n c -a -t sh - i -p p - a - ck, l - a - ke
s - a - t p - a - ce, kn - ee - l k - i - te.

[Use letters as **flash cards**, and give lots of quick individual turns]

Global

I Today's letter is i. [show the i]. I sounds like /iii/.
Say /i/
Here's some words that start with /i/. It, inch.
Say iiit.. Could you feel your mouth say /i/?
Say iinch. Did you hear the /i/ sound?
Think of words that start like /i/. [call on individuals **if they volunteer. To correct errors, say a word that starts with i:** Example: Child says "eat". Teacher says, "No, but if starts with /i/. i -- f. if. Everybody, say if. [*if]*

I sentence Hear's a sentence with lots of /i/ words:

The iiimportant Iiindian was iiill with iiinjuries iiinside the iiigloo..
It's full of the letter i. Listen for the /i/:
The iiimportant Iiindian was iiil with iiinjuries iiinside the iiigloo..
Say iiimportant with me. [*iiimportant*] Did you hear the /i/? Let's say it again:
iiimportant [*iiimportant*] Yes, i sounds like /i/.

Review letters: Let's look at some letters.
P Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

S And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

T And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

A And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/ What starts with /a/?

K Here's one. [show K] What is it? What sound does it make? What starts with /k/?
2 squares: Let's use some letters to say the sounds in words. Here are some words with 2 sounds. [show 2 squares].

In. Say In. What's the **first sound** in In? [Put the i in the first square. Here's /i/. What goes here [touch next square] in in? [*n*] Yes! i - n. Say it with me: i - n. [touch each square, holding the i in the first square].

Ill Ill. Say ill: [ill]. [Put the i in the first square. Here's /i/. What goes here [touch next square] in ill? [*ll*] Yes! i - ll. Say it with me: i -- ll. [touch each square, holding the i in the first square].

It It. Say it. What goes here? [touch first square]. It. Say the sounds.

Now we'll do more words with 2 sounds:

Eat. Say **eat.** Say the sounds in eat. Ea - t. There's only two. Say the sounds in Eat with me. [Touch the squares] Ea--t. Knee only has two sounds. Do the sounds with me. Kn -- ee.

We said the sounds in knee. What are they? [*kn -- ee*].

Show 3 squares: Now say the sounds in neat. N -- ea -- t. How many sounds in neat?

3 squares Sometimes /i/ goes in the middle of a word. [Show the 3 square form.
Kit: Listen to this word: **kit**. Say kit. Is /i/ the first sound in kit? What's the first sound? [k] So /k/ goes here. [touch the first square]. k - iiiit. [touch each square as you change sounds]
What's the middle sound in kit? /i/ So we can put the /i/ here in the middle. [Touch each square: /k/ -- /iii/ -- t]
Say the sounds with me [touch each square, holding i in the middle. /k/ -- /iii/ -- t]

Secret word Raise your hand if you can guess our secret word of the day. Ready for the secret word? Here it is: **p -- a -- ce.** What's the word? Yes, p - a - ce is pace.

1st sound: What's the first sound in pace?

Delete 1st sound: Let's say pace without the /p/. What's left? --ace. [If kids have trouble, show the Magic squares: p-a-ce. Now don't say /p/ [point to first square] What's left?

Rhyme with pace: Who can rhyme with pace? [If kids have trouble rhyming, use the magic squares this way: Here's pace [touch the first square] p --[touch the next squares] --ace. These squares say -ace. All we have to do to rhyme is change the first sound. Instead of /p/ [touch the first square] say mmmm. mmm--ace. Mace. Mace rhymes with pace. Now change the first sound again. [call on a child to give a new first sound] ____--ace. [say the new word]

Starts like pace: Say the first sound in pace: /p/. What else starts like pace? [call on volunteers] Peter Piper picked a peack of pickled peppers!

Say the sounds: Who can say all the sounds in pace? [show the 3 Magic squares]

Demonstrate segmenting with squares: lean, pack, tip, sat, lake.

[If time, pass out the **3 Magic Squares** to segment: lean, pack, tip, sat, lake]
[Use letters as **flash cards**, and give lots of quick individual turns]

Lesson 16:

Blending/Segmenting

[Note: Use hand puppet as appropriate]

1. Today's letter is i. [show the i]. I sounds like /i/. Say /i/ [*i*]. Here's some words that start with /i/. It, inch. Say It.. [*it*] Could you feel your mouth say /i/? Say iinch. [*inch*] Did you hear the /i/ sound?

   Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

   And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

   And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

   What's this? [show a]. What sound?

   What's this? [show k] What sound?

2. Let's use some letters to say the sounds in words. [Pass out theMagic squares]. In. Say In: [In]. Say the sounds in /in/. [*/i/ - /n/*] [Pass out /i/ to each child. [Put the i in the first square.] Here's /i/. What goes here [touch next square] in <u>in</u>? [*n*] Yes! i - n. Say it with me: i - n. [touch each square, holding the <u>i</u> in the first square].

