Research Foundation Paper

Sound & Letter Time:

Building Phonemic Awareness and Alphabet Recognition Through Purposeful Play

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INTRODUCTION

Children who enter school with greater background knowledge and early literacy skills have a distinct and lasting advantage over those children who do not possess these skills (Snow et al., 1995). Certain early literacy skills, however, are more critical than others. Research has repeatedly proven that two skills in particular serve as the best predictors of early reading success: phonemic awareness and alphabet recognition (Adams, 1990; Share, Jorm, Maclean, and Matthews, 1984; National Reading Panel, 2000).

With a strong commitment to building these foundational literacy skills for all children, Scholastic developed the research-based and classroom tested Sound & Letter Time program. Sound & Letter Time is designed to teach and reinforce phonemic awareness skills and alphabet recognition for PreK–Second grade children through fun, interactive, and educational games. The program promotes language enrichment and vocabulary development through purposeful play while serving the diverse needs of young children, including special needs and English-language learners.

In reviewing the research on literacy acquisition, one can conclude that the fundamental skills children must develop first, in addition to oral language development, are phonemic awareness and alphabet recognition. In this paper, phonemic awareness is defined as the understanding that a word is made up of a series of discrete sounds (phonemes) and the ability to identify and manipulate those sounds in spoken words. The definition of alphabet recognition (also known as alphabet knowledge) is the ability to distinguish letter shapes, names, and sounds along with the ability to quickly recall and name each letter (Bradley & Stahl, 2001). Both of these skills are needed to understand the alphabetic principle, the concept that a series of symbols, known as the alphabet, map onto the sounds of our language in predictable ways. Children who lack these skills have difficulty grasping the alphabetic principle, which in turn, will limit their ability to use letter-sound correspondence and ultimately to decode words.

Together, phonemic awareness and alphabet recognition skills provide the necessary foundation on which phonics instruction is built. Ehri (2005) specifies the most important component of phonics instruction is knowledge of the alphabetic system, which includes phonemic awareness, letter shapes and names, and the letter-sound correspondences. Systematic phonics instruction teaches the beginning reader how letters correspond to sounds. Therefore, for the instruction to be effective, children must first understand the relationship between the sounds of words and the alphabet (Torgesen, 1998). Additionally, as they progress, developing readers use several strategies to read words: decoding, analogy, prediction, and memorizing sight words, all of which require the mastery of letter-sound correspondences (Ehri, 2003), and therefore the mastery of phonemic awareness and alphabet recognition skills.

The Influence of Research in Educational Policy and Instruction

Research is influencing current educational policy and instructional methods in the United States. In a country where only 32 percent of the nation's fourth graders are performing at or above the proficient reading levels (NAEP, 2001), reading achievement has become a top priority. In 2000, the National Reading Panel concluded that phonemic awareness *can* be taught and that this instruction is highly beneficial in assisting children with learning how to read and how to spell. Phonemic awareness, along with phonics, fluency, vocabulary, and comprehension, became one of the cornerstones of literacy instruction in the subsequent *No Child Left Behind* and *Reading First* acts.

Not only has research changed the educational policy and instructional methods in this country, but it is also affecting them around the world. In 2000, the Israel Ministry of Education created two committees to review the research and determine the best instructional practices to help prepare young children for phonics instruction. The Levin Committee (2000) investigated methods for fostering oral and written language skills in preschool and kindergarten age children, while the Shimron Committee (2002) examined ways to reform reading instruction in the primary grades. Both committees reported that phonemic awareness and alphabet recognition were key components in literacy acquisition and specifically recommended instruction in both.

Sound & Letter Time Development

For young children, learning is a highly active and interactive process. Children are more likely to become active participants in learning activities when they engage their natural curiosity and eagerness to make new discoveries (Raspa, McWilliams, & Ridley, 2001; National Center for Education Statistics, 2002). Although a variety of child and environmental factors influence skill development, researchers and practitioners believe that phonemic awareness and alphabet recognition can be taught effectively through a combination of systematic instruction and purposeful play, the cornerstone of Scholastic Sound & Letter Time.

The goal of developing Sound & Letter Time was to create a comprehensive method of phonemic awareness instruction that would engage young children, thereby effectively helping them gain and practice critical early literacy skills. The curriculum is designed to:

- Teach critical phonemic awareness skills, including: beginning and final sounds, oral blending, oral segmentation, and proper articulation.
- Reinforce alphabet recognition skills by reviewing letter names and sound relationships.

The program consists of four magnetic boards with colorful magnetic picture cards that can be used to play a variety of games such as dominoes, bingo, and concentration. These games introduce important phonemic awareness concepts: initial/final sounds, blending, segmentation, letter-names and letter-sounds relationships. The games and skill requirements range from easy to difficult, advancing gradually, to ensure that as children learn they are able to progress to more advanced tasks.

