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Interventions for Children Experiencing Early Reading Difficulties[1]

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There is agreement in our nation that all children must learn to read. This commitment has arisen in part from a body of research indicating that we possess the knowledge and the means to realize this goal. Many children are currently making good progress in learning to read, but there is subset of children that are of concern. The good news is that special educational interventions have proven effective in altering the slow progress of this set of children so that they become able to benefit from classroom instruction. It is the purpose of this chapter to review the research concerning early reading interventions and to draw implications for school policy.

I believe it is important to summarize the results from intervention research at this time for several reasons. First, early reading interventions have been the focus of considerable research activity. A number of useful analyses have been developed that provide the basis for a reliable synthesis. Second, the results from the research warrant the derivation of policy implications. In the end, we study interventions not only to know more about the process of reading development in a theoretical sense, but for their assumed utilitarian value—to inform

teachers and administrators so they can help all children, particularly those lagging behind, to become literate.

EARLY READING INTERVENTIONS

What does "intervention" mean? Early use of the term refers to the Divine origin of intervention. More recently, according to the Oxford English Dictionary, it has come to mean "the action of intervening, stepping in, or interfering in any affair, so as to affect its course or issue." In the area of reading research and practice, *intervention* is a term that has recently attained prominence. A search of the ERIC literature reveals that the term was rarely used in the 1970s and only a little more frequently in the 1980s.[2] In contrast in the1990s great numbers of studies describe individual, small group, or class interventions designed to alter the course of children's reading development.

Interventions tend to be of three main sorts: (1) comprehensive interventions representing new or restructured literacy programs designed for classes of children, (2) focused interventions for classes, subgroups, or individuals that supplement existing programs with skills or knowledge to facilitate children's development, and (3) comprehensive intervention designed for individuals and for subgroups of children who do not respond well to existing programs. The three types of interventions are shown in Figure 1.

The first type, **comprehensive classroom programs**, includes a range of programs such as basal programs, Whole Language programs, Success for All and the like. When first implemented, they represent a new adoption or a restructuring of an existing literacy program. Such classroom programs WILL NOT be the focus of this review. In this review, I have accepted classroom instruction as given, and the focus has been on supplementing existing classroom

instruction. I chose this stance in part because the research literature on alternative forms of classroom instruction has found phonics, basal, and whole language programs to be similar in

Figure 1. Comprehensive and Focused Literacy Interventions for Classes, Small Groups, and Individuals.

	Comprehensive Interventions	**Focused Interventions**
Class	Classroom literacy programs that are commercial or teacher designed, entailing a balance of daily activities involving word study, text reading, word meaning, comprehension, and writing with the class and independently. Examples include approaches based on a Whole Language philosophy, basal programs, Success for All, and the like.	Instructional programs focused on a particular skill or strategy to complement the existing classroom program. Examples include instruction in phonemic awareness, phonics, fluency, and word meaning.
Small Group	Small group programs involving word study, writing, text reading, word meaning, and comprehension to support the development of children who are falling behind their classmates. Examples include restructured Title I programs and other comprehensive small group programs.	Focused instructional programs for small groups of children needing explicit instruction in selected areas. Examples include instruction in phonemic awareness, phonics, fluency, and word meaning.
Individuals	Individual tutorial programs involving word study, writing, and text reading to support the development of children who are falling behind their classmates. Examples include Reading Recovery and other tutorial programs.	Focused instructional programs for small groups of children needing explicit instruction in selected areas. Examples include individual instruction in phonemic awareness, phonics, fluency, and word meaning.

effectiveness. Even the eight first-grade classroom comparisons of whole language instructional emphasis with that of phonics (either systematic or those involving a variety of approaches) reviewed by the National Reading Panel Report (2000) revealed a wide range of effectiveness, with phonics programs sometimes more effective and other times whole language programs more effective. There was only a small differential advantage on average for programs that favored a phonics emphasis (unweighted mean: $d = 0.17$; weighted mean: $d = 0.23$).[3] Thus, if the classroom programs serve the needs of most children, the evidence suggests that a change need not be made in existing classroom literacy programs. Instead, it is more appropriate to fine-tune instruction in ways recommended below. However, if the classroom program is not effective with many children, no amount of fine-tuning will help. A supportive classroom literacy program will need to be developed.

In sum, in this review, I will not examine the effectiveness of classroom literacy programs. Instead, I will explore (1) focused programs supplementing existing programs and (2) comprehensive programs for subgroups of children and individuals.

Focused Programs to Supplement Class Instruction

Many researchers and educators currently believe that early literacy programs designed to develop young children's reading comprehension should focus on two fundamental sorts of knowledge: (1) knowledge of print and (2) facility with language and word meanings (Whitehurst & Lonigan,1998). In the area of print-related knowledge, instructional activities are needed to help children understand the alphabetic nature of English writing. Interventions focused on phonemic awareness, for example, help children realize that spoken words are composed of sounds. Similarly, instruction in letter–sound knowledge helps children to associate the sounds of words with printed letters. Some children can infer this knowledge through reading

and writing, but others profit from explicit instruction. Not all classroom programs develop this knowledge effectively for all children. Similarly, some children do not become fluent readers and require special interventions to promote their fluency. Hence, in a variety of ways, special interventions may be needed to supplement existing programs in developing children's knowledge and proficiency with print. There are a sufficient number of research studies in these areas on which to base the derivation of policy implications.