3. Hat. Say hat. [*hat*] Let's touch each square and say all the sounds in hat. /h/ - /a/ - /t/. Yes, do you know which letter makes /t/? Here's a T. Show me where it belongs in hat. /h/ - /a/ - t. Where shall we put the T?

4. **Tie**. Say tie. /tie/ Let's say all the sounds in tie. /t/ - ie. Say the sounds in tie. [Touch the squares and say /t/ - /ie/. Do you know which letter says /t/? Put the T in the first square.

5. Say **eat.** [*eat*] Let's do the sounds in eat. Ea - t. Do the sounds in Eat with me. [Touch the squares] Ea--t. **[If a child comments on the /t/, let them use the letter t in the second box]** Now say neat. [*neat*] Say the sounds in neat. [*/n/ - /ea/ - /t/*] Touch the squares and say the sounds in neat. **[If a child comments on the /t/, let them use the letter t in the third box]**

6. Say these words slowly: ship [shshshiiiip], nail, sat, lake

7. Use the **3 Magic Squares** to segment: pace, lean, pack, tip, sat, lake.

8. Raise your hand if you know this word: l - ea - n, c -a -t,

sh - i -p, p - a - ck, l - a - ke, s - a - t,
p - a - ce, kn - ee - l, k - i - te,
n - ai - l t - a - pe t -ee - n s - a p.

Global

[Note: Use hand puppet as appropriate]

1. Today's letter is l. [show the l]. L sounds like /ll/. Say /ll/ [*ll*]. Here's some words that start with /l/. Lake, lighthouse. Say lllake.. [*lake*] Could you feel your tongue say /ll/? Say lllighthouse. [*lighthouse*] Did you hear the /lll/ sound? Think of words that start like /ll/. [call on individuals **if they volunteer. To correct errors, rhyme with their word, and start with /l/.**

2. Hear's a sentence with lots of /ll/ words: Lisa lost the large lemon that the lizard Lenny loved. It's full of the letter l. Listen for the /ll/: Lisa lost the large lemon that the lizard Lenny loved. Say Lllisa with me. [*Lllisa*] Did you hear the /L/? Let's say it again: Lllisa Listen for more /lll/words: Lisa lost the large lemon that the lizard Lenny loved. What else starts with /ll/?

Let's look at some letters. Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/ What starts with /a/?

Here's one. [show K] What is it? What sound does it make? What starts with /k/?

Remember this? [show l] What is it? what sound? What starts with L?

What's this? [show h] What is it? what sound? What starts with /h/?

3. Our **word of the day** is: h -- ee - l. What word is that?

What's the **first sound**?

Who can **rhyme** with heel? [If kids have trouble rhyming, use the 2 magic squares this way: Here's heel [touch the first square] h --[touch the next square] --eel . This square says -eel. All we have to do to rhyme is change the first sound. Instead of /h/ [touch the first square] say /p. p -- eel. Peel. Peel rhymes with heel. Now change the first sound again. [call on a child to give a new first sound] ____--eel. [say the new word]

What's the **first sound**?

Let's **say heel without the /h/**. What's left? --eel. [If kids have trouble, show the 2 Magic squares: h -- eel. Now don't say /h/. What's left?

What's the **last sound**?

What else **starts like /h/**?

Count the sounds in heel.. How many sounds?

4. Let's use some letters to say the sounds in words. Some words might have one sound; others will have 2 or 3 sounds. [Pass out the 3 squares]. In. Say In: [In]. What's the first sound in In? [*i*] [Pass out /i/ to each child. [Put the i in the first square.] Here's /i/. What goes here [touch next square] in in? [*n*] Yes! i - n. Say it with me: i - n. [touch each square, holding the i in the first square].

5. I. Say I: [*I*]. [touch the first square] What's the first sound in I? [I] Touch the first square. There are no more sounds in I. Once we've said I, we've said all the sounds.

6. Hat. Say hat. [*hat*] What's the first sound in hat? [*h*] Touch the first square, and say /h/. Let's touch each square and say all the sounds in hat. /h/ - /a/ - /t/. What's the last sound in hat? /t/. Yes, do you know which letter makes /t/? Here's a T. Show me where it belongs in hat. /h/ - /a/ - t. Where shall we put the T?

7. **Tie**. Say tie. /tie/ What's the first sound in tie? [*t*] Touch the first square, and say /t/. Do you know which letter says /t/? Put the T in the first square. Let's say all the sounds in tie. /t/ - ie. How many sounds in tie? [2] Yes, we only need 2 squares. Say the sounds in tie. [Touch the squares and say /t/ - /ie/.

8. Say **eat.** Let's do the sounds in eat. Ea - t. There's only two. Do the sounds in Eat with me. [Touch just the first two squares] Ea--t. **[If a child comments on the /t/, let them use the letter t in the second box]** Now say neat. [*neat*] Say the sounds in neat. [*/n/ - /ea/ - /t/*] How many sounds in neat? Touch the squares and say the sounds in neat. **[If a child comments on the /t/, let them use the letter t in the third box]**

9. Say the first sound in pace: /p/. What else starts like pace? [call on volunteers] Peter Piper picked a peck of pickled peppers!