Sound & Letter Time originated as an early literacy program in Israel known as Ready to Read (RTR). During 2002–2003, Ready to Read was field tested with 600 Israeli children from diverse socioeconomic backgrounds in preschool, kindergarten, first grade and special education classes. Dr. Michal Rosenberg conducted extensive formative research by visiting classrooms and engaging in RTR games and activities with groups of approximately 3–4 children. These sessions were comprised of the following key components:

1. **Naming:** Every session began by showing a variety of picture cards to the children and asking them to name each picture out loud.
2. **Games and Activities:** Several different games were played with the children, according to the age and ability level of each group.
3. **Teacher Observation:** The classroom teacher would observe the activities and play while taking notes on the children's progress and/or the implementation of the program.
4. **Teacher Interview:** The teacher was interviewed to gather educator feedback and insights on the program. The goal of the interview was to determine if the teacher, through observation of the RTR games and activities, could evaluate the skills of the individual children as well as determine each child's strengths and weaknesses.
5. **Professional Development:** The last component of the testing process included conducting professional development with the teacher based on his/her observations and discussions of the program. The insights from this component of the formative research were used to inform the development of the Teacher's Guide.

Based on the results of the formative research, Ready to Read was modified to make the program more engaging and effective with children. Key revisions, which were translated to Scholastic Sound & Letter Time, included:

- Substituting several of the pictures used when they proved too difficult for the children to identify or understand.
- Reducing the size of the boards and magnetic game cards to make them more manageable for the children to hold and manipulate.
- Adding numerous new games, such as bingo, that focus on initial and final sounds.

The Ready to Read program was a tremendous success in Israel, where it was adopted in most Israeli kindergartens. Great interest soon immerged to bring the same program to students in the United States. Although Hebrew and English are visually and linguistically very different languages, they are both alphabetic. Therefore, the processes behind literacy acquisition and instruction are the same for both languages. Ready to Read was renamed Sound & Letter Time in the United States, where the program was built on three research-based pillars: phonemic awareness, alphabet recognition, and purposeful play.

PILLAR ONE: PHONEMIC AWARENESS

The Importance of Phonemic Awareness

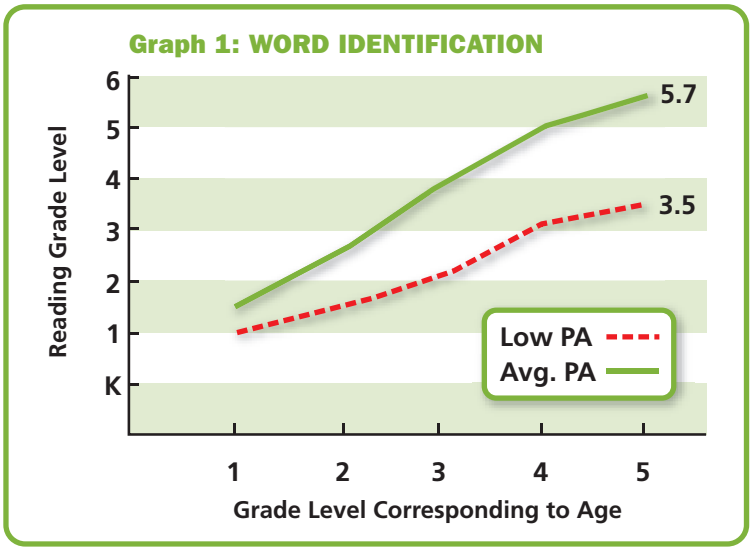
Researchers agree that phonemic awareness is a strong predictor of reading achievement (Adams, 1990; Juel, 1988; Share, Jorm, Maclean, and Matthews, 1984; National Reading Panel, 2000; Scanlon & Vellutino, 1987). In her research, Adams (1990) states that, "Faced with an alphabetic script, children's level of phonemic awareness on entering school may be the single most powerful determinant of the success he or she will experience in learning to read." In order to benefit from reading instruction, developing readers need to understand the internal structure of words; that words are made up of discrete sounds. Once children understand the concept that words can be divided into individual phonemes and that those phonemes can be blended into words, they can use that knowledge of letter-sound relationships to read and build words (Adams, 1990; Chard & Dickson, 1999).

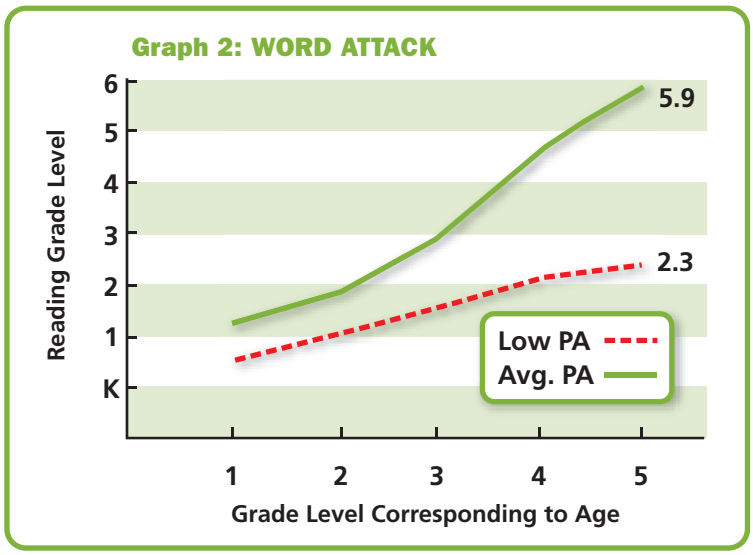
Phonemic awareness is often confused with phonological awareness. Snow, Burns & Griffin (1998) eloquently define the two concepts, "The term phonological awareness refers to a general appreciation of the sounds of speech as distinct from their meaning. When that insight includes an understanding that words can be divided into a sequence of phonemes, this finer-grained sensitivity is termed phonemic awareness." Phonological awareness includes phonemic awareness, but also encompasses the awareness of word units larger than the phoneme like syllables. However, both types of awareness include the ability to distinguish the individual sounds within words at the phonemic level so they are both relevant to this paper.