The development of "language concepts" also needs to be supported in kindergarten, first and second grade (Beck & McKeown, 2001; Biemiller, 2001). But this area has received less research attention. Indeed, only the practice of storybook reading has been studied in a sustained fashion in the preschool and kindergarten years. This research supports the conclusion that children's vocabulary is enhanced by focused instruction in which teachers read aloud conceptually challenging materials and explain the meaning of new words.

In sum, focused interventions in the areas of phonemic awareness, phonics, and fluency may enhance children's facility with print. Similarly, exposure to new ideas through materials read aloud and discussed may enhance children's vocabulary and language concepts. Thus, it may be appropriate for classroom teachers to consider such interventions. But before interventions should be put in place, teachers and other school policy makers need to examine the nature of existing classroom reading programs. If, for example, classroom programs strongly emphasize phonemic awareness or phonics, there may be little or no need to supplement instruction through intervention in theses areas. The policy implications that derive from recent intervention research should not be applied blindly, but responsively, following an analysis of the existing classroom reading and writing programs.

Focused and Comprehensive Instruction for Subgroups and Individuals

Even with classroom literacy programs enhanced through focused interventions, there may still be a need to support the literacy development of subgroups of children or individuals who are having special difficulty attending and learning in the classroom. Specialized programs, developed for subgroups or individuals, offered within or outside the classroom, take two main forms: (1) those focused interventions involving an aspect of literacy learning (e.g., phonemic awareness, phonics, fluency, and vocabulary development), and (2) those comprehensive interventions that integrate a variety of reading and writing activities.

The areas of **focused intervention** described in the prior section may also be developed for selected subgroups of children or for individiuals. Through assessment in the beginning of the year and ongoing assessment, children who have weaknesses in particular areas underlying literacy and those failing to make progress with the regular classroom literacy program may need to be provided with focused instruction in such areas as phonemic awareness, phonics, fluency, and/or vocabulary development if deficiencies are indicated.

There is also a set of **comprehensive interventions** for individuals and small groups that integrates a focus on print-related knowledge with the development of language concepts. Reading Recovery is a comprehensive intervention that has received most research attention (Shanahan & Barr, 1995). The model of Reading Recovery has inspired a set of similar interventions for small groups and individuals that have also proven effective with children who are not progressing well and would profit from special support. This review will also consider this group of comprehensive literacy interventions for young children.

The remainder of the chapter is organized into five sections. In the first, I review the literature in four areas of focused literacy intervention: phonemic awareness, phonics, fluency,

and language concepts (storybook reading). Interventions in these areas may be provided to the class as a whole or be organized for subgroups and individuals needing special support. In the second, I focus on the research pertaining to comprehensive individual and small group interventions. In the third section, I describe policy implications for kindergarten, first, and second grade reading instruction. In the fourth section, I describe ways in which assessment evidence may be used in implementation of these policies. The chapter concludes with a summary.

FOCUSED INTERVENTION PROGRAMS

The first three print-related interventions described in this section are appropriate at different stages in the development of reading knowledge. Ehri (1998), in her developmental formulation of children's ability to read words, describes a four-phase scheme. In the *Pre-Alphabetic Phase*, children can recognize sight words by remembering one or two visual cues related to the word, but ignoring other cues; they may have limited knowledge of letter names and are unable to decode. In the *Partial Alphabetic Phase*, they are able to read sight words by remembering one or several letters in words that relate to sounds of the word; they know most alphabet letter names and can represent some sounds in invented spelling. In the *Full Alphabetic Phase*, they know some letter names and sounds and are able to read sight words by remembering their spellings. In the *Consolidated Alphabetic Phase*, they can decode unfamiliar words rapidly, are learning spelling patterns, and are in control of an increasing number of words recognized on sight.

Using Ehri's developmental sequence to help us think about how children progress from one phase to another, it would seem that instruction in phonemic awareness is appropriate for kindergarten children in the *Pre-Alphabetic Phase* to help them move into the *Partial Alphabetic*

Phase. Phonemic awareness experiences will help children become aware of the alphabetic nature of English. Instruction in phonics is appropriate for kindergarten and first grade children in the *Partial Alphabetic Phase* and will help them move into the *Full Alphabetic Phase*. Explicit instruction in letter–sound associations is needed by some children to learn them. Finally, as children enter the *Consolidated Alphabetic Phase* some profit from fluency instruction to help them increase their reading rate and recognize words instantaneously.

Phonemic Awareness

A major challenge for children learning to read is to become aware of the alphabetic nature of English—that words are composed of phonemes that relate in predictable ways to letters. Developmental models highlight phonemic awareness as an important precursor to reading acquisition. Phonemic awareness (PA) refers to the ability of children to "attend to and analyze the external sound structure of spoken words" (Snow, Burns, & Griffin, 1998). Correlational studies suggest the importance of children becoming aware of phonemes in speech, and a substantial body of research has determined experimentally that phonemic awareness training has a significant positive influence on learning to read.

This body of experimental research varies along a number of dimensions. Some studies are of short duration, but most extend over at least several months. Some are conducted in laboratory or tutorial settings, others in classrooms. For the studies conducted in classrooms, the instruction may be provide by researchers to control its form and content or by teachers to enhance the applicability of findings. In almost all studies, the phoneme awareness training is not an integral part of language arts instruction; rather, the instruction is a self-contained supplement to ongoing instruction—an intervention.