10. Who can say all the sounds in pace? [show the 3 Magic squares]

[If time, use the **3 Magic Squares** to segment: lip, nip, tap, ash, leap, lay, lake]

[If time, review sounds and letters:]. Let's look at some letters. Here's a letter. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

Lesson 17:

Blending/Segmenting

1. Today's nice letter is **n.** [show the n]. N sounds like /nnn/. Say /n/ [*n*]. Say nice. [nice] Could you feel your mouth say /n/?

Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

What's this? [show a]. What sound?

What's this? [show k] What sound?

What's this? [show i, h, l]

2. Today were going to play "**Say the Sounds.**" I'll show you how: The first person draws a card, and says what's in the picture. Then you'll say the sounds in the picture. If you do it right, you get the card. If you can't say all the sounds, I'll show you how, and the word goes back into the pile. Let's try it. [Sue], draw a card and look at the picture. What is it? Now say the sounds. If you can say all the sounds, you'll keep the card. [Sue draws a cat, says cat, then says c - a - t. She gets the card, and the turn goes to the next child. Go around in a circle, and play for about 7-10 minutes.

3. Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

What's this? [show a, k, i, h, k, l]. What sound?
[Use letters as **flash cards**, and give lots of quick individual turns]

Global

1. Today's nice letter is n. [show the n]. N sounds like /n/. Say /n/ [*n*]. Here's some words that start with /n/. Nice, Needle, Newspaper. Say nice. [nice] Could you feel your mouth say /n/? Say newspaper. [*newspaper]* Did you hear the /n/ sound? Think of words that start like /n/. [call on individuals **if they volunteer. To correct errors, rhyme with their word, but start with /n/.**

2. Here's a sentence with lots of /n/'s? Nobody was nice to Nancy's neighbor Ned, but he was never nasty. It's full of the letter n. Listen for the /n/ sound: Nobody was nice to Nancy's neighbor Ned, but he was never nasty. . Listen for words that start with n. Nobody was nice to Nancy's neighbor Ned, but he was never nasty. Did you hear the /n/? Which words started with n?

3. Let's look at some letters. Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/ What starts with /a/?

What's this? [show i, h, l]

4. Today were going to play "Rhyme it." I'll show you how: The first person draws a card, and says what's in the picture. Then you'll rhyme with the picture. If you do it right, you get the card. If you can't say a rhyme, I'll show you how, and the word goes back into the pile. Let's try it. [Sue], draw a card and look at the picture. What is it? Now rhyme it. If you can say a rhyme, you'll keep the card. [Sue draws a cat, says cat, then says pat. She gets the card, and the turn goes to the next child. Go around in a circle, and play for about 7-10 minutes.]

5. Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

What's this? [show a]. What sound?
What's this? [show k] What sound?

Lesson 18:

Blending/Segmenting

[Note: Use hand puppet as appropriate]

1. Today's letter is d. [show the d]. D sounds like /d/. Say /d/ [*d*]. Say dog. [*dog*] Could you feel your mouth say /d/? Let's look at some letters. Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/

Here's one. [show K] What is it? What sound does it make?

Remember this? [show l] What is it? what sound?

What's this? [show h] What is it? what sound?

What's this? [show n] What is it? what sound?

2. Let's use the **Magic Squares** and some letters to say the sounds in words. [Pass out the squares]. **An**. Say it: [*An*]. Say the sounds in An. [a - n] What letter says /a/? **[Pass out the a's]** [Put the a in the first square. Here's /a/. What goes here [touch next square] in An? [*n*] Yes! a -- n. Say it with me: a -- n. [touch each square, holding the a in the first square].

3. Listen to this word: cat. Say it: [*cat*] Say all the sounds in cat. [*c - a - t*] Do the sounds with me [touch each square, holding a in the middle. /c/ -- /aaa/ -- t]

4. Here's another word: pack. Say it: [*pack*] Say all the sounds in pack? [*p - a - ck*]. Touch the first box. /p/ goes here. [Touch the next box.] /a/ [Put the a in the middle square]: P -- a -- ck]

5. Hat. Say hat. [*hat*] Say all the sounds in hat? [*h - a - t*] Touch the first square, and say /h/. Let's touch each square and say all the sounds in hat. /h/ - /a/ - /t/.

6. Ash. Say it: [*ash*]. Say all the sounds in ash. [*a - sh*] [Put the a in the first square. Here's /a/. What goes here [touch next square] in ash? [*sh*] Yes! a -- sh. Say it with me: a -- sh. [touch each square, holding the a in the first square].