A number of researchers have found that children with phonological and phonemic awareness skills are more successful at learning to read than those without these skills (Bentin & Leshem 1993; Stanovich, 1986; Adams, 1990; Torgesen & Mathes, 2000). In several studies, students' level of phonological awareness and naming speed in kindergarten were found to be strong predictors of reading achievement in first and second grade (Kirby et al., 2003; Schatschneider et al., 2004; Parrila et al., 2004). Two studies took these important results a step further to highlight the educational sustainability of early phonemic awareness instruction. Byrne et al. (2000) demonstrated that phonemic awareness instruction provided to children in preschool had modest but significant positive effects on these children's reading skills in fifth grade. Juel's seminal research (1988; 1994) revealed that poor readers in fourth grade had entered first grade with limited phonological awareness and that this skill gap contributed to their slowness in learning letter-sound correspondences and decoding.

Torgesen & Mathes (2000) confirmed these findings when they tested children on the growth of their sight words (word identification) and word attack (phonemic decoding) skills. When they compared those children who began first grade with average phonological awareness skills to those who began first grade below that threshold, they found that those with higher phonemic awareness in first grade tested higher for sight words and word attack skills in *every* grade.

The achievement gap in the scores between these two groups of children grew considerably larger starting in third grade and continued to grow dramatically in fourth and fifth grades. Torgesen & Mathes concluded that those children with sufficient phonemic awareness had a better understanding of "how words work," and were therefore able to identify and read words by sounding them out. Those students who did not possess sufficient phonemic awareness skills had to rely on memorizing words by sight. As these children entered second grade, the texts they read grew less patterned and predictable and as a result their reading skills began to suffer. *(See Graphs 1 and 2.)* These results prove that the deficit of phonemic awareness persists over time. If it is not rectified, it will continue to affect reading performance in middle and high school (Fawcett & Nicolson, 1995) and into adulthood (Pennington et al., 1990).





Torgesen, J.K. & Mathes, P.G. (2000). *A basic guide to understanding, assessing, and teaching phonological awareness.* Texas: Pro-Ed Press.

Phonemic awareness can also aid the acquisition of other literacy skills such as comprehension and spelling. For children to understand what they are reading, they must be able to read words fluently—both efficiently and accurately. By doing so, fluency frees children from the decoding process and allows them to attend to the meaning of the text (*Put Reading First*, 2003). Children without proper phonemic awareness skills must memorize words, an inefficient process for reading, and therefore cannot spend the necessary attention to comprehend text. Additionally, phonemic awareness, particularly the skill of segmenting words into phonemes, can help children learn to spell. When children understand that sounds and letters are related in a predictable way, they can connect the sounds to letters as they spell new words (*Put Reading First*, 2003).

Who Benefits from Phonemic Awareness Instruction?

Research indicates that almost *all* children can benefit from phonemic awareness instruction, including "normally developing readers, children at risk for future reading problems, disabled readers, preschoolers, kindergarteners, first graders, children in second through sixth grades, children across various socioeconomic levels, and children learning to read in English as well as in other languages (National Reading Panel, 2000)."

However, there is a population of children for whom phonemic awareness instruction is particularly critical. An estimated 20 percent of children are affected by a significant lack of phonemic awareness skills in kindergarten (Honig, B. 1997; IRA Board of Directors, 1998). These children have difficulty learning to decode because they are completely unaware of the fact that spoken language is segmented—into sentences, into syllables, and into phonemes. If there are no preventative measures in place, many of these children are eventually labeled as learning disabled or dyslexic and so continue to fall behind their classmates in reading skills (Snider, 1995).

Preschool and kindergarten age children are capable of learning and distinguishing the sound units of their primary language. Phonemic awareness instruction has proven beneficial for developing readers as early as age four and that instruction can have a lasting effect three years later. First and second graders and other children at-risk of failing to read have been shown to benefit from phonemic awareness training as well (Blachman, et al., 1999; O'Conner, Jenkins & Slocum, 1995).

Phonemic awareness instruction has proven valuable for children with reading disabilities. Learning disabled children often have deficiencies with phonological processing skills (Shaywitz, 1996). Research reveals that children with dyslexia and children with speech impairments have phonemic awareness skills that are significantly inferior to typically developing children (Sutherland & Gillon, 2005; Bruck, 1992). In fact, according to Torgesen & Mathes (2002), deficiencies in phonological awareness are one of the most reliable diagnostic indicators of reading disabilities. These children require more explicit and intense training in phonological awareness to have a substantial impact on their deficits (Torgesen et al., 1994). Research has further demonstrated that children who participate in extensive phoneme segmentation activities

can substantially improve their ability to perceive, discriminate, and manipulate sounds. In Gillon's latest research, preschoolers with speech impairments who received speech therapy including phonemic awareness and letter knowledge activities developed phonemic awareness skills that were equal to that of their peers without speech impairment (Gillon, 2005). Moreover, the children who received this instruction were also reading at or above grade level in their first and second years of school.