A meta-analysis of this body of research conducted by the National Reading Panel (2000) focused on a set of 52 studies of PA interventions published in peer-reviewed journals. Of these, 41 entailed interventions with English-speaking children—4 studies involved preschool children, 20 kindergarten children, and 11 first graders; the remainder treated the learning of children in second grade and above. The analysis revealed that the interventions focusing on the development of PA yielded highly significant results, as represented in the form of an "effect size" of 0.86 (d = 0.86). An effect size is a standard score for comparing treatment gains or losses across studies. It expresses differences between the experimental and control groups in terms of standard deviations. Thus, an effective size of +1.00 means that the experimental sample outgained the control sample by one full standard deviation (Shanahan & Barr, 1995). For the PA studies, an effect size of 0.86 means that the performance of the children receiving special instruction in PA increased their knowledge of PA by 86 percent of a standard deviation over what their knowledge would have been without special instruction (the control group performance). Raising the performance of initially low achieving children by almost a standard deviations means that many will have the knowledge to profit from classroom instruction. The highest gains due to PA interventions were found for preschoolers, followed by kindergarteners, and then by first graders and older children. The gains were more moderate for outcome measures that involved reading, with preschoolers profiting significantly more than other groups of children. Both low as well as mid-high SES students benefited from the PA intervention.

An examination of the characteristics of instruction suggest that PA interventions are more effective when (1) letters are involved as part of instruction than not, (2) one or two skills are taught rather than many, (3) children are taught in small groups rather than as a class or individually, and (4) instruction lasts between 5 and 18 hours spread out over a school year.

Interventions that exceeded 18 hours were significantly less effective; however, less than 5 hours of instruction may be effective with preschoolers.

Phonics Instruction

Disputes over the most effective way to teach children to read extend back into the 18th and 19th Centuries and have continued into the 20th Century. A variation of this debate emerged in the 1980s over the value of "whole language" in comparison with systematic phonics and traditional approaches.

Although the development of phonics is sometimes discussed along with phonemic awareness, technically they are different. Phonics involves the teaching of letter–sound associations, decoding, and blending. My goal is to consider phonics interventions that supplement classroom programs. Yet, this proves difficult, since most reviews of this literature fail to distinguish phonics instruction that supplements ongoing instruction from that involving classroom programs. Moreover, many studies do not document the various literacy activities that children experience in addition to the phonics intervention that is the focus of research.

Some phonics interventions emphasize learning letter–sound associations and sounding out and blending of sound into words (synthetic or systematic phonics). Other programs teach decoding with larger subunits of words, in addition to letter-sound associations. Both of these, as well as other phonics approaches, are typically compared to instruction in which the teaching of phonics may be opportunistic and less systematic; typical comparisons include basal programs, whole language instruction, and whole word emphases. The research comparisons help us to understand the value added when children learn phonics explicitly and systematically. They may provide the basis for suggesting that an existing instructional program needs to be modified or complemented with an intervention targeting phonics concepts.

This body of experimental research varies. Some studies are of short duration, but most extend over the period of at least a year. Some are conducted in classrooms, but others involve "pull-out" programs. In most programs, teachers shape instruction to respond to student learning, but some involve scripts for teachers to follow. In some studies, the phonics teaching seems to be an integral part of reading and writing instruction. In others, there is little relationship; the instruction is a self-contained supplement to ongoing instruction.

A meta-analysis of this body of research conducted by the National Reading Panel (2000) focused on a set of 38 studies involving phonics instruction. Of these, 6 studies involved kindergarten children; 12 first graders; and 5 second graders. Students in a majority of the comparisons (n = 13) were considered to be at risk. The analysis revealed that systematic phonics instruction resulted in moderately beneficial results (d = 0.44) in comparison with instruction that involved less systematic forms of phonics instruction. Synthetic phonics was more beneficial ($\underline{d}$=0.45) than phonics instruction involving larger subunits of words ($\underline{d}$ = 0.34). Results were more positive for kindergarten (d = 0.56) and first grade children (d = 0.54) than for older children (d = 0.27). Systematic phonics was most effective for children at risk in first grade (d = 0.74) [most of the children in the kindergarten sample were at risk]. Low SES students benefited more than others. The instruction across all grade levels was similarly effective when children were tutored, instructed in small groups, or taught as a class. For kindergartners and first graders, the results were most substantial for the outcome measures of decoding regular words (d = 0.98), moderate for spelling (d = 0.67) and comprehending text (d = 0.51), and low for the few studies that measured oral reading (d = 0.23).

Fluency

Following the beginning stages of learning to read, some children become fluent readers—they are able to read text quickly, with expression and with few miscues. How does this happen? In the 1970s, researchers argued that fluency was a product of sight word automaticity—learning to recognize words quickly and effortlessly. And while this is true, practical experience has taught us that fluency comes mainly through contextual reading practice, not drill with isolated words (although the latter may also be helpful with some children). Through contextual reading, children consolidate their knowledge of sight words and learn to focus on meaning. Sight word automaticity is important precisely because when children can focus less attention on word recognition, they are free to focus more on the meaning of what is being conveyed (Stanovich, 1980).