7. Use the **3 Magic Squares** to segment: tip, nip, lake, can, hip, knee, lean, kite, sake, sign, take.

8. Review all letters so far.

If time: Guess the word!

sh - y			
sh - i - p	s - ee	s - a - ck	h - ee - l
t - a - n	s - ig - n	t - a - ke	l - ea - p
h - i - ll	a- t	l - i - t	k - ee - p

Global

[Note: Use hand puppet as appropriate]

1. Today's letter is d. [show the d]. D sounds like /d/. Say /d/ [*d*]. Here's some words that start with /d/. Dog, doughnut. Say dog. [*dog*] Could you feel your mouth say /d/? Say doughnut. [*doughnut*] Did you hear the /d/ sound? Think of words that start like /d/. [call on individuals **if they volunteer. To correct errors, rhyme with their word, and start with /d/.**

2. Hear's a sentence with lots of /d/ words: David's daddy's dog digs dirt in the dark. It's full of the letter d. Listen for the /d/: David's daddy's dog digs dirt in the dark. Say dark with me. [*dark* Did you hear the /d/? Let's say all the sounds in dark: d -- ar - k. Listen for more /d/words: David's daddy's dog digs dirt in the dark. What else starts with /d/?

3. Let's look at some letters. Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/ What starts with /a/?

Here's one. [show K] What is it? What sound does it make? What starts with /k/?

Remember this? [show l] What is it? what sound? What starts with L?

What's this? [show h] What is it? what sound? What starts with /h/?

What's this? [show n] What is it? what sound? What starts with /n/?

4. Our **word of the day is: sh -- y.** What word is that?

What's the **first sound**?

Who can **rhyme** with shy? [If kids have trouble rhyming, use the 2 magic squares this way: Here's shy [touch the first square] sh --[touch the next square] --yl . This square says -y. All we have to do to rhyme is change the first sound. Instead of /sh/ [touch the first square] say /p/. p -- ie. Pie. Pie rhymes with shy. Now change the first sound again. [call on a child to give a new first sound] ____--y. [say the new word]

What's the **first sound**?

Let's say shy **without the /sh/.** What's left? --y. [If kids have trouble, show the 2 Magic squares: sh -- y. Now don't say /sh/. What's left?

What's the **last sound**?

What else **starts like** /sh/?

Count the sounds in shy.. How many sounds?

5. Let's **clap the parts**! tetherball, sciencevan, LucyLion. Go around group clapping children's names.

6. Let's use some letters to say the sounds in words. Some words might have one sound; others will have 2 or 3 sounds. [Pass out the 3 squares]. **An**. Say it: [*An*]. Say the sounds in An. [a - n] What letter says /a/? [Pass out the a's] [Put the a in the first square. Here's /a/. What goes here [touch next square] in An? [*n*] Yes! a -- n. Say it with me: a -- n. [touch each square, holding the a in the first square].

7. Listen to this word: cat. Say it: [*cat*] Is /a/ the first sound in cat? [no]. What's the first sound? [c] So /c/ goes here. [touch the first square]. c - aaaat. What's the next sound in cat? /a/ So we can put the /a/ here in the middle. [Touch each square: /c/ -- /aaa/ -- t] Do the sounds with me [touch each square, holding a in the middle. /c/ -- /aaa/ -- t]

8. Here's another word: pack. Say it: [*pack*] What's the first sound in pack? [*p*]. Touch the first box. /p/ goes here. What's the next sound in pack? /a/ [Put the a in the middle square]: P -- a -- ck]

9. Hat. Say hat. [*hat*] What's the first sound in hat? [*h*] Touch the first square, and say /h/. Let's touch each square and say all the sounds in hat. /h/ - /a/ - /t/. What's the last sound in hat? /t/. Yes, do you know which letter makes /t/?

10. Ash. Say it: [*ash*]. What's the first sound in ash? [*a*] [Put the a in the first square. Here's /a/. What goes here [touch next square] in ash? [*sh*] Yes! a -- sh. Say it with me: a -- sh. [touch each square, holding the a in the first square].

11. Use the **3 Magic Squares** to segment: tip, nip, lake, can, hip, knee, lean, kite, sake, sign, take.

[If time, review sounds and letters:]. Let's look at some letters. Here's a letter. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

Review all letters so far.

Lesson 19:

Blending/Segmenting

1. Today's marvelous letter is m. [show the m]. M sounds like /mm/. Say /mm/ [*mm*]. You'll hear /m/ in mmmouse. Say mouse. [mouse] Could you feel your mmmouth say /mm/?

Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

What's this? [show a]. What sound?

What's this? [show k] What sound?

What's this? [show i, h, l, n, d, m]

2. Today were going to play "**Say the Sounds.**" I'll show you how: The first person draws a card, and says what's in the picture. Then you'll say the sounds in the picture. If you do it right, you get the card. If you can't say all the sounds, I'll show you how, and the word goes back into the pile. Let's try it. [Sue], draw a card and look at the picture. What is it? Now say the sounds. If you can say all the sounds, you'll keep the card. [Sue draws a cat, says cat, then says c - a - t. She gets the card, and the turn goes to the next child. Go around in a circle, and play for about 5 minutes.]