Implications for Instruction

The inability to phonologically process language is considered the most common barrier to early reading skills (Chard & Dickson, 1999; Liberman, Shankweiler & Liberman, 1989). Understanding the concept of phonemic segmentation—that words can be divided into individual phonemes and that those phonemes can be blended into words—is not an easy task for developing readers. It does not develop naturally or easily without instruction (Liberman & Shankweiler, 1985). Smith, Simmons & Kame'enui (1995) concluded that phonemes are difficult to perceive because of the following characteristics: a) they are the smallest phonological unit, b) they are not acoustically pure, c) they are independent of meaning in isolation, and d) they are abstract and arbitrary.

However, the National Reading Panel's (2000) review of the research clearly argues that:

- Phonemic awareness *can* be taught.
- The most effective way to teach phonemic awareness is through systematic and explicit instruction.

A number of studies have examined the effects of explicit and structured phonemic awareness instruction in kindergarten. These studies found that both the phonemic awareness and reading skills of the group receiving such explicit instruction were stronger than those of the control group (Adams, 1990; Ball & Blachman, 1991; Bradley & Bryant, 1983; Reiner, 1998). Furthermore, in *Put Reading First* (2003), Armbruster & Osborn concluded that phonemic awareness instruction is most effective when children are taught to manipulate phonemes by using the letters of the alphabet, and when instruction focuses on only one or two types of phoneme manipulation as opposed to several types at once.

Blachman, Ball, Black & Tangel (1994) specifically evaluated the influence of a phonemic awareness instructional program in kindergarten with at-risk children from several low-achieving, inner-city schools. These teachers administered 41 phonological awareness lessons over an 11-week period to small groups of four or five children. Each lesson was short, lasting 15 to 20 minutes, and each included 1) an articulation/segmentation activity, 2) one other phonemic awareness practice activity, and 3) one game that taught the names and sounds of letters. At the end of the instruction, the children in the treatment group significantly out performed the control group on a number of phonemic awareness measures, including phoneme segmentation, letter-name and letter-sound knowledge, phonetic reading of real and pseudo-words and developmental spelling (Blachman, 2000).

The Blachman et al. study also illustrates that phonemic awareness instruction does not need to take significant amounts of time to be effective in developing young children's skills. The National Reading Panel Report of the Subgroups emphasizes that phonemic awareness training lasting between 5 and 18 hours produced larger effect sizes than either short or longer treatments (National Reading Panel, 2000).

Research Into Practice With Sound & Letter Time

The path towards phonemic awareness is a step-by-step process. According to Adams (1990), there are five basic types of phonemic awareness tasks:

- Rhyme
- Oddity Tasks
- Oral Blending
- Oral Segmentation
- Phonemic Manipulation

Although some of these tasks, like rhyming, may be more accurately labeled as phonological awareness tasks, the mastery of these skills will ultimately lead to awareness at the phoneme level (Bryant et al., 1990).

According to Chard & Dickson (1999), these phonemic awareness tasks fall into a continuum of gradual advancement. The initial tasks, such as rhyming, fall at the beginning of the continuum. In the middle of the continuum are activities that relate to segmenting words into sounds and blending sounds into words. The most complex tasks include segmenting words into onsets and rimes and blending onsets and rimes into words. Each task type represents progressively more complex phonological skills that ultimately lead a student to the understanding that words can be divided into phonemes.

Scholastic Sound & Letter Time program follows this phonemic awareness continuum in the sequencing of the games and activities. Before instruction begins, students are assessed on their level of phonemic awareness skills. The results from this assessment are used to determine appropriate instructional groups. By comparing each groups' skill level to the phonemic awareness benchmarks described by Torgesen & Mathes (2000), the teacher can set instructional goals and determine the scope and sequence of the games and activities that will support each child in attaining those goals.

PILLAR TWO: ALPHABET RECOGNITION

The Importance of Alphabet Recognition

Although phonemic awareness is a very important component of literacy acquisition, it is not sufficient in itself. Another essential component is alphabet recognition, which involves letter shape recognition, letter-name knowledge, letter-sound knowledge and rapid-letter naming. Alphabet recognition, specifically letter naming, has historically been used as an indicator of future reading achievement (Snow et al., 1998). Numerous studies have proven that a child's knowledge of letters is a strong predictor of his/her success in learning to read (Bond & Dykstra, 1967; Share, Jorm, McClean & Matthew, 1987; Adams, 1990). Scanlon & Vellutino (1996) further revealed that letter knowledge was as strong a predictor on its own as other predictors combined. In fact, "reading scores in tenth grade can be predicted with surprising accuracy based on a child's knowledge of the alphabet in kindergarten" (U.S. Department of Health and Human Services, 2003).