There appears to be a continuum in the development of fluency. In the initial stages of learning to read, children often read in a word-by-word fashion, with a number of miscues. Even while an increasing number of words are read accurately, the conscious effort of children is still apparent. Through additional reading practice in first and second grade, children expand the number of words they recognize accurately and without effort. Stanovich (1980) reports that "most high frequency words are automatized to adult levels by the third grade" (p. 60). Yet the reading rate continues to increase after words are recognized automatically, and the silent rate of readers progressively exceeds their oral reading rate.

How can teachers help children to become fluent readers? Many studies have established that children who become fluent readers are those who read a lot (National Reading Panel, 2000). Yet it is not clear from this evidence whether reading a lot causes fluency or fluency leads to more reading, or if both of these have some other underlying cause. Recent experimental

research provides some evidence on this issue. The most comprehensive evidence on how to improve reading fluency comes from the National Reading Panel Report (2000). The instructional research they reviewed fell into two main groups: (1) guided oral reading practice and (2) independent silent reading practice. Studies selected for analysis were experimental in design that included students in kindergarten through grade 12. Only a few studies, however, involved students from kindergarten and from grades 1 and 2—those that we are most interested in here.

Guided oral reading studies involved such approaches as repeated reading, neurological impress, and paired reading. Each helped students to develop fluent reading through repeated oral reading practice and guidance. Fluency training tended to be relatively brief (15 to 30 minutes several times a week) while students were concurrently engaged in other classroom reading activities. Conclusions about the effectiveness of these instructional approaches were based mainly on a meta-analysis involving 14 of the 16 experimental group studies. Results were moderately significant ($d = 0.55$) for word recognition outcomes, modest ($d = 0.35$) for reading comprehension, and somewhere in between for fluency ($d = 0.44$). Generally, the results are sufficiently positive to conclude that guided repeated oral reading is an effective means to help students improve their fluency. The results for second grade students and for learning-disabled and transitional second-grade students were similar to the more general findings.

Approaches such as sustained silent reading (SSR) and DEAR (drop everything and reading) are in common use in elementary schools. Typically students read silently for about 20 minutes a day with no teacher monitoring. Yet, only 14 studies were identified in the National Panel Report that involved experimental comparisons assessing the effectiveness of silent reading practice. In some comparisons independent silent reading was compared against other

forms of reading instruction; in others, against other nonreading activities. Outcome measures varied from study to study, including comprehension, vocabulary, attitudes, and general reading achievement; none included measures of fluency. Moreover, results tended to show no difference between the experimental and the control groups on the outcome measures. The results from studies involving second graders were similar. Thus, there is no evidence leading us to recommend this practice at this time. Further research is needed particularly in the primary grades to test the effectiveness of silent reading practice and to determine which forms of teacher monitoring are most effective.

Vocabulary: Storybook Reading

Children in the preschool years increase their knowledge of word meanings and learn how to form words into meaningful units. Conversations within families and other environmental factors influence the developing language of children in the preschool years. Storybook reading, to be discussed in the following section, has been shown to have a significant influence on the development of receptive and expressive language in some studies (Whitehurst & Lonigan, 1998). Once children begin formal schooling, they must become able to comprehend more decontextualized forms of language used in the stories and informational books they hear and the books they read. Although the reading materials in the primary grades are often not challenging conceptually, once children begin reading more informational books and receive content area instruction later in the primary grades (grades 3 and 4), they encounter a high loading of unknown vocabulary and unfamiliar sentence structures.

By the time children enter kindergarten, wide discrepancies have been observed between the vocabularies of high and low SES children. Further, although some vocabulary growth occurs in kindergarten, first, and second grade, it is not what we might expect if children were

experiencing conceptually challenging materials and explicit forms of instruction (Biemiller, 2001). Children's vocabulary has been shown to have a strong relationship with reading comprehension, although only a few studies have been successful in demonstrating a causal connection. Nevertheless, few would disagree that an important educational objective should be to help children develop their knowledge of word meanings and command of language structures.

Storybook reading has been the focus of extensive research. Sulzby and Teale (1991) in their review of this literature emphasize several characteristics of storybook reading, including its social nature; that is, the words being read from text do not occur by themselves, but are elaborated through explanations, comments, and questions. These social-interactional patterns differ for parents and for teachers, but for any particular individual, a stable pattern can be identified. Indeed, the predictable and recurring pattern of storybook reading seems to enable children to participate. Descriptive studies also show that interactional patterns are responsive to such characteristics of children as their age and development and their past experience with storybook reading, as well as to the type of book being read and the familiarity of children with particular stories.

Many investigations of storybook reading focus on parent–child storybook reading and explore its consequence for the literacy development of children. It is widely believed that storybook reading has strong effects on later literacy development. Bus, van IJzendoorn and Pelligrini (1995), in a meta-analysis of this literature, conclude that parent–child storybook reading does have significant consequence for language growth, emergent literacy, and reading achievement.

From this large body of research on storybook reading, we are concerned with those studies conducted in preschool and primary school classrooms. Unfortunately, there are few experimental studies of how teachers can help children in the primary grades to develop their knowledge of word meanings. The National Reading Panel (2000) located five comparisons involving kindergarteners, two for first graders, and two for second graders. And with few exceptions in which children read the materials themselves, most involved storybook reading by teachers to children. Experimental research shows that when teachers read storybooks aloud in preschool and primary class, their explanations tend to enhance the vocabulary development of their students. When they make comments and ask open-ended questions, children respond with more complex comments than when factual questions are asked, and the children's listening comprehension and expressive language improve.