3. Now let's play: **"Blend It."** Remember how to play? The first person draws a card, and keeps the card secret [show one of the pictures]. I'll say the sounds in the picture. The next person has to say the word the sounds make. If you do it right, you get the card. Let's try it. [Sue], draw a card and look at the picture, but don't show it to anyone but me. [Mike], I'll say the sounds, and you'll try to blend them. If you can say the name of the picture, Sue will give you the card. [Sue draws a cat. T says c - a - t. Mike, what word? If Mike says "cat", he gets the card, and draws a new picture for the next child to blend. Go around in a circle, and play for about 5 minutes.]

3. Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

What's this? [show a, k, i, h, k, l]. What sound?

[Use letters as **flash cards**, and give lots of quick individual turns]

Global

1. Today's marvelous letter is m. [show the m]. M sounds like /mm/. Say /mm/ [*mm*]. Here's some words that start with /m/. mmmouse, mmmilk. Say mouse. [mouse] Could you feel your mmmouth say /mm/? Say mmmilk. [*milk]* Did you hear the /mm/ sound? Think of words that start like /m/. [call on individuals **if they volunteer. To correct errors, rhyme with their word, but start with /m/.**

2. Here's a sentence with lots of /m/'s? Mickey Mouse moved to Miami.. It's full of the letter m. Listen for the /mm/ sound: Mickey Mouse moved to Miami.. . Listen for words that start with mmm. Mickey Mouse moved to Miami.. Did you hear the /m/? Say it with me: Mickey Mouse moved to Miami. Which words started with mm?

3. Let's look at some letters. Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/ What starts with /a/?

What's this? [show i, h, l, n, d, m]

4. Today were going to play **"Sounds Like--"** I'll show everyone a letter. Then I draw cards, one at a time. The first person to see a picture that starts like my letter says: Sounds like-- If your word sounds like my letter, because it starts with the same sound, you get the card. Let's try it. Here's my letter: [Show the m] Now, watch the cards. Say the name of the picture to yourselves and watch for a picture that starts like mmmmm. [Draw a card. If it doesn't start with m, say: That's _____. That doesn't start like /mmm/. How does ____start? Remember that, because next time, you might be looking for /____/ words. Let's keep looking. [Go through the stack once, then change the target letter to _____] Play until you have 2 minutes left.

5. Who remembers this letter?. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

What's this? [show a]. What sound?

What's this? [show k] What sound? n, d, m

Lesson 20:

Blending/Segmenting

Let's look at some letters. Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/

And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/

Here's one. [show K] What is it? What sound does it make?

Remember this? [show l] What is it? what sound?

What's this? [show h] What is it? what sound?

What's this? [show n] What is it? what sound?

What's this? [show i]

What's this? [show d]

What's this? [show m]

2. Let's say the sounds in words. [Pass out theMagic squares]. Use the **Magic Squares** to segment:

[If any children use letters in the squares, fine. They don't need to.]

kite	tip	sigh	pace	in	an	ill			
	keep	seen	tea	sip	key				
	hat	ash	hit	lay	nail	take	nip		
	pack	see							

Guess the word! **[Note: Use hand puppet as appropriate]**

sh - y

sh - i - p	s - ee	s - a - ck	h - ee - l
t - a - n	s - ig - n	t - a - ke	l - ea - p
h - i - ll	a- t	l - i - t	k - ee - p

Global

1. Let's look at some letters. Here's one. [show the p] What is it? [p] Yes, it's p. What sound does it make? /p/ What starts with /p/?

And here's another letter. [show s] What is it? [s] Yes, it's s. What sound does it make? /ssss/ What starts with /s/?

And here's another letter. [show t] What is it? [t] Yes, it's t. What sound does it make? /t/ What starts with /t/?

And here's another letter. [show a] What is it? [a] Yes, it's a. What sound does it make? /a/ What starts with /a/?

Here's one. [show K] What is it? What sound does it make? What starts with /k/?

Remember this? [show l] What is it? what sound? What starts with L?

What's this? [show h] What is it? what sound? What starts with /h/?

What's this? [show n] What is it? what sound? What starts with /n/?

What's this? [show i] . . .

What's this? [show d]. . .

What's this? [show m]. . .

1. [**Pass out a set of these letters to each child.**] Spread them out so you can see them all. I'll say a word, and you'll pick out the letter that matches the first sound. Let's practice: If I say "apple," which letter will you choose? Yes! Apple starts with a. Try these: [After each word, help children having trouble and say: Yes, _____ starts with __, matching the word to the sound of the first letter.]

kite	tip		sigh		pace		in		an		ill
		keep		seen		tea		sip		key	
	hat		ash		hit		lay		nail	take	nip
		pack		see							

2. Our **word of the day is: s--ea-l.** What word is that?

What's the **first sound**?

Who can **rhyme** with seal? [If kids have trouble rhyming, use the magic squares this way: Here's seal [touch the first square] s --[touch the next square] --ea - l] . These square says -ea - l. All we have to do to rhyme is change the first sound. Instead of /s/ [touch the first square] say /p/. p -- ea - l. Peal. Peal rhymes with seal. Now change the first sound again. [call on a child to give a new first sound] ____--ea - l. [say the new word]

What's the **first sound**?