Without a firm knowledge of letters, children will have difficulty with other aspects of literacy (Bradley & Stahl, 2001). The learning of letter names helps children understand the alphabetic principle, or how letters and sounds connect, because the names of many letters contain the sounds they most often represent (Lyon, 1997). This is supported by Scott & Ehri (1990) who demonstrated that prereaders become capable of forming letter-sound correspondences when they learn letters well enough to take advantage of the phonetic cues the letters provide. Developing readers who are able to acquire and apply the alphabetic principle will reap long-term benefits in reading acquisition (Stanovich, 1986). The understanding of letter-sound correspondence is a prerequisite to effective word identification, and a primary difference between strong and poor readers is their ability to use letter-sound correspondence to identify words (Juel, 1991).

Furthermore, research reveals that letter names may be a precursor to or facilitate phonemic awareness (Johnston, Anderson & Holligan, 1996; Stahl & Murray, 1994; Carroll, 2004). Bowey (1994) investigated this link by comparing the phonemic awareness of readers and non-readers to their levels of letter recognition. The results revealed a positive correlation between the two: children with strong letter recognition demonstrated higher levels of phonemic awareness than children with minimal letter recognition ability. Similarly, Murray, Stahl & Ivey's research (1996) found that the teaching of letters to preschool children improved their performance on phonemic awareness tasks.

Finally, letter recognition is known to facilitate word recognition. Studies which track eye movement during reading have revealed that skilled readers attend to almost every word in a sentence and process the individual letters that comprise each word (McConkie and Zola, 1987). Therefore reading is a "letter-mediated" process rather than a "whole-word-mediated" one (Just & Carpenter, 1987), and this process relies on a reader's attention to each letter in a word.

Ehri (2003) concludes that a skilled reader is able to read familiar words accurately and quickly because the necessary access routes have already been created and all of the letters have been secured in memory. Levin et al.'s (2002) studies of kindergarten children confirm this theory by demonstrating that knowledge of letter names helps children in word recognition tasks and spelling.

Who Benefits from Alphabet Recognition Instruction?
As with phonemic awareness, all children, particularly preschool and kindergarten age children can benefit from alphabet recognition instruction. Children must become expert users of the letters they will see and use to write their own words and messages (Lyon, 1998). Without a firm knowledge of letters, children will have difficulty with all other aspects of early literacy. However, according to a report from NCES (2000), 34 percent of children entering school cannot recognize letters of the alphabet by name.

Socioeconomic factors play a critical role in this lack of preliteracy skills, highlighting the particular need for at-risk children to receive alphabet recognition instruction. In their landmark research, Hart & Risley (1995) determined that there were significant differences in the amount and quality of preliteracy activities and level of vocabulary among various groups of children entering school. Most importantly, these school readiness differences were strongly correlated with variance in socioeconomic status. Thus, there exists a gap in background knowledge and preliteracy skills between those from disadvantaged and middle class backgrounds. A parent's education level and minority language status are also contributing factors to the gap, which ultimately leads to a gap in achievement (Hart & Risley, 1995; Bradley & Stahl, 2001). This gap has been demonstrated to impact alphabet recognition skills. According to NCES (1999), only 10 percent of children ages three to five living in poverty recognize all the letters in the alphabet, as compared to 28 percent of non-poor children.

Children who begin school able to quickly and accurately identify and articulate the letters of the alphabet, have an advantage in learning to read (Chard & Osborn, 1999). As children are exposed to many literacy activities, they will begin to recognize and discriminate letters. Children who have already learned to recognize most letters as preschoolers will have less to learn upon formal school entry (Lyon, 1997). Children whose knowledge of letters is not well developed when they start school require organized instruction and practice that will help them learn how to identify, name, and write letters.

Implications for Instruction
It is clear that letter recognition is a critical factor in learning to read, as letters are the most basic units of written language. Beginning readers cannot become skilled readers if they do not know and understand the alphabet (Ehri, 2003). Alphabet recognition is especially important because it is critical for understanding phonics. The goal of phonics instruction is to teach the alphabetic principle; that there is a systematic relationship between letters and sounds (Chard & Osborn, 1999). Phonics instruction teaches the beginner reader these letter-sound correspondences and how they can be used to decode words that have not been previously encountered.

Researchers have concluded that learning letter names and shapes can serve as a mnemonic for letter-sound associations, which then allows young readers to devote more energy to the critical tasks of decoding and comprehension (Adams, 1990).

According to Ehri (2003), children use several different strategies when reading words, all of which require the mastery of letter recognition skills. For unfamiliar words, children may choose to decode the word by using their knowledge of letter-sound correspondence to recall the sound of each letter and then blend those sounds into words. Children may also use analogy to read unfamiliar words by looking for familiar letters or letter combinations within the target word. Some children will attempt prediction, whereby they recognize some of the letters in the unknown word and can then guess the word from the context of what they are reading. Finally, recognizing words from memory or "sight words" still requires knowledge of letter-sound correspondences to attach the spellings of these words to their pronunciations and meaning in memory (Perfetti, 1992; Ehri, 2003). Each of these four strategies will not be practical unless the child has the ability to recognize letters and match them to their appropriate sound.

Research reveals that phonemic awareness instruction is more effective when it is combined with alphabet recognition training (Blachman, 2000). Bradley and Bryant (1983) clearly established the benefit of making explicit connections between sound segments and letters when teaching phonemic awareness. Their research compared two groups of four–five year old children. Those children who received instruction in sound categorization while connecting those sounds to letters achieved significantly higher scores in both reading and spelling than those in the control group. Four years later, Bradley conducted a follow-up study and determined that the children who received instruction in both phonemic awareness and letter-sound correspondences maintained their superior scores in reading and spelling.