Particularly among low SES children, it seems better to read the same books repeatedly over time than to read many different books. Informational books, as well as storybooks, should challenge the conceptual development of children and stimulate their interest in reading. Moreover, when children read or "pretend read" the books their teachers have read aloud to them, their understanding of written language and story structure tends to be enhanced.

COMPREHENSIVE INTERVENTION PROGRAMS

Special tutorial and small group interventions gained prominence in the 1960s with the advent of federal Chapter 1/Title I funding. However, the modest effectiveness of these pull-out programs, coupled with the loosening of restrictions on the use of federal funds, laid the basis for the development of alternative early literacy models in the 1980s and 1990s. In this section, I focus only on special support for slowly progressing children, not those who should be able to learn well from balanced classroom instruction. I focus first on Reading Recovery, which has

received considerable research attention, followed by other tutorial and small group interventions designed for children at risk.

Reading Recovery

Reading Recovery was developed in New Zealand in the 1970s by Marie Clay (Clay, 1979). This program has influenced the thinking of a generation of literacy educators. In the 1970s, special reading instruction was typically offered to children after they had failed to learn to read well, usually in the second or third grade and above. Generally, trained reading specialists taught basic reading skills to individuals and small groups.

The approach of Reading Recovery contrasts with skills-based tutoring in several respects. First, instruction was offered to children at the age of 6 years after 1 year of instruction, rather than later. Second, the format of the lesson was comprehensive. Children read extensively from a series of books that were graded in difficulty and received writing support that focused on letter recognition, phoneme awareness, letter–sound representation, and word writing. Third, assessment was an integral part of every lesson and served as the focus of subsequent work. Fourth, Reading Recovery teachers received intensive training that was based on observation of practice. Finally, the standard for determining success was modified. In most prior experimental assessment of tutorial effectiveness, the standard was a significant difference between a control and an experimental group, and this criterion continues to be used in many studies. Reading Recovery was among the first to define successful intervention as one that brought children from the lowest twenty percent of a class up to the average so that they could profit from class instruction.

How successful has Reading Recovery been in achieving this goal? Experimental comparisons show that many students receiving Reading Recovery are brought up to the average

of their class. However, some children (10 to 30%) do not achieve this goal. Average estimates of program effectiveness are high (in the range of $d = 0.70$ for vocabulary and $d = 0.92$ to 1.50 for reading comprehension). Concerns about the program center mainly around its cost.

Other Comprehensive Interventions

Influenced directly or indirectly by the approach of Reading Recovery, a number of comprehensive early interventions for individuals and small groups were developed and tested in the 1990s. In addition, reviews have been made of programs involving volunteer tutors.

Tutorial Programs. Because results from studies of tutorial instruction in kindergarten are just beginning to appear, it is premature to draw conclusions at this time. In contrast, more tutorial programs have been developed for first graders. The National Reading Panel Report (2000) shows that tutorial programs similar in design to Reading Recovery realize similar results (e.g., $d = 0.93$ for word identification and $d = 0.73$ for comprehension). One study following the model of Reading Recovery, but with more explicit forms of word study, realized particularly successful results in the area of word identification ($d = 2.94$). Strong results have also been shown for the tutorial component that is coupled with classroom instruction in Success for All (for work attack, $d = 0.51$ to 4.22 and for reading, $d = 0.37$ to 1.79). Generally, it can be concluded that various forms of tutorial instruction will enhance the learning of those first graders who are at risk of failure. Similar to kindergarten, few tutorials have been developed for slowly progressing second graders; thus, it is premature to draw conclusions at this time.

Small Group Programs. Similarly, small group programs have been designed specifically for children making slow progress. Programs in phonemic awareness and phonics described previously have been found to be effective for kindergarten and first-grade children taught in small groups. In addition, there are a number of comprehensive instructional programs

that combine a focus on repeated reading and comprehension of graded books with phonics, word study, and writing. For example, in their review of beginning reading interventions, Hiebert and Taylor (2000) report that such programs tend to promote progress. In one involving small groups composed of three children, gains were made in word recognition (d=1.39) and text reading (d = 1.16); in another with groups of six or seven, children showed moderate gains on a standardized reading test (d = 0.48). Yet, when a small group version of Reading Recovery was compared with the tutorial format, it was effective (d = 0.41 in text reading), but less so than the tutorial model (d = 1.50 in text reading) (Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1994). These results suggest that small group instruction may greatly enhance the progress of kindergarten, first, and second grade children; yet the advantage may be less than for tutorial instruction.

Volunteer Tutoring. Stimulated by the America Reads Challenge Act of 1997, numerous volunteer tutoring programs have been developed across the nation. They vary in content, design, and supervision, although a number seem to reflect the Reading Recovery model that includes reading and rereading leveled books, writing, and word study, including a focus on phonemic awareness and letter–sound associations. Only 3 of the 17 studies reviewed by Wasik (1998) included equivalent treatment and comparison groups to assess program effectiveness. One of these involving second and third graders realized a moderate advantage on word recognition (d = 0.61 to 0.68) and substantial advantage on oral reading (d = 1.07 to 1.77). Yet there was considerable variability within samples. Given the limited number of controlled evaluations, it is premature to draw conclusions about the potential contribution of volunteer tutoring.