Let's **say seal without the /s/.** What's left? --eal. [If kids have trouble, show the Magic squares: s --ea - l. Now don't say /s/. What's left?

What's the **last sound**?

What else **starts like /s/**?

Count the sounds in seal.. How many sounds?

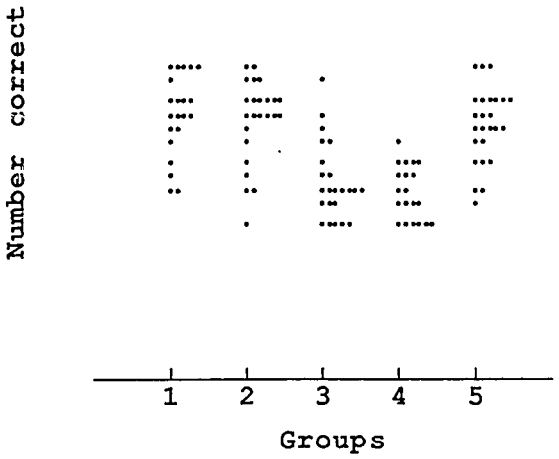
3. Let's use some letters to say the sounds in words. Some words might have one sound; others will have 2 or 3 sounds. [Pass out the 3 squares]. Use the **3 Magic Squares** to segment:

[If any children use letters in the squares, fine. They don't need to.]

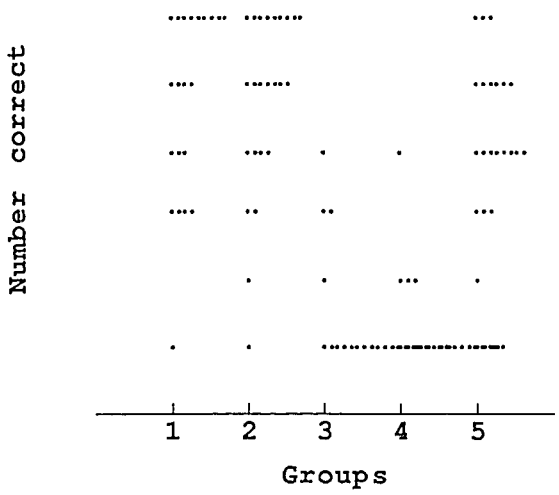
kite		tip		sigh		pace		in			an
	ill		keep		seen		tea		sip		
key		hat		ash		hit		lay			nail
take	nip		pack		see						