Recent research continues to reveal that phoneme manipulation and phoneme segmentation skills are closely associated with letter knowledge and letter-sound knowledge (Gunning, 2000; Mann & Foy, 2003). Carroll (2004) conducted two studies investigating the links between letter knowledge and phonemic awareness. The first study evaluated a group of three–four year old children on letter knowledge, receptive vocabulary, and phonemic awareness tasks. Results revealed that no child was successful on any phoneme awareness task unless he/she knew at least one letter, and those children who scored significantly higher on the phoneme completion or phoneme deletion tasks recognized at least four letters correctly. In the second study, another group of four-year old children were provided twenty minutes of training in letter recognition for a total of 18 sessions. The results from this research indicate that letter knowledge instruction can improve letter knowledge performance—and that such knowledge is strongly correlated to the development of phoneme segmentation skills in preliterate children (Carroll, 2004).

Research Into Practice With Sound & Letter Time

According to Chard & Osborn (1999), a beginning reading program should include the following key elements:

- A variety of alphabetic knowledge activities in which children learn to identify and name both uppercase and lowercase letters.
- Games, songs, and other activities that help children learn to name letters quickly.
- A sensible sequence of letter introduction that can be adjusted to the needs of individual children.

The Sound & Letter Time curriculum thoroughly meets all these requirements. Through the fun and engaging games and activities, Sound & Letter Time teaches alphabet recognition by focusing on letter names, letter matching, and letter-sound relationships. These games and activities integrate phonemic awareness and alphabet recognition to improve a child's prereading skills. The small-group instruction allows teachers to adjust the level of instruction according to the skill levels of their children.

PILLAR THREE: PURPOSEFUL PLAY

The Importance of Purposeful Play

Young children learn best when they are actively participating in the learning process and are encouraged to explore, interact, create, and play (Katz, 1994; Thompkins, 1991). Play is an especially effective way of gaining knowledge. As children engage in play activities relevant to their interests they are building knowledge (Neuman & Roskos, 1993), and are more likely to understand and remember relationships, concepts, and strategies (Owocki, 1999). Research into the effects of play has linked play to improving creativity and critical thinking (Holmes & Geiger, 2002); attention, planning skills, and attitudes (McCune & Zanes, 2001), memory (Jensen, 1999, 2000); and language development and literacy skills (Clawson, 2002; Creasey, Jarvis, & Berk, 1998; Pellegrini, 1980).

Play positively impacts the cognitive and social development of children (Owocki, 1999). Children gain knowledge by constructing it through physical, social, and mental activity (Piaget & Inhelder, 1969; Bredekamp & Copple, 1997). Play gives young children an opportunity to build on their existing knowledge through exploring their world, interacting and cooperating with others, and learning how to concretely represent their thoughts and emotions in multiple ways (Owocki, 1999; Bodrova & Leong, 1996).

Vygotsky argued that the development of cognitive processes and activities occurs within social situations. This development happens most effectively when a child is engaged in problem-solving activities in collaboration with an adult who is able to structure the interaction and guide the child through tasks that are just beyond their capability (Vygotsky, 1978 as cited in Bowman, Donovan, & Burns, 2000)—the phenomenon widely known as the "zone of proximal development." Play can provide the perfect context for a teacher to guide children to those more challenging tasks and skills.

As children and adults engage in discussion and collaboration, children develop key language and early literacy skills necessary for reading. Educators must create structured opportunities for children to become involved with the concepts of letters, letter-sounds, and words (McLane & McNamee, 1991). Purposeful play is an effective strategy for creating these opportunities. Leong, Bodrova, et al. (1999) contend that play promotes four major skills necessary for the development of literacy, including:

1. Developing basic cognitive skills.
2. Developing symbolic representation.
3. Developing oral language.
4. Developing early literacy skills and concepts (i.e., sound to symbol correspondence).

Research confirms that play can be an effective method of promoting the essential early literacy skills of phonemic awareness and alphabet recognition. When young children engage in literacy-related play, they are trying to make sense of the basic concepts of reading and writing—and they are doing so long before they can actually read and write (McLane & McNamee, 1991).

Research-Based Purposeful Play in Sound & Letter Time

Sound & Letter Time uses several research-based purposeful play approaches to teach and reinforce phonemic awareness and alphabet recognition skills. Each of these approaches correlates to the four preliteracy skills significantly impacted by play, which were highlighted by Leong and Bodrova above. These approaches include:

- Relevancy to Children's Lives—*Develops symbolic representation.*
- Naming and Articulation—*Develops oral language.*
- Building Vocabulary—*Develops early literacy skills and concepts.*
- Gradual Advancement—*Develops basic cognitive skills.*
- Differentiated Instruction—*Develops basic cognitive skills and early literacy skills and concepts.*
- Motivation and Engagement—*Develops basic cognitive skills, symbolic representation, and early literacy skills and concepts.*

Relevancy to Children's Lives

To help young children learn, instructional activities need to be concrete, real, and relevant to their lives (Bredekamp & Copple, 1997). When children have meaningful experiences that connect to their own lives, they are better able to acquire important literacy skills, including phonemic awareness and alphabet knowledge (Neuman, Bredekamp, & Copple, 2000). It is also critical that children develop a broad base of general knowledge about the world in which they live. Background knowledge is important to the ultimate goal of reading—making meaning from text. It helps young readers to make sense of novel word combinations, gives meaning to potentially confusing sentences, and allows for inferences in communication, both spoken and written (Hirsch, 2003).