POLICY IMPLICATIONS

This review has focused on four areas of early literacy development about which there is sufficient research evidence to make recommendations for focused interventions into classroom practice. In the area of print-related knowledge are phonemic awareness, phonics, and fluency; and in the area of language concepts, development of vocabulary through storybook reading. In addition, the research literature pertaining to comprehensive forms of tutorial and small group instruction for children progressing slowly was reviewed. Policy implications can be drawn based on this research that will facilitate the literacy development of all children.

Focused Interventions

Phonemic Awareness. A substantial number of studies have been conducted with kindergarten and first grade children. The results show that children who become aware of the sounds in words also become better spellers and readers. The findings also show that not much time that is required. As little as 5 hours up to 18 hours, over a school year, in mini-lessons is sufficient; more time beyond this is counterproductive. Activities to develop children's awareness of sounds include the study of sounds in children's names and how they are written, spelling and writing activities, listening to words and identifying initial sounds, and listening to two or three words and identifying other words that begin the same way. Instruction that focused on one or two activities achieved better learning than those with more. Instruction in small groups and individually is more effective than with the whole class. Better results were obtained for instruction offered in kindergarten and in first grade than later.

Some argue that children will eventually develop this knowledge as they learn to read; but this is to miss the point. When children have this awareness early in learning to read, they can make use of this knowledge as they explore words and their representations. This knowledge

provides the bridge into understanding the alphabetic nature of English. Therefore, instruction in phonemic awareness should be part of all kindergarten programs.

Phonics. A substantial number of studies have been conducted with kindergarten and first-grade children; relatively few involved second graders. Those for kindergarten pertained mainly to children at risk; those for first grade to unselected classes as well as students at risk. The results suggest that at-risk children in both kindergarten and first grade, as well as normally progressing readers in first grade, profit from explicit instruction in phonics. Thus, classroom programs should include explicit instruction in letter–sound associations. The evidence is limited concerning second grade, and that which does exist suggests only a small advantage for more explicit forms of phonics instruction at this level.

Fluency. The results from research are sufficiently positive to conclude that guided repeated oral reading is an effective means to help students improve their fluency. The results for second-grade students and for learning-disabled and transitional second-grade students were similar to the more general findings; no first graders were included in the meta-analysis. In contrast, studies involving silent sustained reading and other forms of reading practice did not lead to improved vocabulary or comprehension; fluency was not tested. Thus, there is no evidence to support the use of this practice at this time. Further research is needed particularly in the primary grades to test the effectiveness of silent reading practice and to determine the forms of teacher monitoring that enhance reading fluency.

Vocabulary-Storybook Reading. Because of the wide discrepancies between the vocabularies of high and low socioeconomic children, it is important to provide children, especially those progressing slowly, with more conceptually challenging materials and organized forms of instruction. Although more studies of primary-grade teachers are needed, experimental

research supports the effectiveness of teacher comments, explanations, and open-ended questions during storybook reading in enhancing vocabulary and language development.

Comprehensive Intervention Programs

A variety of tutorial and small group programs were reviewed. These are designed for children at risk of academic failure because of their slow literacy progress. Generally, it can be concluded that various forms of tutorial instruction will greatly enhance the learning of first graders who are at risk of failure. Since relatively few tutorials have been developed for slowly progressing kindergarten and second graders, it is premature to draw conclusions at this time. The research shows that small group instruction will enhance the progress of kindergarten, first-, and second-grade children. There has been little comparative research on the advantages of tutorial versus small group instruction, although one study did find that first graders learn less in small groups than in tutorials.

POLICY IMPLEMENTATION

This review of recent reading intervention research lays the basis for thinking about literacy instruction in kindergarten, first, and second grade. As discussed earlier, in this review I have accepted classroom instruction as given, and have instead focused on supplementing existing classroom instruction.