APPENDIX C

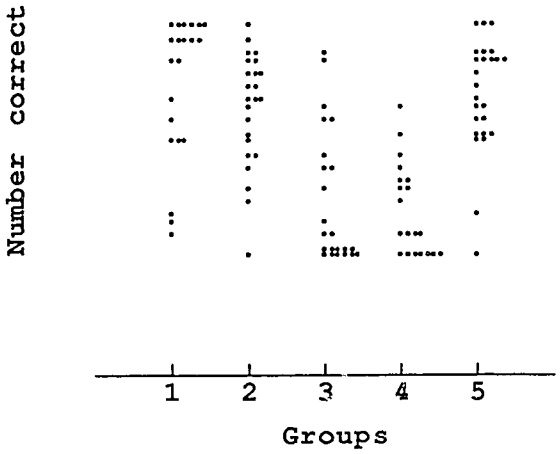
Plots of Test Scores



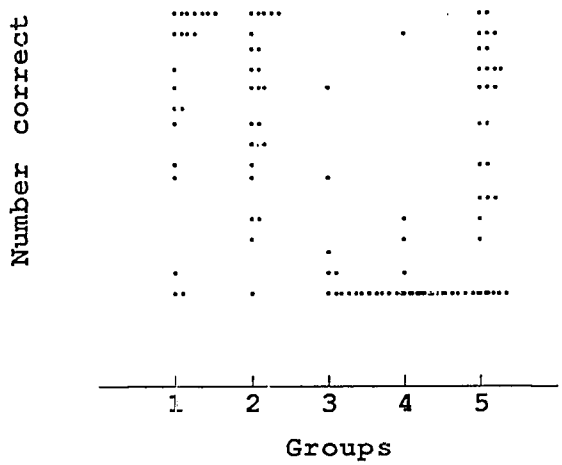
Blend Onset-rime



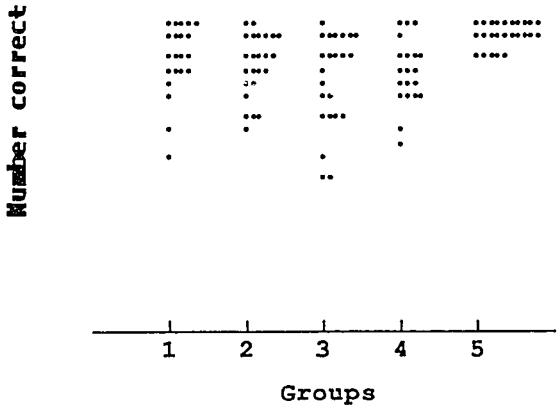
Blend 3 phonemes



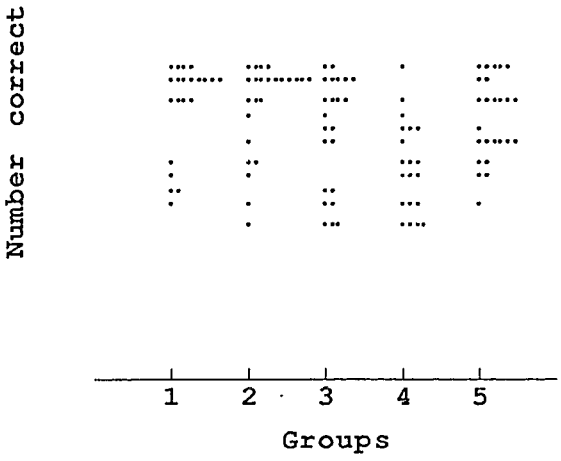
Segment into onset-rime



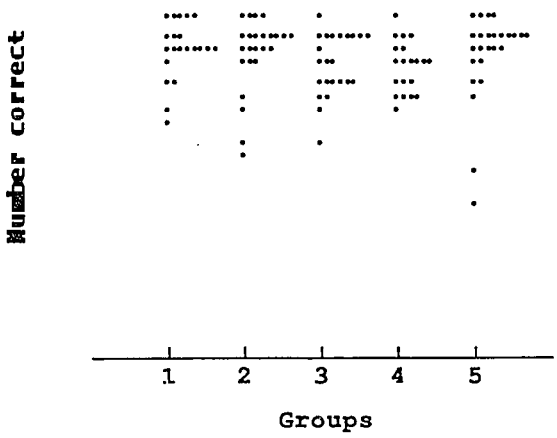
Segment into 3 phonemes



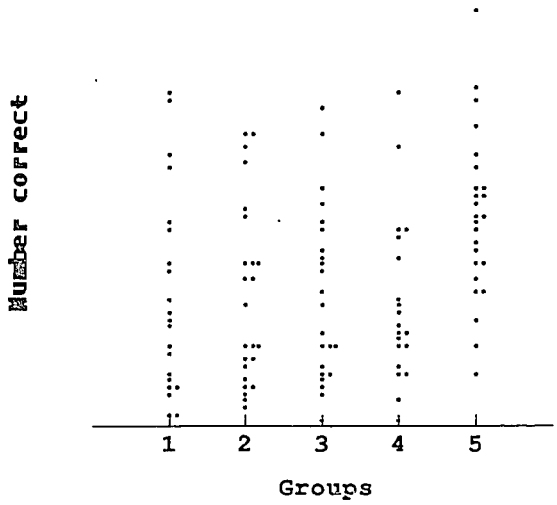
Modified Rosner



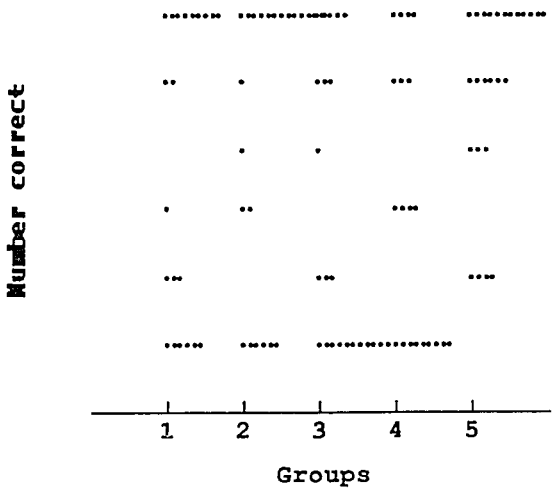
First Sound



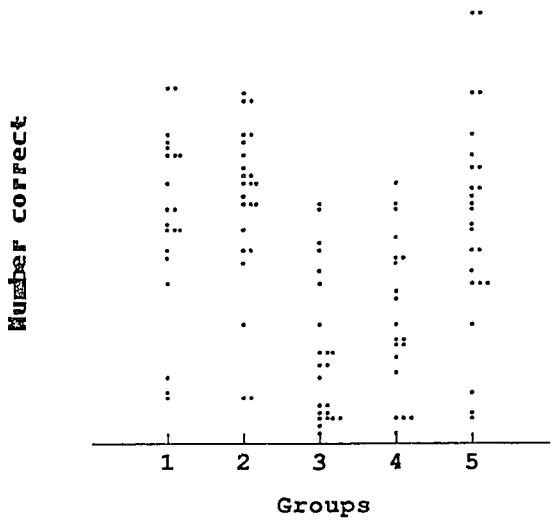
Sound repetition



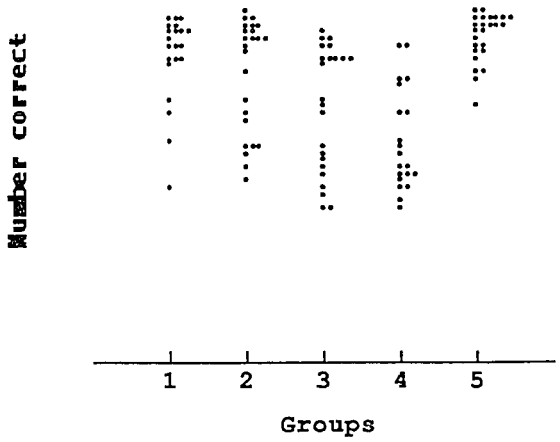
Rapid letter naming



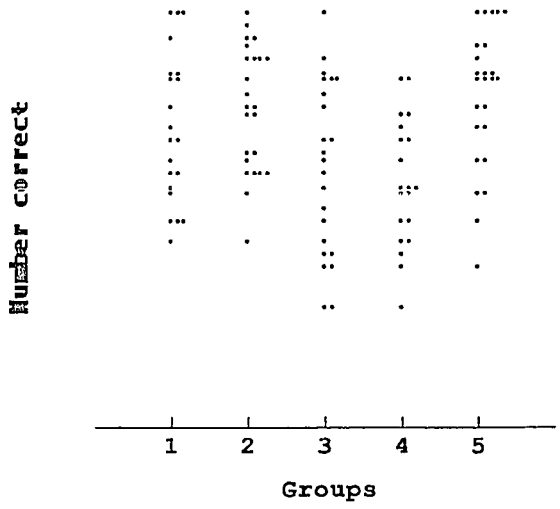
Rhyme production



Lindamood Auditory Conceptualization Test



Reading



Spelling

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Present position

Project Director, The Source Inservice Consortium for the Training of General and Special Educators, Washington Research Institute, Seattle, Washington.

Education

Institution	Degree	Major
University of Washington	M.A., 1978	Special Education
University of Washington	B.A., 1971	English

Professional Experience

Instructor, University of Washington, College of Education, 1992.

Core Team Leader/Teacher, Martha Lake School, Regular and Special Education, Edmonds School District, 1987-89.

Adjunct Faculty, Seattle Pacific University, 1985-present.

Special Education Teacher, grades 1-6, College Place Elementary School, Edmonds School District, 1978-1987.

Teacher, Remedial Reading (Chapter I), English, Social Studies, grades 6-8, Seattle Public Schools, 1971-75.

Consulting Experience

Montana Restructuring for Increasing Inclusion, Helena, Montana, 1992.
Program Evaluator, Seattle Public Schools, Seattle, Washington, 1990-91.
Preparing for the Regular Education Initiative (integration of special education students in regular classrooms), Olympia, Washington, 1989-90.
Direct Instruction Reading and Language Arts, S.R.A., LaConner, Seattle, Clover Park, Bremerton, Stanwood, 1983-1988.
Edmonds School District Resource Staff Trainer (reading), Edmonds, Washington, 1982-1989.

Conference Presentations