Research Into Practice With Sound & Letter Time

In Sound & Letter Time, children practice phonemic awareness skills by using common vocabulary that is relevant, meaningful, and frequently encountered. All of the photographs on the magnetic game cards are high-utility objects, animals, and people that can be used to explore and expand on children's existing knowledge. For example, with the *eggplant* card (*egg* + *plant*), discussion can include other examples of compound words, such as *cow* + *boy* = *cowboy*, and *foot* + *ball* = *football*. Additionally, Sound & Letter time can be effectively used to broaden children's background knowledge. Examples include:

- Rainbow picture card: children can be asked to identify other kinds of bows, such as a hair bow or bow and arrow.
- Igloo picture card: discussion can include who lives in an igloo and what is an igloo made of.

Naming and Articulation

According to Wagner & Torgesen (1987), naming speed is one of three distinct abilities that comprise phonological awareness (the other two are phonemic awareness and verbal short term memory). Naming speed, or the speed in which a person can retrieve and articulate item names, is an important measure because it indicates a person's ability to mentally access sounds, sound-sequences, and word meanings (Parill, Kirby, & McQuarrie, 2004; Cornwall, 1992; Bowers & Swanson, 1991; Davis & Spring, 1990).

The implications of naming speed are especially important in preliterate children. When children are first learning letters, their naming speed reflects their general letter knowledge. Bowers & Wolf (1993) propose that children with slow naming speeds cannot identify graphemes (letters) fast enough to support word recognition. This in turn interferes with the processes involved with letter-sound correspondences.

Research reveals that the most effective way for beginning readers to store sight words in memory is by analyzing the sounds in the spoken word and matching those sounds to the letters in the printed word (Ehri, 1992). Gaskins, Ehri, et al. (1997) argue that to help children fully represent words in memory, instruction must provide them with a model of how to analyze the words they are learning, along with opportunities to practice articulating, stretching out, and hearing the sounds in words.

Research Into Practice With Sound & Letter Time

Sound & Letter Time requires children to name the pictures on the magnetic cards prior to every game or activity. Children learn to correctly identify the picture, properly pronounce its name, as well as practice and improve their naming speed. To gain the most benefit, the Sound & Letter Time curriculum recommends that children initially practice pronouncing each word slowly, so that they learn to distinguish the individual sounds within each word.

Building Vocabulary

Developing an extensive vocabulary leads to greater language development and better comprehension of words in text (Baumann, Edwards, et al., 2003; Beck, Perfetti, & McKeown, 1982). A large oral vocabulary will also help readers to decode text. With printed words in their oral vocabulary, children are better able to map sounds to letters and read fluently (National Reading Panel, 2000). As children learn more new words, they gain additional general knowledge and can think of the world in more sophisticated ways. This sophistication ultimately leads to greater comprehension (Stahl, 2003).

Children learn the meaning of many words through indirect means. They will learn new words through their everyday experiences with language, such as conversations with fluent adults, being read to, and when capable, extensive independent reading (Armbruster, Lehr, & Osborn, 2001).

However, not all young children are equal in their vocabulary knowledge. Research reveals that preschoolers are entering formal schooling with significant vocabulary differences (Graves, Brunetti, & Slater, 1982), and that these differences can be largely attributed to socioeconomic status (Hart & Risley, 1995). Hart & Risley's seminal research revealed that over the course of one year a child in a professional family would hear 11 million words, while a child from a welfare family would only hear 3 million words. This difference in the exposure, amount, and quality of conversation ultimately impacts the developing vocabularies of young children, so that by age three, children from professional families possess significantly higher oral vocabulary than their disadvantaged peers (Hart & Risley, 1995).

Research Into Practice With Sound & Letter Time

Sound & Letter Time provides many opportunities to expose all children, especially those with special needs (at-risk, low SES, English-language learners), to many new words at an early age. The program includes hundreds of magnetic picture cards with images of common people, places, and things, representing much of the basic vocabulary that young children need to acquire. Sound & Letter Time offers extensive learning opportunities for new vocabulary, as well as practice and reinforcement for oral vocabulary already known. The magnetic picture cards are used in multiple Sound & Letter Time games, providing repeated exposure to help children store the vocabulary in memory.

Gradual Advancement

Phonemic awareness includes a progressively advanced scope and sequence of skills. Anthony et al. (2002) determined that phonological sensitivity tasks differ in their complexity. However, they follow a developmental sequence whereby children generally master word-level skills before mastering syllable level skills, syllable level skills before onset-rime skills, and onset-rime skills before phoneme-level skills (Anthony et al., 2003). Thus, higher-level skills, like phoneme sensitivity, cannot be learned until the child has mastered the previous tasks in the sequence (Adams, 1990).