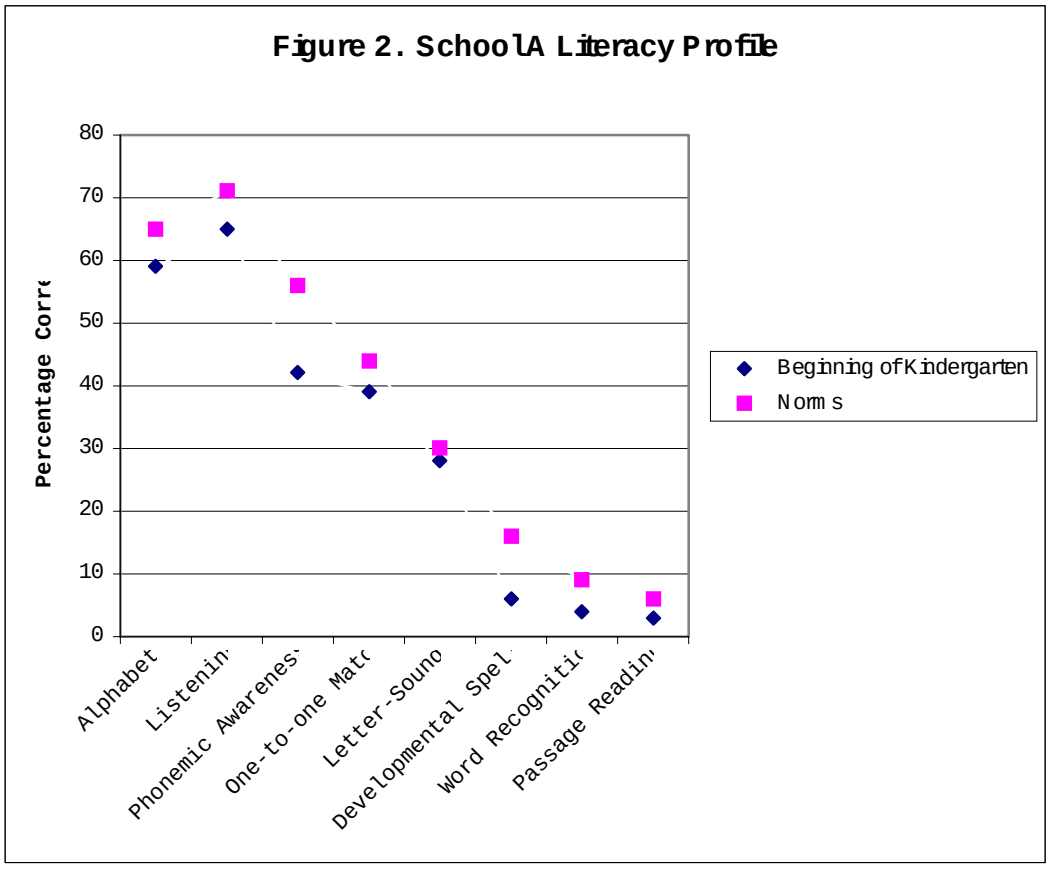
Interventions are an effective way to refine existing classrooms programs. How can this be done? As a first step, it is important to know the characteristics of classroom literacy programs and how well they serve all children, particularly those who have a hard time learning to read. Some form of early literacy assessment is needed to know this. Based on this assessment, teachers will be able to determine the sorts of interventions that are needed.

In the following sections, I describe how assessment information may be used to determine the need for (1) focused interventions that enhance existing programs and (2) comprehensive tutorial and/or small group instruction for children who are lagging behind. I use an early literacy assessment that is being developed in the state of Illinois (Barr, Blachowicz, & Buhl, 2000) to illustrate this assessment process. [4]

Focused Interventions

Two forms of assessment are useful in determining the need for focused interventions. The first, made at the beginning of the school year, enables teachers and administrators to identify areas related to literacy in which some children have extensive knowledge, but others have had little prior experience. The second, made at the end of the year, examines the progress made by children in various areas in relation to that normally made by children in a school, district, or state.

Beginning of the Year Assessment. Figure 2 shows the knowledge of kindergarten children at the beginning of the school year in the eight areas tested by the Illinois Snapshot of

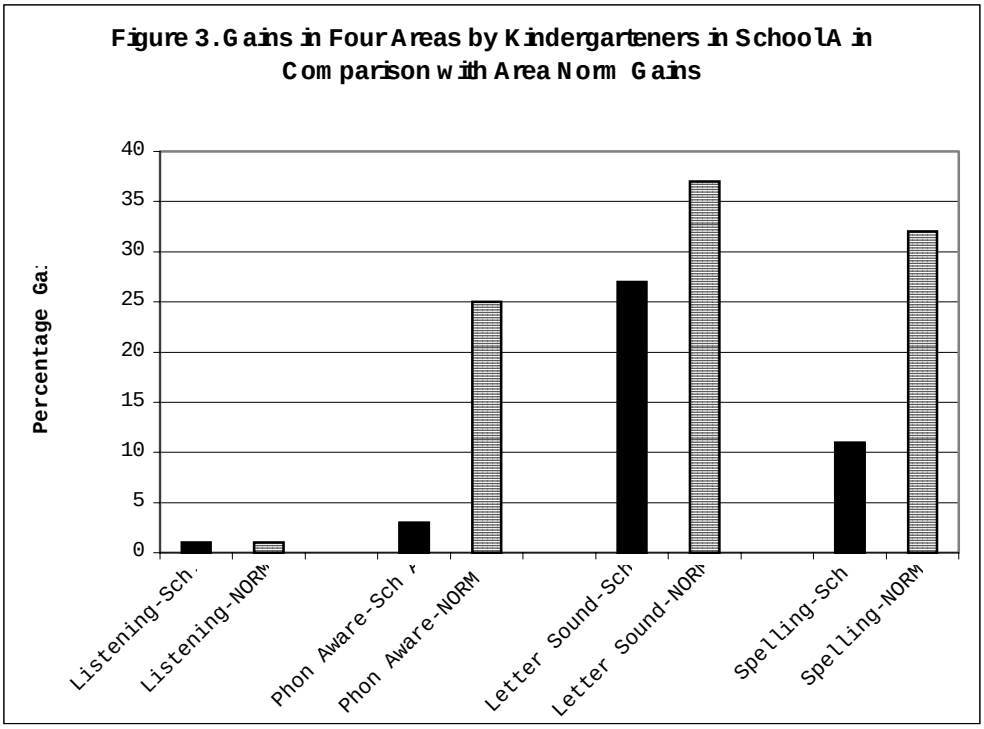


Early Literacy (ISEL; Barr et al., 2000), both for School A and for norms derived from a set of nine schools in northern Illinois. The areas assessed are alphabet knowledge, listening, phonemic awareness, one-to-one match, letter–sound associations, developmental spelling, word recognition, and graded passage reading. The profile shows that children in School A are only a bit lower than the state norms in most areas. They show relatively strong knowledge of letter–sound associations. Two exceptions are phonemic awareness and developmental spelling. Both of these measures depend on the development of phonemic awareness. These results show that the phonemic awareness knowledge of School A kindergarten children is low BOTH in absolute terms and relative to area norms. A next step would be to review the current literacy programs to