Early Intervention for Children with Developmental Disabilities: Effects on Early Reading. Paper presented at the American Educational Research Association (AERA) annual conference, San Francisco, 1992.

Teaching phonemic awareness to children with disabilities. Presented at the American Educational Research Association (AERA), San Francisco, 1992.

Collaboration among general and special educators: The influence teachers exert on the process. Paper presented at the American Educational Research Association (AERA), San Francisco, 1992.

The Source: A Model for Effective School Restructuring, Council for Exceptional Children, State Conference, Spokane, Washington, 1991.

Teacher Inservice for the Regular Education Initiative, Washington Association of School Administrators, State Conference, Tacoma, Washington, 1990.

Equity and Excellence for Special Education Students in Regular Classrooms, Association for Supervision and Curriculum Development (ASCD), State Conference, Seattle, Washington, 1989.

Reading Instruction for Hard-to-teach Children, Best Practices Conference, Bremerton, Washington, 1988.

Papers

O'Connor, R., Jenkins, J.R., Cole, K. & Mills, P. (in press). Two approaches to phonics instruction with handicapped children: Does program design make a difference? *Exceptional Children.*

O'Connor, R., Jenkins, J.R., Slocum, T. & Leicester, N. (in press). Teaching phonemic awareness to handicapped preschool children: Training in rhyming, blending and segmenting. *Exceptional Children.*

Jenkins, J.R., Jewell, M., Leicester, N., O'Connor, R. (under review). Accommodations for individual differences without classroom ability groups: An experiment in school restructuring. *Reading Research Quarterly.*

Jenkins, J.R., & O'Connor, R. (1992). Sameness analysis. In D. Carnine & E.J. Kameenui (Eds.), *Higher-Order Thinking: Designing Curriculum for Mainstreamed Students.* Austin, TX: Pro Ed.

Jenkins, J.R., & O'Connor, R. (1991). Implications of Sameness Analysis for Curriculum Developers and Curriculum Users. *Journal of Learning Disabilities, 24,* 6, 361-363.