Additionally, many researchers (Vygotsky, etc.) believe that for children to learn most effectively they must experience tasks that are challenging to them. With the collaboration of a teacher or other adult, children are able to overcome cognitive challenges, succeed, and move to more advanced tasks. Therefore, the interaction between the teacher and the child is a key component to that child's construction of knowledge and meaning. To help children through this process, teachers need to provide scaffolding to support children in incorporating new skills and concepts into already existing ones (Landry, 2001; Wood, 1998). During teacher-led scaffolding, questions or discussions are used to draw out existing knowledge and build upon it, which helps children develop the necessary strategies to solve new problems (Bowman, Donovan, & Burns, 2000; Bodrova & Leong, 1996).

Research Into Practice With Sound & Letter Time

The games and activities in Sound & Letter Time range in difficulty level. Through the program's assessment tools, the teacher can determine each child's stage of development along the sequence of phonemic awareness skills. The Teacher's Guide provides leveling guidance for all the games and activities, according to the difficulty of the specific phonemic awareness skills they target. For instance, initial sounds games are more difficult and require more skills than rhyming games, however, they are easier than games that require children to identify consonants at the end of words. In addition, Sound & Letter Time provides leveling suggestions *within* each game to make them, if needed, easier or more challenging.

Differentiated Instruction

Children come to school with various approaches and dispositions towards learning, as well as varying levels of background knowledge, language, and literacy readiness (Kagen, 1994). Therefore, in every classroom, there are children of different skill levels and abilities. This is particularly true of phonemic awareness and alphabet recognition skills. As previously noted from Anthony et al.'s research (2002; 2003), phonological awareness skills fall into a sequence that ranges in difficulty—and children may enter school anywhere along that continuum.

To ensure that all children achieve their full potential, differentiated instruction for groups of children within the same classroom is needed (Torgesen, 1998). Often this means providing instruction with multiple groups of students working on different tasks ranging in difficulty levels and degrees of scaffolding (Tomlinson, 2000). Tomlinson further recommends that instruction be differentiated according to three areas:

- Content—the major concepts, skills, and principles that students need to learn, adjusted for difficulty level.
- Process—activities and other instructional methods used to facilitate the mastery of content, such as small groups.
- Product—the way that children demonstrate the knowledge they have gained and apply it to problem solving tasks.

Research Into Practice With Sound & Letter Time

Research reveals that small-group instruction, such as that provided in Sound & Letter Time, is most effective with helping students acquire early literacy skills (*Put Reading First*, 2003). After the initial Sound & Letter Time assessment, children can be appropriately grouped together for differentiated instruction. The game and activity content is leveled by difficulty, making it easy for teachers to select and engage in appropriate learning activities with each group of children, according to that group's abilities and developmental stage. This instructional format allows Sound & Letter Time to be effective for all children, including those with special needs.

Motivation and Engagement

Motivation and engagement is critical for learning and achievement. In fact, some researchers believe that engagement facilitates motivation, because it encourages children to understand, builds confidence, and helps them to enjoy the learning process (Guthrie, 2001). Researchers and practitioners agree that the teaching of basic literacy skills should be conducted in a fun and engaging way. The National Reading Panel (2000) contends that "systematic phonics instruction can be provided in an entertaining, vibrant, and creative manner." Torgesen and Mathes (2000) further observe, "If kindergarten phonological awareness instruction is not fun, it is not being done properly."

Effective and engaging early literacy instruction does not require a highly structured program. Rather, engagement and motivation levels are higher among children in preschool programs that make effective use of incidental teaching techniques than programs that rely solely on highly structured instructional methods (McWilliam, 1991). Incidental teaching also provides opportunities for scaffolding through the expansion and extension of typical routines and activities (Noonan & McCormick, 1993).

Research Into Practice With Sound & Letter Time

Sound & Letter Time teaches and reinforces critical phonemic awareness and alphabet recognition skills using a fun educational game format. Children are engaged in early literacy games and activities that motivate them to practice the key skills necessary for reading. Sound & Letter Time provides extensive opportunities for creativity, scaffolding, positive interactions between teacher and children, and the incidental teaching of new vocabulary and background knowledge. The engaging nature of the program particularly serves special needs children as it encourages learning through play, which is motivating to children who may face ongoing challenges in the classroom.

CONCLUSION

Phonemic awareness and alphabet recognition are the strongest predictors of later reading achievement. Research reveals that they are among the first, fundamental skills that all children need to master for successful reading as they progress through school. Phonemic awareness and alphabet recognition are the necessary precursors to decoding and sight word recognition, both of which must be developed before children can derive meaning from text. Teachers can effectively teach these skills through purposeful play strategies that include systematic teacher-led instruction, while encouraging children to explore and build on their existing knowledge.

Sound & Letter Time is built on the three research-based pillars of phonemic awareness, alphabet recognition, and purposeful play. The program offers fun, engaging, and motivating games and activities, all of which include detailed instruction for the teaching and reinforcement of important skills along the phonemic awareness continuum. Sound & Letter Time also reinforces the key skill of alphabet recognition through the practicing of letter names, letter-sounds, and letter-sound correspondence. Most importantly, the sequential curriculum allows *all* children, including those with a variety of special needs (at-risk, speech/language delays, and English-language learners) to be served in an effective and engaging way.

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