see when children are introduced to phonemic awareness and how. If such concepts area not taught explicitly, teachers should develop or select an appropriate program.

End of Year Assessment. Another way for teachers and school administrators to assess their early literacy needs is to look at the progress that their students make in areas related to early literacy development. Given my earlier discussion, fours areas of importance are language concepts, phonemic awareness, phonics, and fluency. Figure 3 shows how the kindergarten children in School A did in three of these areas, with language concepts assessed by a listening task, phonemic awareness by a beginning sound match task and a spelling task, and phonics by a letter-sound task. The figure shows not only the gains made during kindergarten in School A, but also the average gains made by children from other schools in the area.

School A children made no gains in listening, but the chart show that this was also true for children from other schools. School A children made limited gains in phonemic awareness as indicated by their performance on the phonemic awareness match task and the spelling task. Their gains were less than half those made by children from other schools in these areas. In contrast, they show considerable progress in the learning of letter–sound associations, similar in magnitude to that shown by children from other schools. This pattern of growth is particularly worrisome because it suggests that children have received a lot of instruction in this area without



understanding where the sounds (phonemes) come from or what to do with them. The learning tends to be rote. The fact that there is little application of the letter–sound knowledge in spelling suggests that certain important connections are not being made by children and that they may not be spending sufficient time writing.

Special Tutorials and Small Group Instruction

How can we identify those children who will not make adequate progress in reading without special support—the children who need to learn enough to be able to profit from classroom instruction? One common practice is to seek teacher suggestions and to consider these in conjunction with information from an early literacy inventory. Ongoing literacy assessment, often informal in nature, in needed to identify children who are not progressing well. All children performing in the lowest 20 percent the inventory, as well as those identified by teachers not scoring in the lowest 20 percent, need to be considered for tutorial or small group

instruction. Assessments are more reliable when based on a composite score of several literacy-related measures rather than a single score. Yet, even with valid and reliable measures, those selected for special reading support will include some children who would have progressed without support, and there will be some children who end up doing poorly who were not identified. Using pre- and post-test data from the ISEL, we found that selection was slightly more accurate in kindergarten than in first grade. For the kindergarten sample, about a sixth of those who scored below the 20th percentile on a composite measure made adequate progress without help. Moreover, a similar number of children not identified by the screening ended up not doing well. For the first-grade sample, about a quarter of those who scored below the 20th percentile on a composite measure would have made adequate progress without help, and a similar number of children who ended up not doing well were overlooked by the screening. While most children needing help are identified, the overlooked children show that an ongoing process of monitoring the progress of children needs to be put in place by schools.

Assessment tools and procedures such as the ones just described are useful in determining whether selected interventions are appropriate. This assessment information is useful in the selection and monitoring of children who are making little progress learning to reading. These decisions should be based on ongoing assessment, as well as more comprehensive assessments made at the beginning of the school year.

SUMMARY

This chapter describes early reading interventions and how they may be used to enhance existing classroom literacy programs and to support the reading development of small groups and individual children who are not progressing well. After summarizing policy implications for kindergarten, first and second grade reading instruction, methods for implementing these policies

using assessment evidence were considered. These intervention approaches will help teachers and administrators achieve the goal of creating school literacy programs through which all children learn to read.

Endnotes

[1] I wish to acknowledge the comments of Camille Blachowicz, Roberta Buhle, Vinita Chhabra, Roberta Dreeben, Carlos Martinez, and Terry Salinger, which were helpful in refining this chapter.

[2] A search of the ERIC database using the descriptors "intervention," " reading," and "early childhood/elementary education" yielded a set of 243 studies. Six percent of these were published during the1970s, 10 percent during the 1980s, and 84 percent during the 1990s and the year 2000, with the majority appearing in the past 5 years.

[3] In their review of studies involving phonics instruction, the National Reading Panel grouped classroom studies together with small group and tutorial interventions. The average effect size for studies comparing classroom programs with other classroom programs are less on average than for small group and tutorial comparisons. Thus, the combined effect size for all phonics interventions should be applied to classroom programs with caution.

[4] The English versions of the Illinois Snapshot of Early Literacy (ISEL; Barr et al., 2000) was developed and field-tested in nine schools in northern Illinois in 2000–2001. ISEL norms based on a statewide sample are currently being developed in 2001–2002. For the purpose of this chapter, "area norms" were derived, based on the average performance of 232 kindergarten children from the nine field-test schools in northern Illinois and of 221 first graders from the same set of nine schools. Because the norms are based on a limited sample from only one region of the state, they should not be used more generally as norms for the ISEL.

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